EXHIBIT H

GEOLOGY AND SEISMICITY
OAR 345-021-0010(1)(h)

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FIGURES

H.1 INTRODUCTION

The Council's Structural Standard, OAR 345-022-0020, requires that the Applicant adequately characterize seismic and nonseismic geologic and soil hazards of the Facility, and that the Applicant design, engineer, and construct the Facility to avoid danger to human safety from these hazards. Specifically, OAR 345-022-0020 states the following:

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that:

(a) The applicant, through appropriate site-specific study, has adequately characterized the site as to Maximum Considered Earthquake Ground Motion identified at International Building Code (2003 edition) Section 1615 and maximum probable ground motion, taking into account ground failure and amplification for the site specific soil profile under the maximum credible and maximum probable seismic events; and

(b) The applicant can design, engineer, and construct the facility to avoid dangers to human safety presented by seismic hazards affecting the site that are expected to result from maximum probable ground motion events. As used in this rule "seismic hazard" includes ground shaking, ground failure, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement, and subsidence;

(c) The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soils hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility; and

(d) The applicant can design, engineer and construct the facility to avoid dangers to human safety presented by the hazards identified in subsection (c).

OAR 345-022-0020(2), however, permits the Council to issue the site certificate for the Facility without having to make findings under OAR 345-022-0020(1) because the Facility is a wind energy facility. Nonetheless, OAR 345-022-0020(2) does state that the Council may use the Structural Standard to impose conditions on the Facility. Thus, notwithstanding OAR 345-022-0020(2), the Applicant provides the following information in accordance with OAR 345-021-0010(1)(h) as evidence to support findings of compliance with OAR 345-022-0020.

In addition, OAR 345-021-0010(1)(h) requires that information be provided to meet the standard, specifically:

H.2 GEOLOGICAL AND TOPOGRAPHIC FEATURES

OAR 345-021-0010(1)(h)(A) *A geologic report meeting the guidance in Oregon Department of Geology and Mineral Industries open file report 00-04 "Guidelines for Engineering Geologic reports and Site-Specific Seismic Hazard Reports."*

<u>Response:</u> Topographic and geologic conditions/hazards within the project area were evaluated by reviewing available reference materials (such as topographic and geologic maps, and aerial photographs) and by conducting a field reconnaissance of the proposed project

area. The findings are described in the following sections. Subsurface explorations, testing, and engineering analysis will be conducted prior to design and construction.

H.2.1 Topography

The Summit Ridge Wind Power Project is located approximately 15 miles southeast of The Dalles, Oregon. The site is located in the Columbia Plateau physiographic province, which consists of a large plateau underlain by a series of basalt flows. The top of the plateau tends to be relatively flat, but ephemeral streams have dissected it into steep-sided canyons. Slopes range from flat to 70 percent.

The Deschutes River canyon forms the eastern boundary of the site. Drainages on the east and southeast portions of the site flow toward the Deschutes River, and drainages on the west and northwest portions of the site flow toward Fifteen Mile Creek. Elevations in the site boundaries range from approximately 270 feet at the Deschutes River to approximately 2,800 feet above mean sea level on the top of the plateau.

H.2.2 Geologic Features

The Facility is located within the Columbia Plateau physiographic province, which is formed by a series of layered basalt flows extruded from vents (located mainly in southeastern Washington and northeastern Oregon) during the Miocene epoch (between 7 and 16 million years before present [B.P.]) (Swanson et al., 1979). Collectively, these basalt flows are known as the Columbia River Basalt Group. The source for most of these flows was a series of north-northwest-trending linear fissure systems located in eastern Washington, northeastern Oregon, and western Idaho. On the basis of lithological properties, geochemistry, and magnetic polarity, the Columbia River Basalt Group has been subdivided into a number of formations and members. The individual basalt flows can range in thickness from a few millimeters to as much as 300 feet. These flood basalts cover an area of more than 200,000 cubic kilometers (km^3) in Washington, Oregon, and western Idaho and have a total estimated volume of more than 224,000 km^3 (Hooper et al., 2002; Camp et al., 2003).

A geologic map of the vicinity of the proposed Facility, adapted using geographic information system (GIS) and Oregon Department of Geology and Mineral Industries (DOGAMI) (2009) data, is presented in Figure H-1. The following is a description of the geologic units found in the area, summarized from Bela (1982).

H.2.2.1 Surficial Geologic Units

Surficial geologic units in the project vicinity consist primarily of windblown loess deposits. Loess is composed of massive, wind-deposited quartzose fine sand and silt, and it mantles much of the upland surfaces and hillslopes of the Deschutes Plateau. This unit is generally as much as 15 to 30 feet thick, but it thins to less than 3 feet thick on upland areas away from the Columbia River. Because this unit is thin or absent in the project area, it is not shown on the geologic map (Figure H-1).

On the basis of observations from the site visit on July 25, 2009, the loess is typically tan to light brown and composed of silt-sized particles. The loess tends to mantle the tops and gentle side slopes of the plateaus but is thinner on steeper slopes and the walls of drainages.

The loess appears to be less than 3 to 5 feet thick across most of the site and has been stripped away by surface water erosional processes, resulting in bizarre channel-like features.

Colluvium, scree, and talus deposits mantle the steeper side slopes of the drainages (Qcf on Figure H-1). The only area where these deposits are mapped is in the south side of the Deschutes Canyon at the very northernmost part of the leased land. These deposits include boulder- to gravel-sized masses of angular rock debris with little or no soil at the base of steep cliff faces (talus), and hillslope deposits of poorly sorted soil and rock (colluvium). These deposits are formed from locally derived materials by mechanical failure due to gravity. The thickness varies, but—based on exposures of bedrock in most of the canyon walls—these deposits generally appear to be less than a few feet thick in general across most of the project area.

H.2.2.2 Bedrock Geologic Units

The basalt flows at the site are mapped as the Frenchman Springs Member of the Wanapum Basalt and Grande Ronde Formations of the Columbia River Basalt Group (Bela, 1982). The Frenchman Springs Member (Tf and Tcwf in Figure H-1) forms the flat surface of the plateau and underlies most of the project area. This unit is described as fine- to medium-grained basalt with abundant to sparse plagioclase phenocrysts and glomerocrysts (commonly 1 to 2 centimeters [cm] across) irregularly distributed throughout the flow, and has normal magnetic polarity. The Frenchman Springs Member commonly rests on a prominent, thin, tuffaceous or subarkosic sandstone and siltstone unit known as the Vantage Member, or "Vantage Horizon" of the Ellensburg Formation. This sedimentary interbed appears to result in differential erosion and forms bench-like features in the canyon walls, and also may contribute to the locations of springs.

The Grande Ronde Basalt underlies the Frenchman Springs Member and is exposed in the walls of the Deschutes River Canyon and other, steeper-sided drainages (Tgn2 and Tgr2 in Figure H-1). The Grande Ronde Basalt is described as "flow-on-flow sequence of bluish-black, aphyric to sparsely plagioclase phyric iron-rich basaltic andesite and andesite lava flows" (Ferns et al., 2006). Individual flows generally weather to orange-brown, angular blocks and also form distinctive bench topography. The flows of Grande Ronde Basalt include normal magnetic polarity (Tgn2) and reverse magnetic polarity (Tgr2).

A few quarries have been developed in the basalt bedrock; these quarries appear to be used to produce crushed rock for road surfacing or aggregate.

H.2.2.3 Structural Geology

There are two structural geologic features mapped within three miles or less of the Facility—the Gordon Ridge Anticline and thrust fault, and an unnamed fault. (Bela, 1982). Most of the basalt flows that underlie the site are flat-lying. The Gordon Ridge Anticline and thrust fault, is mapped along the Deschutes Canyon near the northeast corner of the project area. An unnamed fault that appears to be a dip-slip fault is mapped in the southeast portion area of the site. This unnamed fault is believed to be a bedrock fracture, and does not appear to be active (Bela, 1982). Figure H-1 shows the locations of these faults. The Tygh Ridge Anticline is a northeast-trending fold mapped just south of the site. The northeast end of this feature is approximately 2 miles south of the Facility. Several other gradual anticlines, synclines, and other geologic features are mapped by Bela (1982) in the vicinity, although they do not appear in the Oregon faults and folds database. Because these features are apparently inactive and not anticipated to produce seismic events, they were not included on Figure H-1.

H.2.2.4 Groundwater/Springs

Regional groundwater is anticipated to be very deep in the project vicinity due to the dissection of the plateau (more than 1,500 feet) by the Deschutes River and associated tributaries. Springs, primarily evidenced by areas of trees and dense vegetation, were observed in some of the canyon walls along the Deschutes River and its tributaries. These springs likely formed as a result of a relatively impermeable sedimentary interbed (Vantage Member) at the contact between the Frenchman Springs Member and the Grande Ronde Basalt. This layer forces shallow, perched water that percolates downward to flow horizontally out of the canyon walls as springs and seeps.

H.2.3 Soils

Surficial soils that underlie the proposed Summit Ridge Wind Farm Facility include primarily the Cantala silt loam and Condon silt loam (NRCS, 2008). These silty soils are formed in the loess that caps the plateau. The steeper canyon walls are underlain primarily by the Lickskillet extremely stony loam and Wrentham-Rock outcrop complex. The stony loam soils typically form on slopes and in areas of shallow basalt rock.

A map of onsite surficial soils is presented in Figure I-1 (see Exhibit I).

H.3 SITE-SPECIFIC GEOLOGIC AND GEOTECHNICAL WORK

OAR 345-021-0010(1)(h)(B) *A description and schedule of site-specific geotechnical work that will be performed before construction for inclusion in the site certificate as conditions.*

Response:

H.3.1 Future Work Planned

A detailed geotechnical exploration of the Facility will be conducted prior to construction. The exploration will be similar to the site-specific geotechnical explorations conducted for other wind energy facilities permitted by EFSC. The exploration will assess subsurface soil and geologic conditions, and provide information that will be used to identify geological or geotechnical hazards and facilitate design of turbine foundations and foundations of other related and supporting facilities. The exploration will also provide data for the installation of underground collector cables and overhead collector and transmission lines.

The site-specific detailed exploration for the Facility will occur following permit approval and micrositing, after the final turbine locations have been determined. As noted above, the geotechnical work will be substantially similar to operating projects permitted by EFSC. The exploration could include geotechnical drilling at critical locations; test pit excavations and/or geophysical testing to determine depth to rock and obtain bulk samples; geotechnical investigations at each turbine location; and laboratory testing to confirm local soil parameters for use in trench backfill for thermal protection of buried power cable and corrosion potential] of steel and concrete. Geotechnical engineering evaluation of this

information will be used to finalize design parameters pertaining to building and turbine foundations, site/civil grading, utilities, roadways, and electrical installation.
No special geologic or geotechnical conditions were observed during the site reconnaissance and preparation of Exhibit H that would warrant additional or exceptional geotechnical explorations in addition to a typical design-level exploration.

H.3.2 Work Performed to Prepare This Exhibit

CH2M HILL conducted a limited geotechnical and geological site reconnaissance of the entire proposed project area, and portions of the surrounding area, to observe the existing features at the site and look for evidence of past or potential geologic hazards. The site reconnaissance included evaluation of existing exposures of soil and rock (in road cuts, old quarries, and within drainages), confirmation of mapped geologic features such as faults and landslides, and observation of typical slopes in the proposed turbine and transmission line areas. Locations of features observed (such as quarries and landslides), and mapped geologic features are shown on Figure H-1.

A detailed literature review of the local and regional geology within and surrounding the vicinity of the Facility boundary was also performed. Existing reports on adjacent sites were evaluated, and published literature and geologic mapping were reviewed. This literature review also included a detailed evaluation of seismic hazards at the site, which is presented in Section H.7.

H.4 EVIDENCE OF CONSULTATION

OAR 345-021-0010(1)(h)(C) *Evidence of consultation with the Oregon Department of Geology and Mineral Industries regarding the appropriate site-specific geotechnical work that must be performed before submitting the application for the Department to determine that the application is complete.*

<u>Response:</u> Prior to the site visit, a CH2M HILL geotechnical engineer discussed the Facility with Mr. Bill Burns in DOGAMI's Portland office and informed him that they would be conducting a site visit in July 2009. After the site visit, a CH2M HILL geotechnical engineer discussed the geologic setting and his observations with Mr. Burns. The discussion included the general scope of future geotechnical exploration (as described in Section H.3.1), the Applicant's intent to conduct the site-specific geotechnical exploration in accordance with OAR guidelines, and the proposed schedule for conducting the work (6 months to 1 year in advance of the proposed start of construction). DOGAMI accepted the Applicant's planned level of site-specific work as being sufficient to satisfy OAR 345-021-0010(1)(h)(C).

H.5 TRANSMISSION LINES

OAR 345-021-0010(1)(h)(D) *For all transmission lines, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, dead ends, corners, and portions of the proposed route where geologic reconnaissance and other site specific studies provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.*

Response: The proposed transmission line would run in a northwest to westerly direction, and connect with the existing north-south line. The transmission line would primarily cross flat-lying basalt bedrock. No landslides are mapped in the proposed alignment and no unstable slopes appear to underlie it. A landslide is mapped approximately 3 miles north of the proposed alignment in the walls of Fifteenmile Creek (Figure H-1), but it is well away from the proposed alignment.

For the proposed buried transmission line corridor, stability of soil and bedrock at cuts, fills, and drainage crossings could be addressed during future, site-specific geotechnical studies as needed or at a reasonable interval along the alignment. This future work could include development of design and construction recommendations that address engineering measures for avoiding slope destabilization or adverse erosion impacts.

H.6 PIPELINES

OAR 345-021-0010(1)(h)(E) *For all pipelines that would carry explosive, flammable or hazardous materials, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, and portions of the proposed alignment where geologic reconnaissance and other site specific studies provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.*

Response: No pipelines would be constructed as part of the Facility.

H.7 SEISMIC HAZARD ASSESSMENT

OAR 345-021-0010(1)(h)(F) *An assessment of seismic hazards. For the purposes of this assessment, the maximum probable earthquake (MPE) is the maximum earthquake that could occur under the known tectonic framework with a 10 percent chance of being exceeded in a 50 year period. If seismic sources are not mapped sufficiently to identify the ground motions above, the applicant shall provide a probabilistic seismic hazard analysis to identify the peak ground accelerations expected at the site for a 500 year recurrence interval and a 5,000 year recurrence interval. In the assessment, the applicant shall include:*

(i) *Identification of the Maximum Considered Earthquake Ground Motion shown at International Building Code (2003 edition) Section 1615 for the site.*

Response: For new construction, the site should be designed for the maximum considered earthquake, according to the International Building Code (IBC, 2003) as amended by the Oregon Structural Specialty Code (OSSC, 2004). This code adheres to the 2003 National Earthquake Hazards Reduction Program (NEHRP) Seismic Design Provisions (FEMA, 2003), and the 2002 USGS seismic acceleration data. The design event has a 2 percent probability of exceedance in 50 years (or a 2,475-year return period). For the Facility, this event has a peak ground acceleration (PGA) of 0.19 g at the bedrock surface. This value of PGA on rock is an average representation of the acceleration most likely to occur at the site for all seismic events (crustal, intraplate, or subduction).

Seismic design parameters were developed in accordance with the International Building Code (2003). Using the subsurface information currently available, the Facility would be designed for Site Class D (stiff soil profile), according to IBC requirements. Once additional subsurface information is collected, it is likely that Site Class B or C may apply in certain portions of the site. Final site class determination cannot be made until further site exploration is performed, including evaluation of shear wave velocity in rock and drilling at specific turbine sites. The current recommended seismic design parameters are summarized in Table H-1.

Table H-1. Seismic Design Parameters—Maximum Considered Earthquake

Site Class	Earthquake Magnitude	Peak Horizontal Ground Acceleration on Bedrock	Soil Amplification Factor, F_a	Peak Horizontal Ground Acceleration at Ground Surface
SD	6.2	0.19g	1.42	0.27g

Note: Earthquake magnitude in this table is a mean representation of all known seismic sources.
g = acceleration from gravity.

The following additional parameters for the Maximum Considered Earthquake may be used for structural design:

- Short period (0.2-second) spectral response acceleration, S_{MS} = 0.67g for Site Class S_D
- 1-second period spectral response acceleration, S_{M1} = 0.35g for Site Class S_D

The design spectral response accelerations, SDS, for both short period and 1-second period are determined by multiplying the Maximum Considered Earthquake spectral response accelerations (SMS and SM1) by a factor of 2/3.

H.7.1 Earthquake Sources

(ii) *Identification and characterization of all earthquake sources capable of generating median peak ground accelerations greater than 0.05g on rock at the site. For each earthquake source, the applicant shall assess the magnitude and minimum epicentral distance of the maximum credible earthquake (MCE)*

Response: The potential seismic hazards in the Facility vicinity result from three seismic sources: Cascadia Subduction Zone (CSZ) interplate events, CSZ intraslab events, and crustal events (Geomatrix, 1995).

Two of the potential seismic sources, interplate and intraslab events, are related to the subduction of the Juan de Fuca plate beneath the North American plate. Interplate events are caused by the frictional interface between these two tectonic plates. Intraslab events originate within the subducting Juan de Fuca plate, and they are generally associated with normal faulting that results from bending stresses built up within the plate as it is subducted beneath the North American plate. The combination of these factors is often referred to as the CSZ source mechanism. The CSZ is located beneath western Oregon, Washington, and British Columbia. The two source mechanisms associated with the CSZ are currently thought to be capable of producing maximum earthquakes with moment magnitudes of approximately 9.0 and 7.5 for the interplate and intraslab events, respectively (Geomatrix, 1995; USGS, 2009a, 2009b).

Earthquakes caused by movements along crustal faults, generally in the upper 10 to 15 miles, result in the third source mechanism. In the Facility vicinity, earthquakes occur within the crust of the North American tectonic plate when built-up stresses near the surface are released through fault rupture.

No known or active faults are mapped in the vicinity of the Facility (Figure H-1; Bela, 1982). A few structural folds are mapped, and they are discussed in Section H.2.2.3.

The PGA at the site resulting from a seismic event on one of these source mechanisms was estimated using information developed by the United States Geological Survey (USGS) in its seismic hazard mapping database (USGS, 2009a; 2009c). This information includes estimated PGA at a theoretical soft rock/stiff soil interface for different probabilities of exceedance. The USGS database also provides the seismic deaggregation information for the seismic hazard, including estimates of the mean earthquake moment magnitude and mean epicentral distance associated with a given probability of exceedance at a given location.

The maximum probable earthquake (MPE) is considered to be an earthquake that has a 10 percent probability of exceedance in 50 years (a nominal 500-year recurrence interval). The Maximum Considered Earthquake is considered to be an earthquake with a nominal 2,500-year recurrence interval (a 2 percent probability of exceedance in 50 years). However the Maximum *Credible* Earthquake, or MCE, is the maximum event that each source is believed to be capable of producing. To provide an estimate of magnitudes for the MCE events from each source mechanism, the PGA was estimated using the 2002 USGS seismic hazard mapping database (USGS, 2009a). These estimates of magnitude, epicentral distance, and PGA were completed for both the 500-year and 2,500-year nominal recurrence intervals, and are provided in Table H-2. The estimated recurrence interval for each MCE event is also noted.

Table H-2. MCE Source Characterization Parameters

Earthquake Source	Modal Moment Magnitude	Epicentral Distance (km)	Mean Peak Ground Acceleration (PGA)
Crustal	5.2	13	0.20g (2,500-yr Recurrence Interval)
Intraslab	8.3	226	0.09g (500-yr Recurrence Interval)
Interplate	9.0	224	0.20g (2,500-yr Recurrence Interval)

Note: the moment and distance parameters for both events are for a frequency that corresponds to the PGA.
km = kilometers.
PGA = peak ground acceleration.
g = Acceleration from gravity.

Figures H-2 and H-3 show the probabilistic seismic hazard deaggregation for the MPE and Maximum Considered Earthquake events, respectively.

H.7.2 Recorded Earthquakes

(iii) *A description of any recorded earthquakes within 50 miles of the site and of recorded earthquakes greater than 50 miles from the site that caused ground shaking at the site more intense than the Modified Mercalli III intensity. The applicant shall include the date of occurrence and a description of the earthquake that includes its magnitude and highest intensity and its epicenter location of region or highest intensity.*

Response: Figure H-4 displays the location, approximate magnitude, and year of all recorded earthquakes within 50 miles of the Project. These historic seismic events have been grouped by magnitude, and are displayed in different colors and icon size based on the strength of event. There are also some events displayed for which the magnitude is not known.

Table H-3 provides a summary of all recorded earthquakes known to have caused Modified Mercalli (MM) III shaking intensity or greater at the Facility, regardless of distance from the site. For reference, an intensity of MM III is associated with shaking that is "noticeable indoors, but may not be recognized as an earthquake." An intensity of MM VII is "noticed by people driving cars, everyone runs outdoors, and slight to moderate damage is caused to well-built, ordinary buildings." (USGS, 2009d). The largest recorded earthquake within 50 miles (80 kilometers [km]) of the Facility was the magnitude 4.8 event, which occurred in 1976 approximately 16 miles southeast of the Facility (Madin, 1994; USGS, 2009b]. This event and the 1949 magnitude 6.9 event southwest of Tacoma (approximately 145 miles northwest of the Facility), are the only two known events to have produced an intensity of MM IV at the Facility. The most distant event to have produced a minimum intensity of MM III at the Facility was the 1915 magnitude 7.7 Pleasant Valley event in northern Nevada, located approximately 380 miles from the Facility.

Information in Table H-3 was developed by screening information from earthquake databases provided by DOGAMI (Madin, 1994), Berg and Baker (1963), and the USGS National Earthquake Information Center, Earthquake Search Data Bases(USGS, 2009b). For earthquakes that were reported in terms of magnitude, a relationship between PGA and Modified Mercalli intensity (Kramer, 1996, and Wald et al., 1999) was used to define a PGA associated with an MM III event. A distance-attenuation relationship then was used to determine the combination of earthquake magnitude and distance producing an intensity of MM III at the Facility. The current next generation attenuation (NGA) model was used to develop the magnitude-distance information (PEER, 2009) for seismic events in the northwest United States capable of producing accelerations at the Facility strong enough to cause MM III intensity shaking.

Table H-3. Significant Historical Earthquakes Causing MM III or Greater Intensity Shaking at the Summit Ridge Facility

Year	Month/Day	Latitude	Longitude	Distance from Facility (miles)	Magnitude	Estimated MM Intensity[1]
1866	11/24	45.59	-121.03	12	?	IV*
1866	12/1	45.59	-121.03	12	?	III*
1872	12/15	47.90	-122.3	183	7.0	III
1877	10/12	45.7	-121.75	44	?	VIII*
1892	2/29	45.59	-121.03	12	?	IV*
1893	7/1	45.59	-121.03	12	?	?
1896	8/26	45.37	-121.67	35	?	?
1902	12/5	45.71	-121.51	34	?	?
1915	10/3	40.50	-117.50	382	7.7	III
1942	11/1	44.63	-121.13	55	?	IV*
1949	4/13	47.17	-122.62	145	6.9	IV
1959	11/9	45.36	-119.56	67	?	IV*
1961	9/17	46.02	-122.12	70	5.1	III
1965	4/29	47.40	-122.30	151	6.6	III
1976	4/13	45.03	-122.61	16	4.8	IV
1976	4/17	45.2	-120.12	24	4.2	III
1993	3/25	45.13	-120.95	85	5.6	III
2000	1/30	45.2	-120.12	43	4.1	III
2001	2/28	47.15	-122.73	147	6.8	III
2002	6/29	45.33	-121.69	37	4.5	III
2007	3/1	45.12	-120.93	21	3.6	III
2007	5/2	45.13	-120.94	20	3.3	III
2007	6/14	45.13	-120.94	20	3.9	III
2007	11/21	45.13	-120.94	20	3.3	III
2008	2/4	45.13	-120.94	20	3.3	III
2008	4/5	45.13	-120.94	20	3.6	III
2008	6/1	45.13	-120.95	20	3.4	III
2008	6/20	45.13	-120.94	20	3.2	III
2008	7/14	45.13	-120.95	20	4.2	III
2008	11/16	45.13	-120.95	20	3.4	III
2008	12/27	45.13	-120.95	20	3.6	III
2009	4/20	45.13	-120.96	20	3.6	III

Table H-3. Significant Historical Earthquakes Causing MM III or Greater Intensity Shaking at the Summit Ridge Facility

Year	Month/Day	Latitude	Longitude	Distance from Facility (miles)	Magnitude	Estimated MM Intensity[1]

* Magnitude for this event is not known--reported MM Intensity is for the approximate epicenter.
[1]MM Intensity is estimated at the facility, not at the epicenter.
Sources: Madin, 1994; USGS, 2009b.

H.7.3 Median Ground Response Spectrum

(iv) Assessment of the median ground response spectrum from the MCE and the MPE and identification of the spectral accelerations greater that the design spectrum provided in the Oregon Structural Specialty Code (2004 edition). The applicant shall include a description of the probable behavior of the subsurface materials and amplification by subsurface materials and any topographic or subsurface conditions that could result in expected ground motions greater than those characteristic of the Maximum Considered Earthquake Ground Motion identified above

Response: Figure H-5 compares the design response spectrum given in the 2003 IBC and the OSSC with the 2002 USGS-derived median spectral accelerations for the MCE and MPE events. On the basis of the current subsurface information available, it is recommended that the Facility be designed for Site Class D. However, the site reconnaissance indicates that shallow rock may exist at certain locations, whereby either the SB or SC response spectra would apply.

H.7.4 Seismic Hazards Expected to Result from Seismic Events

(v) An assessment of seismic hazards expected to result from reasonably probable seismic events. As used in this rule "seismic hazard" includes ground shaking, ground failure, landslide, lateral spreading, liquefaction, tsunami inundation, fault displacement and subsidence.

Response: For facilities designed to the current IBC and OSSC guidelines for Site Class D (or B), the design seismic event will have a 2,500-year recurrence interval. For this very low-probability event, the Facility will be designed for no permanent structural damage from either the vibrational response of the structure or from secondary hazards associated with ground movement or failure, such as landslides, lateral spreading, liquefaction, fault displacement, or subsidence. It is generally assumed that if structural damage can be prevented, the risk to human safety will be minimal.

Potential seismic hazards associated with a design seismic event include fault displacement, instability from landslides or subsurface movement, and adverse effects from groundwater or surface water. These hazards are anticipated to be low, as discussed below.

Potential for Fault Displacements. The probability of a fault displacement at the Facility is considered to be low because of the absence of known potentially active faults in the project vicinity. There could be unknown faults, or new fault expressions could form during a significant seismic event, but the likelihood of either occurrence is low. This hazard is further reduced by the small chance that a new or unknown fault offset would actually displace the ground surface at the location of one of the wind turbines or the underground cables between turbines. This low probability, in combination with the limited occupancy of the structures, results in minimal risk from fault rupture.

Behavior of Subsurface Materials. In areas with a relatively thin veneer of soil covering rock or in rock outcrop areas, risk of a seismically induced landslide in the rock exists; however, the risk of this occurrence is expected to be very small. Basalt rock generally has high internal shear strength, even in highly fractured rock masses, and is unlikely to undergo significant movements during either 500- or 2,500-year events. Rockfall hazards may exist at outcrop areas, but these will tend to be of limited extent and are not expected to affect the performance of the Facility because rockfall would be in the opposite direction of the Facility.

There are a few small landslides mapped northwest of the site, along the Fifteenmile Creek drainage. However, based on geologic literature and site observations, no landslides are known within the site boundary.

Areas of steep slopes, exceeding 10 feet in height and composed of thick soil deposits, generally are not present at the locations of Facility components. However, should these areas exist near Facility components, a seismic event could induce a slump or landslide and cause an unacceptable amount of soil movement. Results of simplified seismic stability analyses suggest that loess slopes steeper than 30 degrees could be unstable for the 500-year event and that slopes steeper than 21 degrees could be unstable for the 2,500-year event. Sliding of the soil is not expected to be a design consideration for the turbine structures because they will be located on relatively flat ground, and the geometry of the slope movement is not anticipated to be great enough to encompass the turbine locations. Other facilities, such as roads, may exist below slopes steeper than 21 to 30 degrees in some locations. Soil movement could affect these facilities if the slopes were to fail. Because these roads are used infrequently, however, the risk associated with slope movement is very low.

Adverse Effects from Groundwater or Surface Water. The site and especially the proposed turbine locations lie atop a high, relatively flat basalt plateau. Groundwater is anticipated to be relatively deep, and rock is anticipated to be relatively shallow across the site. Therefore, hazard potential associated with landslides, liquefaction, lateral spreading, and subsidence is relatively low. The site is also located well above local stream and river drainages, so risk from flooding or tsunami is also estimated to be low to nonexistent.

Because the potential for seismic-induced hazards is low at the Facility, mitigation measures to address these hazards in the siting, design, and construction of the Facility are not necessary. The design of the turbine tower can readily accommodate the level of seismic energy described in Section H.7.3, Median Ground Response Spectrum.

H.8 NON-SEISMIC GEOLOGIC HAZARDS

OAR 345-021-0010(1)(h)(G) *An assessment of soil-related hazards such as landslides, flooding and erosion which could, in the absence of a seismic event, adversely affect or be aggravated by the construction or operation of the facility.*

<u>Response:</u> Nonseismic geologic hazards in the Columbia Plateau typically include landslides, volcanic eruptions, collapsing soils, and erosion potential. However, no geologic hazards

were observed in the project vicinity that would likely affect the Facility. The site consists of relatively flat-lying basalt with a very thin or absent cover of loess. The proposed turbine layout avoids steep side slopes and drainages that could potentially be subject to debris flows, rockfalls, landslides, and soil creep. A discussion of potential geologic hazards is presented below.

H.8.1.1 Landslides

In July 2008, DOGAMI released a new publication series called Statewide Landslide Information Database for Oregon (SLIDO-1) (Burns et al., 2008). The purpose of this document was to establish a statewide database of previously mapped landslide-related features. It contains information on more than 15,000 landslides and landslide-related features from 257 published and unpublished studies. The landslide-related features included in this exhibit are landslides, debris flows or alluvial fans, and colluvium or talus. The primary sources of this historical landslide information are published geologic reports and geologic hazard studies by USGS, DOGAMI, and (to a lesser extent) regional studies by the U.S. National Forest Service and thesis studies in the state. The landslide database from this study, which is compiled in GIS format, was used to overlay landslides or landslide-related features in Figure H-1.

Figure H-1 shows the landslides (Qls) and colluvium, scree, and talus deposits from the SLIDO database. The only landslides shown in Figure H-1 are along Highway 197 and along Fifteenmile Creek, approximately 3 to 4 miles outside the transmission line alignment and 5 miles northwest of the general Facility boundaries. The field reconnaissance confirmed the presence of these landslides outside the site boundary. The field reconnaissance also confirmed the lack of landslide terrain within the site boundary. A few areas of slightly disturbed terrain and benches in side slopes were observed in some of the drainages. However, these areas did not appear to have distinctive landslide morphology and were more likely related to erosional processes and differential erosion of the basalt and Vantage Member.

The colluvium, scree, and talus deposits that mantle the Deschutes canyon walls on the northern site boundary may be subject to slow downhill movement or creep. These are generally considered low-hazard areas but could potentially be subject to rockfalls, soil creep, or shallow soil slumping. However, because no turbines or roads will be constructed on these steep side slopes, these areas would be avoided.

H.8.1.2 Volcanic Eruptions

The Pacific Northwest region is home to a large number of active volcanoes along the Cascade Mountain Range. The closest ones to the project area are listed below, with distances from each mountain to the project site:

- Mount St. Helens—75 miles
- Mount Rainier—105 miles
- Mount Jefferson—65 miles
- Mount Adams—60 miles
- Mount Hood—35 miles

Impacts to the Facility from volcanic activity can be either direct or indirect. Direct impacts include the effects of lava flows, blast, ash fallout, and avalanches of volcanic products. Indirect effects include mudflows, flooding, and sedimentation.

In the last 200 years, only Mount St. Helens has erupted more than once.

Depending on the prevailing wind direction at the time of an eruption and the source of the eruption, ash fallout in the region surrounding the Facility may occur.

H.8.1.3 Erosion Potential

The erosion factor (K) indicates the susceptibility of a soil to sheet and rill erosion by water. The K factor is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The onsite soils have K factors that range from 0.43 to 0.49, which indicates moderate to high erosion potential. A wind erodibility group (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The onsite soils are assigned to the WEG of 5, which indicates low to moderate susceptibility to wind erosion.

The Facility will comply with the requirements of a National Pollutant Discharge Elimination System (NPDES) stormwater construction permit, as discussed further in Exhibit I. The NPDES permit requires development of an erosion control plan and implementation of erosion control best management practices (BMPs).

Mitigation for potential soil erosion is discussed in Section H-10.

H.8.1.4 Collapsing Soils/Piping

Silty soils with little or no plasticity can be subject to collapsing or piping when they are wetted. Because loess in the project vicinity is typically silty in composition, it can be subject to piping or collapse. However, based on observations of the loess at the site (specifically the very thin to absent nature of this material), the piping or collapse potential is very low.

H.9 SEISMIC HAZARD MITIGATION

OAR 345-021-0010(1)(h)(H) *An explanation of how the applicant will design, engineer and construct the facility to avoid dangers to human safety from the seismic hazards identified in paragraph (F). The applicant shall include proposed design and engineering features, applicable construction codes, and any monitoring for seismic hazards.*

Response: The state of Oregon uses the 2006 IBC, with current amendments by the OSSC and local agencies. Pertinent design codes as they relate to geology, seismicity, and near-surface soil are contained in IBC Chapter 16, Section 1613, with slight modifications by the current amendments of the state of Oregon and local agencies. The Facility will be designed to meet or exceed the minimum standards required by these design codes.

In addition, a detailed geologic hazard assessment has been performed for the Facility. The information collected during the final geotechnical exploration and design of the Facility will be used to mitigate potential hazards that could be created during a seismic event. The hazard of a surficial rupture along a fault trace is anticipated to be low, given the seismic history of the site displayed in geologic mapping and the low probability that a fault rupture would actually displace the ground surface at the location of one of the wind turbines or the underground cables between turbines.

In addition, the basalt in the area is not generally prone to large-scale landslides, as evidenced by the lack of these types of features in the area. Hazards typically associated with saturated soils are also anticipated to be low or nonexistent because of the relatively arid climate and dry landscape of the site. For these reasons, the Applicant has demonstrated that the Facility meets OAR 345-022-0020(1)(b).

H.10 NON-SEISMIC HAZARD MITIGATION

OAR 345-021-0010(1)(h)(I) *An explanation of how the applicant will design, engineer and construct the facility to adequately avoid dangers to human safety presented by the hazards identified in paragraph (G).*

Response: As discussed in Section H.8, nonseismic geologic hazards are anticipated to be very minimal.

Typical mitigation measures for nonseismic hazards include avoiding potential hazards, conducting subsurface investigations and slope stability analysis, creating detailed geologic hazard maps to aid in laying out facilities, providing warnings in the event of hazards, and purchasing insurance to cover the Facility in the event of a hazard.

In order to mitigate any potential landslide hazards, the turbine strings should be situated on flat-lying areas and tops of ridges rather than on steep slopes. This is so that if slope failure were to occur, the turbines and their associated foundation structures would not be affected.

In the event of a volcanic eruption that could damage or affect project facilities, the facilities would be shut down until safe operating conditions return. If an eruption occurred during construction, a temporary shutdown would most likely be required to protect equipment and human health.

Because the construction of roads, turbine foundations, and other project facilities will be engineered, these facilities will be subject to the requirements of an NPDES stormwater construction permit and other pertinent construction and project operation permits and pollution control.

A detailed construction Erosion and Sediment Control Plan (ESCP) will be developed for the Facility. This plan will help minimize the potential for discharge of pollutants from the site during construction activities. The ESCP will be designed to meet the state's requirements to reduce stormwater pollution associated with construction activities. The ESCP will include both structural and nonstructural BMPs.

Work on the access roads will include grading and regraveling of existing roads, and construction of new roads. Erosion control measures will meet local, county, and state erosion control measures, including procedures described in Exhibit I. Specific erosion control measures to be installed during the work on the access roads are anticipated to include the following:

- **Stabilized Construction Entrance/ Exit:** A stabilized construction entrance/exit will be installed at locations where dirt (exposed, disturbed land) or newly constructed roads intersect existing paved roads. Stabilized entrances will also be installed at the construction laydown areas. The stabilized construction entrance/exits will be inspected and maintained for the duration of Facility life.

- **Maintain Existing Vegetation:** To the extent practicable, existing vegetation will be preserved.

- **Silt Fencing:** Silt fencing will be installed at various locations throughout the Facility. It will be installed on contour downgradient of all excavations, including construction of the turbine footings. Silt fencing will also be installed downgradient of the operations and maintenance (O&M) building and substation. Silt fencing will be used as perimeter control, and it will be installed around the perimeter of material stockpiles and the perimeter of construction staging areas.

- **Straw Wattles:** Straw wattles may be installed to decrease the velocity of sheet-flow stormwater. The wattles will be used along the downgradient edge of access roads adjacent to slopes or sensitive areas.

- **Mulching:** Mulch will be provided to immediately stabilize soil exposed as a result of land-disturbing activities. Mulch will also be used during the reseeding of disturbed areas.

- **Stabilization Matting:** Jute matting, straw matting, or turf reinforcement matting may be used to stabilize slopes that could become exposed during installation of access roads, or to stabilize intermittent streams disturbed during construction of road crossings. The use of erosion control matting, along with revegetation techniques, will allow for stabilization.

- **Soil Binders and Tackifiers:** Soil binders and tackifiers may be used on exposed slopes to stabilize them until vegetation is established.

- **Concrete Washout Area:** Concrete chutes and trucks will be washed out in dedicated areas near the turbine foundation construction area. Soil from the concrete washout area will be backfilled with the stockpiled soil over the completed footing to ensure that the surface soils maintain infiltration capacity. Concrete washout will be handled in this method to prevent concrete washout water from leaving a localized area, and to ensure that the restored surface soil maintains positive infiltration.

- **Stockpile Management:** To facilitate installation of the turbine footings, large excavations will be created. The soil from these excavations will be temporarily stockpiled and used as backfill at the completion of the footing. While the material is stockpiled, silt fencing will be used as perimeter control, and the stockpiled material will be covered with a thick layer of mulch or by plastic sheeting that is adequately anchored.

- **Revegetation:** At the completion of land-disturbing activities, the site will be revegetated with an approved seed mix. The seed will be applied with mulch to protect the seeds as the grass establishes.

- **Check Dams and Sediment Traps:** Check dams and sediment traps will be used during the construction of low-impact ford crossings or culvert installations. The check dams and sediment traps will minimize downstream disturbances during construction of the stream crossings.

- **Pollutant Management:** During construction, source control measures will be implemented to reduce the potential of chemical pollution of surface water or groundwater during construction. Chemical pollution could occur as a release of diesel fuel or lubricating oils, or from improper debris and waste handling. All fuels and oils will be stored in a dedicated area, and construction vehicles will be fueled and maintained only in dedicated areas. All handling, storage, and disposal of materials will be consistent with federal, state, and local ordinances, and in a manner that will not cause stormwater contamination.

H.11 CONCLUSION

The risk of seismic hazards to human safety at the proposed Facility is small. The Applicant has adequately characterized the site in accordance with OAR 345-022-0020(1)(a) and considered seismic events and amplification for the Facility's specific soil profile. The Facility will comprise improved roadways, wind turbine towers, and underground collector cables. There will be no continually staffed facilities other than the Facility office (O&M building) and, in general, the area is used for agriculture and is sparsely populated. As a result, the probability of a large seismic event occurring while the Facility is occupied is much lower than for a normal building or similar facility. This very low probability results in minimal risk to human safety. Therefore, because this is a wind power generation facility in a sparsely populated area, and not a more critical structure (such as a petroleum pipeline or an earth dam), the risks to human safety related to seismic hazards are minimal.

Further, the Applicant has demonstrated that the Facility can be designed, engineered, and constructed to avoid dangers to human safety in case of a design seismic event by adhering to IBC requirements. These standards require that for the design seismic event, the factors of safety used in the Facility design exceed certain values. For example, in the case of slope design, a factor of safety of at least 1.1 is normally required during the evaluation of seismic stability. This factor of safety is introduced to account for uncertainties in the design process and to ensure that performance is acceptable. In the event that factors of safety for slope stability are not met, the Facility components will either be relocated or else remedial measures to improve slope stability will be implemented. For slope stability, the remedial measures could include use of ground improvement methods (such as retaining structures) to limit the movement to acceptable levels. Given the relatively low level of risk for the Facility, adherence to the IBC requirements will ensure that appropriate protection measures for human safety are taken.

The Applicant has provided appropriate site-specific information and demonstrated (in accordance with OAR 345-022-0020(1)(c)) that the construction and operation of the proposed Facility, in the absence of a seismic event, will not adversely affect or aggravate the geological or soil conditions of the Facility site or vicinity. The risks posed by nonseismic geologic hazards are generally considered to be small because the Facility can be designed to avoid the hazards of landslides, rockfall, and soil erosion. The rock at the site is not typically subject to landslides, resulting in little risk to human safety. Erosion hazard resulting from soil and wind action likely will be improved with the implementation of an engineered erosion control plan. Finally, the Applicant has demonstrated that the Facility can be designed, engineered, and constructed to avoid dangers to human safety resulting from the geological and soil hazards of the site, pursuant to OAR 345-022-0020(1)(d). Site-specific studies have been conducted, additional geotechnical work will be done once the final locations of the turbines are selected, and adequate measures will be implemented to control erosion. Accordingly, given the relatively small risks these hazards pose to human safety, standard methods of practice (including implementation of the current IBC) will be adequate for the design and construction of the Facility.

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FIGURES

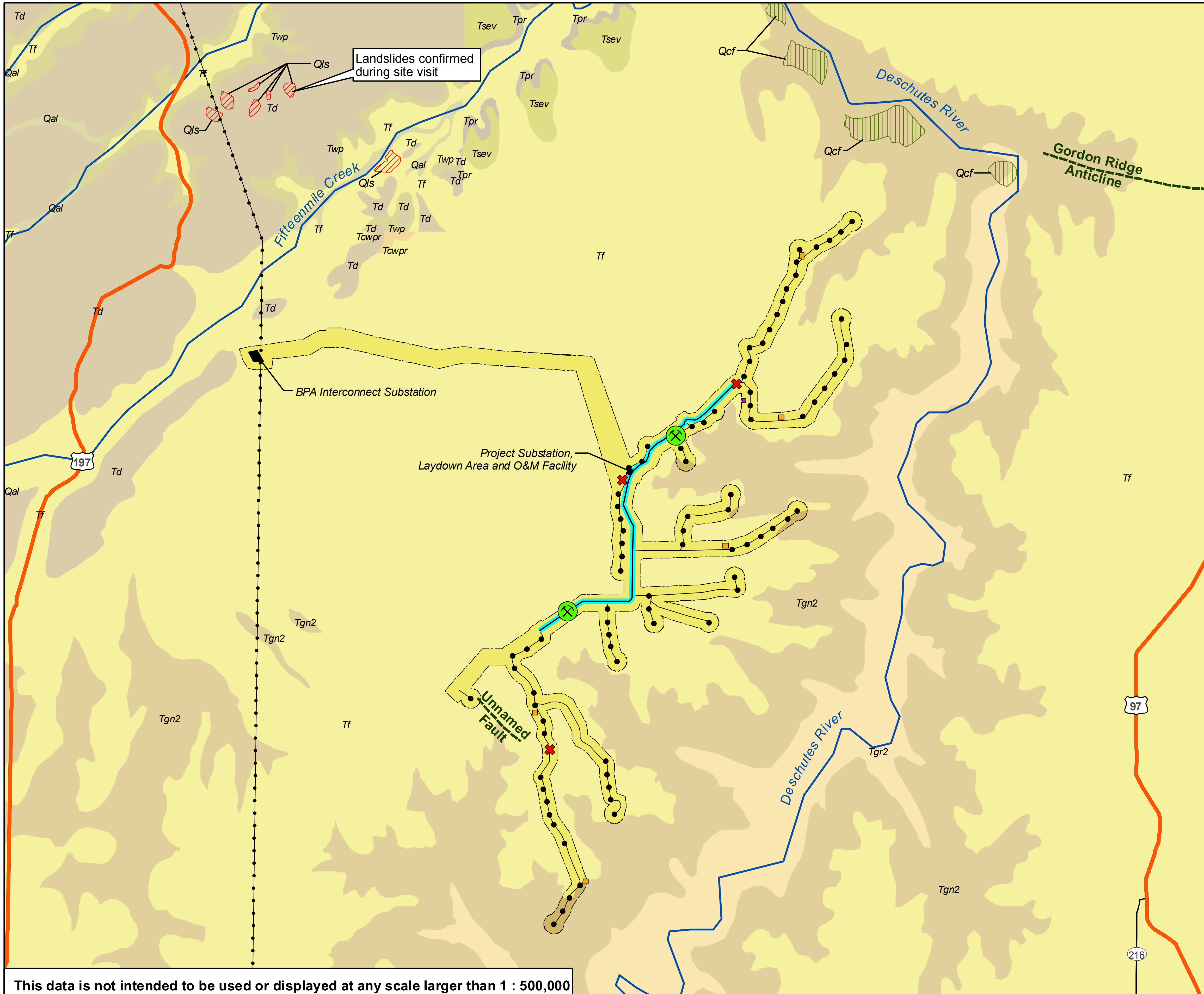

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Figure H-1
Geology Map

Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Proposed Turbine Locations
- Quarry
- Fault Line

Surficial Geological Deposits (SLIDO)

- Alluvial Fan Deposits (Qf)
- Colluvium, Scree, and Talus Deposits (Qcf)
- Landslide Deposits (Qls)

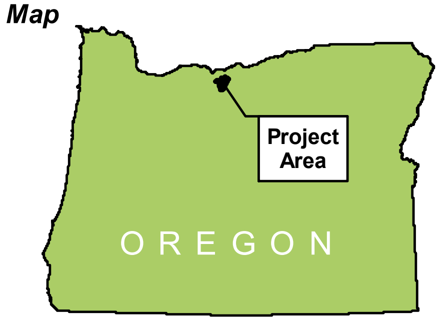
Bedrock Geology Units in Site Boundary

- Tf - Frenchman Springs Member, Dark gray to black, fine- to medium-grained basalt with normal magnetic polarity
- Tgn2 - Grande Ronde Basalt, Flow-on-flow sequence of bluish-black, basaltic andesite and andesite lava flows, upper flows, normal magnetic polarity
- Tgr2 - Grande Ronde Basalt, Flow-on-flow sequence of bluish-black, basaltic andesite and andesite lava flows, lower flows, normal reverse magnetic polarity

N

0 1 2 3 4
Miles

Location Map



Data Sources:

LotusWorks, 2009

Oregon Department of Geology and Mineral Industries (DOGAMI), 2009

Statewide Landslide Information Database of Oregon (SLIDO) Release 1, 2009

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Figure H-2. Seismic Hazard Deaggregation--Maximum Probable Earthquake

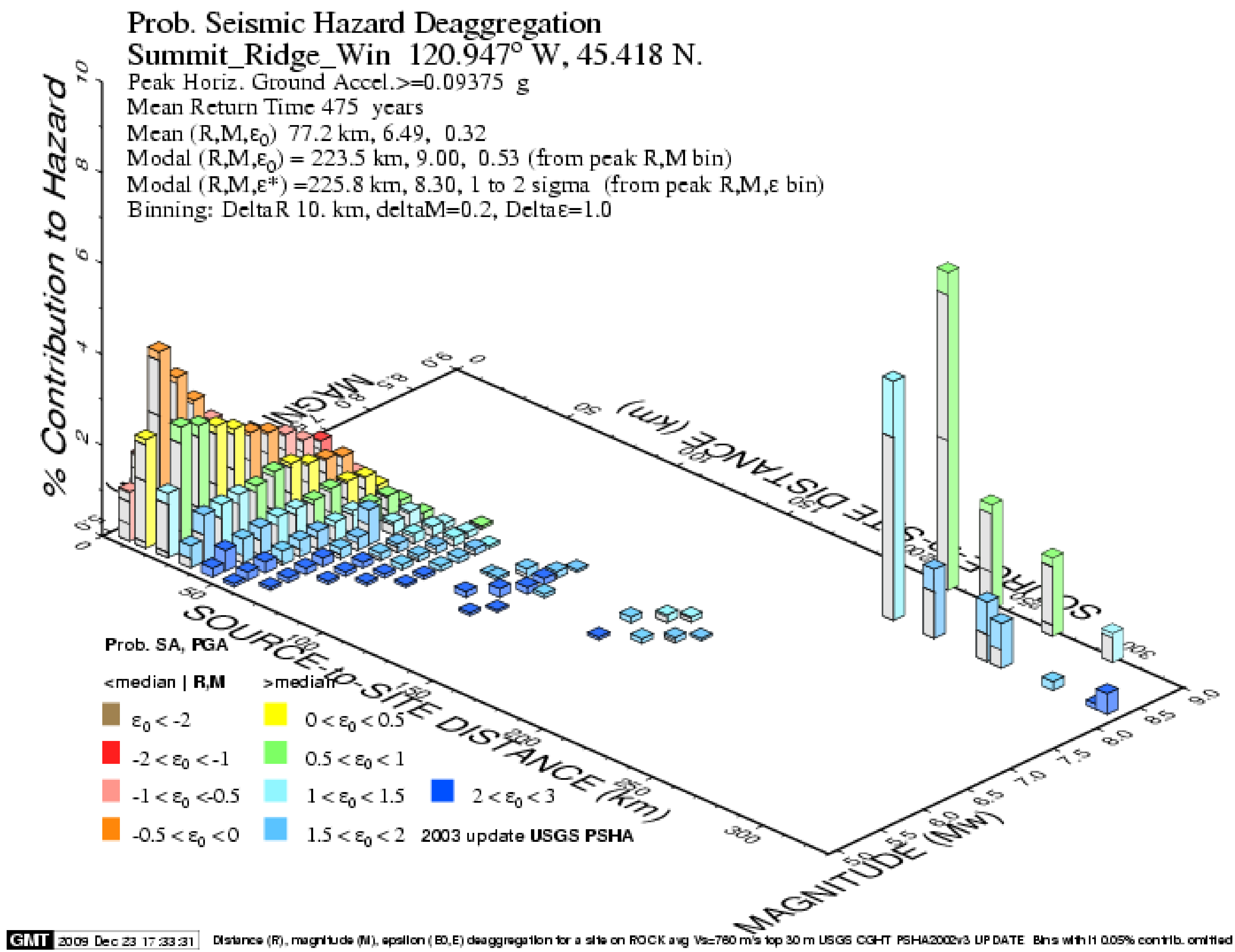
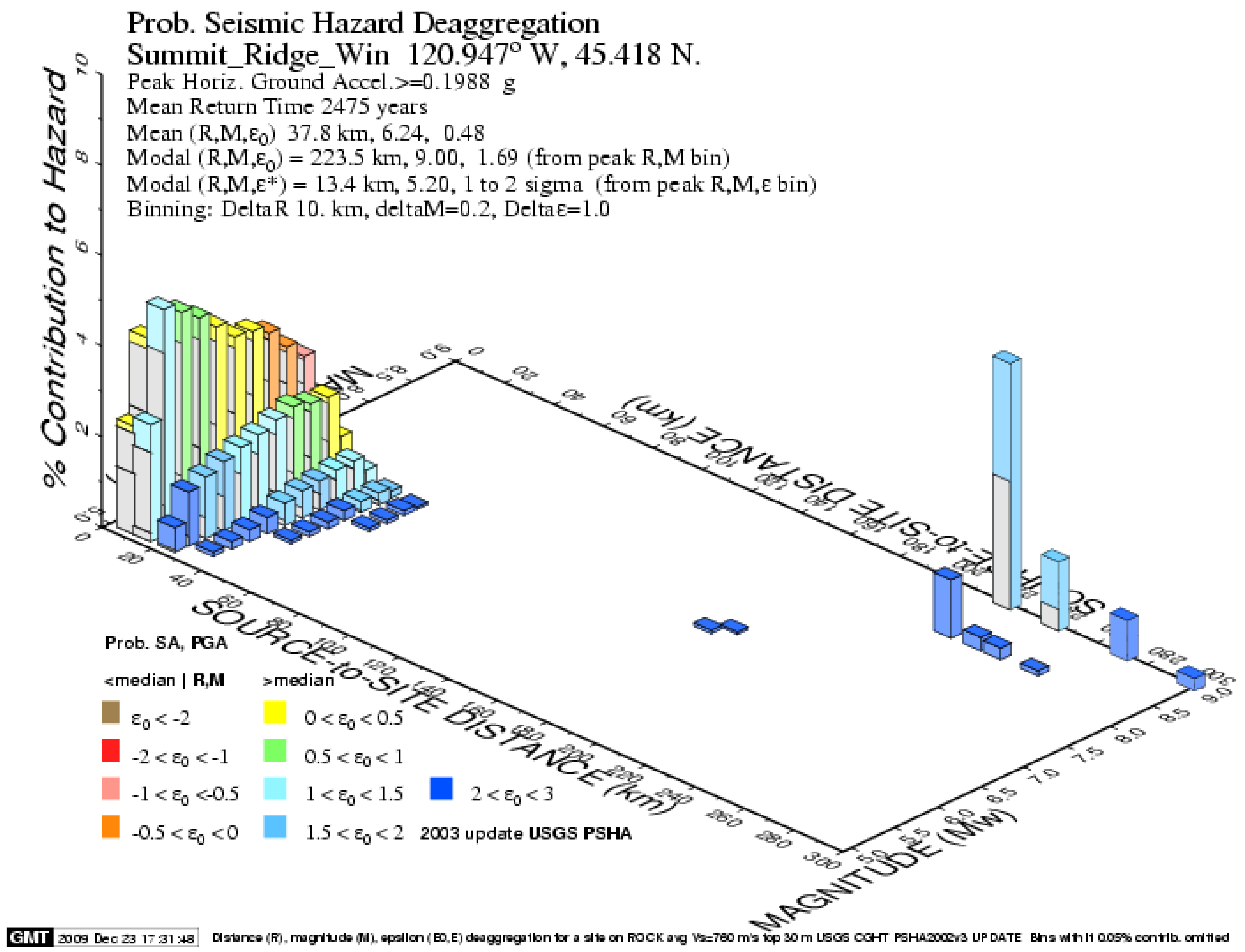


Figure H-3. Seismic Hazard Deaggregation--Maximum Considered Earthquake



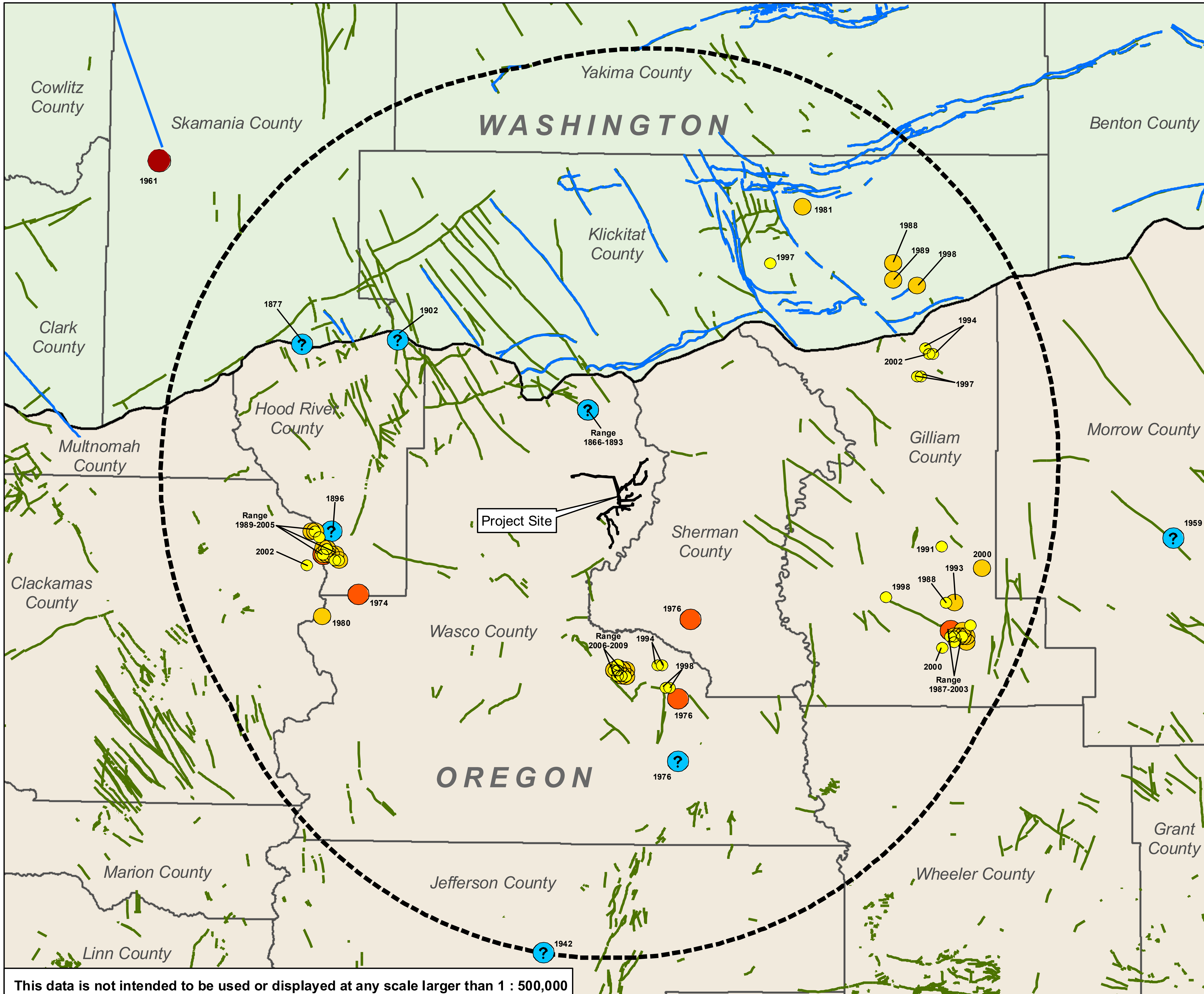


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Figure H-4
Regional Geologic Structures and Earthquake Epicenter Map

Legend

- Site Boundary
- Approximate 50-Mile Radius from Project Site
- Fault Line (Oregon Geologic Data Compilation Version 5 and Washington Dept of Natural Resources)
- Quaternary Faults (Washington State Dept of Natural Resouces)

Historical Seismic Epicenters

- Magnitude 2
- Magnitude 3
- Magnitude 4
- Magnitude 5
- Magnitude Unknown

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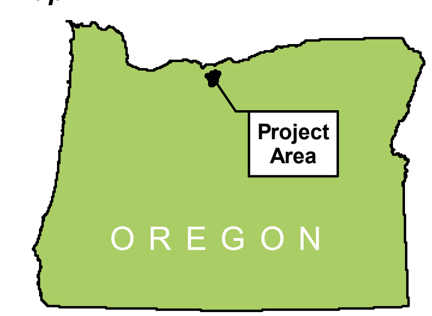
0 12 24 36
Miles

Location Map



Data Sources:

LotusWorks, 2009

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Figure H-5. Median Ground Response Spectra

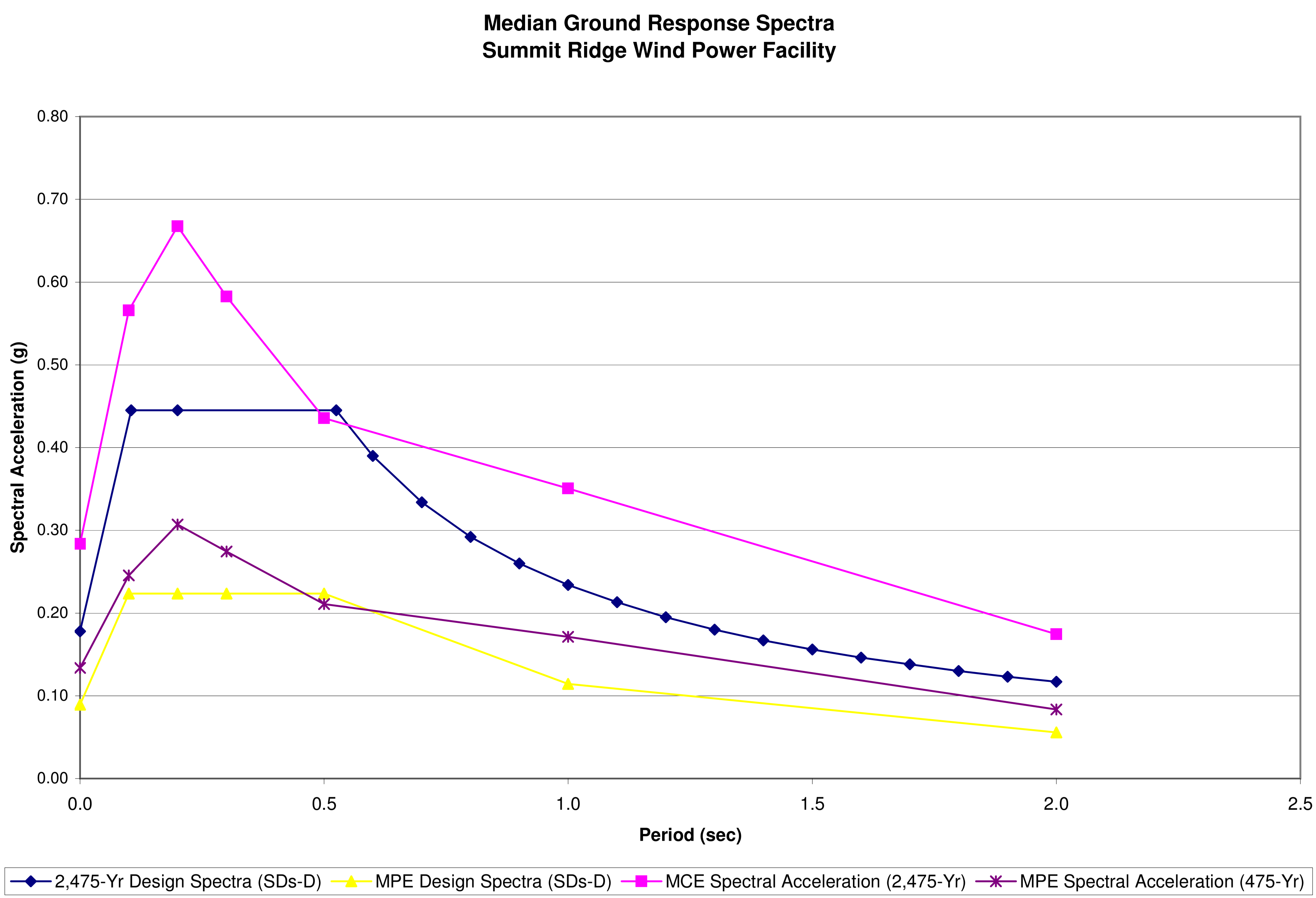


EXHIBIT I

SOILS
OAR 345-021-0010(1)(i)

TABLE OF CONTENTS

Page

FIGURES *(located after text)*

ATTACHMENTS

I.1 INTRODUCTION

OAR 345-021-0010(1)(i) *Information from reasonably available sources regarding soil conditions and uses in the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0022, including:*

I.2 IDENTIFICATION AND DESCRIPTION OF SOIL TYPES

OAR-345-021-0010(1)(i)(A) *Identification and description of the major soil types in the analysis area.*

Response: The near surface soils within the site boundary were identified using information from the U.S. Natural Resources Conservation Service (NRCS) National Soil Information System (NASIS) (http://soildatamart.nrcs.usda.gov) a GIS database system that provides the most current soil information for Oregon counties. The information for Wasco County is based on the Soil Survey of Wasco County, Oregon, Northern Part (NRCS, 1982), where descriptions of the general soil associations and soil series was derived.

The soil series in the area of the Facility are grouped into three general soil associations (GSA) –Walla Walla-Dufur, Condon-Cantala Bakeoven, and Lickskillet-Wrentham. Each of these general soil associations is comprised of several soil series units, which are mapped at a greater level of detail but share relatively similar spatial coverage and engineering properties as the GSA. Figure I-1 shows the soil series map and Table I-1 provides a list of soil series within the site boundary.

Table I-1 Soil Types within the Site Boundary

General Soil Unit	Soil Series	High Value Farmland[1]
Walla Walla-Dufur	1C, 1D, 26, 37, 44, 46B, 46C, 46D, 47E	**26**, 44[2], 46B[2]
Condon-Cantala Bakeoven	2D, 3D, 12B, 12C, 12D, 12E, 17B, 17C, 17D, 18D	**12B**, 17B[2]
Lickskillet-Wrentham	30E, 31F, 34F, 57F	

[1]High-value farmland (as defined in ORS 215.710) are soils that are: (a) Irrigated and classified prime, unique, Class I or Class II; or (b) Not irrigated and classified prime, unique, Class I or Class II.

[2]High-value farmland only if irrigated

The **Walla Walla-Dufur** GSA consists of broad areas of soils that formed in loess on ridge tops and along major drainage ways. In uncultivated areas, the vegetation is bunchgrasses, forbs, and shrubs. Elevation ranges from 300 to 2,000 feet. It is about 58 percent Walla Walla soils, 24 percent Dufur soils, and 18 percent Duart, Anderly, Wato, Endersby, Hermiston, Pedigo, Lickskillet, Nansene, and Wrentham soils and Riverwash. Walla Walla soils have a surface layer of very dark brown silt loam and a subsoil of dark brown and brown silt loam. Dufur soils have a surface layer of very dark brown silt loam; a subsoil of dark brown, dark grayish brown, and dark yellowish brown silt loam; and a substratum of yellowish brown, moderately calcareous cobbly fine sandy loam. This association is used for dry farmed grain and pasture, wildlife habitat, and water supply. Farms are large, and water supplies for livestock are limited. The wildlife is mainly deer and upland birds. Runoff is mainly from the moderately steep and steep soils, particularly in range where the grass is in poor condition and on summer fallow areas where vegetative protection is not provided. Sediment from runoff is moderate to high. Maintaining maximum cover on range and using conservation practices on dry farmed cropland minimize the hazard of erosion. The erosion hazard is slight to severe.

Condon-Cantala Bakeoven GSA formed in loess, volcanic ash, and residuum weathered from basalt. In uncultivated areas, the vegetation is bunchgrasses, forbs, and shrubs. It is about 44 percent Condon soils, 24 percent Cantala soils, 23 percent Bakeoven soils, and 9 percent Lickskillet, Wrentham, and Hermiston soils. Condon soils are moderately deep and nearly level to steep. They have a surface layer of very dark brown silt loam and a subsoil of dark brown and very dark grayish brown silt loam. Cantala soils are deep and nearly level to steep. They have a surface layer of very dark brown and very dark grayish brown silt loam, a subsoil of dark brown silt loam, and a substratum of dark brown loam. Bakeoven soils are shallow and nearly level to moderately steep. They have a surface layer of dark brown very cobbly loam and a subsoil of dark brown very cobbly loam and very cobbly clay loam. This association is used for dryfarmed grain, range, and pasture; for wildlife habitat; and for water supply. Condon and Cantala soils are used for dryfarmed small grain. Bakeoven soils are used for grazing, mostly by cattle. Water supplies for livestock are limited. Springs and ponds are the main sources of water. The wildlife is mainly deer and upland birds. Runoff is mainly from the shallow Bakeoven soils and the steep Condon and Cantala soils. Sediment from runoff is moderate to high. Maintaining maximum cover on range and using soil- and water-conserving practices on dryfarmed cropland minimize the hazard of erosion. The potential for erosion is moderate to severe.

Lickskillet-Wrentham GSA consists of soils on the sides of canyons along Fifteenmile Creek and the Columbia and Deschutes Rivers and soils on ridgetops. These soils formed in loess and in colluvium weathered from basalt. The vegetation is bunchgrasses, forbs, and shrubs. Slopes range from 15 to 70 percent. It is about 59 percent Lickskillet soils, 17 percent Wrentham soils, and 24 percent Bakeoven, Anderly, Condon, Maupin, Watama, Warden, Nansene, Sherar, and Sinamox soils and Rock outcrop-Rubble land complex and Riverwash. Lickskillet soils have a surface layer of very dark grayish brown extremely stony loam and a subsoil of dark brown very stony heavy loam and dark yellowish brown have gravelly heavy loam. Wrentham soils have a surface layer of very dark brown silt loam and a subsoil of dark brown very cobbly silty clay loam and silt loam. This association is used for range, wildlife habitat, and water supply. Ranches are large, and water supplies for livestock are limited. Springs and ponds are the main sources of water. The wildlife is mainly deer and upland birds. Runoff is mainly from the shallow Lickskillet soils, particularly in areas of range where the grass is in poor condition. Sediment from runoff is low to moderate. Maintaining maximum cover on range minimizes the hazard of erosion. The potential for erosion is severe.

I.2.1 High-Value Farmland

The farmland within the site boundary is primarily non-irrigated agricultural or grazing land. Two soil series within the site boundary meet the high-value farmland classification, 12B and 26, as identified in Table I-1 and shown on Figure I-1 sheets 1-4. Soil series 12B is the primary high-value soil within the site boundary, while soil series 26 is only found in a very small area on the eastern most corner of the proposed transmission line corridor. Three other soils series, 44, 46B, and 17B, are considered high-value only if they are irrigated and because no irrigation is occurring on these soils within the site boundary, they would not be classified as high-value farmland.

High-value soils account for approximately 9.8% (622 acres) of the total land within the site boundary. The micrositing corridors are generally not located on high value soils, with the exception of portions of the southern and central corridor where there is some overlap between the two (see Figure I-1 sheet 3 of 3).

I.3 IDENTIFICATION AND DESCRIPTION OF LAND USES

OAR-345-021-0010(1)(i)(B) *Identification and description of current land uses in the analysis area, such as growing crops, that require or depend on productive soils.*

Response: Land uses in the site boundary consist of private agricultural land generally used for dry-land wheat and grazing. As identified in I.2, the majority of soil types in the project area are most suitable for grazing or growing crops, although water for livestock is limited in most areas.

The Facility will occupy approximately 82 acres of agricultural land defined as land with an A-1 zoning designation. Temporary impacts from construction will disturb up to an additional 100 acres of agricultural land.

I.4 IDENTIFICATION AND ASSESSMENT OF IMPACTS TO SOILS

OAR 345-021-0010 (1)(i)(C) *Identification and assessment of significant potential adverse impact to soils from construction, operation, and retirement of the facility, including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.*

Response: Unavoidable impacts to soils within the site boundary will result from placement of permanent project facilities such as gravel roads and concrete pads on approximately 82 acres. Additionally, construction will temporarily disturb soils on up to 100 acres. High value farmland soil types are noted in Table 1 and shown on Figure I-1; approximately 12 acres of high value farmland would be permanently impacted and approximately 13 acres of high value farmland would be temporarily impacted. The Facility's permanent impact to high-value farmlands will affect approximately 2 percent of the total acreage of high value farmland within the site boundary and will have little, if any, impact to the productivity of these lands. Placement of the Facility on high-value farmland will not restrict the current uses of remaining high-value soils for agricultural purposes.

Where temporary impacts would occur in cultivated areas, the approximately three feet of top soil will be salvaged and stockpiled in windrows. The windrows will be protected with plastic sheeting or mulch. Upon removal of temporary features, subsoils will be cultivated to a depth of at least 12 inches (except where bedrock prohibits achieving this depth), then salvaged topsoil would be redistributed to match adjacent grades.

Where roads or other features (e.g., substation, turbine pads) are constructed, it is assumed that any excess excavated native material would be spread evenly over adjacent grades to remain in situ as appropriate, and thus be available for future use in decommissioning activities. Excavated native materials would be placed so as not to interfere with farming practices; that is, the material would be incorporated into the adjacent agricultural fields and/or pastures so that cultivation could continue.

As discussed in detail in Exhibit W, the Facility will be decommissioned and the site will be restored. Accordingly, construction, maintenance, and decommissioning activities will not result in unnecessary soil compaction that reduces the productivity of soil for crop production.

The Applicant will obtain an NPDES Construction Stormwater Permit (1200-C), which requires the development and implementation of an erosion control plan and the use of best management practices to minimize the potential for erosion. Best management practices will include using sediment fence or other similar forms of containment, watering to prevent windblown erosion in disturbed areas, and revegetation. Further, to minimize soil exposure during installation of collector lines, only as much open trench will be excavated and backfilled as can be done in one day, and in no case will a trench remain open more than seven days, as allowed by the 1200-C. Staging areas will need to be stripped and the soil stockpiled before gravel is placed on the laydown areas. The stockpiling will occur during the time of year when rainfall is the lowest, thus very little erosion is likely to result. The Applicant will apply best available practices to prevent weed infestation and erosion of the stockpiled soils, developed in consultation with the landowners and the local weed control authority. An updated Revegetation and Weed Control Plan is attached as Attachment I-2.

Based on interviews conducted with landowners and farm operators (see Exhibit K), construction of the Facility is not anticipated to have significant impacts to existing farm operations or aerial applications of fertilizers. There is no crop irrigation within the project boundary and the predominant land use is dry land wheat farming with some grazing where terrain is not conducive to growing crops. The Applicant has coordinated with local landowners to site turbines in areas that minimize impacts to farming operations, including where aerial applications occur. The primary concern for farmers is noxious weeds. The revegetation and weed control plan was developed in coordination with the Weed Board to minimize the possibility of noxious weeds establishing themselves (see Exhibit P).

There are no cooling towers or land application of effluent. Limited quantities of chemical will be used and the risk of spills is minor. A spill plan will be prepared and appropriate measures will be taken to clean up and restore the area if any spill should occur.

I.5 DESCRIPTION OF PROPOSED MITIGATION MEASURES

OAR 345-021-0010(1)(i)(D) *A description of any measures the Applicant proposes to avoid or mitigate adverse impact to soils.*

Response: Direct permanent impacts to soils due to construction of access roads, turbine foundations, laydown areas, underground collectors and other features will be unavoidable. Construction of all features of the Facility will be in compliance with a NPDES 1200-C construction permit (see Attachment I-1 for the Application). Measures outlined in the existing Erosion Control Plan submitted with this ASC (see Attachment I-1, 1200-C permit application) will be implemented to minimize soil impacts and erosion.

During retirement activities, turbines and turbine pads to a depth of three feet below ground level and unwanted roads will be removed. Road beds will be cultivated to a depth of at least 12 inches (except where bedrock prohibits achieving this depth) to alleviate compaction. The soil types and texture primarily impacted by Facility features include Cantala and Condon silt loams. As described above, in situ soils excavated during Facility construction would generally be spread over adjacent grades as appropriate, and thus available for road (and other feature) rehabilitation during decommissioning. To this end, the Applicant would endeavor to replace soils in-kind to the extent practical by borrowing native material from adjacent grades to restore soils to a farmable condition or habitat. If the use of adjacent soils is not practical, an appropriate texture topsoil of similar character would be imported and placed at a minimum depth of one foot.

I.6 MONITORING PROGRAM

OAR 345-021-0010(1)(i)(E) *The Applicant's proposed monitoring program, if any, for adverse impact to soils during construction and operation.*

<u>Response</u>: Monitoring of soil-disturbing activities during construction will be in accordance with the 1200-C permit. During operations, the Applicant will visually inspect the Facility periodically.

I.7 CONCLUSION AND PROPOSED FINDINGS

As demonstrated above in response to OAR 345-021-0010(1)(i), the Facility's design, construction, and operation, taking into account mitigation, will not result in significant adverse impacts to soils within the site boundary.

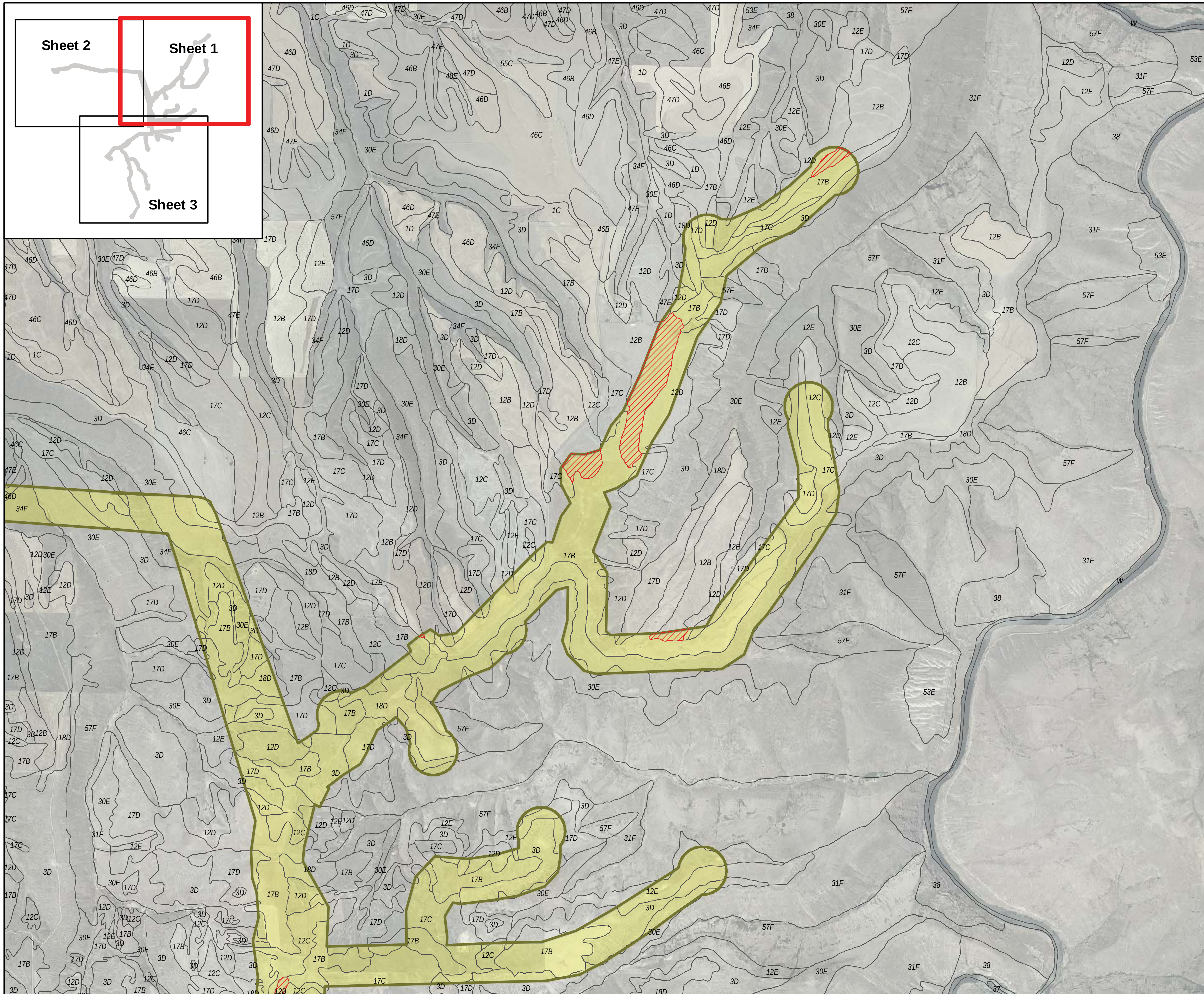
Specifically, permanent adverse impacts to soils from construction could affect approximately 82 acres of land within the site boundary and will temporarily disturb soils on up to 100 acres. Of the total permanent impact, approximately 12 acres is considered high value farmland and would be permanently impacted and approximately 13 acres of high-value farmland would be temporarily impacted. These possible impacts will be minimized by and to the extent necessary, by:

- Complying with a NPDES 1200-C construction permit (see Attachment I-1 for the Application).
- Implementing measures outlined in the Erosion Control Plan submitted with this ASC to minimize soil impacts and erosion.
- Restoring soils to farmable condition or habitat after retirement of the Facility. During retirement activities, turbines and turbine pads to a depth of three feet and unwanted roads will be removed and rehabilitated with adjacent native soils as practical or with imported topsoil.

Operations would occur on land already permanently impacted from construction of the Facility, no additional permanent or temporary impact to soils would occur during the operation of the Facility. The Applicant will implement the proposed mitigation measures described above and will periodically monitor the Facility to minimize adverse impact to soils.

Therefore, for these reasons and the reasons set forth in the responses to OAR 345-021-0010(1)(i), the Facility will not result in significant adverse impacts to soils and the Council may find that OAR 345-022-022-0022 is satisfied.

FIGURES



LotusWorks - Summit Ridge I, LLC

Figure I-1
Soil Survey, Sheet 1

Legend

Site Boundary

Soil Types

High Value Soils

Soil Types in Survey Corridors

1C Anderly silt loam, 7 to 12 pecent slopes
1D Anderly silt loam, 12 to 20 pecent slopes
2D Bakeoven very cobbly loam, 2 to 20 percent slopes
3D Bakeoven-Condon comples, 2 to 20 percent slopes
12B Cantala silt loam, 1 to 7 percent slopes *
12C Cantala silt loam, 7 to 12 percent slopes
12D Cantala silt loam, 12 to 20 percent slopes
12E Cantala silt loam, 20 to 35 percent slopes
17B Condon silt loam, 1 to 7 percent slopes
17C Condon silt loam, 7 to 12 percent slopes
17D Condon silt loam, 12 to 25 percent slopes
18D Condon-Bakeoven complex, 2 to 20 percent slopes
26 Hermiston silt loam*
30E Lickskillet very stony loam, 15 to 40 percent slopes
31F Lickskillet extremely stony loam, 40 to 70 percent slopes
34F Nansene silt loam, 35 to 70 percent slopes
37 Riverwash
44 Typh fine sandy loam
46B Walla Walla silt loam, 3 to 7 percent slopes
46C Walla Walla silt loam, 7 to 12 percent slopes
46D Walla Walla silt loam, 12 to 20 percent north slopes
47E Walla Walla silt loam, 20 to 35 percent north slopes
57F Wrentham-Rock outcrop complex, 35 to 70 percent slopes

** High Value Soil Types*

N

0 0.5 1 1.5
Miles

Data Sources:

LotusWorks, 2009

Soil Survey Geographic (SSURGO) database for Wasco County, Oregon, Northern Part, 2006

Oregon Imagery Explorer, 2005

LotusWorks Summit Ridge I

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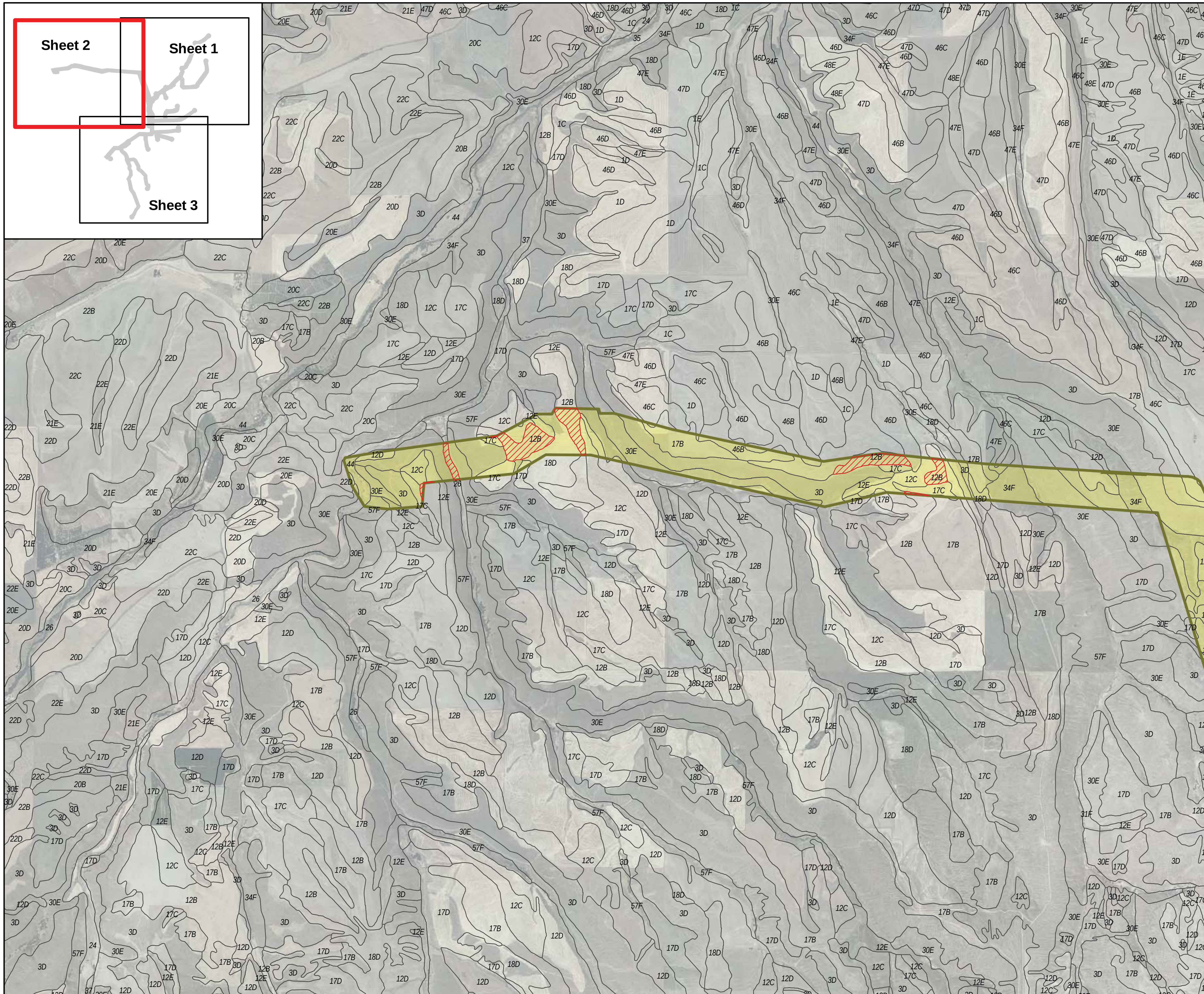

LotusWorks - Summit Ridge I, LLC

Figure I-1

Soil Survey, Sheet 2

Legend

Site Boundary

Soil Types

High Value Soils

Soil Types in Survey Corridors

1C Anderly silt loam, 7 to 12 percent slopes
1D Anderly silt loam, 12 to 20 pecent slopes
2D Bakeoven very cobbly loam, 2 to 20 percent slopes
3D Bakeoven-Condon complex, 2 to 20 percent slopes
12B Cantala silt loam, 1 to 7 percent slopes *
12C Cantala silt loam, 7 to 12 percent slopes
12D Cantala silt loam, 12 to 20 percent slopes
12E Cantala silt loam, 20 to 35 percent slopes
17B Condon silt loam, 1 to 7 percent slopes
17C Condon silt loam, 7 to 12 percent slopes
17D Condon silt loam, 12 to 25 percent slopes
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26 Hermiston silt loam*
30E Lickskillet very stony loam, 15 to 40 percent slopes
31F Lickskillet extremely stony loam, 40 to 70 percent slopes
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37 Riverwash
44 Typh fine sandy loam
46B Walla Walla silt loam, 3 to 7 percent slopes
46C Walla Walla silt loam, 7 to 12 percent slopes
46D Walla Walla silt loam, 12 to 20 percent north slopes
47E Walla Walla silt loam, 20 to 35 percent north slopes
57F Wrentham-Rock outcrop complex, 35 to 70 percent slopes

** High Value Soil Types*

N

0 0.5 1 1.5

Miles

Data Sources:

LotusWorks, 2009

Soil Survey Geographic (SSURGO) database for Wasco County, Oregon, Northern Part, 2006

Oregon Imagery Explorer, 2005

LotusWorks Summit Ridge I

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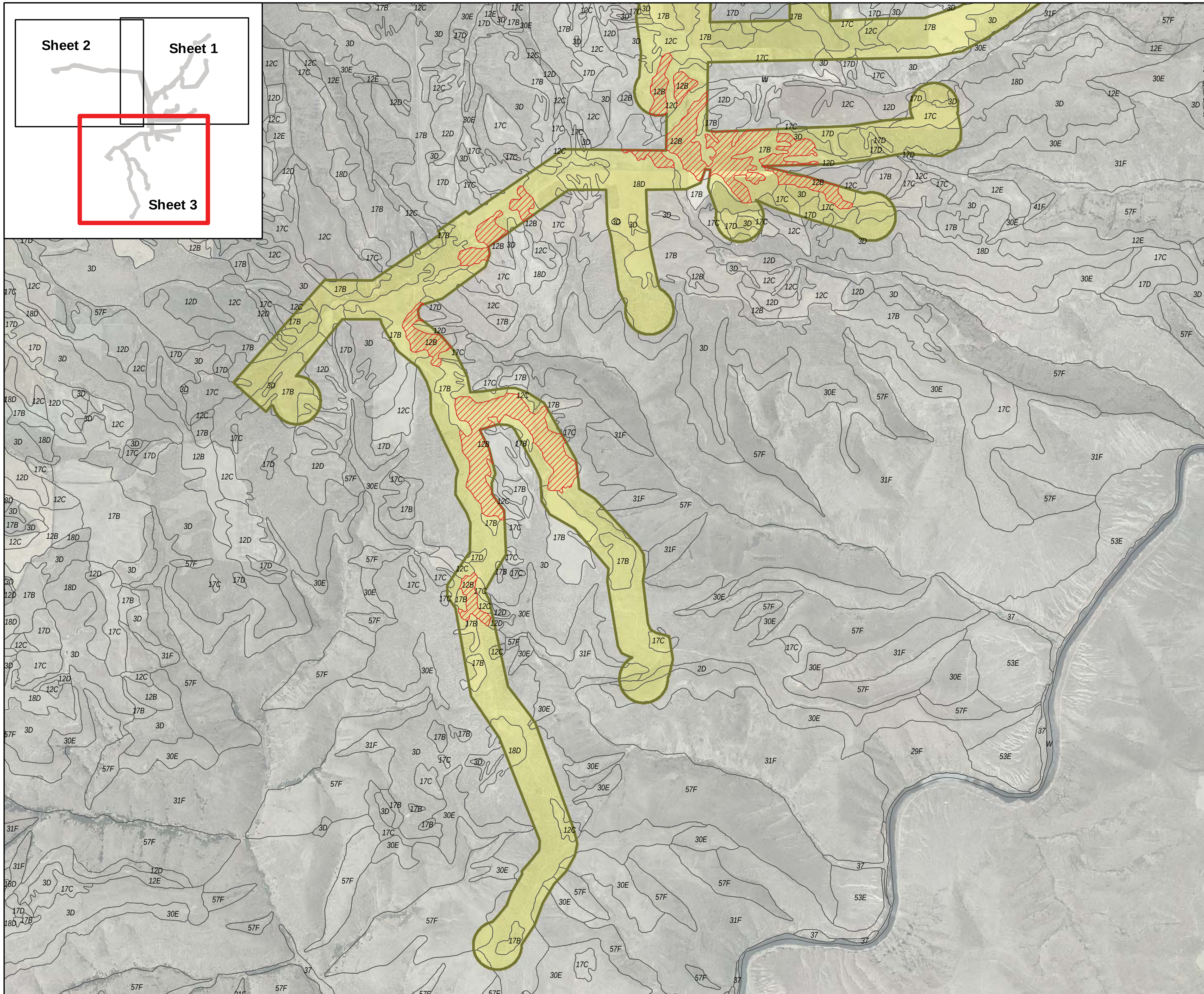

LotusWorks - Summit Ridge I, LLC

Figure I-1
Soil Survey, Sheet 3

Legend

- Site Boundary
- Soil Types
- High Value Soils

Soil Types in Survey Corridors

1C Anderly silt loam, 7 to 12 percent slopes
1D Anderly silt loam, 12 to 20 pecent slopes
2D Bakeoven very cobbly loam, 2 to 20 percent slopes
3D Bakeoven-Condon comples, 2 to 20 percent slopes
12B Cantala silt loam, 1 to 7 percent slopes *
12C Cantala silt loam, 7 to 12 percent slopes
12D Cantala silt loam, 12 to 20 percent slopes
12E Cantala silt loam, 20 to 35 percent slopes
17B Condon silt loam, 1 to 7 percent slopes
17C Condon silt loam, 7 to 12 percent slopes
17D Condon silt loam, 12 to 25 percent slopes
18D Condon-Bakeoven complex, 2 to 20 percent slopes
26 Hermiston silt loam*
30E Lickskillet very stony loam, 15 to 40 percent slopes
31F Lickskillet extremely stony loam, 40 to 70 percent slopes
34F Nansene silt loam, 35 to 70 percent slopes
37 Riverwash
44 Typh fine sandy loam
46B Walla Walla silt loam, 3 to 7 percent slopes
46C Walla Walla silt loam, 7 to 12 percent slopes
46D Walla Walla silt loam, 12 to 20 percent north slopes
47E Walla Walla silt loam, 20 to 35 percent north slopes
57F Wrentham-Rock outcrop complex, 35 to 70 percent slopes

** High Value Soil Types*

N

0 0.5 1 1.5
Miles

Data Sources:

LotusWorks, 2009

Soil Survey Geographic (SSURGO) database for Wasco County, Oregon, Northern Part, 2006

Oregon Imagery Explorer, 2005

LotusWorks Summit Ridge I

ATTACHMENT I-1

NPDES PERMIT APPLICATION: DEQ RESPONSE

NPDES #1200-C Permit Application Form

Oregon Department of Environmental Quality
APPLICATION FOR NEW NPDES GENERAL PERMIT #1200-C
For stormwater discharges to surface waters from construction activities disturbing 1 acre or more.

Please answer all questions. No line may be left blank. An incomplete application will not be processed and will be returned. If the information requested is not applicable or not yet available, please indicate as such.

A. PROJECT INFORMATION

1. LotusWorks - Summit Ridge I, LLC
Applicant (Owner, Developer, or General Contractor)
Steven Ostrowski, President
Contact Name
9611 NE 117th Ave, Suite 2840
Address
Vancouver | WA | 98662
City | State | Zip
(360) 737-9692 | sostrowski@lotusworks.com
Telephone | E-Mail Address

2. If fee invoicing is different than Applicant, provide contact info:
Lotus Group USA, Inc.
Invoice Name
9611 NE 117th Ave, Suite 2840
Address
Vancouver | WA | 98662
City | State | Zip
(360) 737-9692 | sostrowski@lotusworks.com
Telephone | E-Mail Address

3. David Evans and Associates, Inc.
Architect/Engineering Firm (Erosion & Sediment Control Plan)
Dana Siegfried
Project Manager
(503) 223-6663 | dns@deainc.com
Telephone | E-Mail Address

4. JAZ LLC.
Applicant's Designated Erosion and Sediment Control Inspector
Joe Zimmerman
Contact Name
360-859-9586 | jzimmerman@q.com
Telephone | E-Mail Address

5. LotusWorks - Summit Ridge I
Name of Project
(17 miles southeast of The Dalles / 8 miles east of Dufur)
Address or Cross Street
City: ______ State: OR Zip: ______
Wasco
County

6. Nature of the Construction Activity
- ☐ Single Family (SIC Code 1521)
- ☐ Multi-Family Residential (SIC Code 1522)
- ☐ Commercial (SIC Code 1542)
- ☑ Industrial (SIC Code 1541)
- ☐ Highway (SIC Code 1611)
- ☐ Utilities (SIC Code 1623): ______
- ☐ Other: ______

7. Site Location by Latitude and Longitude:

	Degrees	Minutes	Seconds
Latitude:	-120	55	41W
Longitude:	45	26	27N

8. Project Size:
Total Site Acreage (acres): Approximately 25,500 Acres
Total Construction Area (acres): Approximately 200 Acres
Disturbed Area for this phase, if multiple phases: ______
Total Number of Lots: Not applicable

DEQ USE ONLY
App. #: ______ File #: ______ LLID #: ______ River Mile: ______
Date Received: ______ Amount: ______ Check Name: ______
Check #: ______ Deposit #: ______ Receipt #: ______ Legal Name Confirmed: ☐

NPDES General Permit 1200-C Application Instructions For Construction Activities

A. PROJECT INFORMATION

A1 Enter the legal name of the applicant. Permit coverage will be issued to this entity. This is the person, business, public organization, or other entity responsible for assuring that erosion and sediment controls are in place and in working order through the life of the project. This must be the **legal** Oregon name (i.e., Acme Products, Inc.) or the **legal** representative of the company if it operates under an assumed business name (i.e., John Smith, dba Acme Products). The name must be a legal, active name registered with the Oregon Department of Commerce, Corporation Division in Salem at 503-378-4752 or http://egov.sos.state.or.us/br/pkg_web_name_srch_inq.login, unless otherwise exempted by their rules. If the name of the applicant is not registered with the Corporation Division and the applicant is a partnership or doing business as a corporate entity, attach legal documents that verify the entity's existence with the application. The applicant may not use an assumed business name.

To streamline administration and provide continuous permit coverage, the permit may be transferred from one party to another. For example, if a contractor feels that they will not be able to get a permit before the projected start date, the developer may apply for a permit and then transfer the permit over to the contractor. The transfer fee is $60. Transfer forms are available from DEQ or at http://www.deq.state.or.us/wq/stormwater/constappl.htm

A2 Enter invoicing information for annual fee billing if different from the Applicant in A1 (e.g., "Invoice To: Business Office – Accounts Payable"). Provide permanent address or P.O. Box, if applicable.

A3 Provide the contact information for the Architect or Consulting Engineer who designed the Erosion and Sediment Control Plan (ESCP) so that they may be contacted should questions concerning the ESCP Drawings or Narrative arise.

A4 Provide information on the Erosion and Sediment Control Inspector. This is a person that works for the applicant and not a government employee. If the inspector has not been selected yet, please provide the name of consultant who prepared the Erosion and Sediment Control Plan (ESCP). Upon designating an inspector(s), submit to the DEQ or the Agent an Action Plan, which is an addendum to the ESCP, that identifies their name(s), contact information and training and experience as required in Schedule A, condition 6(b) of the permit.

A5 Provide the common name of the site. What is it to be called? Provide the location of the site with respect to cross roads in the area or a street address if appropriate.

A6 Place a check mark in the box that best describes the use for which the site is being constructed. If other is selected, describe the use.

A7 Enter the latitude and longitude of the approximate center of the facility or site in degrees/minutes/seconds to the nearest 15 seconds. Latitude and longitude can be obtained from United States Geological Survey (USGS) quadrangle topographic maps by calling toll-free at 1-888-ASK-USGS (1-888-275-8747) or by using DEQ's location finder web site http://www.deq.state.or.us/wq/wqpermit/permits.htm. In using DEQ's location finder web site, if you do not know your address, go to "locate place" on the left side of the page and click on "latitude and longitude" and then click on "map it." To get the longitude and latitude to appear you may have to zoom in and re-center until you find the area. You may want to turn off DEQ interests to eliminate the yellow dots and you may want to turn on the Aerial Photos to help you locate the site. The latitude and longitude will be indicated on the left side of the page. Instructions for obtaining latitude and longitude from topographic maps may be obtained at http://www.deq.state.or.us/wq/pubs/guides/latlonginstr.pdf

A8 Provide property size information. What is the total acreage of the site? Provide an estimate, in the case of a multi-phased project, or if all of the property has not yet been purchased.

A9 Indicate where the runoff goes after leaving the site during construction. If it goes in to the City storm drain system, provide best estimate of the receiving stream in addition to checking the Municipal Storm Sewer box.

A10 Indicate whether stormwater runoff will be discharging directly to, or into a storm sewer or drainage system that discharges to "impaired" waters listed on the 303(d) list for sediment or turbidity or are covered by a Total Maximum Daily Load (TMDL) for sediment or turbidity. A map and table identifying "impaired" water bodies and affected river miles for sediment or turbidity is available on DEQ's web site at http://www.deq.state.or.us/wq/stormwater/construction.htm:

A. PROJECT INFORMATION Continued

9. Runoff from proposed construction activities goes to:
   - ☐ Creek/Stream: ____
   - ☐ Municipal Storm Sewer or Drainage System
     Receiving stream: ____
   - ☐ Infiltration device
   - ☐ Ditch: ____
   - ☑ Other: Cultivated agricultural / grassland and shrub-steppe grazing land

10. ☐ Proposed site runoff discharges directly to, or into a storm sewer or drainage system that discharges to, a Total Maximum Daily Load (TMDL) or 303(d) listed water body for turbidity or sedimentation *(if applicable)*.

B. LAND USE COMPATIBILITY STATEMENT

Attach the *original* and complete Land Use Compatibility Statement (LUCS) signed by the local land use authority. The application will not be processed unless the local land use authority approves it and it meets statewide planning goals. (See Attachment C for the LUCS statement)

C. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE

The legally authorized representative *must* sign the application. The following are authorized to sign the document:

- **Corporation** — president, secretary, treasurer, vice-president, or any person who performs principal business functions; or a manager of one or more facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million that is assigned or delegated in accordance to corporate procedure to sign such documents
- **Partnership** — General partner
- **Sole Proprietorship** — Owner. If more than one person is the sole proprietor, each person must sign the form.
- **City, County, State, Federal, or other Public Facility** — Principal executive officer or ranking elected official
- **Limited Liability Company** — Member
- **Trusts**— Acting trustee

Please see 40 CFR 122.22 for more detail, if needed.

I hereby certify that the information contained in this application is true and correct to the best of my knowledge and belief. In addition, I agree to pay all permit fees required by Oregon Administrative Rules 340-045. This includes a renewal application fee to renew the permit and a compliance determination fee invoiced annually by DEQ to maintain the permit.

Steven A. Ostrowski, Jr	President
Name of Legally Authorized Representative (Type or Print)	**Title**
Steven S Ob Jr	August 03, 2009
Signature of Legally Authorized Representative	**Date**

In order to authorize permit registration, the following must be completed and submitted to DEQ office listed below or to a DEQ Agent (see Figure A-2 for list of Agents):

- ☑ Signed Application form.
- ☐ Land Use Compatibility Statement with signature of the local land use authority
- ☑ Stormwater Erosion and Sediment Control Plan Narrative
- ☑ Stormwater Erosion and Sediment Control Plan Drawings
- ☐ $1,510 fee (includes $745 for new permit application and $765 for first year annual fee) to the appropriate DEQ regional office and make the check payable to Department of Environmental Quality. If you are sending your application to a DEQ Agent, check with the DEQ Agent for the appropriate fees and make check payable to the DEQ Agent.

DEQ Northwest Region	**DEQ Western Region**	**DEQ Eastern Region**
2020 SW 4th Ave., Suite 400	1102 Lincoln St., Suite 210	700 SE Emigrant, Suite 330
Portland, OR 97201-4987	Eugene, OR 97401	Pendleton, OR 97801
503-229-5263 or 1-800-452-4011	541-687-7326 or 1-800-844-8467	541-276-4063 or 1-800-452-4011

B. LAND USE COMPATIBILITY STATEMENT

Land Use Compatibility Statement (LUCS) must be signed by local planning department. If there are any conditions placed on the land use approval, the findings must be included. The LUCS form may be obtained from DEQ at http://www.deq.state.or.us/pubs/permithandbook/lucs.htm.

C. SIGNATURE

The legally authorized representative for the applicant must sign the application. The following are authorized to sign the document

- **Corporation** — president, secretary, treasurer, vice-president, or any person who performs principal business functions; or a manager of one or more facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million that is assigned or delegated in accordance to corporate procedure to sign such documents.
- **Partnership** — General partner.
- **Sole Proprietorship** — Owner. If more than one person is the sole proprietor, each person must sign the form.
- **City, County, State, Federal, or other Public Facility** — Principal executive officer or ranking elected official.
- **Limited Liability Company** — Member
- **Trusts**— Acting trustee

APPLICATION SUBMITTAL AND FEES

If you have a DEQ Agent in the area where your project is located, send the application to the DEQ Agent (See the DEQ Agent list in Attachment A). Otherwise, send the application to the DEQ office in your area (See DEQ office locations in Attachment B).

The permit application fee is **$1,510**, which includes a $745 new permit application fee, and $765 first year annual fee. The permittee will also be billed an annual fee for every year the permit is in effect. If you have a DEQ Agent in the area, where your project is located contact them and verify fees. (See Attachment A for list of Agents)

In order to authorize permit registration, the following must be completed and submitted to DEQ office or a DEQ Agent (see Attachment A for list of Agents):

- ☐ Application form with original signature
- ☐ Land Use Compatibility Statement with original signature of the local land use authority
- ☐ Stormwater Erosion and Sediment Control Plan Narrative
- ☐ Stormwater Erosion and Sediment Control Plan Drawings
- ☐ $1,510 fee (includes $745 for new permit application and $765 for first year annual fee) to the appropriate DEQ regional office and make the check payable to the Department of Environmental Quality. If you are sending your application to a DEQ Agent, check with the Agent for the appropriate fees.

PART I: ESCP NARRATIVE FORM

1. Permit Registration Information

Date: August 27, 2009

Project Name: LotusWorks - Summit Ridge I

Prepared By: Sean P. Sullivan

Company Name: David Evans and Associates, Inc.

E-mail Address: sps@deainc.com

Please answer the following questions as indicated. If needed, additional space is provided for you at the end of this form. You may also attach any information you feel is pertinent to the project.

2. Oregon Registered Professional Engineer Information and Stamp (for projects over 20 acres)

Is your Erosion and Sediment Control Plan (ESCP) for an activity that covers 20 acres or more of disturbed land? (Schedule A.4.b.i)

X YES ☐ NO

Does your Erosion and Sediment Control Plan require engineered facilities such as settling basins and/or diversion structures? (Schedule A.4.b.ii)

☐ YES X NO

If you answered "YES" to question #1 or #2 the plan must be prepared by an Oregon Registered Professional Engineer, Oregon Registered Landscape Architect, or Certified Professional in Erosion and Sediment Control (Soil and Water Conservation Society). Please provide the following information and use the space provided to imprint your seal.

Name: Sean Sullivan

Address: 2100 SW River Parkway

Portland, OR 97201

Telephone: (503) 499-0420

REGISTERED
412
Sean P. Sullivan
OREGON
11/13/98
LANDSCAPE ARCHITECT

Imprint Seal Above

3. Inspector Qualifications Information

Provide the following information on the Erosion and Sediment Control Inspector. This is a person that works for the applicant and not a government employee. If the inspector has not been selected yet, please provide the name of the consultant, general contractor, project manager, or person who prepared the ESCP. Upon designating an inspector(s), submit to DEQ or Agent an Action Plan, which is an addendum to the ESCP, that identifies their name(s), contact information and training and experience as required in (Schedule A.6.b.i-ii) of the permit.

The inspector is a person with training and experience in erosion prevention and sediment controls and best management practices and should have one of the following levels of skill. A copy of a certification, training, or level/hours of experience should be provided to DEQ or Agent in the form below:

- **a.** Certified Professional in Erosion and Sediment Control (CPESC); or
- **b.** Washington Department of Ecology's Contractor Erosion and Spill Control Lead (CESCL) Certification; or
- **c.** An alternative, certification/training program designed for persons involved in any phase of erosion and sediment control work. Areas covered must include information on soils, the erosion process, sedimentation process, standards and specifications for vegetative and structural erosion control practices, laws, regulations, construction inspection and field investigation requirements experience; or
- **d.** Have at least 200 hours of on the job experience associated with installation, maintenance, and monitoring of erosion and sediment control work as outlined in #3 above.

Name: Joe Zimmerman – JAZ, LLC ________ Telephone: (360) 859-9568 ________

Address: ____________________ E-Mail: jzimmerman@q.com ________

Certification: ____

____

Training: ____

____

Experience: Mr. Zimmerman has logged in excess of 1,000 hours for field inspection of erosion and sediment control best management practices for compliance with 1200-C permits and other conditions of approval for wind farms throughout central Oregon and Washington.

4. Local Government Requirements

The ESCP must include any procedures necessary to meet applicable local government erosion and sediment control or stormwater management requirements and should include updates to the ESCP as necessary to reflect any revisions to applicable local requirements for soil and erosion control. (Schedule A.6.a)

Is the project located within a city, town, county or service district that has a local erosion and sediment control or stormwater ordinance or development standards that require the development of and implementation of an erosion and sediment control plan?

☐ YES X NO

5. Narrative Site Description

a. Describe the nature of the construction activity and the final use of the site (Schedule A.6.c.i): __

Several maps and/or documents supporting this 1200-C application are included in the Application for Site Certificate (ASC) for the Facility. These include:

- Project Location: Figure C-1 in Exhibit C
- Project Layout: Figure C-2 in Exhibit C
- Soils Survey: Figure I-1 in Exhibit I
- NWI Maps: Figure 3 in Wetland Delineation Report attached to Exhibit J
- Delineated wetland boundaries: Figure J-1 and J-2 in Wetland Delineation Report attached to Exhibit J
- Discussion of road decommissioning/rehabilitation: Exhibit I

The Applicant proposes to develop, construct and operate the approximately 200.1 megawatt (MW) LotusWorks - Summit Ridge I wind generation facility (Facility) with a commercial online date of December 31, 2011. The Facility will consist of approximately 87 wind turbines and will include construction of approximately 25 miles of new access roads; renovation/improvement of approximately 6 miles of existing roads; construction of an operation and maintenance (O&M) facility on approximately 2-acres (including fenced storage area); construction of five temporary laydown areas; installation of an underground 34.5-kilovolt (kV) collection system; construction of a project substation on approximately 5-acres; construction of approximately eight miles of 230-kV overhead transmission lines; and an interconnection facility consisting of a three ring breaker bus allowing the Facility to tie into the 230 kV Bonneville Power Administration (BPA) Big Eddy to Maupin-Redmond transmission line.

Regarding roads and access points, the access road network and laydown areas are shown in Figure C-2 in Exhibit C. It is anticipated that construction entrances would be constructed at the entrance to each turbine string and at the entrance to each laydown area until those sites are permanently stabilized (i.e., rocked). As explained in Exhibit K, landowners have requested that all new access roads remain in place should the Facility be decommissioned in the future. However, Oregon Department of Energy (DOE) requires an explanation of decommissioning activities, so road decommissioning/rehabilitation is described in Exhibit I. Preliminary road and culvert construction plans and details have been prepared by others (i.e., Applicant's civil engineer Worley Parsons) and follow the ESCP plans. The Applicant anticipates submitting final engineering plans as a Condition of Approval for the 1200-C permit. It is not anticipated that access roads will cross streams or wetlands; culverts and swales are proposed to maintain existing drainage patterns to the extent practical.

b. Describe the origin and nature of fill material to be used (Schedule A.6.c.iii):

Fill material will be comprised of gravel and/or crushed rock derived from local quarries, and native material.

c. Describe the soils present on the site and erosion potential of the soils (Schedule A.6.c.iii):

The near surface soils at the project site and in its vicinity were identified using information from the U.S. Natural Resources Conservation Service (NRCS) National Soil Information System (NASIS) (http://soildatamart.nrcs.usda.gov) a GIS database system that provides the most current soil information for Oregon counties. The information for Wasco County is based on the Soil Survey of Wasco County, Oregon, Northern Part (NRCS, 1982), where descriptions of the general soil associations and soil series were derived. The soil series in the project area are grouped into three general soil associations (GSA) –Walla Walla-Dufur, Condon-Cantala Bakeoven, and Lickskillet-Wrentham. Each of these general soil associations is comprised of several soil series units, which are mapped at a greater level of detail but share relatively similar spatial coverage and engineering properties as the more GSA. Figure I-1 in Exhibit I of the ASC shows the soil series map and Table I-1 below provides a list of soil series within the project site and vicinity.

Table I-1 Soil Types within the Project Study Area

General Soil Unit	Soil Series
Walla Walla-Dufur	1C, 1D, 26, 37, 44, 46B, 46C, 46D, 47E
Condon-Cantala Bakeoven	2D, 3D, 12B, 12C, 12D, 12E, 17B, 17C, 17D, 18D
Lickskillet-Wrentham	30E, 31F, 34F, 57F

The Walla Walla-Dufur GSA consists of broad areas of soils that formed in loess on ridgetops and along major drainageways. In uncultivated areas, the vegetation is bunchgrasses, forbs, and shrubs. Elevation ranges from 300 to 2,000 feet. It is about 58 percent Walla Walla soils, 24 percent Dufur soils, and 18 percent Duart, Anderly, Wato, Endersby, Hermiston, Pedigo, Lickskillet, Nansene, and Wrentham soils and Riverwash. Walla Walla soils have a surface layer of very dark brown silt loam and a subsoil of dark brown and brown silt loam. Dufur soils have a surface layer of very dark brown silt loam; a subsoil of dark brown, dark grayish brown, and dark yellowish brown silt loam; and a substratum of yellowish brown, moderately calcareous cobbly fine sandy loam. This association is used for dry farmed grain and pasture, wildlife habitat, and water supply. Farms are large, and water supplies for livestock are limited. The wildlife is mainly deer and upland birds. Runoff is mainly from the moderately steep and steep soils, particularly in range where the grass is in poor condition and on summer fallow areas where vegetative protection is not provided. Sediment from runoff is moderate to high. Maintaining maximum cover on range and using conservation practices on dry farmed cropland minimize the hazard of erosion. The erosion hazard is slight to severe.

Condon-Cantala Bakeoven GSA formed in loess, volcanic ash, and residuum weathered from basalt. In uncultivated areas, the vegetation is bunchgrasses, forbs, and shrubs. It is about 44 percent Condon soils, 24 percent Cantala soils, 23 percent Bakeoven soils, and 9 percent Lickskillet, Wrentham, and Hermiston soils. Condon soils are moderately deep and nearly level to steep. They have a surface layer of very dark brown silt loam and a subsoil of dark brown and very dark grayish brown silt loam. Cantala soils are deep and nearly level to steep. They have a surface layer of very dark brown and very dark grayish brown silt loam, a subsoil of dark brown silt loam, and a substratum of dark brown loam. Bakeoven soils are shallow and nearly level to moderately steep. They have a surface layer of dark brown very cobbly loam and a subsoil of dark brown very cobbly loam and very cobbly clay loam. This association is used for dryfarmed grain, range, and pasture; for wildlife habitat; and for water supply. Condon and Cantala soils are used for dryfarmed small grain. Bakeoven soils are used for grazing, mostly by cattle. Water supplies for livestock are limited. Springs and ponds are the main sources of water. The wildlife is mainly deer and upland birds. Runoff is mainly from the shallow Bakeoven soils and the steep Condon and Cantala soils. Sediment from runoff is moderate to high.

Maintaining maximum cover on range and using soil- and water-conserving practices on dryfarmed cropland minimize the hazard of erosion. The potential for erosion is moderate to severe.

Lickskillet-Wrentham GSA consists of soils on the sides of canyons along Fifteenmile Creek and the Columbia and Deschutes Rivers and soils on ridgetops. These soils formed in loess and in colluvium weathered from basalt. The vegetation is bunchgrasses, forbs, and shrubs. Slopes range from 15 to 70 percent. It is about 59 percent Lickskillet soils, 17 percent Wrentham soils, and 24 percent Bakeoven, Anderly, Condon, Maupin, Watama, Warden, Nansene, Sherar, and Sinamox soils and Rock outcrop-Rubble land complex and Riverwash. Lickskillet soils have a surface layer of very dark grayish brown extremely stony loam and a subsoil of dark brown very stony heavy loam and dark yellowish brown have gravelly heavy loam. Wrentham soils have a surface layer of very dark brown silt loam and a subsoil of dark brown very cobbly silty clay loam and silt loam. This association is used for range, wildlife habitat, and water supply. Ranches are large, and water supplies for livestock are limited. Springs and ponds are the main sources of water. The wildlife is mainly deer and upland birds. Runoff is mainly from the shallow Lickskillet soils, particularly in areas of range where the grass is in poor condition. Sediment from runoff is low to moderate. Maintaining maximum cover on range minimizes the hazard of erosion. The potential for erosion is severe.

6. 303(d)/TMDL Requirements: Selected Option Description (Starts Oct. 1, 2006)

Effective October 1, 2006, there are more stringent requirements for construction projects that have the potential to discharge sediment or turbid water into water bodies that are listed for turbidity or sedimentation on the most recently EPA-approved Oregon 303(d) list or that have an established Total Maximum Daily Load (TMDL) for sedimentation or turbidity, (go to DEQ website for a map and list: http://www.deq.state.or.us/wq/stormwater/construction.htm#ta.

If your project is located within a 303(d)/TMDL listed watershed listed for sedimentation or turbidity, indicate below the option you will implement:

☐ **Option #1: Will collect and analyze samples for turbidity in stormwater runoff from the construction site and compare the results to the benchmark value of 160 Nephelometric Turbidity Units (NTUs).** If any stormwater sample exceeds the benchmark, then the permit registrant must evaluate the best management practices (BMPs) and the adequacy of the ESCP and take corrective actions. If after such actions have been implemented and sample results still exceed the 160 NTU benchmark, permit registrant must follow Option #2 below and submit an Action Plan to DEQ or Agent identifying the selected BMP(s) that will be implemented and the rationale for choosing the selected BMP(s).

☐ **Option #2: Will implement one or more of the following BMPs to control and treat sediment and turbidity: (Please check the BMPs you will use)**

- ☐ Compost berms, compost blankets, or compost socks;
- ☐ Erosion control mats (rolled or blown);
- ☐ Tackifiers used in combination with perimeter sediment control BMPs;
- ☐ Established vegetated buffers sized at 50 feet plus 25 feet per 5 degrees of slope;
- ☐ Water treatment by electro-coagulation, chemical flocculation, filtration; or
- ☐ Other substantially equivalent sediment or turbidity BMP approved by DEQ.

Provide below the rationale for BMP(s) you checked above:

___

PART III: ESCP DRAWINGS
1. Required Elements of ESCP Drawings

Information Required On ESCP Drawings	Yes	No	Not Appl.*
a. Identify, mark, and protect (by fencing off or other means) critical riparian areas and vegetation including important trees and associated rooting zones and vegetation areas to be preserved. (Sch. A.5.b.i.(1))			X
b. Identify vegetative buffer zones between the site and sensitive areas (e.g., wetlands), and other areas to be preserved, especially in perimeter areas. (Schedule A.5.b.i.(2))			X
c. Site access areas (graveled and paved construction entrances, exits, roadways, equipment parking areas, etc.). (Schedule A.5.b.ii.(1)).	X		
d. Location of any proposed fuel storage and fuel areas and other hazard materials and wastes including concrete truck and other concrete equipment washout areas and other non-stormwater controls prior to start of construction activities. (Schedule A.5.b.ii.(3))		X	
e. Identify soil types including erosion potential. (Schedule A.6.c.iii)	X		
f. Site location map. The site map must show sufficient roads and features to locate and access the site. (Can be separate from drawings.) (Schedule A.6.d.ii)	X		
g. Total property boundary including surface area of development. (Schedule A.6.d.iii)	X		
h. Location, size, and type of all soil disturbances (including, but not limited to, cut and fill areas and pre and post development elevation contours). (Schedule A.6.d.iv)	X		
i. Drainage patterns of pre- and post-development are clearly indicated by contours or drainage flow direction-arrows. (Schedule A.6.d.v)	X		
j. Location, size, and type of stormwater discharge points to receiving water(s) or stormwater conveyance systems. (Schedule A.6.d.vi) & (Schedule A.6.d.xiii)			X
k. Location of areas used for the storage of soils or wastes. (Schedule A.6.d.vii)		X	
l. Location of areas where vegetative erosion control practices are to be implemented. (Schedule A.6.d.viii)	X		
m. Location of all erosion and sediment control measures or structures. (Schedule A.6.d.ix)	X		
n. Location of impervious structures post-construction (Include buildings, roads, parking lots, outdoor storage areas, etc., as applicable.). (Schedule A.6.d.x)	X		
o. Location of springs, wetlands and other surface waters adjacent to and on-site. (Schedule A.6.d.xi)	X		
p. Boundaries of 100-year floodplains if determined and easily available. (Schedule A.6.d.xii)			X
q. Location of stormwater discharge points to receiving water(s) or stormwater conveyance systems if applicable. (Schedule A.6.d.xiii)			X
r. Location of storm drain catch basins and the location of catch basins with inlet protection and a description of the type of catch basins used (e.g., curb inlet, field inlet, grated drain, combination, etc.). (Sch. A.6.d.xiv)			X
s. Location of septic drain fields. (Schedule A.6.d.xv)		X	
t. Location of existing or proposed drywells or other UICs. (Schedule A.6.d.xvi)		X	
u. Location of drinking water wells. (Schedule A.6.d.vii)		X	
v. Details of sediment and erosion controls including installation techniques. (Schedule A.6.d.xviii)	X		
w. Details of temporary or permanent sedimentation basins, detention ponds, storm drain piping, inflow and outflow details. (Schedule A.6.d.xix)			X
x. Verify that Standard Drawing Notes are provided on drawing and are correct.	X		

* Not Applicable

STANDARD EROSION AND SEDIMENT CONTROL NOTES:

1. HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.5.B.I.(3))
2. THE ESCP MUST BE KEPT ONSITE AND ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN MUST BE INSTALLED IN SUCH A MANNER TO ENSURE THAT SEDIMENT OR SEDIMENT LADEN WATER THAT ENTERS OR IS LIKELY TO ENTER SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATER, ROADWAY, OR OTHER PROPERTIES DOES NOT OCCUR. (SCHEDULE A.3.A) AND (SCHEDULE B.3.B)
3. THE IMPLEMENTATION OF THE ESCP AND CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THE EROSION AND SEDIMENT CONTROL MEASURES IS THE RESPONSIBILITY OF THE PERMIT REGISTRANT UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE LOCAL DEVELOPMENT AGENCY AND VEGETATION/LANDSCAPING IS ESTABLISHED. THE PERMIT REGISTRANT SHALL BE RESPONSIBLE FOR MAINTENANCE AFTER THE LOTS ARE APPROVED, UNTIL THE LOTS ARE SOLD AND THE 1200-C PERMIT IS TERMINATED. (SCHEDULE A.4.A.) AND (SCHEDULE D.3.)
4. THE PERMIT REGISTRANT MUST BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH LOCAL, STATE, OR FEDERAL REGULATIONS. (SCHEDULE A.5.A) AND (SCHEDULE A.6.A)
5. EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS. (SCHEDULE A.5.B.II.(2)), (SCHEDULE A.5.B.II.(7)), (SCHEDULE A.7.D.I.(2)) & (SCHEDULE A.7.F.)
6. BEGIN LAND CLEARING, EXCAVATION, TRENCHING, CUTTING OR GRADING AND EARTHWORK-SURFACE ROUGHING AFTER INSTALLING APPLICABLE SEDIMENT, EROSION PREVENTION AND RUNOFF CONTROL MEASURES NOT IN THE DIRECT PATH OF WORK. (SCHEDULE A.5.B.II.(5)(A)), (SCHEDULE A.7.C.I.(1)) AND (SCHEDULE A.7.C.II.(1))
7. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS. (SCHEDULE A.5.B.II.(5).(B), (SCHEDULE A.5.B.II.(5)(C) & SCHEDULE A.5.B.II.(6).)
8. WET WEATHER BMP'S: CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND ON SLOPES GREATER THAN FIVE (5) PERCENT FROM OCTOBER 1 THROUGH MAY 31 EACH YEAR. (SCHEDULE A.7.A.I.)
9. WET WEATHER BMP'S: TEMPORARY STABILIZATION OF THE SITE MUST BE INSTALLED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND OR AT THE END OF EACH WORKDAY IF RAINFALL IS FORECAST IN THE NEXT 24 HOURS AND EACH WEEKEND AND HOLIDAY. (SCHEDULE A.7.A.II.)
10. IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. PRESERVE EXISTING VEGETATION AND RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. (SCHEDULE A.5.B.I.(1) & (2)) AND (SCHEDULE A.7.C.III.(1))
11. PROVIDE PERMANENT EROSION PREVENTION MEASURES ON ALL EXPOSED AREAS TO PREVENT FROM BECOMING A SOURCE OF EROSION AND REMOVE ALL TEMPORARY CONTROL MEASURES, UNLESS LOCAL ORDINANCES REQUIRE OTHERWISE, AS AREAS ARE STABILIZED. (SCHEDULE A.5.B.II.(8)) AND (SCHEDULE A.7.C.II.(2))
12. ALL TEMPORARY SEDIMENT CONTROLS MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERING OF EXPOSED SOIL IS ESTABLISHED. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.C.III.(3)) & (SCHEDULE A.7.C.III.(4))
13. SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ALONG THE SITE PERIMETER ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE AND AT ALL ACTIVE AND OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION. (SCHEDULE A.7.D.I.(1) – (2))
14. PRIOR TO ANY LAND DISTURBING ACTIVITIES EACH SITE MUST HAVE GRAVELED, PAVED, OR CONSTRUCTED ENTRANCES, EXITS AND PARKING AREAS WITH EXIT TIRE WASH TO REDUCE THE TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS. (SCHEDULE A.7.D.III.(1))
15. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER WATERTIGHT TRUCKS MUST BE USED OR LOADS MUST BE DRAINED ON-SITE UNTIL DRIPPING HAS BEEN REDUCED TO MINIMIZE SPILLAGE ON ROADS. (SCHEDULE A.7.D.III(3))
16. TEMPORARY STABILIZATION OR COVERING OF SOIL STOCKPILES AND PROTECTION OF STOCKPILE LOCATED AWAY FROM CONSTRUCTION ACTIVITY MUST OCCUR AT THE END OF EACH WORKDAY OR OTHER BMP'S, SUCH AS DIVERSION OF UNCONTAMINATED FLOWS AND INSTALLATION OF SEDIMENT FENCES AROUND STOCKPILES, MUST BE IMPLEMENTED TO PREVENT TURBID DISCHARGES TO SURFACE WATERS. (SCHEDULE A.7.E.I.(1)) & (SCHEDULE A.7.E.II.(1) – (3))
17. BMP'S WILL BE USED TO PREVENT OR MINIMIZE STORMWATER FROM BEING EXPOSED TO POLLUTANTS FROM SPILLS, DISCHARGE OF CONCRETE TRUCK WASH WATER, VEHICLE AND EQUIPMENT CLEANING, VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE, OTHER CLEANING AND MAINTENANCE ACTIVITIES, AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, LEFTOVER PAINTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
18. ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL. (SCHEDULE A.7.E.III.(2))
19. SOLID WASTE AND HAZARDOUS MATERIALS MANAGEMENT. FOLLOW PROJECT WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES; REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY; AND MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, MATERIAL USE, COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCHEDULE A.7.E.III(3))
20. THE PERMITTEE MUST PROPERLY MANAGE HAZARDOUS WASTES, USED OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, OR OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION AND MEET ALL STATE AND FEDERAL REGULATIONS AND APPROVALS. (SCHEDULE A.7.E.III.(4))
21. THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE MEASURES MUST BE UPGRADED AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. CHANGES TO THE ESCP MUST ALSO BE SUBMITTED IN THE FORM OF AN ACTION PLAN TO DEQ OR ITS AGENT FOR APPROVAL. (SCHEDULE A.7.F.)
22. SIGNIFICANT AMOUNTS OF SEDIMENT, WHICH LEAVES THE SITE, MUST BE CLEANED UP WITHIN 24 HOURS AND PLACED BACK ON THE SITE AND STABILIZED OR PROPERLY DISPOSED. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIME FRAME. (SCHEDULE A.7.F.I.(1))
23. VACUUMING OR DRY SWEEPING MUST BE USED TO CLEAN-UP RELEASED SEDIMENT AND MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES. (SCHEDULE A.7.F.I.(2))
24. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. TIME-RELEASE FERTILIZERS SHOULD BE USED WITH CARE WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.7.F.I.(3))
25. SEDIMENT MUST BE REMOVED FROM BEHIND A SEDIMENT FENCE WHEN IT HAS REACHED A HEIGHT OF 1/3 THE HEIGHT OF THE FENCE ABOVEGROUND AND BEFORE FENCE REMOVAL. (SCHEDULE A.7.F.II.(1))
26. SEDIMENT MUST BE REMOVED FROM BEHIND BIO BAGS AND OTHER BARRIERS IT HAS REACHED A HEIGHT OF TWO (2) INCHES AND BEFORE BMP REMOVAL. (SCHEDULE A.7.F.II.(2))
27. REMOVAL OF TRAPPED SEDIMENT IN A SEDIMENT BASIN OR SEDIMENT TRAP OR CATCH BASINS MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY (50)% AND AT COMPLETION OF PROJECT. (SCHEDULE A.7.F.II.(3) & (4))
28. DEQ MUST APPROVE OF ANY TREATMENT SYSTEM AND OPERATIONAL PLAN THAT MAY BE NECESSARY TO TREAT CONTAMINATED CONSTRUCTION DEWATERING OR SEDIMENT AND TURBIDITY IN STORMWATER RUNOFF. (SCHEDULE A.7.F.III.)
29. SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR THIRTY DAYS OR MORE, THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD. (SCHEDULE A.8.A.)
30. SHOULD CONSTRUCTION ACTIVITIES CEASE FOR FIFTEEN (15) DAYS OR MORE ON ANY SIGNIFICANT PORTION OF A CONSTRUCTION SITE TEMPORARY STABILIZATION IS REQUIRED FOR THAT PORTION OF THE SITE WITH STRAW, COMPOST, OR OTHER TACKIFIED COVERING THAT PREVENT SOIL OR WIND EROSION UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.8.B.)
31. DAILY INSPECTIONS, WHEN RAINFALL AND RUNOFF OCCURS, OF THE BMP'S AND DISCHARGE OUTFALLS MUST BE THE RESPONSIBILITY OF THE PROJECT ESCP INSPECTOR. THESE INSPECTIONS AND OBSERVATIONS MUST BE RECORDED IN A LOG THAT IS AVAILABLE ON SITE. (SCHEDULE A.6.B.I.) & (SCHEDULE B.1.B(1))
32. BMP'S MUST BE INSPECTED BEFORE, DURING, AND AFTER SIGNIFICANT STORM EVENTS. (SCHEDULE A.7.F.)
33. ALL ESCP CONTROLS AND PRACTICES MUST BE INSPECTED VISUALLY ONCE TO ENSURE THAT BMP'S ARE IN WORKING ORDER PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY AND MUST BE INSPECTED VISUALLY ONCE EVERY TWO (2) WEEKS DURING INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS. (SCHEDULE B.1.B.(2)-(3))
34. IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION DURING PERIODS WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER. (SCHEDULE B.1.B.(4))

BMP MATRIX FOR CONSTRUCTION PHASES

REFER TO DEQ GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF AVAILABLE BMP'S.

	CLEARING	MASS GRADING	UTILITY INSTALL	STREET CONSTRUCTION	FINAL STABIL.	WET WEATHER (OCT 1 - MAY 31)
EROSION PREVENTION						
PRESERVE NATURAL VEGETATION	X	X	X	X	X	X
GROUND COVER (MULCHING)		X	X	X		X
SOIL BINDERS / TACKIFIERS		X	X	X	X	X
DUST CONTROL		X	X	X	X	
TEMP / PERM SEEDING					X	
VEGETATIVE BUFFER ZONES	** X	X	X	X	X	X
SEDIMENT CONTROL						
SEDIMENT FENCE	** X	X	X	X	X	X
STRAW WATTLES	** X	X	X	X	X	X
COMPOST SOCK	** X	X	X	X	X	X
CONSTRUCTION ENTRANCES	** X	X	X	X	X	X
CONCRETE TRUCK WASHOUT			X	X	X	X
STOCKPILE ESC PRACTICES		X	X	X	X	X
POLLUTION PREVENTION						
PROPER SIGNAGE	X	X	X	X	X	X
HAZ WASTE MGMT	X	X	X	X	X	X
SPILL KIT ON-SITE	X	X	X	X	X	X

** SIGNIFIES BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.

SCHEDULE:

CONSTRUCTION IS ANTICIPATED TO COMMENCE JUNE 1, 2010 AND CONTINUE THROUGH DECEMBER 31, 2011. BMP'S LISTED IN THE MATRIX WOULD BE IN PLACE AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

RATIONALE STATEMENT:

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ'S 1200-C PERMIT APPLICATION AND ESCP GUIDANCE DOCUMENT HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP'S WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS, TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS. AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESCP, AN ACTION PLAN WILL BE SUBMITTED.

SPS
INITIAL

BMP NOTES:

1. FOR MULCHING, APPLY STRAW FROM A CERTIFIED WEED FREE SOURCE AT A RATE OF 2 TONS/ACRE (STRAW BLANKET APPROXIMATELY 2" THICK). CRIMP INTO SOIL TO MINIMIZE BLOWING.
2. FOR DUST CONTROL, APPLY WATER AS NEEDED TO HAULING ROUTES VIA WATER TRUCK, SPRINKLER OR OTHER MEANS, TO MINIMIZE DUST.
3. SOIL BINDERS SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATION TO AREAS IDENTIFIED BY INSPECTOR TO MINIMIZE EROSION BY WIND AND WATER.
4. TACKIFIERS MAY BE APPLIED TO STRAW MULCH TO PREVENT BLOWING. DULUTE A LIQUID STABILIZER EMULSION WITH WATER AT A RATE OF ONE PART EMULSION TO 30 PARTS WATER, AND APPLY THE DILUTED MIXTURE AT A RATE OF 865 GALLONS PER ACRE UNLESS THE MANUFACTURER RECOMMENDS A GREATER RATE OF APPLICATION. ALTERNATELY, DRY POWDER TACKIFIERS MAY BE APPLIED TO STRAW MULCH AT A RATE OF 80 POUNDS PER ACRE UNLESS THE MANUFACTURER RECOMMENDS A GREATER RATE OF APPLICATION.
5. SEEDING SHALL BE APPLIED VIA HYDROSEED, BROADCAST, OR DRILL METHOD PER INDUSTRY STANDARDS.

PERMANENT EROSION CONTROL SEED MIX:

COMMON NAME	SCIENTIFIC NAME	LBS/AC
SHERMAN BIG BLUEGRASS	POA AMPLA	2
MAGNAR BASIN WILDRYE	LEYMUS CINEREUS	2
WHITMAR BEARDLESS WHEATGRASS	PSEUDOROEGNERIA SPICATA SSP. INERMIS	2
SANDBERG BLUEGRASS	POA SECUNDA	2.5
IDAHO FESCUE	FESTUCA IDAHOENSIS	2.5
BASIN BIG SAGEBRUSH	ARTEMISIA TRIDENTATA SSP. TRIDENTATE	1
TOTAL:		12

NOTE:
DISTURBED AGRICULTURAL FIELDS (I.E., WHEAT) WILL BE REVEGETATED IN ACCORDANCE WITH LANDOWNER REQUIREMENTS.

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LOTUSWORKS – SUMMIT RIDGE I
EROSION AND SEDIMENT CONTROL PLAN
NOTES

DATE: 8-27-09	SHEET ESCP-1 OF 4

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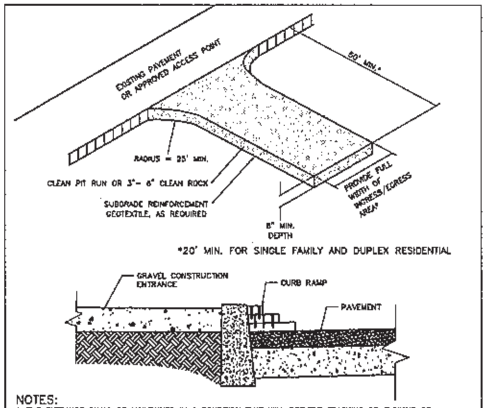
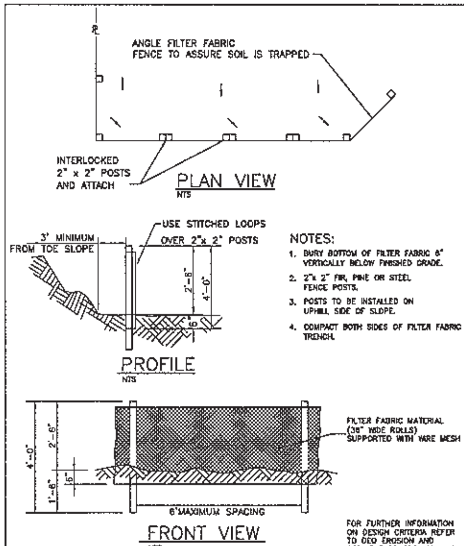


NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF- WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY
   20' LONG BY 20' WIDE 8" DEEP OF ¾" MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE 3-6" CLEAN ROCK.
   GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

FOR FURTHER INFORMATION ON DESIGN CRITERIA REFER TO DEQ EROSION AND SEDIMENT CONTROL MANUAL.

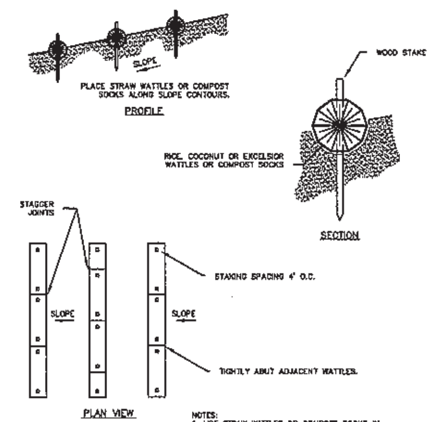
CONSTRUCTION ENTRANCE



NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.

FOR FURTHER INFORMATION ON DESIGN CRITERIA REFER TO DEQ EROSION AND SEDIMENT CONTROL MANUAL.

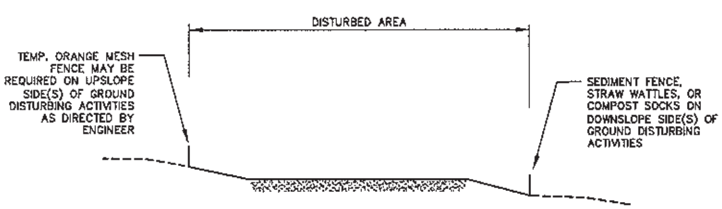
SEDIMENT FENCE



NOTES:
1. USE STRAW WATTLES OR COMPOST SOCKS IN ADDITION TO SEDIMENT FENCING ON DISTURBED SLOPES STEEPER THAN 3:1.
2. FOR BARRIER SPACING SEE TABLE, THIS SHEET.
3. STAKING SPECIFICATIONS:
   a. 1"x2"X18" WOODEN STAKES
   b. ADDITIONAL STAKES MAY BE INSTALLED ON DOWNHILL SIDE OF STRAW WATTLES OR COMPOST SOCKS, ON STEEP SLOPES OR HIGHLY EROSIVE SOILS.

FOR FURTHER INFORMATION ON DESIGN CRITERIA REFER TO DEQ EROSION AND SEDIMENT CONTROL MANUAL.

STRAW WATTLES / COMPOST SOCKS



TYP. SECTION SHOWING SEDIMENT BARRIER LOCATIONS

NOTES:
1. INSTALL SEDIMENT FENCE, STRAW WATTLES, OR COMPOST SOCKS DOWNSLOPE OF ALL GROUND DISTURBING ACTIVITIES, PARALLELL ALONG CONTOUR, PRIOR TO ANY DISTURBANCE.
2. ON AREAS WHERE THE AVERAGE SLOPE IS 3:1 OR FLATTER, SEDIMENT FENCE, STRAW WATTLES, OR COMPOST SOCKS MAY BE USED ALONE, PARALLELL ALONG CONTOUR.
3. ON AREAS WHERE SLOPES ARE GREATER THAN 3:1 USE SEDIMENT FENCE AT TOE OF SLOPE AND/OR EDGE OF DISTURBED AREA, IN CONJUNCTION WITH STRAW WATTLES OR COMPOST SOCKS ALONG SLOPE PARALLEL TO CONTOURS (SEE DETAIL AND SPACING CHART, THIS SHEET).
4. INSTALL TEMP. ORANGE MESH FENCE UPSLOPE OF CONSTRUCTION AREAS ADJACENT TO VEGETATIVE BUFFER ZONES OR VEGETATION AREAS TO BE PRESERVED.

STRAW WATTLE / COMPOST SOCK SPACING:

INSTALL PARALLEL ALONG CONTOURS AS FOLLOWS

% SLOPE	MAXIMUM SPACING ON SLOPE
< 10:1	300'
10:1 > X ≥ 7.5:1	150'
7.5:1 > X ≥ 5:1	100'
5:1 > X ≥ 3:1	50'
> 3:1 X	25'

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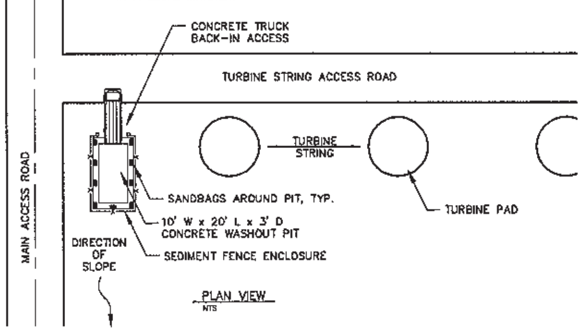
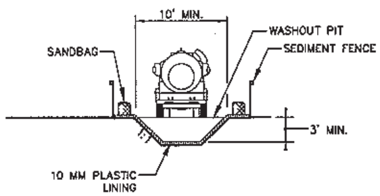
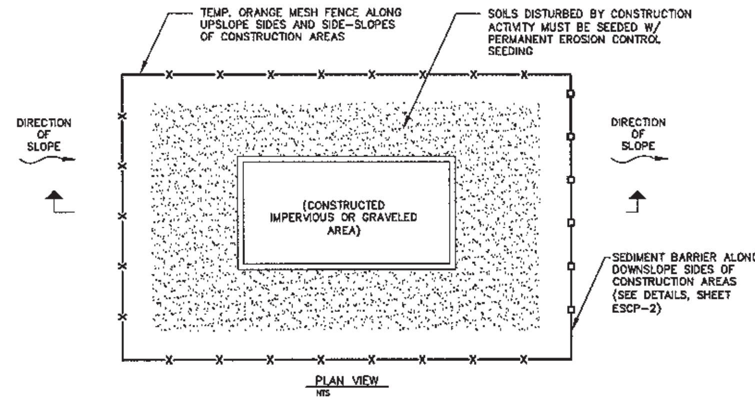
DATE: 8-27-09 | SHEET ESCP-2 OF 4

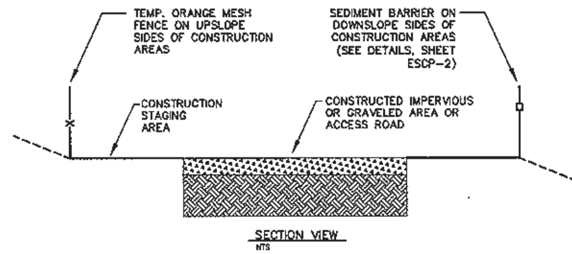
NOTES:
1. CONCRETE WASHOUT PITS ARE TO BE PROVIDED AT EACH TURBINE STRING.
2. IT IS ANTICIPATED THAT WASHOUT WATER WILL EVAPORATE PRIOR TO DISPOSAL.
3. DELETERIOUS MATERIAL (I.E. HARDENED SLURRY) IS TO BE DISPOSED OF IN A LEGAL MANNER.





CONCRETE TRUCK WASHOUT SCHEMATIC

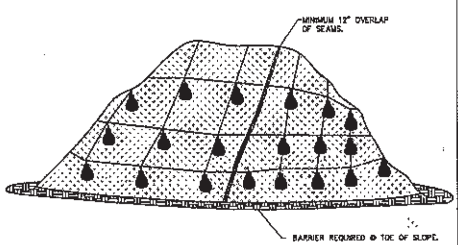




NOTES:
1. REFER TO SEDIMENT BARRIER DETAIL, SHEET ESCP-2.
2. TYPICAL EROSION CONTROL MEASURES ARE SIMILAR FOR ALL RELATED AND SUPPORTING FACILITIES AS FOLLOWS: (1) THE POWER COLLECTION SYSTEM; (2) THE PROJECT SUBSTATIONS; (3) THE OPERATION AND MAINTENANCE (O&M) FACILITY; (4) METEOROLOGICAL TOWERS; (5) ADDITIONAL CONSTRUCTION AREAS INCLUDING TEMPORARY LAYDOWN AREAS, TOWER PADS, BATCH PLANT, AND ROCK CRUSHER. (FOR DESCRIPTIONS OF RELATED AND SUPPORTING FACILITIES, SEE EXHIBIT B.)
3. IT IS ANTICIPATED THAT ALL ACCESS ROADS WILL BE ROCKED. ACCESS ROADS WILL BE LEFT IN PLACE UPON COMPLETION OF CONSTRUCTION PER LANDOWNER REQUEST.
4. CUTS AND FILLS FOR ROAD CONSTRUCTION SHALL BE STABILIZED VIA MULCHING AND SEEDING.
5. FOR ALL CONSTRUCTION STAGING AREAS, SUPPORTING FACILITIES AND ACCESS ROADS WITH CUTS AND FILLS, SEDIMENT BARRIER SHALL BE PLACED ALONG THE CONTOUR AT TOE OF FILL.

TYP. EROSION CONTROL FOR CONSTRUCTION STAGING AREAS, SUPPORTING FACILITIES, AND ACCESS ROADS

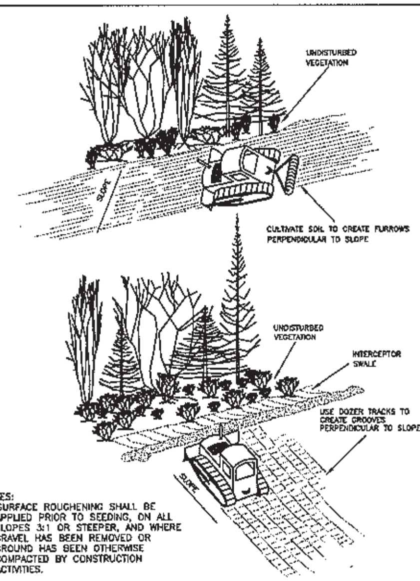
FOR FURTHER INFORMATION ON DESIGN CRITERIA REFER TO DEQ EROSION AND SEDIMENT CONTROL MANUAL.



PLASTIC SHEETING

NOTES:
1. PLASTIC SHEETING (OR APPROVED EQUAL) SHALL BE USED TO STABILIZE SOIL STOCKPILES WHEN SOIL MOISTURE IS NOT CONDUCIVE TO ESTABLISHING VEGETATION VIA TEMPORARY SEEDING.
2. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
3. BARRIER REQUIRED @ TOE OF STOCK PILE.
4. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR TIRES ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.
5. STOCKPILES SHALL BE STABILIZED IF LEFT IN PLACE MORE THAN 15 DAYS.

PLASTIC SHEETING



NOTES:
1. SURFACE ROUGHENING SHALL BE APPLIED PRIOR TO SEEDING, ON ALL SLOPES 3:1 OR STEEPER, AND WHERE GRAVEL HAS BEEN REMOVED OR GROUND HAS BEEN OTHERWISE COMPACTED BY CONSTRUCTION ACTIVITIES.

SURFACE ROUGHENING CAT TRACKING

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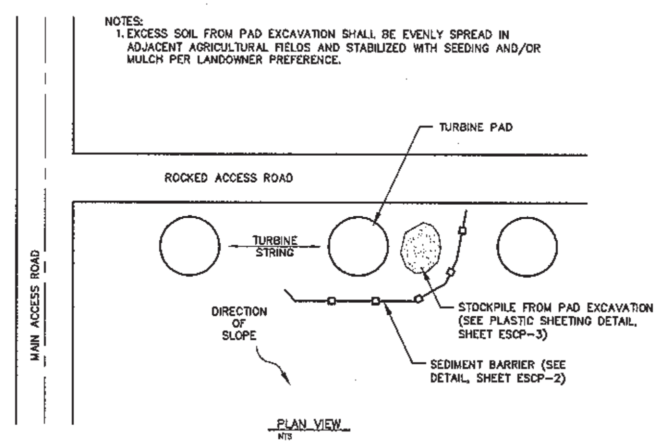
DATE: 8-27-09 | SHEET ESCP-3 OF 4

NOTES:
1. EXCESS SOIL FROM PAD EXCAVATION SHALL BE EVENLY SPREAD IN ADJACENT AGRICULTURAL FIELDS AND STABILIZED WITH SEEDING AND/OR MULCH PER LANDOWNER PREFERENCE.



TURBINE PAD SCHEMATIC

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EROSION AND SEDIMENT CONTROL PLAN
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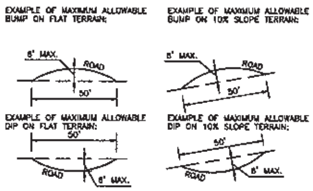
GENERAL NOTES:

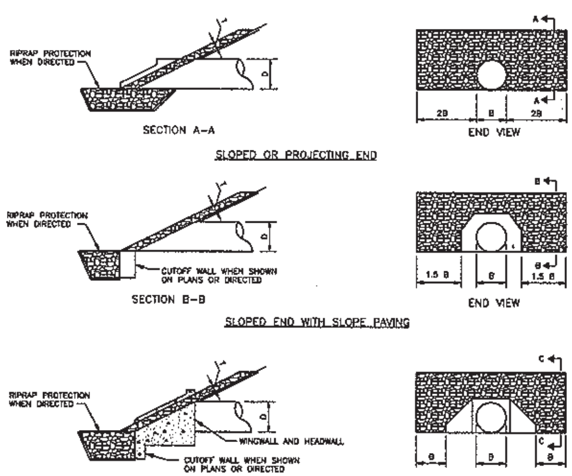
1. ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS, THE PROJECT SPECIFICATIONS, THE WASCO COUNTY BUILDING CODES, WASCO COUNTY DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS, THE OREGON DEPARTMENT OF TRANSPORTATION (ODOT), AND THE OREGON DEPARTMENT OF ENERGY (ODOE).
2. WASCO COUNTY IS A MEMBER OF THE UNDERGROUND SERVICE ALERT (U.S.A.) ONE-CALL SYSTEM. THE CONTRACTORS SHALL NOTIFY THE U.S.A. CENTER 48 HOURS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK BY CALLING 1-800-332-2344.
3. THE CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OF THE NEW IMPROVEMENTS CONNECTING TO OR IN THE VICINITY OF THE SAME.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MONUMENTS AND OTHER SURVEY MARKERS ON THE JOB SITE.
5. ASPHALT CONCRETE SURFACE SHALL BE CUT TO A NEAT, STRAIGHT LINE PARALLEL WITH THE STREET CENTERLINE AND THE EXPOSED EDGE SHALL BE TACKED WITH EMULSION PRIOR TO PAVING. THE EXPOSED BASE MATERIAL SHALL BE GRADED, RECOMPACTED, AND RESEALED PRIOR TO PAVING.
6. IF APPLICABLE PRIOR TO EXCAVATION OF TRENCHES 5 FEET OR DEEPER, THE CONTRACTOR SHALL SUBMIT TO THE PUBLIC WORKS DEPARTMENT A COPY OF THE COMPANY'S ANNUAL OSHA TRENCHING PERMIT AND A COPY OF THE COMPANY'S LETTER INFORMING OSHA OF THE TIME TRENCHING IS COMMENCING AND THE LOCATION OF THE WORK.
7. THE DEVELOPER'S CONTRACTOR SHALL TAKE EXTREME CARE TO PROTECT EXISTING SITE AND ADJACENT IMPROVEMENTS AND/OR LOCAL SITE CONDITIONS FROM DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR OR MAKE REPLACEMENT OF ALL CRACKED AND OTHERWISE PRE-EXISTING DAMAGED PUBLIC IMPROVEMENTS ALONG THE FRONTAGE OF THE PROJECT SITE AND ANY DAMAGE RESULTING FROM CONSTRUCTION TO CURRENT COUNTY STANDARDS AND AT THEIR OWN EXPENSE. THE EXTENT OF THE REPAIRS SHALL BE DETERMINED BY THE PUBLIC WORKS INSPECTOR AND SHALL BE COMPLETED PRIOR TO THE COUNTY ACCEPTANCE OF THE IMPROVEMENTS.
8. ROADWAY LOCATIONS SHOWN ON THESE PLANS MAY BE ALTERED TO AVOID SENSITIVE AREAS OR TO IMPROVE CONSTRUCTABILITY. "AS BUILT" DRAWINGS WILL BE PROVIDED UPON COMPLETION TO THE OWNER BY THE CONTRACTOR TO REFLECT ROAD AND TURBINE PAD MODIFICATIONS MADE DURING CONSTRUCTION.
9. ROADWAYS SHOWN HEREIN ARE FOR THE SOLE PURPOSE OF OF PROVIDING MAINTENANCE AND CONSTRUCTION ACCESS TO THE PROJECT AND EMERGENCY ACCESS FOR FIRE, AMBULANCE, OR LAW ENFORCEMENT. THE SITE SHALL BE MADE ACCESSIBLE TO EMERGENCY SERVICES AT ALL TIMES.
10. ROADWAYS SHALL BE MAINTAINED BY CONTRACTOR DURING PROJECT CONSTRUCTION.
11. ON-SITE ACCESS ROADS SHALL BE RESTRICTED FROM USE BY THE GENERAL PUBLIC BY PROJECT OWNER.
12. MINIMUM TURNING RADII, ROADWAY DIMENSIONS, ETC. TO BE VERIFIED PRIOR TO CONSTRUCTION BASED ON TRANSPORT TRAILER CONFIGURATION.

GRADING NOTES:

1. GRADING SHALL CONFORM TO INTERNATIONAL BUILDING CODE, APPENDIX J 2006 EDITION.
2. NON-POTABLE WATER SHALL BE SPRAYED ON ALL EXPOSED EARTH SURFACES DURING CLEARING GRADING, EARTH MOVING, AND OTHER SITE PREPARATION ACTIVITIES. THE EXPOSED EARTH SHALL BE WATERED THROUGHOUT THE DAY TO MINIMIZE DUST.
3. TARPAULINS OR OTHER EFFECTIVE COVERS SHALL BE USED ON ALL STOCKPILED EARTH MATERIAL AND ON HAUL TRUCKS TO MINIMIZE DUST.
4. THE OWNER SHALL HAVE THE AUTHORITY TO STOP ALL GRADING OPERATIONS, IF INADEQUATE DUST CONTROL MEASURES ARE BEING PRACTICED OR EXCESSIVE WIND CONDITIONS CONTRIBUTE TO FUGITIVE DUST EMISSIONS.
5. ANY PAVED ROADS ADJACENT TO THE PROJECT SHALL BE SWEPT AT LEAST ONCE A DAY TO REMOVE SILT AND OTHER DIRT WHICH IS EVIDENT FROM CONSTRUCTION ACTIVITIES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING CONSTRUCTION VEHICLES LEAVING THE SITE ON A DAILY BASIS TO PREVENT DUST, SILT AND DIRT FROM BEING RELEASED OR TRACKED OFFSITE.
7. ANY AND ALL GROUND DISTURBANCE ACTIVITIES REQUIRES THAT THE BIOLOGICAL MONITOR CONDUCT A PREDISTURBANCE SURVEY, INCLUDING AREAS THAT HAVE NOT HAD ACTIVITIES IN THE 2 WEEKS PRIOR.
8. SHOULD GRADING OPERATIONS UNCOVER HAZARDOUS MATERIALS, OR WHAT APPEARS TO BE HAZARDOUS MATERIALS, THE FIRE DEPARTMENT SHALL BE CONTACTED IMMEDIATELY. THE AREA, WHICH CONTAINS THE HAZARDOUS MATERIALS, SHALL BE MARKED OFF UNTIL AN INVESTIGATION BY A MEMBER OF THE FIRE DEPARTMENT IS CONDUCTED.
9. GRADES SHOWN OUTSIDE OF THE PUBLIC RIGHT OF WAY WITHIN THE APPROVED GRADING PLAN ARE SUBJECT TO FURTHER REVIEW AND MODIFICATION BY THE OWNER FOR COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE AND ADA HANDICAP ACCESSIBILITY REQUIREMENTS.
10. TOPSOIL SHALL BE STRIPPED AND STORED FOR RE-USE DURING RECLAMATION WORKS. TOPSOIL IS DEFINED AS THE TOP 18" OF MATERIAL.
11. PRIOR TO CONSTRUCTION, THE EXISTING GROUND SHALL BE CLEARED OF BRUSH AND DEBRIS. ALL UNSUITABLE MATERIAL SHALL BE DISPOSED OF AT AN APPROVED LOCATION.
12. POSITIVE DRAINAGE IS REQUIRED AWAY FROM ALL FOOTINGS OR LOAD BEARING STRUCTURES. DRAINAGE SHALL BE COLLECTED AND DIRECTED BY SWALES, CHANNELS, OR PIPES TO NATURAL DRAINAGE.
13. IN GENERAL, CONTROL OF EROSION ENTAILS GETTING STORM RUNOFF TO THE NATURAL CHANNEL WITH MINIMUM EROSION. EROSION AND SEDIMENTATION SHALL BE MINIMIZED BY IMPLEMENTATION OF THE BMPS SHOWN ON THE EROSION CONTROL PLAN.



ALLOWABLE BUMPS & DIPS
NOT TO SCALE



SLOPED OR PROJECTING END

SLOPED END WITH SLOPE PAVING

HEADWALL AND WINGWALLS
NOT TO SCALE

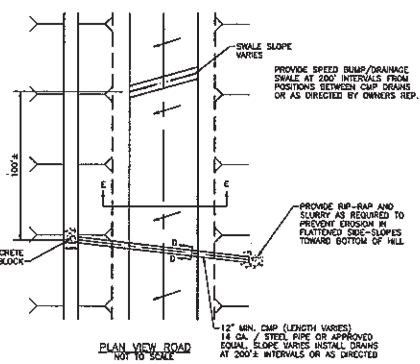
B = Diameter of circular barrel or span of arch pipe, box, or open-bottom arch.
D = Diameter of circular barrel or rise of arch pipe, box, or open-bottom arch.
T = Thickness of riprap blanket, see Table A.

TABLE A	
Riprap Class	T Distance
50	12 inches
100	18 inches
200	24 inches *
700	36 inches *

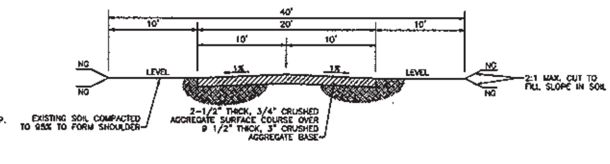
* Filter blanket required between riprap and embankment

NOTE:
DETAIL PER ODOT STANDARD DETAIL RD317. REFER TO RD317 FOR FURTHER DETAIL.

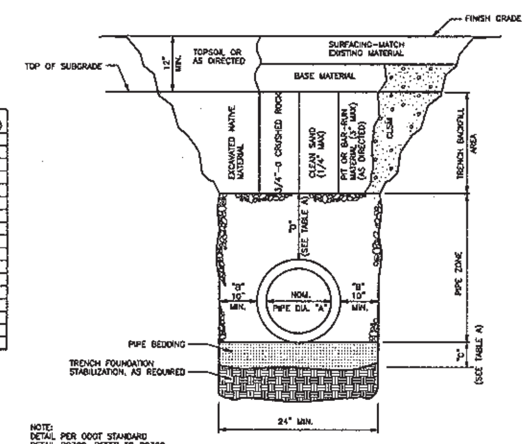
METAL END SECTIONS FOR CIRCULAR PIPES										
Pipe Dia.	Min. Thkn.		Dimensions				L Dimensions			
	GA	in.	A	H	W	Overall Width	Nom. Slope	Length	Nom. Slope	Length
15"	16	0.064	8"	6"	21"	37"	1:4	1'-8"	1:6	2'-6"
18"	16	0.064	8"	6"	24"	40"	1:4	2'-8"	1:6	4'-0"
21"	16	0.064	8"	6"	27"	43"	1:4	3'-8"	1:6	5'-6"
24"	16	0.064	8"	6"	30"	46"	1:4	4'-8"	1:6	7'-0"
30"	12	0.109	12"	9"	36"	60"	1:4	6'-8"	1:6	10'-0"
36"	12	0.109	12"	9"	42"	66"	1:4	8'-8"	1:6	13'-0"
42"	12	0.109	16"	12"	48"	80"	1:4	10'-8"	1:6	16'-0"
48"	12	0.109	16"	12"	54"	86"	1:4	12'-8"	1:6	19'-0"
54"	12	0.109	16"	12"	60"	92"	1:4	14'-8"	1:6	22'-0"
60"	12	0.109	16"	12"	66"	98"	1:4	16'-8"	1:6	25'-0"



PLAN VIEW ROAD
NOT TO SCALE



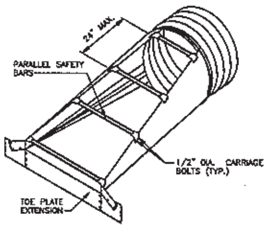
TYPICAL ROAD SECTION E-E
NOT TO SCALE



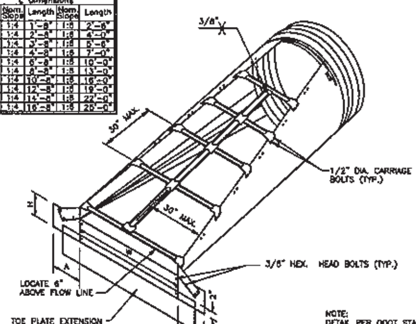
NOTE:
DETAIL PER ODOT STANDARD DETAIL RD300. REFER TO RD300 FOR FURTHER DETAIL.

SECTION D-D
NOT TO SCALE

TABLE A			
"A" (in)	"B" (in)	"C" (in)	"D" (in)
4	10	4	8
6	10	4	8
8	10	6	10
10	10	6	10
12	12	6	10
15	12	6	10
18	16	6	12
21	16	6	12
24	18	6	12
30	18	6	12
36	24	6	14
42	24	6	14
48	24	6	14
54	24	6	14
60	24	6	14
66	24	6	14
72	24	6	14



PARALLEL DRAINAGE STRUCTURE
NOT TO SCALE



CROSS DRAINAGE STRUCTURE
NOT TO SCALE

NOTE:
DETAIL PER ODOT STANDARD DETAIL RD322. REFER TO RD322 FOR FURTHER DETAIL.

PRELIMINARY
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION						
B		ISSUED FOR REVIEW	RLC	CH	CH	JF	GK	MH
A		ISSUED FOR REVIEW		CH	CH	JF	GK	MH

PRELIMINARY STATUS — DATE — REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.
APPROVED STATUS — DATE — REPRESENTS REVIEWED AND APPROVED DESIGN. ANY PORTION MARKED 'HOLD' RETAINS PRELIMINARY STATUS.

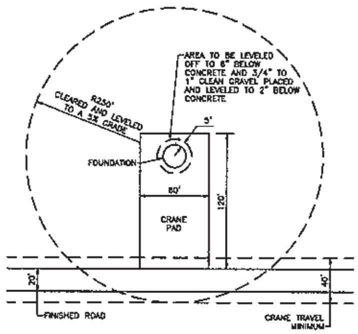
GOVERNING PERSONNEL — PROFESSIONAL ENGINEER'S SEAL
DRAWN BY: C. HUGHES
CHECKED BY: E. HOFFMAN
LEAD DESIGNER: C. HUGHES
ENGINEER/TECH SPECIALIST: J. FRAZEE
PROJECT ENGINEERING MANAGER: G. KISHIYAMA
PROJECT MANAGER: M. HARRINGTON

WorleyParsons
resources & energy

CLIENT/PROJECT TITLE
SUMMIT RIDGE WIND FARM
LOTUSWORKS-SUMMIT RIDGE I, LLC
WASCO COUNTY, OREGON

GRADING AND ROADWAY NOTES
SECTIONS AND DETAILS
WASCO COUNTY, OREGON

SCALE: AS NOTED — DRAWING SIZE: ARCH D (36" x 24")
WORLEYPARSONS DWG. NO.: 6200-01-CI-DSK-0001-001 — REV: B



TYPICAL CRANE PAD
NOT TO SCALE

NOTES:
1. TURBINE AND TRANSFORMER DOORS ALWAYS DOWN WIND.
2. GRADE PAD TO ALWAYS DRAIN AWAY FROM TURBINE AND TRANSFORMER.
3. ADJUST PAD FOR SITE CONDITIONS, CLEAR VEGETATION ADJACENT TO SITE FOR TURBINE ASSEMBLY AND LAY DOWN AREA AS SHOWN.
4. ROTATE DRAWING AS NEEDED TO MATCH ROADWAY/PAD ALIGNMENT.
5. MINIMUM SOIL BEARING CAPACITY OF 8 KSF IS REQUIRED ON CRANE PAD AND ROADWAY.
6. SLOPE OF CRANE PAD TO BE 1% OR LESS IN ALL DIRECTIONS.

TABLE A

CORRUGATED SIZE	X	Y
1' to 3'	0'-4" *	0
3'-6"	0'-6" *	0'-6" *
4'-0"	0'-6" *	0'-6" *
4'-6"	0'-6" *	0'-6" *
5'-0"	0'-6" *	0'-6" *
5'-6"	1'-0"	1'-0"
6'-0"	1'-0"	1'-0"
6'-6"	1'-0"	1'-0"
7'-0"	1'-4"	1'-4"

Slopes as directed.
*0 when used with paved end slope.

CIRCULAR OR ELLIPTICAL PIPE — CORRUGATED STRUCTURAL PLATE												
SIZE	Bl			ALTERNATE - 1 X			ALTERNATE - 1 Y			ALTERNATE - 2 X & Y		
	SLOPES 1:1.5	1:2	1:3	SLOPES 1:1.5	1:2	1:3	SLOPES 1:1.5	1:2	1:3	SLOPES 1:1.5	1:2	1:3
5'-0"	6'-0"	6'-0"	6'-0"	0'-5"	0'-11"	1'-1"	0'-7"	1'-3"	1'-3"	0'-6"	1'-0"	1'-3"
5'-6"	6'-0"	6'-0"	6'-0"	0'-7"	1'-3"	1'-5"	0'-11"	1'-4"	1'-6"	0'-10"	1'-4"	1'-5"
6'-0"	6'-0"	6'-0"	12'-0"	0'-11"	1'-1"	0'-11"	1'-1"	1'-1"	1'-1"	1'-0"	1'-0"	1'-0"
6'-6"	6'-0"	6'-0"	12'-0"	1'-1"	1'-6"	1'-3"	1'-5"	1'-10"	1'-4"	1'-4"	1'-10"	1'-4"
7'-0"	6'-0"	8'-0"	12'-0"	1'-5"	1'-5"	1'-5"	1'-7"	1'-7"	1'-7"	1'-6"	1'-6"	1'-6"
7'-6"	6'-0"	8'-0"	12'-0"	1'-7"	1'-6"	1'-6"	1'-11"	1'-10"	1'-10"	1'-10"	1'-10"	1'-10"
8'-0"	8'-0"	8'-0"	16'-0"	1'-3"	1'-11"	1'-4"	1'-5"	2'-1"	1'-5"	1'-4"	2'-0"	1'-5"
8'-6"	8'-0"	8'-0"	14'-0"	1'-6"	2'-2"	1'-11"	1'-6"	2'-5"	2'-0"	1'-7"	2'-4"	1'-11"
9'-0"	8'-0"	8'-0"	14'-0"	1'-8"	2'-5"	2'-1"	1'-11"	2'-7"	2'-2"	1'-10"	2'-6"	2'-2"
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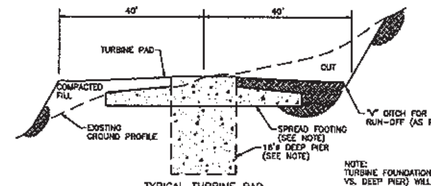
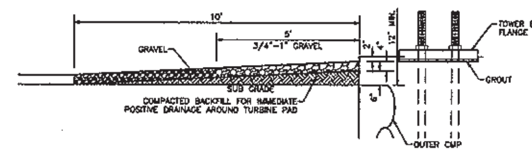
10'-0"	8'-0"	14'-0"	16'-0"	2'-2"	1'-5"	1'-11"	2'-5"	1'-7"	2'-1"	2'-4"	1'-6"	2'-0"
10'-6"	8'-0"	14'-0"	16'-0"	2'-6"	1'-8"	2'-2"	2'-8"	1'-10"	2'-4"	2'-7"	1'-10"	2'-4"
11'-0"	12'-0"	14'-0"	16'-0"	1'-5"	1'-11"	2'-5"	1'-7"	2'-1"	2'-7"	1'-6"	2'-0"	2'-6"
11'-6"	12'-0"	18'-0"	24'-0"	1'-7"	1'-8"	1'-8"	1'-11"	1'-10"	1'-10"	1'-10"	1'-10"	1'-10"
12'-0"	12'-0"	12'-0"	20'-0"	1'-11"	2'-11"	2'-7"	2'-1"	3'-1"	2'-8"	2'-0"	3'-0"	2'-8"
12'-6"	12'-0"	16'-0"	24'-0"	2'-1"	2'-2"	2'-2"	2'-5"	2'-4"	2'-4"	2'-4"	2'-4"	2'-4"
13'-0"	12'-0"	16'-0"	24'-0"	2'-3"	2'-5"	2'-5"	2'-7"	2'-7"	2'-7"	2'-6"	2'-6"	2'-6"
13'-6"	12'-0"	16'-0"	24'-0"	2'-7"	2'-8"	2'-8"	2'-11"	2'-10"	2'-10"	2'-10"	2'-10"	2'-10"
14'-0"	14'-0"	14'-0"	22'-0"	2'-2"	3'-5"	3'-4"	2'-5"	3'-7"	3'-5"	2'-4"	3'-6"	3'-4"
14'-6"	14'-0"	14'-0"	24'-0"	2'-6"	3'-8"	3'-3"	2'-8"	3'-10"	3'-4"	2'-7"	3'-10"	3'-4"
15'-0"	14'-0"	16'-0"	24'-0"	3'-6"	3'-5"	3'-5"	3'-7"	3'-7"	3'-7"	3'-6"	3'-6"	3'-6"

For elliptical pipe increase X and Y dimensions by percent of ellipse.

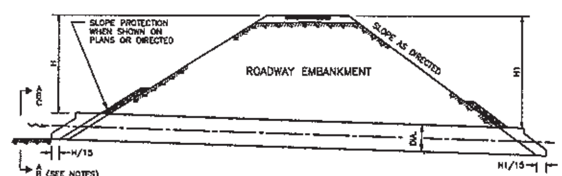


TYPICAL TURBINE PAD
NOT TO SCALE

NOTE:
TURBINE FOUNDATION TYPE (I.E. SPREAD FOOTING VS. DEEP PIER) WILL BE DETERMINED BASED ON GEOTECHNICAL INVESTIGATION TO BE PERFORMED PRIOR TO DETAILED DESIGN.

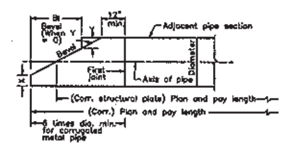


TYPICAL SOIL/GRAVEL PROFILE FOR DRAINAGE AT TURBINE
NOT TO SCALE



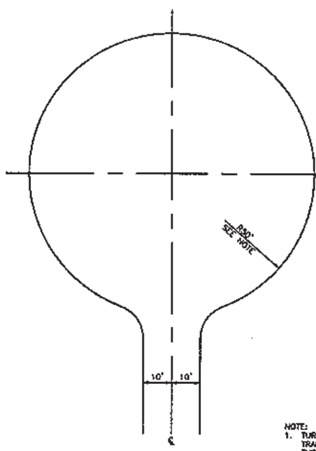
PIPE SECTION
SHOWING LENGTH OF END PROJECTIONS
NOT TO SCALE

NOTES:
1. DETAIL PER ODOT STANDARD DETAIL RD316. REFER TO RD316 FOR FURTHER DETAIL.
2. REFER TO CI-DSK-0001-001 FOR SECTIONS A, B, & C.



LONGITUDINAL SECTION
CIRCULAR OR ELLIPTICAL PIPE
NOT TO SCALE

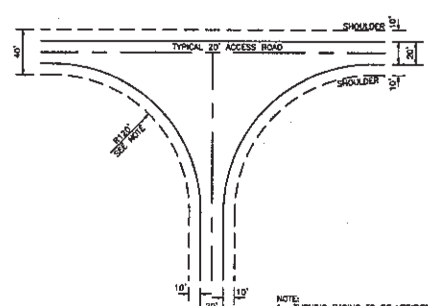
NOTE:
SEE TABLE A ABOVE FOR DIMENSIONS.



TYPICAL TURNAROUND
NOT TO SCALE

NOTE:
1. TURNING RADIUS TO BE VERIFIED WITH TRANSPORT TRAILER CONFIGURATION TURNING RADIUS PRIOR TO CONSTRUCTION.

PRELIMINARY
NOT FOR CONSTRUCTION



ROAD RADII DETAILS
NOT TO SCALE

NOTE:
1. TURNING RADIUS TO BE VERIFIED WITH TRANSPORT TRAILER CONFIGURATION TURNING RADIUS PRIOR TO CONSTRUCTION.

REV	DATE	DESCRIPTION						
B		ISSUED FOR REVIEW	RLC	JF	CH	JF	GK	MH
A		ISSUE FOR REVIEW	CH	EH	CH	JF	GK	MH

PRELIMINARY STATUS — REPRESENTS GENERAL DESIGN CONCEPTS BASED ON ASSUMPTIONS. REVIEWED NOT CHECKED.
APPROVED STATUS — REPRESENTS REVIEWED AND APPROVED DESIGN. ANY PORTION MARKED "HOLD" RETAINS PRELIMINARY STATUS.

ORIGINATING PERSONNEL / PROFESSIONAL ENGINEER'S SEAL
DRAWN BY: C. HUGHES
CHECKED BY: E. HOFFMAN
LEAD DESIGNER: C. HUGHES
ENGINEER/TECH SPECIALIST: J. FRAZEE
PROJECT ENGINEERING MANAGER: G. KISHIYAMA
PROJECT MANAGER: M. HARRINGTON

Zero Harm — Leadership, No Incidents, Safe Behaviour

WorleyParsons
resources & energy

CLIENT/PROJECT TITLE
SUMMIT RIDGE WIND FARM
LOTUSWORKS-SUMMIT RIDGE I, LLC
WASCO COUNTY, OREGON

GRADING AND ROADWAY NOTES
SECTIONS AND DETAILS
WASCO COUNTY, OREGON

SCALE: AS NOTED | DRAWING SIZE: ARCH D (36" x 24")
WORLEYPARSONS DWG. NO.: 6200-01-CI-DSK-0001-002 | REV: B

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Eastern Region Bend Office
475 NE Bellevue Drive, Suite 110
Bend, OR 97701-7415
(541) 388-6146
FAX (541) 388-8283

September 29, 2009

Sue Oliver
Energy Facility Siting Officer
Oregon Department of Energy
Hermiston Field Office
245 E. Main St. Suite C
Hermiston, OR 97838

Re: Confirmation of Permit Application for
Summit Ridge Wind Project
1200-C Construction Stormwater Permit
Sherman County

Dear Ms. Oliver:

On September 1, 2009 the Department of Environmental Quality (Department) received a National Pollutant Discharge Elimination System (NPDES) 1200-C permit application for stormwater discharge from the construction of the Summit Ridge Wind Project. The application was submitted to Jackie Ray, Eastern Region Water Quality Permit Coordinator, in the Department's Pendleton office.

The permit application is complete with the exception of a site certification from the Oregon Department of Energy (ODOE) and review of and revisions to the Erosion and Sediment Control Plan (ESCP) if necessary. The permit application will be approved once the ESCP is determined to meet the application requirements and pending the determination by the Energy Facility Siting Council that the Summit Ridge Wind Project meets Oregon's land use standards.

I reviewed the ESCP for the Summit Ridge Wind Project prior to submittal of the application and do not anticipate that the ESCP will require substantial revisions to meet application requirements. I expect that the Department will be able to issue the NPDES 1200-C construction stormwater permit for the Summit Ridge Wind Project within one to two weeks of receiving the site certification from ODOE and the requested revisions, if any, to the ESCP.

Should you have any questions about the content of this letter, please contact Todd Hesse at 541-633-2026 or hesse.todd@deq.state.or.us.

Sincerely,

Todd Hesse

Todd Hesse
Environmental Engineer
DEQ - Eastern Region
475 NE Bellevue Dr Suite 110
Bend, OR 97701

Cc: Dana Siegfried David Evans and Associates, Inc. 2100 River Parkway Portland, OR 97201

ATTACHMENT I-2

REVEGETATION AND WEED CONTROL PLAN

Revegetation And Weed Control Plan

LotusWorks-Summit Ridge I, LLC Wind Project

Prepared for:

LotusWorks-Summit Ridge I, LLC
9611 NE 117th Ave, Suite 2840
Vancouver, WA 98662

Prepared by:

DAVID EVANS AND ASSOCIATES INC.

David Evans and Associates, Inc.
2100 SW River Parkway
Portland, Oregon 97201

July 2010

Revegetation And Weed Control Plan

LotusWorks-Summit Ridge I, LLC Wind Project

Prepared for:

LotusWorks-Summit Ridge I, LLC
9611 NE 117th Ave, Suite 2840
Vancouver, WA 98662

Prepared by:

DAVID EVANS AND ASSOCIATES INC.

David Evans and Associates, Inc.
2100 SW River Parkway
Portland, Oregon 97201

July 2010

TABLE OF CONTENTS

1 INTRODUCTION

David Evans and Associates, Inc. (DEA) prepared this Revegetation and Weed Control Plan (Plan) for the Summit Ridge Wind Farm (Facility) at the request of Lotus Works – Summit Ridge I, LLC (Applicant). The Plan lays out the approach and specifications for revegetating temporary post-construction disturbed areas of the project. This revegetation will minimize and mitigate potential impacts to the site and help bolster the native plant community to support wildlife habitat, control erosion, and mitigate against the invasion of noxious weed species into newly disturbed areas.

2 GOALS AND OBJECTIVES

The overall goal of the Plan is to return the project site to as close to pre-construction conditions as possible. The Plan has the following objectives:

- Promote recovery of disturbed areas;
- Re-establish native plant communities in non-cultivated areas and re-establish regular farming practices in cultivated areas;
- Control the introduction and spread of undesirable plants;
- Protect the site from erosion; and
- Support existing wildlife habitat;

These objectives will be achieved by a combination of techniques, including, but not limited to, the following:

- Installing and maintaining appropriate erosion control BMPs and construction limit staking per the DEQ 1200-C permit;
- Revegetating non-cultivated disturbed areas with native grasses and forbs (flowering plants); resuming crop production in cultivated areas;
- Controlling weed germination and growth during and after construction; and
- Establishing a regular monitoring program during and after construction to ensure the continued successful development of restored areas and to quickly identify new populations of weeds.

3 SITE DESCRIPTION

The Project site is located on private land in Wasco County, Oregon, approximately 15 miles southeast of The Dalles, Oregon. Please refer to Exhibit C, for maps of the site vicinity, the Facility location, and the Facility components, respectively. Approximately 0.4 acre of Category 2 habitat (big sagebrush dominated shrub-steppe), 28 acres of Category 3 habitat (including revegetated grassland, native perennial grassland and rabbitbrush-dominated shrub-steppe) and 20 acres of Category 4 habitat (including old fields and exotic annual dominated grassland) are expected to be temporarily disturbed. Soil types in the project area consist primarily of silt loam (Condon, Cantala and Condon-Bakeoven complex series) and very cobbly loam loam (Bakeoven-Condon complex).

The primary disturbed areas of the Facility will include: 1) narrow corridors where wind turbines will be erected, 2) construction and operations access roadways, 3) construction laydown areas, and 4) underground collection system corridors. Disturbance will be concentrated on ridgetops, and the Facility will utilize existing roads and disturbed areas wherever feasible in order to minimize new disturbance. Other areas that will be restored, as needed, include areas around the project's meteorological towers, electrical substations, and the temporary batch plant.

4 SCHEDULE/TIMELINE

Implementation of this plan will begin as soon as site excavation begins. An on-site monitor will ensure that erosion control BMPs and construction limits are appropriately installed and maintained per the 1200-C permit. As soon as construction is completed in a given area, weed control and/or seeding will be conducted. This approach will provide for a more successful stand of vegetation because the soil will be less compacted for seeding, fewer weeds will have time to become established, and native plants will not have to compete with exotic weed seeds that blow in or are already in the soil.

It is most effective to apply seed in the fall and winter seasons or early enough in the spring to ensure sufficient soil moisture for germination and plant establishment. Thus, seeding activities should be scheduled during the period from September to April of any given year. Weed control and seed application work will focus on areas that will not have future construction activities or further disturbance. Construction managers should take this into account while determining their own construction schedule. Seed should be applied to an area as soon as possible following construction activities, once the area is available for restoration.

5 SITE REVEGETATION

Revegetation of temporarily disturbed areas will include several important aspects, including topsoil management, selection of an appropriate seed mix, and control of noxious and other undesirable plant species.

5.1 TOPSOIL MANAGEMENT

Preservation and/or replacement of native topsoil not only ensures a healthy, nutrient-rich seed bed, but also incorporates the native seed bank, increasing overall species richness and potential for full recovery of the site to natural conditions. Areas without sufficient topsoil recover at a slower rate, and tend to be colonized by exotic species much sooner, than areas with native topsoil.

During construction, topsoil should be kept in place where possible. Where it is necessary to remove topsoil, it should be stockpiled in appropriate locations and protected with erosion control BMPs per the 1200-C permit. Stockpiled topsoil should be windrowed inside of the clearing limits, kept separate from subsoil, and protected from wind and water erosion. If topsoil is removed from its place of origin, it should be labeled and tracked so that it may be replaced appropriately prior to commencement revegetation.

Another contributing factor to restoration success is the condition of the seed bed at the time of seeding. Compacted soil does not provide an optimal environment for seed germination and establishment, but can instead lead to a lack of vegetative cover and thus increased erosion potential over time. In preparation for seeding activities, areas compacted by construction activities should be ripped to a depth of 12" where feasible and roughened to provide maximum seed-soil contact.

5.2 SEED MIX

Plant materials (seed and nursery stock) used in revegetation must be adapted to the conditions of the site in order to have the best chance of germinating and long-term survival. All plant materials should meet the following requirements, pending approval by ODFW and the Wasco County Weed Department:

- Seed and nursery stock must be "source identified". The original source for the plant material should be Columbia Plateau Ecoregion (north-central Oregon State). The seed should be a locally adapted biotype, adapted to conditions similar to the project site.
- Seed must be certified "weed free", indicating there are no noxious weeds in the seed.
- Seed application rates should be based on pure live seed (PLS) per pound, which is passed upon purity and germination testing.
- Seed should be tested within 120 days of application for purity, germination and noxious weed content. Inert matter should not exceed 10%. A tetrazolium test may be performed on forb species which are limited in availability, in order to assess viability of the seed before it is used.

Seed mixes will be tailored to the unique habitat types of the project area (see **Table 1** on next page).

Table 1: Proposed Seed Mix Species for Summit Ridge

Habitat Types	***Species***	***Lbs/Acre PLS****
Native and Revegetated Grassland	Sherman big bluegrass *(Poa secunda)*	2.0
	Magnar Basin wildrye *(Leymus cinereus)*	2.0
	Whitmar beardless wheatgrass *(Pseudoroegeneria spicata ssp. inermis)*	2.0
	Sandberg's bluegrass *(Poa sandbergii)*	2.5
	Idaho fescue *(Festuca idahoensis)*	2.5
	Basin big sagebrush *(Artemisia tridentate ssp. tridentata)*	1.0
	TOTAL	12.0
Sagebrush and Rabbitbrush dominated Shrub-steppe	Bluebunch Wheatgrass *(Pseudoroegeneria spicata)*	11.0
	Idaho Fescue *(Festuca idahoensis)*	4.0
	Sandberg's Bluegrass *(Poa sandbergii)*	2.0
	Bottlebrush Squirreltail (*Elymus elymoides*)	0.5
	Silky Lupine *(Lupinus sericeus)*	0.5
	Common Yarrow *(Achillea millefolium)*	0.5
	Threadleaf fleabane *(Erigeron filifolius)*	0.1
	Basin big sagebrush *(Artemisia tridentate ssp. tridentata)*	0.1
	Gray rabbit-brush *(Chrysothamnus nauseosus)*	0.1
	TOTAL	18.8
Agricultural Fields	Revegetated in accordance with landowner requirements.	

*Pure Live Seed

A combination of broadcast seeding, drill seeding, and hydroseeding should be used to apply the seed; the choice of method will depend on slope and other site conditions. For example, drill seeding and broadcast seeding should be used as appropriate on areas with a slope of less than 3:1, and hydroseeding should be used on areas with a slope of greater than 3:1. Seeding rates (pounds pure live seed per acre) must be adjusted according to the seeding method used. For hydroseeding, green-dyed, wood-fiber mulch should be added to the slurry mixture at a rate of 1000 pounds per acre. In addition to serving as a carrying agent for the seed, the biodegradable green mulch serves as a tracer for visually checking distribution to ensure complete and uniform coverage of the disturbed areas.

5.3 WEED CONTROL STRATEGIES

Weed control will be a priority throughout construction and revegetation of the site and should begin early to prevent infestations and development of substantial weed seed reservoirs in the soil. Emphasis will be placed on avoiding infestations and controlling populations of state-listed noxious weeds known to occur on the site. These species are listed in **Table 2** below.

Table 2: Designated Oregon Noxious Weeds Observed During Field Surveys

Scientific Name	Common Name	ODA Status1	Wasco County Weed Classification2
Apocynum sp.	Dogbane		C
Centaurea diffusa	Diffuse knapweed	B List	B
Cirsium arvense	Canada thistle	B List	B
Cirsium vulgare	Bull thistle	B List	
Convolvulus arvensis	Field bindweed	B List	C
Conyza canadensis	Horseweed		Q
Lepidium latifolium	Perennial pepperweed	B List	C
Salsola kali	Russian thistle		C
Verbascum thapsis	Common mullein		Q

1 The Oregon State Weed Board's Noxious Weed Classification System designates noxious weeds as either "A" or "B" and may be given the additional designation of "T":

- **"A" Designated Weed** – a weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.
- **"B" Designated Weed** – a weed of economic importance which is regionally abundant, but which may have limited distribution in some counties.
- **"T" Designated Weed** – a priority noxious weed designated by the Oregon State Weed Board as a target for which the ODA will develop and implement a statewide management plan. "T" designated noxious weeds are species selected from either the "A" or "B" list.

2 The Wasco County Weed List and Classifications are as follows:

- **"A" Pests** – a weed of known economic importance which occurs in the county in small enough infestations to make eradication practical.
- **"B" Pests** – a weed of known economic importance and of limited distribution within the county and is subject to intensive control or eradication, where feasible, at the county level.
- **"C" Pests** – a weed that also has economic importance but is more widely spread. Control of these weeds will be limited by conditions that warrant special attention.
- **"Q" Pests –** a weed that exists in the county, but is of little, no, or undetermined economic importance. However, they are to be monitored and subject to control if they begin to appear threatening.

In addition to these state-listed weed species, the Wasco County Weed Department maintains its own weed list, which is based on ODA's state list, but includes two additional categories – "C" and "Q" pest species. Weed species on the County list that are documented to occur on the site are also included in **Table 2**.

Control of cheatgrass during the fall establishment period is essential in order to reduce competition with seeded plants. As a general strategy, the herbicide Plateau may be applied during the fall, prior to fall rains, as a pre-emergent cheatgrass treatment; however, this should only be done where seed application will be by rangeland drill such that the desirable grass seed will have minimal contact with the herbicide.

Glyphosate can then be applied over the winter, as needed in areas where cheatgrass has germinated, at a rate of four ounces per acre to seeded areas in February or March, before seeded grasses have germinated but after cheatgrass has germinated. A higher concentration may be required and will be determined based on incidental take after initial application. Provisions should be made to do frequent monitoring of such areas during this time period, in order to determine when sites are suitable for herbicide application. A less dilute rate of glyphosate should be applied to areas that have been disturbed and not seeded, if and when needed.

Other approaches may be used to control non-native plants, depending on site conditions, plant species, and project schedule and budget. These approaches include cleaning vehicles prior to entering the construction site (to reduce the potential for transporting non-native species to the construction areas), hand eradication, mowing, and use of fabric mulch or biobarriers. These approaches need to be considered on a site-specific basis, and applied by professionals trained to identify exotics for selective plant management. All chemical applications need to be made by licensed, trained and certified professionals, in accordance with strict health and safety procedures and with practices that comply fully with state and federal regulations. Use of Plateau as a pre-emergent should be done with caution, as it may have an adverse effect on desired grasses where the seed was broadcast or hydraulically applied (i.e., no separation between seed and soil treated with Plateau). DEA recommends experimenting in some locations with Plateau applied at a rate (or rates) substantially less than the six ounce rate recommended by the manufacturer for cheatgrass control in established rangelands.

The weed control plan will be finalized prior to construction through coordination with ODFW and the Wasco County Weed Department, and it will be implemented during construction and the life of the Facility.

6 MONITORING

6.1 MONITORING PLAN

Successful revegetation and weed control will re-establish the native plant community through slow, but progressively steady, vegetative growth. Any problems with seeding or weed control should be identified and promptly corrected. In order to properly assess the progress of vegetation establishment, a monitoring program needs to be set up that will identify problem areas so that they can be addressed quickly and effectively.

Prior to construction, at least two reference sites will be identified in the project area. These sites will be representative of the habitat types and plant communities temporarily disturbed during construction, and will be paired with nearby restored sites (located in areas disturbed by construction activities) for use in follow-up evaluations of the project's success at revegetation efforts. Ground-level photographs will be taken from the starting points of each restored and reference site monitoring plot, for comparison between monitoring years. Through the life of the Facility, monitoring plots located in restored sites should be evaluated and compared with the conditions and vegetation growth of the corresponding reference sites (according to soil type and plant composition). The results of these comparisons should be documented in annual reports to the applicant no later than December 31 each year monitoring occurs.

Criteria for restoration success should include the following:

- During the first year post-construction, the site is not eroding and is not becoming infested with weeds.
- By the end of the second year, the species in the seed mix are represented in the stands established in the seeded areas and provide cover that is equal to 25 percent of the cover by desirable species in the reference sites.
- By the end of the third year, the species in the seed mix provide cover that is equal to 60 percent of the cover by desirable species in the reference sites.
- By the end of the fourth year, the species in the seed mix provide cover that is equal to 90 percent of the cover by desirable species in the reference sites.
- By the end of the fifth year and for each year thereafter, the species in the seed mix provide cover that is equal to the cover by desirable species in the reference sites.

6.2 CONTINGENCY PLAN

Contingency plans will be implemented should the success criteria not be met in any monitoring year. The nature of the contingency plan will depend on the problems that arise, as anticipated below.

6.2.1 Plant Establishment

In general, the contingency plan for low plant survival would be to first ascertain the reason for the mortality to the extent possible and then take actions appropriate to the cause of mortality. If certain species have high mortality, growing conditions including hydrology and exposure will be reviewed, and a better-adapted species will be identified and substituted.

6.2.2 Weed Control

Weed control will be addressed as a regular proactive part of the Applicant's maintenance efforts. Should invasive/exotic plants exceed the percent cover found in the comparable reference site, additional weed control efforts will be undertaken. The primary contingency measures would likely include an on-site meeting between monitoring staff, Applicant, ODFW, and Wasco County Weed Board to specify exactly what plants, in what areas, need to be removed, and observation of removal by qualified monitoring staff.

EXHIBIT J

WETLANDS
OAR 345-021-0010(1)(j)

TABLE OF CONTENTS

FIGURES *(located after text)*

ATTACHMENTS

J.1 INTRODUCTION

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

Response: A wetland delineation was conducted that included a review of background resources as well as an on-site investigation (Figure J-1). The wetland delineation covered the area occupied by the 1300-foot turbine micrositing corridors and transmission line corridors, and substation, laydown, and O&M facility locations. This area constitutes the wetland analysis area. Wetlands and other waters of the state identified within the wetland analysis area were overlain with proposed Facility features to determine the potential for Facility impacts, as shown in Figure J-2. Results of this analysis are provided below.

J.2 DESCRIPTION OF ALL WETLANDS, STREAMS AND RIPARIAN AREAS

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: Six wetlands were identified during the field investigation, two of which are isolated with no connection to jurisdictional water features. The remaining four wetlands are associated with the drainage features of Dry Creek and Shotgun Hollow. These drainage features are tributaries to the Columbia River and are likely jurisdictional under Section 404 of the Clean Water Act and the Oregon Removal Fill Law. The final jurisdictional determination is up to the ACOE and the Department of State Lands (DSL). The wetlands are fully detailed in the wetland delineation in Attachment J-1. The report includes data sheets and maps of wetlands and other waters of the state within the wetland analysis area (Figure J-2), and is summarized below. The Oregon Department of State Lands (DSL) issued a letter concurring with the results of the wetland delineation on April 5, 2010. A copy of DSL's letter is included in Attachment J.2.

J.2.1 Wetlands

Wetland A is located near the center of the study area immediately west of Center Ridge Road. It is a 0.02 acre vegetated roadside swale classified as a palustrine emergent wetland. The ditch in which Wetland A lies is lacking culverts, which likely caused the wetland to form after initial road construction. The wetland is isolated from other waters.

Wetland B (0.09 acres) is located near the western end of the transmission line corridor near the BPA power lines. The wetland is associated with the riparian fringe of Dry Creek south of Adkisson Road. Wetland B is a palustrine emergent wetland.

Wetland C (0.12 acres) is located in a relict side channel of Dry Creek south of Adkisson Rd near the west end of the T-line corridor. Wetland C is a palustrine forested wetland dominated by thinleaf alder, with a robust herb layer.

Wetland D (0.10 acres) is located along the un-named drainage at the bottom of Shotgun Hollow along Steuber Road, which drains to Dry Creek within the study area. The wetland consists of riparian fringe along this stream, and is classified as palustrine emergent wetland. North of Steuber Road, Wetland D has been grazed by cattle.

Wetland E (0.25 acres) lies within the riparian fringe of Dry Creek north of Adkisson Road. The wetland lies within the OHWM of the creek and is classified as palustrine scrub/shrub wetland, dominated by willow.

Wetland F (0.03 acres) is located along the proposed transmission line approximately three miles east of the BPA power lines and just west of Hastings Ridge Road. It is a palustrine emergent wetland, consisting of a five-foot wide vegetated swale associated with an ephemeral drainage between two gravel road crossings without culverts.

J.2.2 Other Waters of the State

Several major drainage features (waters of the state or U.S.) were identified within the wetland analysis area. Dry Creek, Shotgun Hollow, Stubb Hollow, Jameson Canyon, and Standard Hollow are tributaries of Fifteenmile Creek, which flows northerly to the Columbia River. Fall Canyon, Bull Run Canyon, Dry Canyon, Craft Canyon, Ferry Canyon and several un-named drainages flow to the Deschutes River, which is a tributary of the Columbia River.

During July-August site visits, water was observed within the wetland analysis area in the drainage features of Dry Creek and Shotgun Hollow, both considered perennial, jurisdictional waters. While dry during the August site visit, the main fork of Jameson Canyon was also considered perennial and likely a jurisdictional water. The drainage in Stubb Canyon was also found to be dry but is likely an intermittent stream, and thus considered jurisdictional. All other drainages encountered within the wetland analysis area, including Dry Canyon and tributaries of Fall Canyon and Jameson Canyon, among others, were ephemeral. The potential jurisdictional status of these waters is discussed in detail in the attached delineation, although most of these channels maintain no connection to relatively permanent waters under normal conditions, and would likely be considered non-jurisdictional by DSL and the ACOE.

J.3 EFFECT ON WATERS OF THE STATE AND WETLANDS

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, or waters of the United States, as defined under Section 404 of the Clean Water Act.*

Response: Based on the wetland delineation results, no impacts to wetlands and other waters of the state are anticipated as a result of the construction or operation of the proposed Facility. All proposed construction activities, permanent and temporary, will be sited to avoid disturbance to regulated wetlands and waters. Figure J-1 shows existing jurisdictional wetlands and waters with an overlay of proposed construction activities.

Most potential impact locations occur along the proposed transmission line, along which lie the majority of wetlands and jurisdictional waters. This portion of the Facility will include construction of access roads and installation of transmission towers. Access roads will utilize existing roads to the extent possible, and where not possible will be constructed entirely in uplands well away from any water resources. Transmission towers will be placed 800 to 1000 feet apart, which will allow them to be sited to easily avoid wetlands and waters.

The corridor is easily accessible using existing roadways and upland fields, and transmission conductor will be installed utilizing a helicopter. Therefore no vehicle stream crossings or other temporary or permanent impacts to water resources will be necessary as part of the project.

In October and November, 2009, an additional transmission line study corridor was added slightly south of the previous corridor. This area was added in order to avoid potential impacts to wetlands (Wetland C) and roadways from the proposed substation, shown as the North Substation Alternative on Figure J-2, sheet 3. The South Substation Alternative lies on a hill, well above waters or wetlands.

Another wetland avoidance area was identified where road improvement may be necessary near Wetland F (Figure J-2, sheet 6). Impacts will be avoided by siting the roadway along an existing gravel road south or north of the wetland area and its adjoining ephemeral drainage.

Another avoidance area occurs where the proposed transmission line crosses drainage channels and associated wetlands at the western end of the project corridor. These are located at wetlands B, C, D, and E, and Water Resources 1 and 2. Impacts to these waters will be avoided by siting the transmission line towers and associated infrastructure well outside of the drainage channels and wetlands. The existing roads and bridges through this area are sufficient for transport of equipment and materials and will not need to be upgraded.

The main body of the Facility area occupies the high, upland ridges and plateaus surrounding Summit Ridge. Construction in this area will include installation of wind turbines, access roads, underground collection lines, and a second substation. Drainages within this area are ephemeral and would likely not be considered jurisdictional by the ACOE or DSL. A single wetland was delineated in the Facility area. Wetland A, which lies adjacent to Center Ridge Road (Figure J-2, sheet 6), is located within a roadside ditch. Should improvements or widening of this road become necessary this wetland lies on one side of the road only, and the road can be expanded in such a manner that impacts can be avoided. Placement of access roads will occupy existing roads to the extent possible, or will be constructed on high, dry ridges, fields, and other upland areas.

J.4 SIGNIFICANT POTENTIAL IMPACTS TO WETLANDS

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: All potential adverse impacts to wetlands within the project area will be avoided.

J.5 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, an explanation of why no such authorization is required for the construction and operation of the proposed facility.*

Response: The Facility will not need removal-fill authorization because impacts to wetlands and waters will be avoided, and no work will take place in or near wetlands or waters that would result in unintentional fill.

J.6 EVIDENCE THAT FILL AND REMOVAL PERMITS 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.*

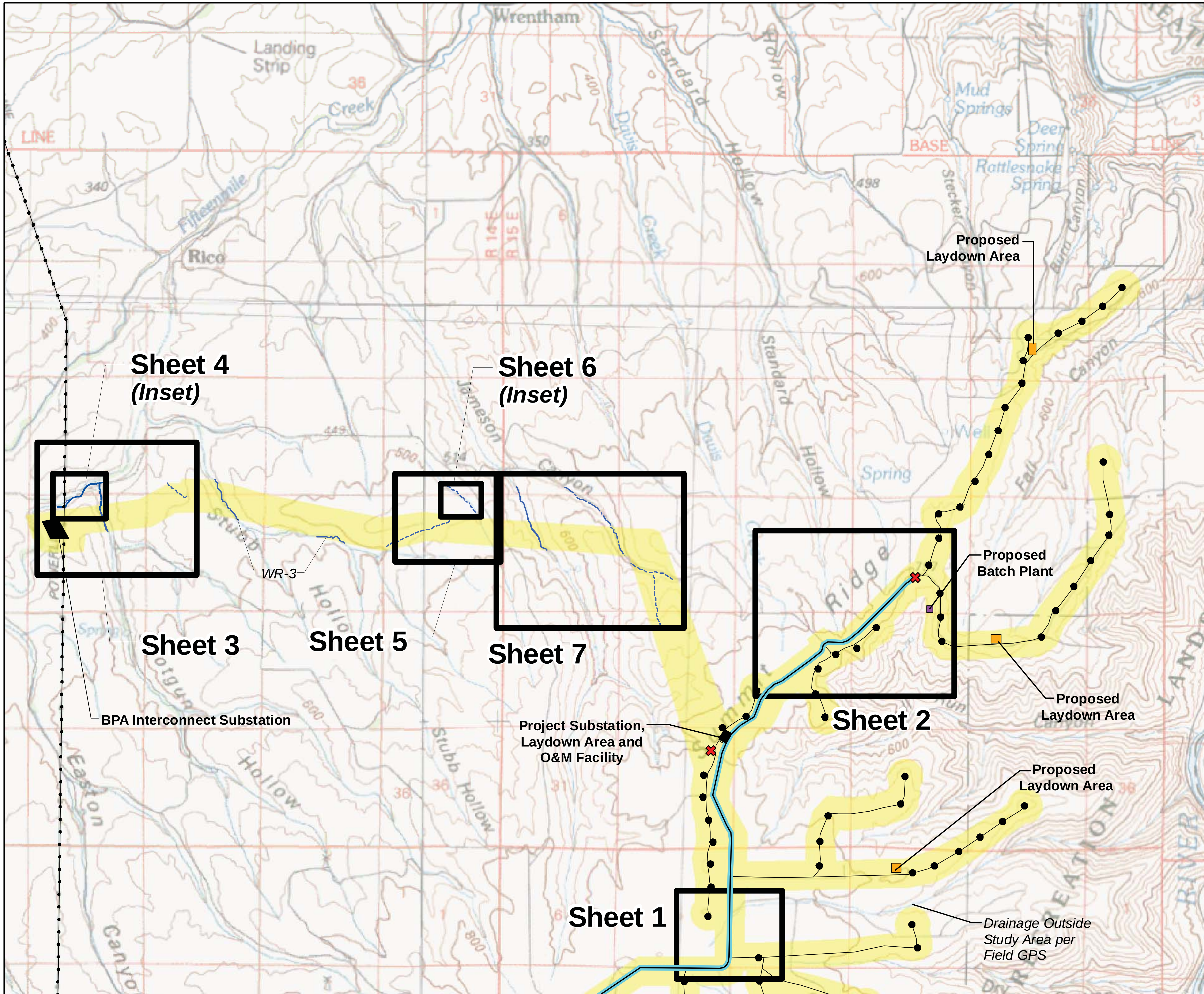
Response: The Facility will not need a Removal-Fill Permit (see sections B, C, and D above), because no removal or fill will occur within waters of the state, including wetlands.

J.7 MONITORING PROGRAM, IF ANY, FOR IMPACTS TO WETLANDS

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.*

Response: Mitigation and monitoring will not be necessary since all impacts to wetlands will be avoided.

FIGURES



LotusWorks - Summit Ridge I, LLC

Figure J-1

Exhibit J, Sheet 1

Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Proposed Turbine Locations
- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water

NOTE:
Index sheets 1 and 2 show DOE "site boundary."
Remainder of sheets show the more detailed wetland delineation study area.

0 1 2
Miles

Sheet 1
Sheet 2

Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

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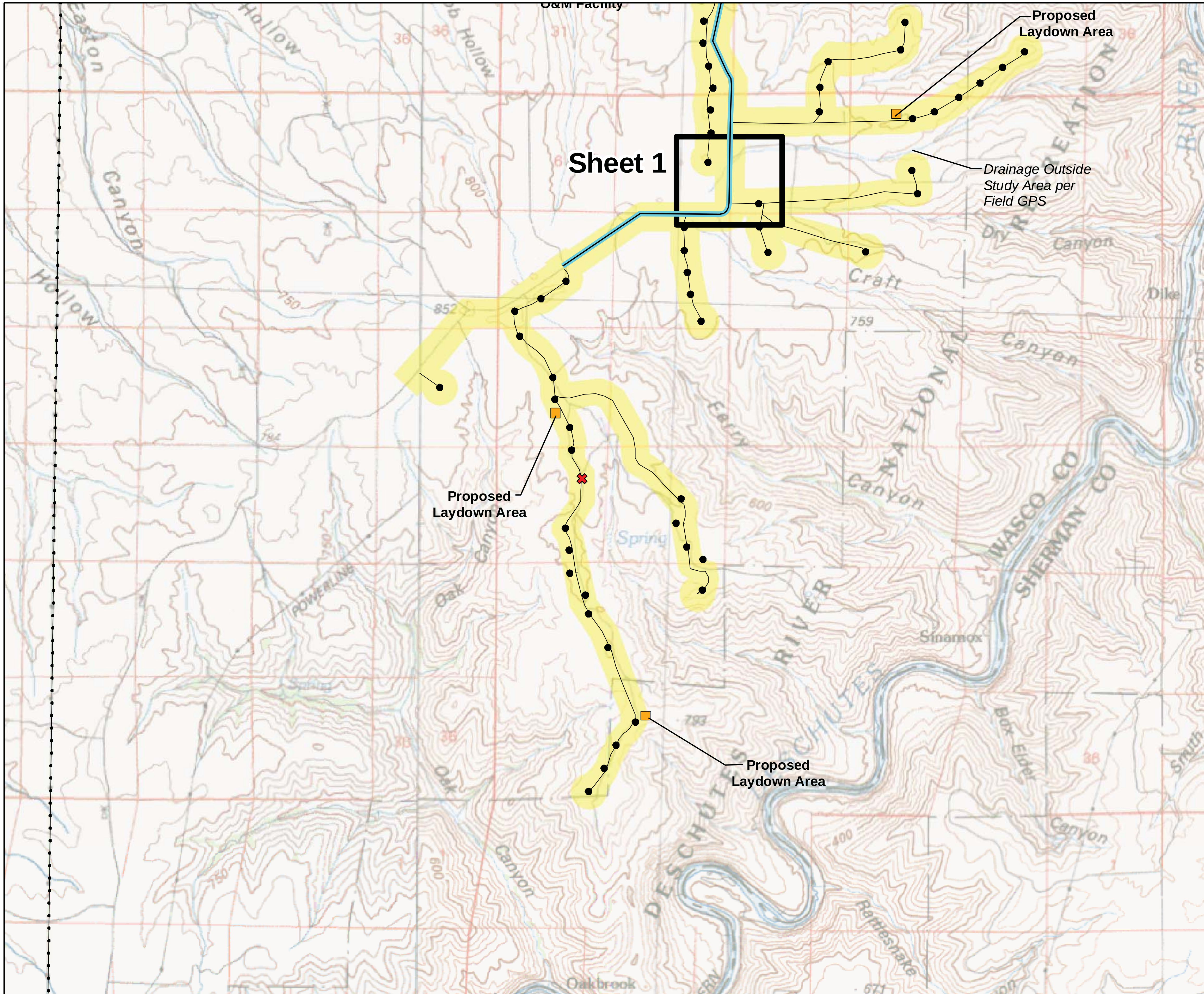

LotusWorks - Summit Ridge I, LLC

Figure J-1

Exhibit J, Sheet 2

Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation
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- Proposed Met Tower Locations
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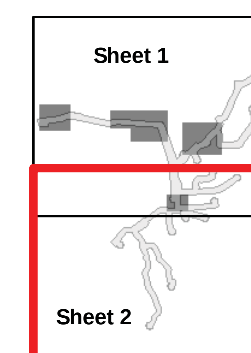
- Ephemeral Water

NOTE:
Index sheets 1 and 2 show DOE "site boundary." Remainder of sheets show the more detailed wetland delineation study area.

N

0 1 2
Miles



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Pioneer Surveying and Engineering, Inc, 2009

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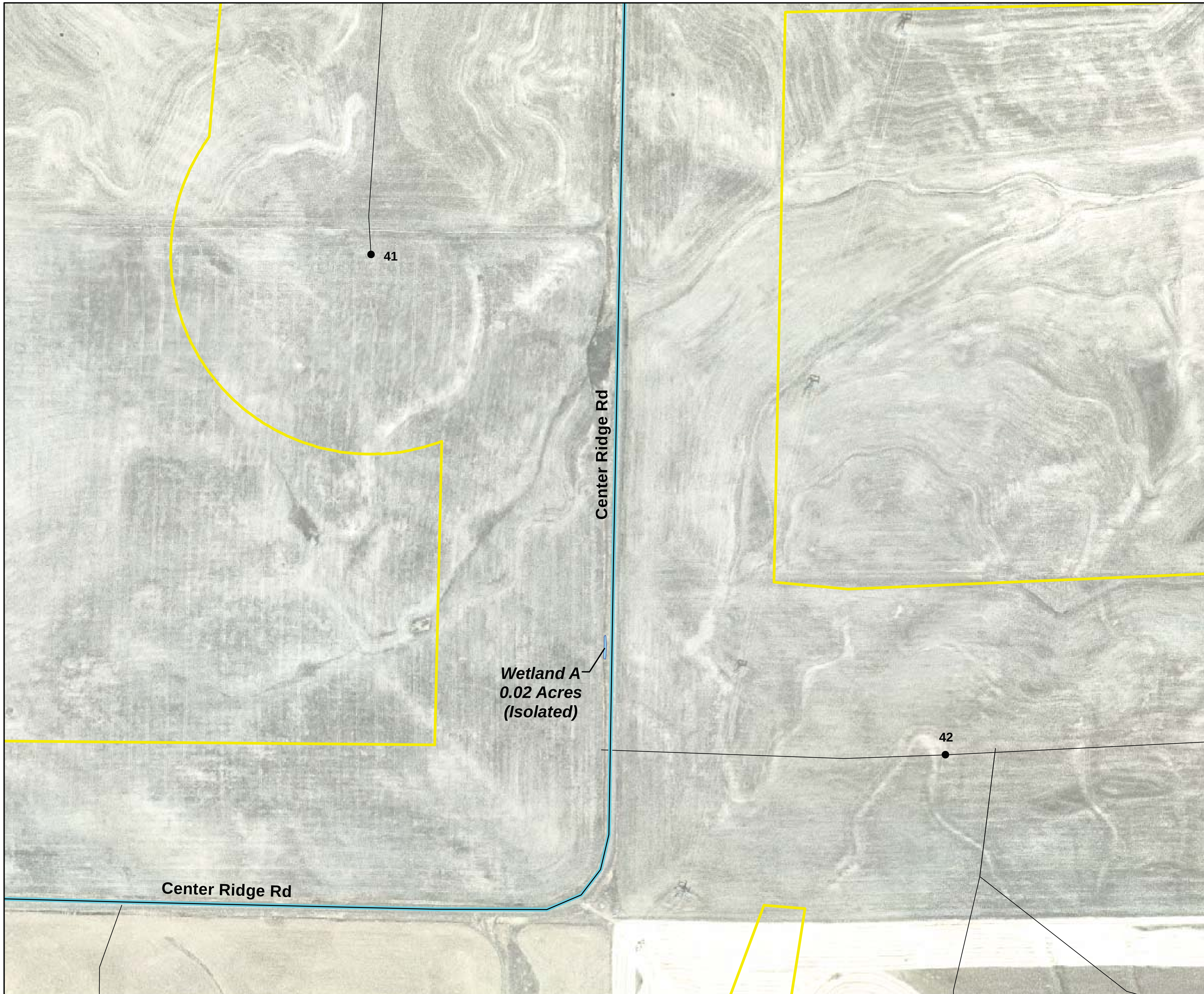


LotusWorks - Summit Ridge I, LLC

Figure J-2

Exhibit J, Sheet 1

Legend

- Wetland Delineation Study Area
- Existing Roads to be Improved
- Proposed Access Roads
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Proposed Turbine Locations
- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge

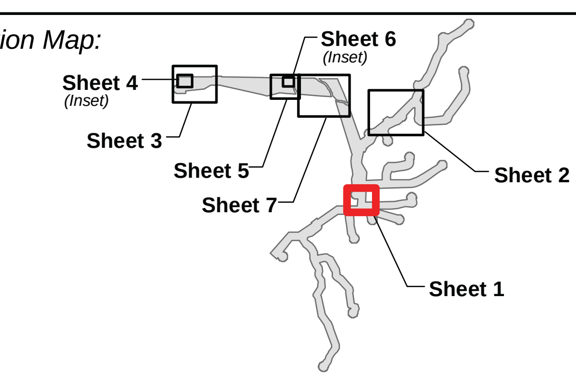
N

0 400 800

Feet

Wetland boundaries were mapped using a Trimble Pathfinder Geo XH Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



ata Sources:

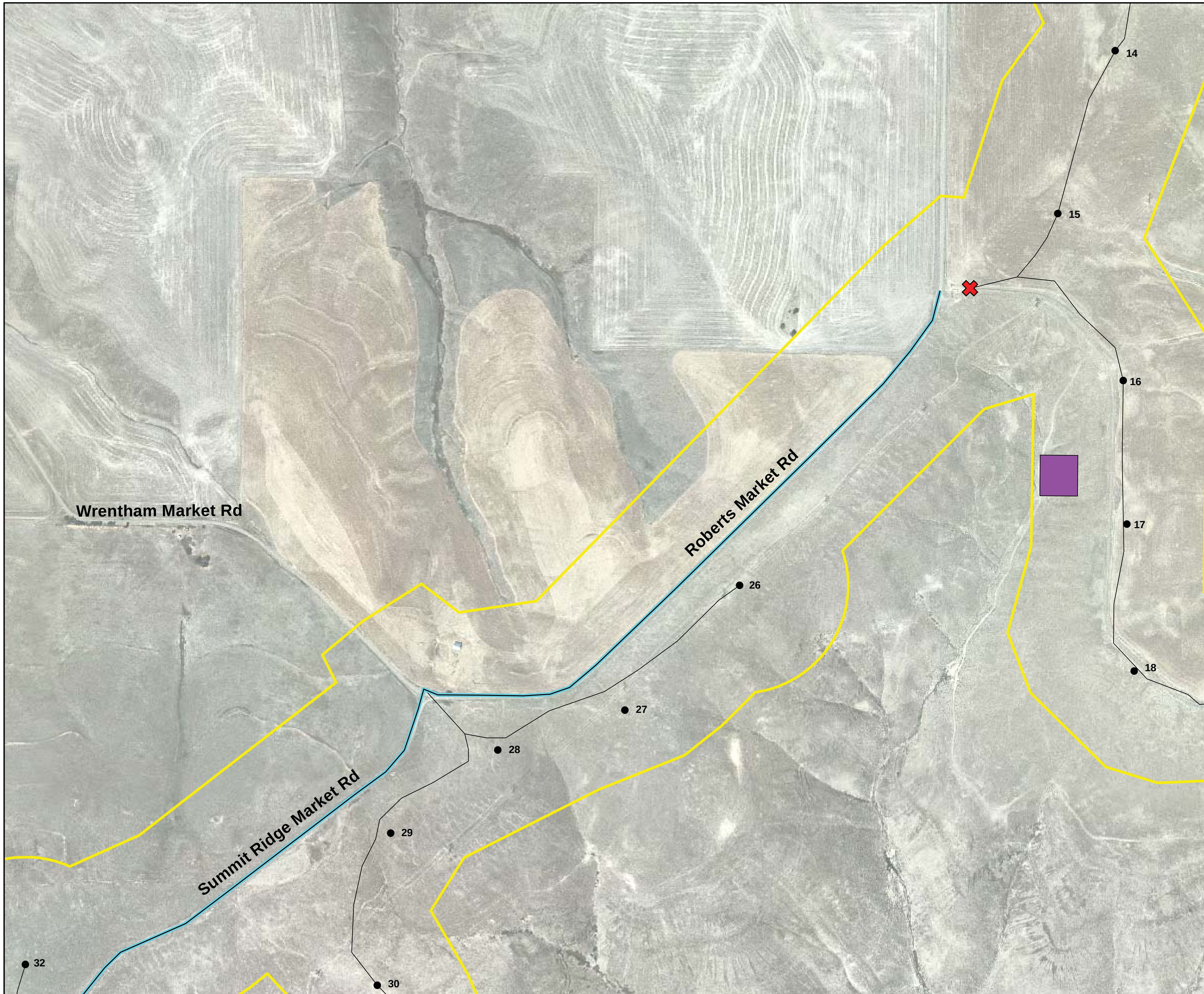
LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

LotusWorks - Summit Ridge I, LLC

Figure J-2

Exhibit J, Sheet 2



Legend

- Wetland Delineation Study Area
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- Proposed Turbine Locations
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- Intermittent Water
- Ephemeral Water
- Bridge

N

0 750 1,500

Feet

Wetland boundaries were mapped using a Trimble Pathfinder Geo XH Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

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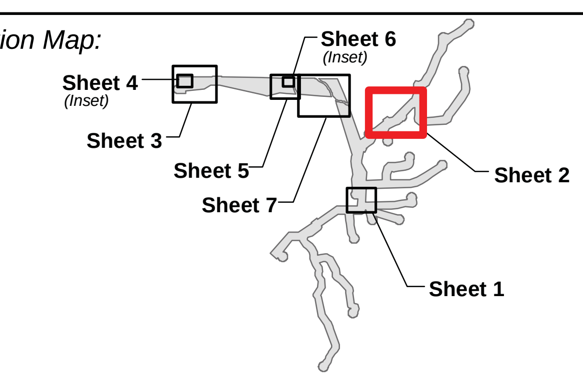


ata Sources:

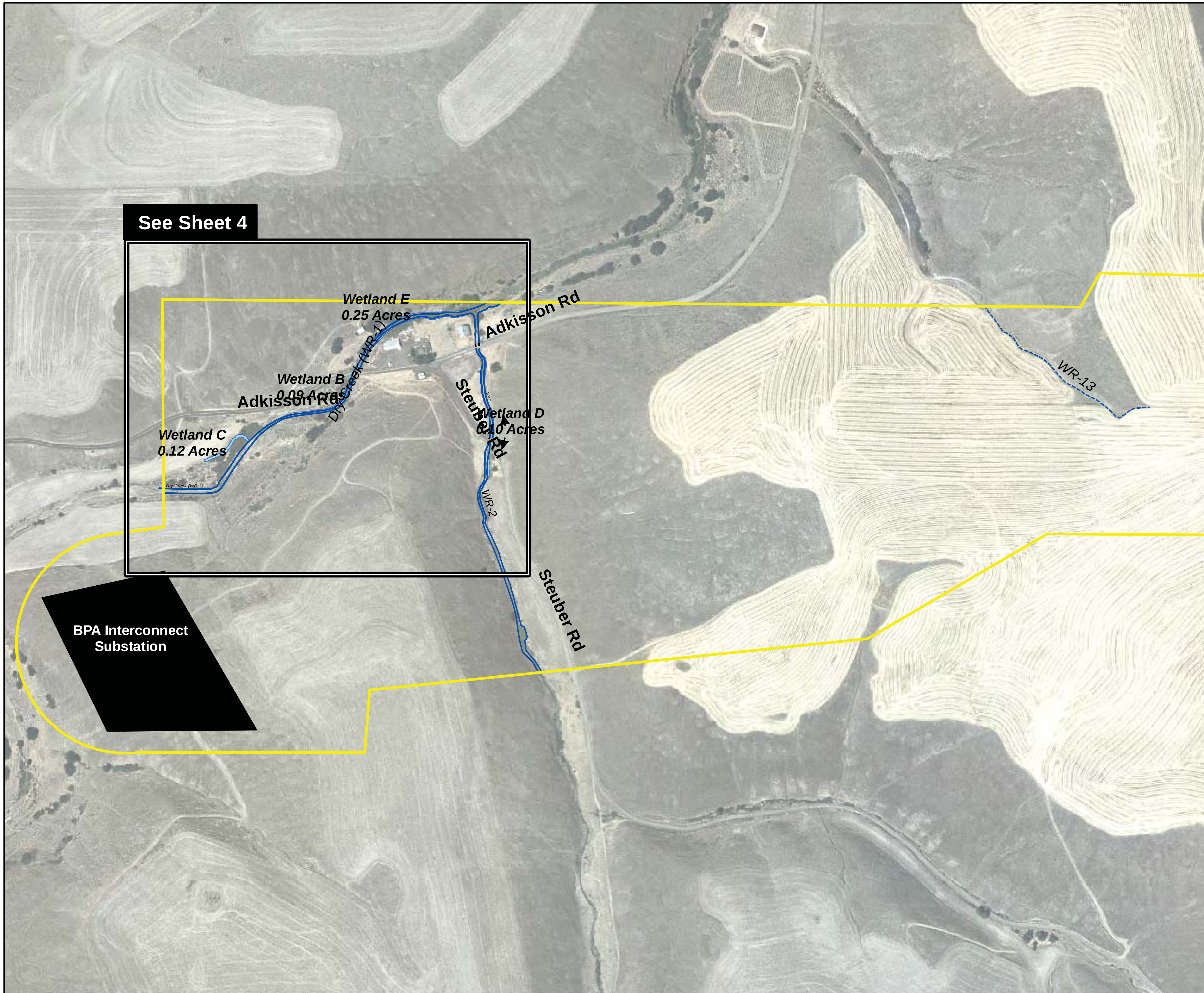
LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

LotusWorks - Summit Ridge I, LLC

Figure J-2

Exhibit J, Sheet 3



Legend

- Wetland Delineation Study Area
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- Wetlands
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- Intermittent Water
- Ephemeral Water
- Bridge

N

0 600 1,200

Feet

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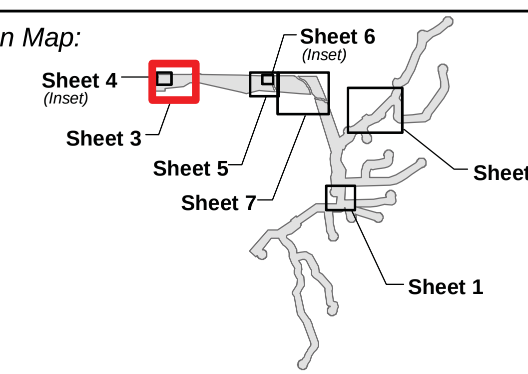
Location Map:



ata Sources:

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Pioneer Surveying and Engineering, Inc, 2009

LotusWorks Summit Ridge I

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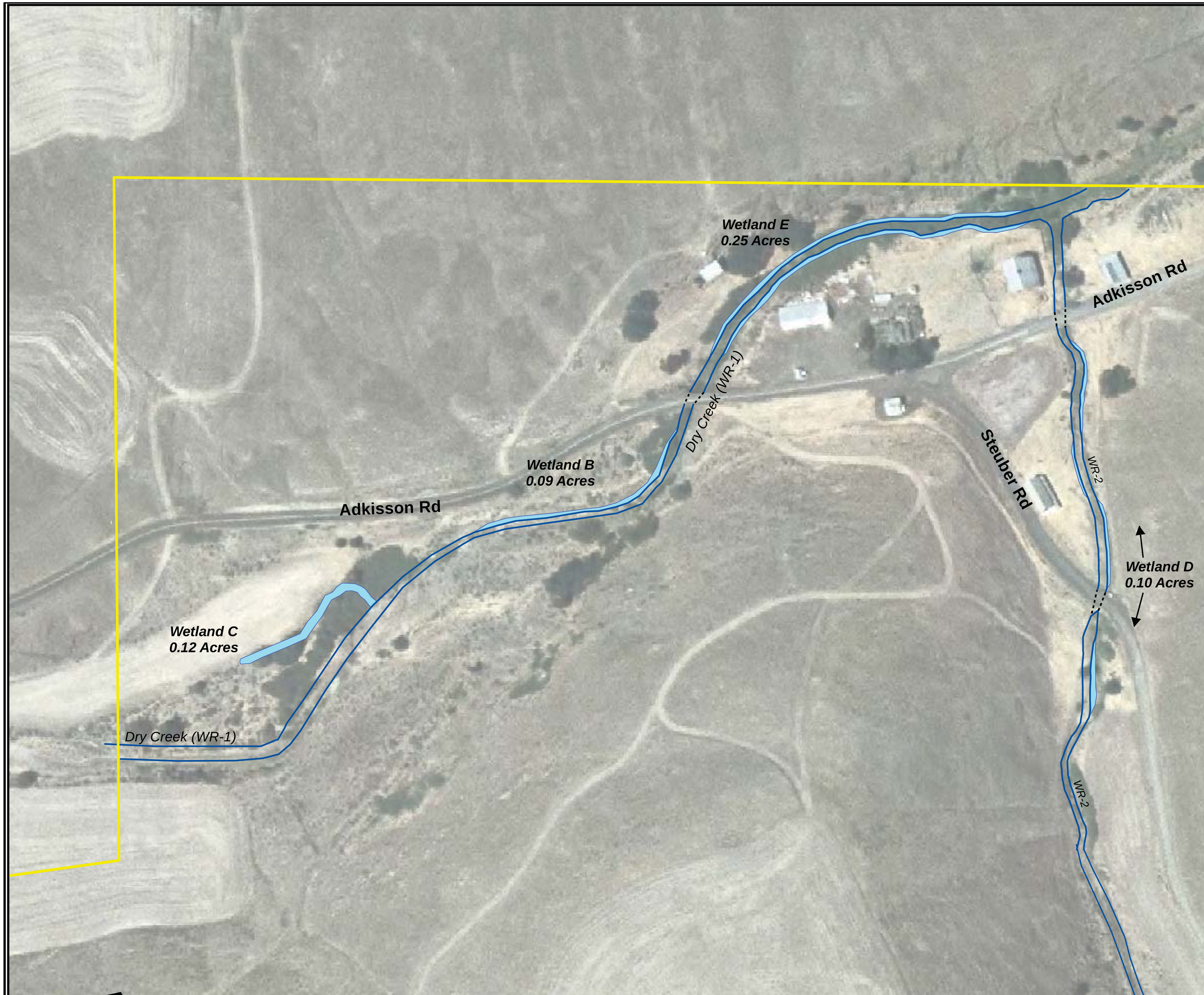
Figure J-2

Exhibit J, Sheet 4



Legend

- Wetland Delineation Study Area
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- Proposed Turbine Locations
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- Intermittent Water
- Ephemeral Water
- Bridge

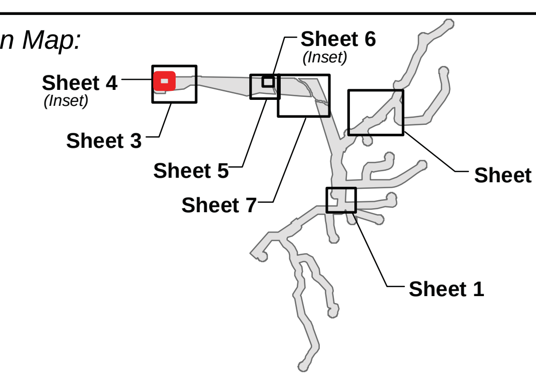
N

0 200 400

Feet

Wetland boundaries were mapped using a Trimble Pathfinder Geo XH Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



ata Sources:

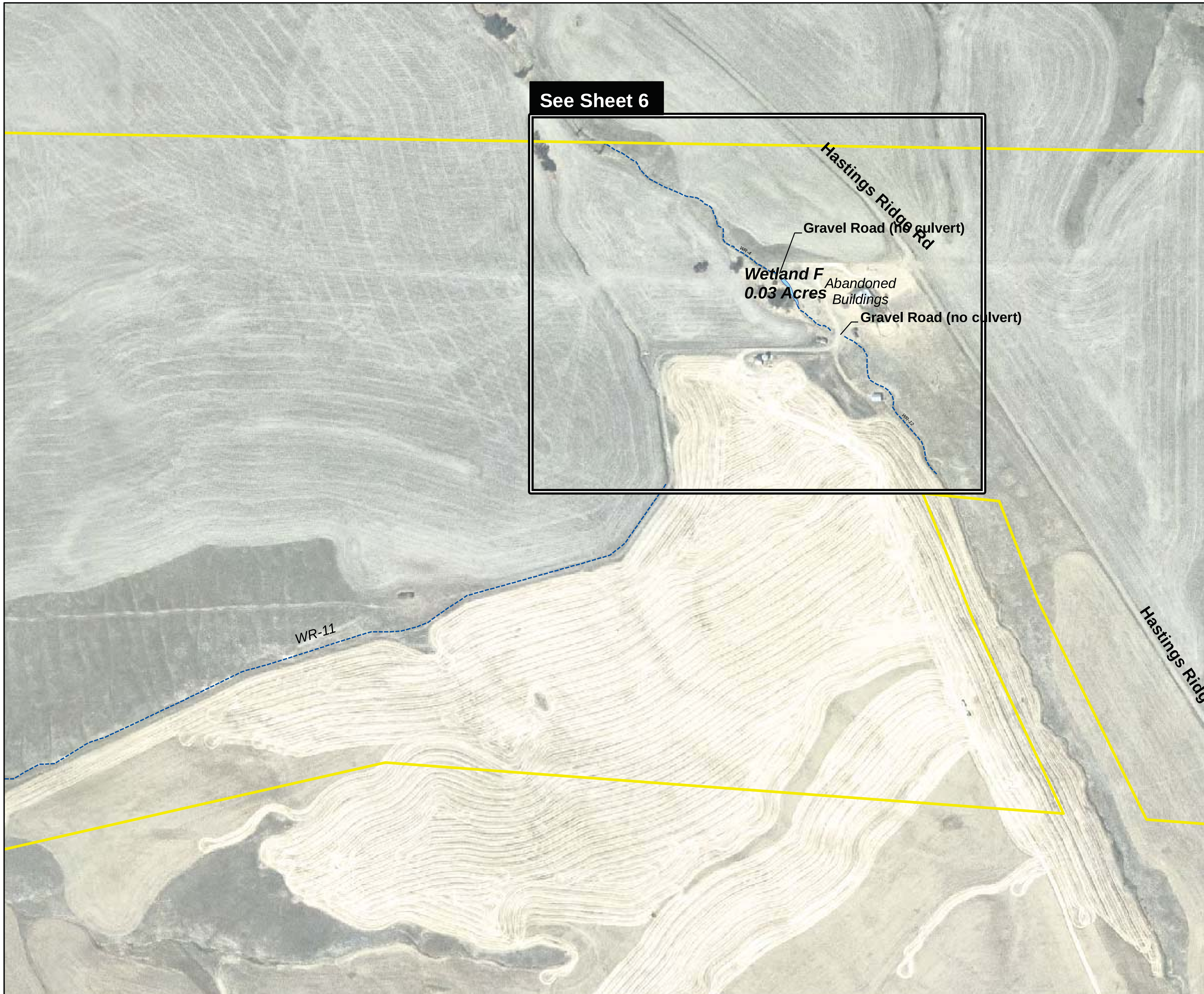
LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

LotusWorks - Summit Ridge I, LLC

Figure J-2

Exhibit J, Sheet 5



Legend

- Wetland Delineation Study Area
- Existing Roads to be Improved
- Proposed Access Roads
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- Proposed Laydown Areas
- Proposed Met Tower Locations
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- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge

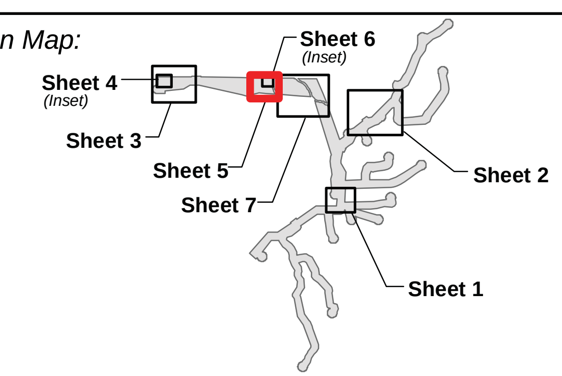
N

0 400 800

Feet

Wetland boundaries were mapped using a Trimble Pathfinder Geo XH Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



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LotusWorks - Summit Ridge I, LLC

Figure J-2

Exhibit J, Sheet 6

Legend

- Wetland Delineation Study Area
- Existing Roads to be Improved
- Proposed Access Roads
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Proposed Turbine Locations
- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge

N

0 150 300

Feet

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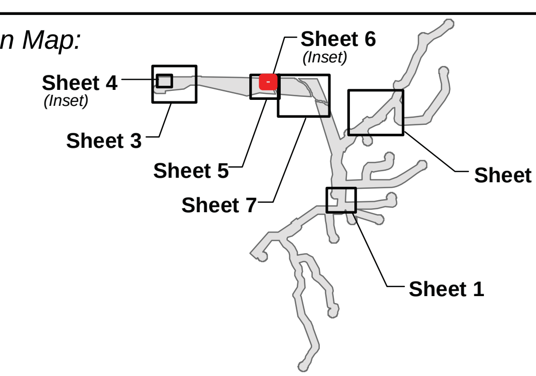
Location Map:



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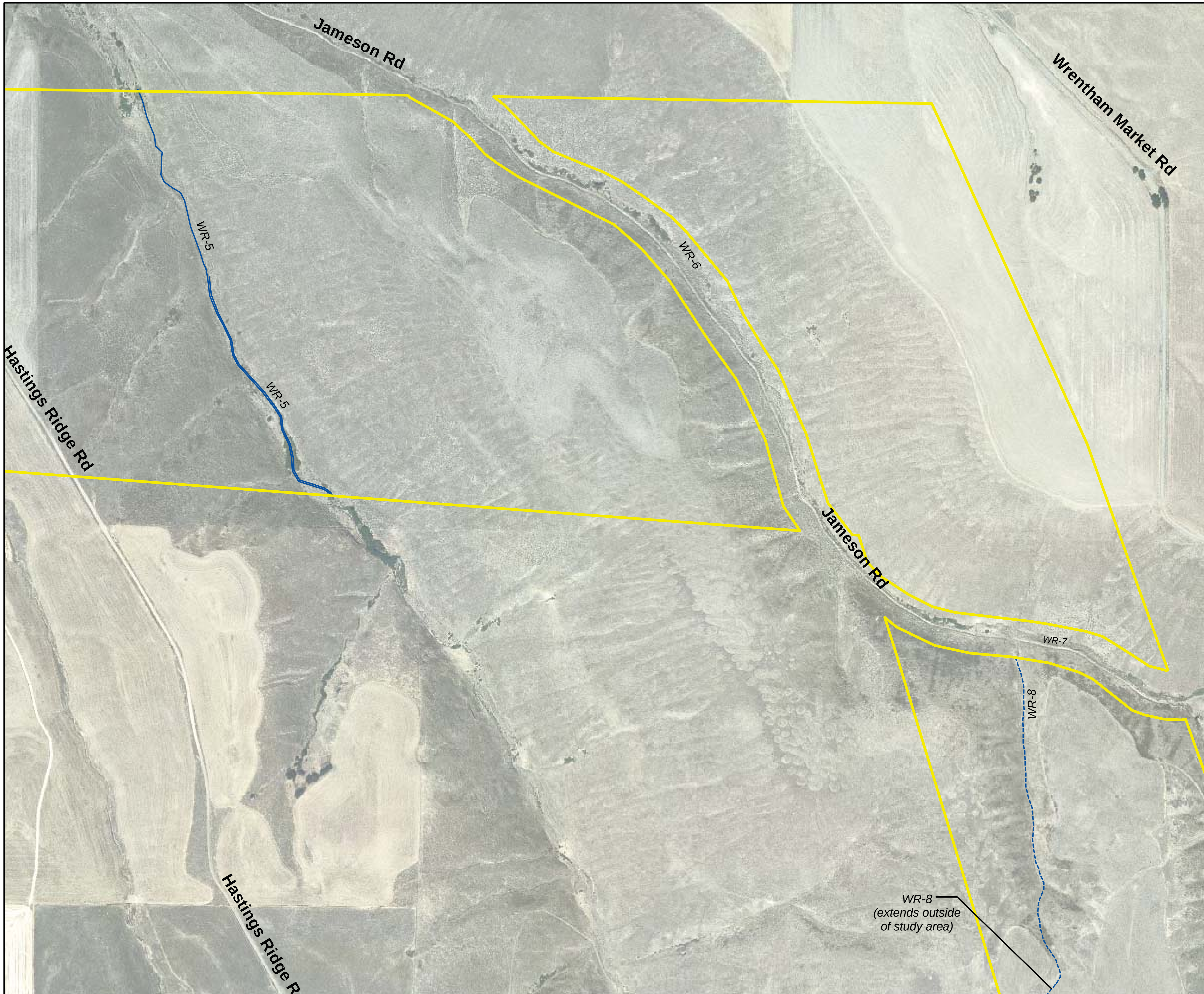

LotusWorks - Summit Ridge I, LLC

Figure J-2

Exhibit J, Sheet 7

Legend

- Wetland Delineation Study Area
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- Proposed Access Roads
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Proposed Turbine Locations
- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge

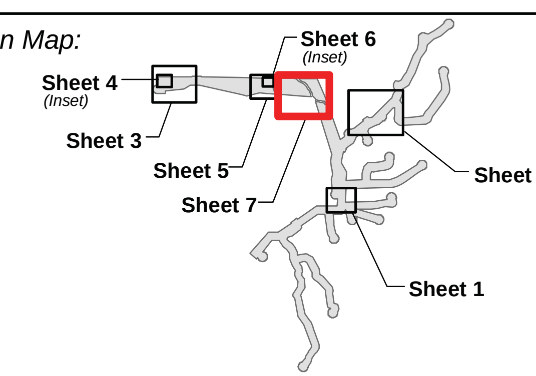
N

0 700 1,400

Feet

Wetland boundaries were mapped using a Trimble Pathfinder Geo XH Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



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LotusWorks
Summit Ridge I

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ATTACHMENT J-1

WETLAND DELINEATION REPORT

Wetland Delineation Report

LotusWorks-Summit Ridge I, LLC Wind Project

Prepared for:

LotusWorks-Summit Ridge I, LLC
9611 NE 117th Ave, Suite 2840
Vancouver, WA 98662

Prepared by:

DAVID EVANS AND ASSOCIATES INC.

David Evans and Associates, Inc.
2100 SW River Parkway
Portland, Oregon 97201

December 2009

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

This form must be included with any wetland delineation report submitted to the Department of State Lands for review and approval. A wetland delineation report submittal is not "complete" unless the fully completed and signed report cover form and the required fee are submitted. Attach the form to the front of an unbound report and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279**
Mail a copy of the completed form with payment of the required report review fee to: **Oregon Department of State Lands, P.O. Box 4395, Unit 18, Portland, OR 97208-4395.**
For new credit card payment option, see DSL web site.

☒ Applicant ☐ Owner Name, Firm and Address: **Attn: Steven Ostrowski, President** **Lotus Group USA, Inc.** **9611 NE 117th Ave, Suite 2840** **Vancouver, WA 98662**	Business phone # 360-737-9692 Mobile phone # (optional) FAX # 360.737.9835 E-mail: sostrowski@lotusworks.com
☒ Authorized Legal Agent, Name and Address: **Same as above**	Business phone # FAX # Mobile phone # E-mail:

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.
Typed/Printed Name: Signature: [signature]
Date: 11-30-9 Special instructions regarding site access:

Project and Site Information (for latitude & longitude, use centroid of site or start & end points of linear project)

Project Name: **Summit Ridge Wind Project**	Latitude: (centroid) **45° 27' 21.5"**	Longitude: (centroid) **-120° 56' 30.5"**
Proposed Use: **Construction of wind farm, including wind turbines, access roads, collection lines, substation, and connecting transmission line**	Tax Map # **See attached**	
Project Street Address (or other descriptive location): **17 miles southeast of the Dalles, OR and 8 miles east of Dufur, OR**	Township Range Section QQ Tax Lot (s) **See attached**	
City: N/A County: **Wasco**	Waterway: River Mile: NWI Quad(s): **Dufur East, Summit Ridge**	

Wetland Delineation Information

Wetland Consultant Name, Firm and Address: **Attn: Phil Rickus** **David Evans & Associates, Inc.** **2100 SW River Parkway, Portland, OR, 97201**	Phone # **503-223-6663** Mobile phone # FAX # **503-223-2701** E-mail: **prr@deainc.com**
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge. Consultant Signature: [signature]	Date: 11-30-9
Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent	
Wetland/Waters Present? ☒ Yes ☐ No	Study Area size: **Approx. 25,000 acres** Total Wetland Acreage: **0.61 acres**

Check Box Below if Applicable:	**Fees:**
☐ R-F permit application submitted	☒ Fee payment submitted **$ 364.00**
☐ Mitigation bank site	☐ Fee ($100) for resubmittal of rejected report
☐ Wetland restoration/enhancement project (not mitigation)	Name of Payor:
☐ Industrial Land Certification Program Site	

Other Information:	Y	N	
Has previous delineation/application been made on parcel?	☐	☒	If known, previous DSL #
Does LWI, if any, show wetland or waters on parcel?	☐	☐	No LWI

EXECUTIVE SUMMARY

David Evans and Associates, Inc. (DEA) conducted a wetland delineation on June 2, July 29 and 30, August 7, and November 18, 2009 for the LotusWorks-Summit Ridge I, LLC Wind Project (LWSR Project) located in Wasco County, eight miles east of Dufur, Oregon (Appendix A, Figure 1). The purpose of this delineation is to determine the current presence, location, and size of federal and state jurisdictional wetlands and other "waters of the U.S." and state of Oregon. Once verified by the appropriate agencies, this wetland delineation will allow the applicant to avoid and minimize impacts to waters of the U.S. or waters of the state, including wetlands, associated with the proposed project.

The LWSR Project is a proposed 200.1 megawatt (MW) wind energy project, which will provide renewable energy to consumers of regional utilities and will be capable of providing electricity to over 70,000 homes. The proposed Project will be constructed along the area designated as Summit Ridge, consisting primarily of cropland and rangeland leased from ten landowners. The Project will include construction of the following features: 87 2.3 MW wind turbines, new access roads, an operation and maintenance facility, laydown areas, an underground 34.5-kilovolt (kV) collection system, an LWSR substation, approximately eight miles of 230-kV transmission line, and an interconnection substation located at the existing Bonneville Power Administration (BPA) transmission lines located westerly of the project site. The wetland study boundary for the project consists of 1300 foot wide corridors (650 feet from centerline) centered on the areas of proposed construction. The applicant intends to avoid all wetland impacts.

The wetland delineation was conducted using the Level 2 Routine Delineation Method described in the U.S. Army Corps of Engineers (Corps) *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps, Environmental Laboratory 2008). This method requires the simultaneous presence of hydrophytic vegetation, hydric soils, and positive wetland hydrology in wetland delineations.

Six wetlands and 11 waterways were identified and delineated. Wetlands A through F occupy a total of 0.61 acres and vary from palustrine emergent to palustrine forested. The 11 waterways consist of perennial, intermittent, and ephemeral drainages to the Columbia River and Deschutes River.

Wetlands or other waters of the U.S. are regulated by the Corps and/or the Oregon Department of State Lands (DSL). These agencies authorize permits involving removal and fill of jurisdictional wetlands. Department of State Lands requires a Removal/Fill Permit when the total removal or fill of a water of the state, including wetlands, is equal to or exceeds 50 cubic yards. In essential salmonid habitat, a permit is required for any fill amount. None of the waterways within the project site are classified as essential salmonid habitat. The nearest mapped essential salmonid habitat (Fifteenmile Creek) lies approximately one mile downstream from where the project study area crosses Dry Creek and Stubb Hollow.

The Corps administers Section 404 of the Clean Water Act, which regulates the discharge of fill materials into waters of the U.S., including wetlands. The Corps may issue Nationwide or Individual permits for wetland fill, depending on the amount of impact to wetland resources.

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Appendices

List of Tables

1 INTRODUCTION

David Evans and Associates, Inc. (DEA) conducted a wetland delineation on June 2, July 29 and 30, and August 7, 2009 for the LotusWorks-Summit Ridge I, LLC Wind Project (LWSR Project) located in Wasco County, eight miles east of Dufur, Oregon (Appendix A, Figure 1). In November 2009, a new transmission line corridor was required, located near the original corridor. The site visit for the new corridor was conducted on November 18, 2009. The project site is centered on Summit Ridge, which runs roughly north-south, and is bordered to the east by the Deschutes River canyon. The wetland study boundary for the project consists of 1,300 foot wide corridors (650 feet from centerline) centered on areas of proposed permanent and temporary construction. Proposed activities within these corridors include construction of roads, turbine strings, temporary staging areas, overhead transmission lines, underground collector lines, Operation & Maintenance facilities, and substations. The wetland study area is located in the following Township, Range, and Sections:

- Township 1 South, Range 15 East, Sections 11, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23, 24, 26, 27, 28, 29, 32, 33, 34, and 35
- Township 1 South, Range 14 East, Sections 13, 14, 15, 16, 17, 20, 21, 22, 23, and 24
- Township 2 South, Range 15 East, Sections 2, 3, 4, 5, 7, 8, 9, 10, 17, 18, 19, 20, 29, 30, 31, and 32
- Township 2 South, Range 14 East, Sections 12 and 13
- Township 3 South, Range 15 East, Sections 5 and 6

The purpose of this delineation is to determine the current presence, location, and size of federal and state jurisdictional wetlands and other "waters of the U.S." and state of Oregon. Once verified by the appropriate agencies, this wetland delineation will allow the applicant to avoid and minimize impacts to waters of the U.S. or waters of the state associated with the proposed project.

2 LANDSCAPE SETTING AND LAND USE

The project site is located in rural Wasco County (Appendix A, Figure 1). It is approximately 17 miles southeast of the Dalles, Oregon and eight miles east of Dufur, Oregon.

Wasco County is on the Deschutes-Columbia Plateau, a lava-floored plain that has experienced uplifting. This is predominantly a volcanic province sloping gently northward to the Columbia River. Topography within the project site is typified by gently rolling to level ground located along the high plateau. Areas of steep slopes are confined to the major drainage features of Fall Canyon, Burn Canyon, Standard Hollow, Jameson Canyon, Stubb Hollow, Bull Run Canyon, Dry Canyon, Craft Canyon, Ferry Canyon, and several other unnamed drainages. In these areas, elevations drop rapidly from the high and relatively level plateaus of approximately 2,800 feet to 2,400 feet to the hollows and canyon areas at 2,000- to 1,000-foot elevations.

Standard Hollow, Jameson Canyon, and Stubb Hollow head northerly out of the study area to join Fifteenmile Creek, which reaches the Columbia River at The Dalles. Fall Canyon, Burn Canyon, Bull

Run Canyon, Dry Canyon, Craft Canyon, and Ferry Canyon all flow easterly to join the Deschutes River, which continues north to the Columbia River.

The vast majority of the project site is under dry land wheat production. Very little acreage of native plant communities remains, occurring predominantly along the plateau margins and steep side slopes. These communities consist of sagebrush (*Artemisia tridentata*) and rabbit brush (*Chrysothamnus* sp.) dominated shrublands and native bunchgrass grasslands, each with varying degrees of invasive species present. Agricultural areas that are enrolled under the Conservation Reserve Program (CRP) are located throughout the project site, occurring as narrow strips in previously plowed drainageways, and as large blocks in other areas. CRP areas have been planted with a mix of native and non-native bunch grasses with the primary intent of increasing wildlife habitat in the area. Hybrid Lombardy poplar (*Populus X nigra)* and black locust *(Robinia pseudoacacia*) have spread along some drainage features and farmsteads.

3 SITE ALTERATIONS

The most significant alteration of the site is a result of agriculture: specifically dry land wheat production. Decades of plowing and cultivation have smoothed over and filled in large areas of (primarily ephemeral) drainage features. In some cases ephemeral waterways are present upslope of plowed areas, which separate them from the downslope channel during normal flow conditions. Low berms have also been constructed in drainage areas to assist water catchment, and slow the loss of top soil to erosion. Other site alterations include construction of roads and stock watering ponds. Temporary disturbances include ground disturbance for residence and farm construction, and cattle grazing.

4 PRECIPITATION DATA AND ANALYSIS

Located on the eastern side of the Cascade Mountains, the project site predominantly exhibits the continental climate of the Intermountain Region – extreme temperatures and low rainfall (Orr, et al., 1992). However, the Columbia River Gorge provides a passageway for the normal eastward migration of ocean-conditioned air masses from the Pacific. These currents usually lead to shorter hot or cool periods than those typical of the Intermountain Region. For the period 1971 to 2000, mean minimum and maximum temperatures for the month of January, the coldest month of the year, were 24.9°F and 40.7°F, respectively (Oregon Climate Center 2009). For the month of July, the warmest month of the year, mean minimum and maximum temperatures were 48.8°F and 86.4°F, respectively. However, temperature extremes are known to range from -16°F to 106°F. Most of the annual rainfall in Wasco County occurs between November and March, reflecting the strong influence of marine air masses entering from the Pacific Ocean.

Daily precipitation data for the immediate area were not readily available to directly compare historic records with current precipitation data for the same location. The data in Tables 1 and 2 are a synopsis of the precipitation that fell at Pendleton, Oregon on the day of each site survey and two weeks prior. Pendleton is located approximately 100 miles east of the project site. Precipitation data for locations closer to the project site were found, but did not provide archived daily observations required for this delineation, which necessitated the use of Pendleton data. In spite of the distance separating them, precipitation patterns and annual volume is quite similar between Pendleton and Dufur, with an average of 12.8 and 13.4 inches of precipitation respectively, as listed in the WETS tables for the two stations (NRCS 2002).

The two week period immediately preceding the July-August site visits measured well below average precipitation. Total precipitation for the two week period measured 0.02 inches (NOAA NWS 2009), while the historic average for this same time period is 0.58 inches (NOAA NWS 2009). Therefore the two weeks prior to the June 2 site visit saw 3 percent of average precipitation.

Table 1. May 19 through June 2, Year 2009 Daily Precipitation Measurements for Pendleton, Oregon (in inches)

May 19	May 20	May 21	May 22	May 23	May 24	May 25	May 26
0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May 27	**May 28**	**May 29**	**May 30**	**May 31**	**June 1**	**June 2***	**Total**
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02

Source: NOAA NWS 2009 (= date of site visit)*

Monthly percent of normal precipitation that fell at Pendleton, Oregon for the three months prior to the initial field visits is shown in Table 2.

Table 2. Monthly percent of normal precipitation, in inches, for Pendleton, Oregon 2009

Month	Historical monthly average precipitation	Actual monthly total precipitation	Percent of normal precipitation
March	1.26	2.62	208%
April	1.13	0.97	86%
May	1.22	1.16	95%
TOTAL	3.61	4.75	132%

Source: NOAA NWS 2009; NRCS WETS Tables 2009

Overall, the combination of above-average monthly precipitation and below-average daily precipitation in the two weeks prior to the site visits likely resulted in generally average conditions during the June 2 site visit.

As shown in Table 3, total precipitation for the two week period prior to the July 29 and 30 site visits measured 0.00 inches (NOAA NWS 2009). Total precipitation for the two week period prior to the August 7 site visit measured 0.10 inches (NOAA NWS 2009), discounting the record event that occurred on that day in Pendleton, but not at the project site (see table foot note [a] below). The historic average for this same time period is 0.26 inches (NOAA NWS 2009). Therefore the two weeks prior to the August 7 site visit saw 38 percent of average precipitation.

Table 3. July 15 through August 7, Year 2009 Daily Precipitation Measurements for Pendleton, Oregon (in inches)

July 15	July 16	July 17	July 18	July 19	July 20	July 21	July 22
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
July 23	**July 24**	**July 25**	**July 26**	**July 27**	**July 28**	**July 29***	**July 30***
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
July 31	**Aug 1**	**Aug 2**	**Aug 3**	**Aug 4**	**Aug 5**	**Aug 6**	**Aug 7***
0.00	0.00	0.00	0.00	Trace	0.00	0.10	0.00[a]
Total							
0.10							

Source: NOAA NWS 2009 (= date of site visit)(T=trace) (a =No precipitation fell on the day of the Aug 7 field visit at the project site. The 0.90 inches of rain that fell at Pendleton, OR, a record thunderstorm event, was removed to reflect local conditions at the project site.)*

Monthly percent of normal precipitation that fell at Pendleton, Oregon for the three months prior to the July and August site visits is shown in Table 4.

Table 4. Monthly percent of normal precipitation, in inches, for Pendleton, Oregon 2009

Month	Historical monthly average precipitation	Actual monthly total precipitation	Percent of normal precipitation
May	1.22	1.16	95%
June	0.78	1.05	135%
July	0.41	T	0%
TOTAL	2.41	2.21	92%

Source: NOAA NWS 2009; NRCS WETS Tables 2009

Overall, the combination of average (92%) monthly precipitation and below-average daily precipitation (38%) in the two weeks prior to the site visits likely resulted in below average conditions during the July and August site visits.

Cumulative precipitation, as measured from the start of the water year (October 1, 2008) to August 7, 2009, was 12.60 inches. This nearly matches the average rainfall for this same time period, which is recorded as 12.8 inches (NRCS 2002).

Since the final site visit took place in November, and this report was completed in November, no daily precipitation data were yet available for the dates of the final site visit. However, monthly percent of normal precipitation that fell at Pendleton, Oregon for the three months prior to the November field visit (for a total of five months as the field visits were two months apart) is shown in Table 5.

Table 5. Monthly percent of normal precipitation, in inches, for Pendleton, Oregon 2009

Month	Historical monthly average precipitation	Actual monthly total precipitation	Percent of normal precipitation
August	0.56	1.04	186%
September	0.63	0.04	6%
October	0.99	1.50	151%
TOTAL	2.18	2.58	118%

Source: NOAA NWS 2009; NRCS WETS Tables 2009

For the three months prior to November, precipitation was 0.40 inches above normal, which would likely result in slightly above average conditions during the site visit. Overall, the combination of above-average monthly precipitation and below-average daily precipitation in the two weeks prior to the site visits resulted in generally average conditions.

5 METHODS

5.1 PRELIMINARY RESOURCE REVIEW

Reference materials were reviewed prior to the field investigation to provide information regarding the possible presence of wetlands, water features, hydric soils, wetland hydrology, and site topography. The materials reviewed included:

- Precipitation data for Pendleton, Oregon (NOAA NWS, 2009);
- Summit Ridge, Oregon, 7.5 minute Quadrangle, U.S. Geological Survey (USGS 1962);
- Dufur East, Oregon, 7.5 minute Quadrangle, U.S. Geological Survey (USGS 1987);
- Summit Ridge, Oregon, National Wetlands Inventory (NWI) 7.5 minute quadrangle maps, U.S. Fish and Wildlife Service (USFWS);
- Dufur East, Oregon, National Wetlands Inventory (NWI) 7.5 minute quadrangle maps, U.S. Fish and Wildlife Service (USFWS);
- On-line Soil Survey of Wasco County Area, Oregon, U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS), (USDA 2009); and
- Aerial Photographs of Wasco County Area, Oregon (Oregon Imagery Explorer 2005).

The Summit Ridge and Dufur East, Oregon USGS Quadrangles were examined to determine water features and topography of the site and adjacent properties that might influence on-site conditions (Appendix A, Figure 1). The Summit Ridge and Dufur East, Oregon NWI maps (Appendix A, Figure 3) were examined to determine if wetlands are mapped on site. Aerial photographs were examined to determine if wetland hydrology is evident in different seasons on site (Appendix A, Figure 5). The Online Soil Survey map (Appendix A, Figure 4) was reviewed to determine if any hydric soils are mapped on site. A description of the soils mapped in the project area can be found below in Table 6.

Table 6. Soils Mapped by the Soil Survey of Wasco County (USDA 1982) as Occuring in the Project Study Area

Soil Series	***Hydric Status***	***Hydric Inclusions***
1C - Anderly silt loam, 7 to 12 percent slopes	Non-hydric	None
1D - Anderly silt loam, 12 to 20 percent slopes	Non-hydric	None
2D - Bakeoven very cobbly loam, 2 to 20 percent slopes	Non-hydric	None
3D - Bakeoven-Condon complex, 2 to 20 percent slopes	Non-hydric	None
12B - Cantala silt loam, 1 to 7 percent slopes	Non-hydric	None
12C - Cantala silt loam, 7 to 12 percent slopes	Non-hydric	None
12D - Cantala silt loam, 12 to 20 percent slopes	Non-hydric	None
12E - Cantala silt loam, 20 to 35 percent slopes	Non-hydric	None
17B - Condon silt loam, 1 to 7 percent slopes	Non-hydric	None
17C - Condon silt loam, 7 to 12 percent slopes	Non-hydric	None
17D - Condon silt loam, 12 to 25 percent slopes	Non-hydric	None
18D - Condon-Bakeoven complex, 2 to 20 percent slopes	Non-hydric	None
26 – Hermiston silt loam	Non-hydric	None
30E – Lickskillet very stony loam, 15 to 40 percent slopes	Non-hydric	None
31F – Lickskillet extremely stony loam, 40 to 70 percent slopes	Non-hydric	None
34F – Nansene silt loam, 35 to 70 percent slopes	Non-hydric	None
37 - Riverwash	Hydric	Riverwash
44 – Tygh fine sandy loam	Hydric	Xerofluvents, Aquolls
46B - Walla Walla silt loam, 3 to 7 percent slopes	Non-hydric	None
46C - Walla Walla silt loam,7 to 12 percent slopes	Non-hydric	None
46D - Walla Walla silt loam, 12 to 20 percent slopes	Non-hydric	None
47E - Walla Walla silt loam, 20 to 35 percent slopes	Non-hydric	None
57F – Wrentham-Rock outcrop complex, 35 to 70 percent slopes	Non-hydric	None

5.2 FIELD METHODS

Wetland areas were delineated according to the Level 2 Routine On-Site Method described in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2008). The project site is located within the Columbia/ Snake River Plateau of Land Resource Region (LRR B) as described in the *Arid West Supplement*, applicable to significant portions of Oregon that are dominated mainly by grasslands, shrublands, hardwood savannas, deciduous woodlands, and pinyon/juniper woodlands (Environmental Laboratory 2008).

This method requires an area to possess a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology. Under normal circumstances, positive indicators of each of these three parameters must be present for an area to satisfy the criteria for jurisdictional wetlands. For this project, areas of relatively low disturbance, such as CRP areas, were considered to have normal circumstances. In instances where a site has been substantially disturbed and one or more parameters are not measurable, then the wetland delineation may rely solely on the remaining measurable parameter(s). Such circumstances are referred to as atypical situations.

Areas consisting of cultivated wheat were considered atypical situations. Although vegetative cover data were recorded for these areas, only soil conditions and wetland hydrology indicators were used to determine if an area should be classified as a jurisdictional wetland. In general, plots were placed in low areas and drainages most likely to experience hydrology. Since conditions were similar throughout the agricultural fields, and were obviously well-drained based on lack of signs of hydrology and the extremely well-drained nature of the soil, only two representative plots were taken in agricultural lands, although all low areas in agricultural lands were investigated. All wetland plots were located in areas with normal conditions, except Plots 3 and 19, which were located in cultivated wheat fields. All low areas in wheat fields were examined to determine whether hydric soils and wetland hydrology are present, but no such conditions were found. Where wetlands were present, paired plots were used to establish wetland boundaries. All wetlands were found within depressional or bench areas adjacent to waterways, with steep sides and a sharp break in vegetative community marking the boundary of the wetland.

As shown in the figures, the wetland boundary along the transmission line corridor excludes a few waterways found at the bottom of deep drainages, since wetlands and waters in these areas would not be impacted by the project (the drainages will be spanned and no access roads or other structures located in or near them). Therefore, waterway characteristics were recorded in field notes and provided in the wetland or waterway description in order to give a general picture of conditions within these drainages and inform the jurisdictional determination for waterways within the corridor found upslope of these areas. However, DSL concurrence does not cover waterways located outside of the study area corridor, and if it became necessary to impact these waterways in any way for this project, additional delineation and permitting would be required.

5.2.1 Hydrology

The growing season for the project area is from May 2nd to October 12th (based on Natural Resource Conservation Service WETS table data for Dufur station, Oregon, [NRCS 2002]). Saturation to the surface must occur for a minimum of eight consecutive days (5 percent [%]) during the growing season, but more likely for 21 consecutive days (12.5 percent) of the 164-day growing season for this area, for wetland hydrology to occur (Environmental Laboratory 1987).

Each of the drainages mapped as having a stream by the USGS within the study corridor was investigated near the boundary of the corridor. As the study area exists along a high ridge, the reach of most drainages within the study area was determined to be ephemeral, based on methods from *Oregon Streamflow Duration Assessment Method Interim Version* (Corps, March 2009). Data sheets from the sample drainage features can be found in Appendix F. Wetland data plots were placed in ephemeral features with more than 200 feet of reach within the study boundary.

The Ordinary High Water Mark (OHWM) was determined through a visual examination of the site. This line was determined by the definition available on the Oregon Department of State Lands (DSL) website, which defines it as the line on the bank or shore to which the high water ordinarily rises each year and the waterward limit of upland vegetation and soil. This line is not established based on the level to which the water rises during major floods. It is generally recognizable by a visible change in the soil and vegetation.

5.2.2 Soils

Soil pits were dug to a depth of 16 inches, when not hindered by the presence of cobble or hardpan. Soil hindrance was encountered at Sample Plots 6, 7, 9, 10, 11, 12, 14, 15, 16, 18, and 19. For these Sample Plots, determination of hydric soil and depth to saturation was estimated using best professional judgment and observance of other site factors including topography, vegetation, and hydrology. Soil was analyzed for color using the *Munsell Soil Color Chart* (Munsell Color 1990).

5.2.3 Vegetation

In accordance with the Corps 1987 Manual (Environmental Laboratory 1987), vegetation plots were established in areas supporting a single plant community with uniform topographic position. Plant species observed were identified using *Flora of the Pacific Northwest* (Hitchcock and Cronquist, 1973) and assigned their indicator status using the *National List of Plant Species that Occur in Wetlands, Northwest – Region 9* (USFWS 1988) and the 1993 supplement (Corps 1993). Absolute percent cover of each plant species was visually estimated and recorded. Plots with a 5-foot radius were used to estimate percent cover of herbaceous vegetation. The same plot was enlarged to a 30-foot radius to estimate percent cover of shrubs, saplings, vines, and trees.

The shape of Plots 4 – 15 was modified, so as to include a single plant community and uniform topographic position. Due to their close proximity, paired plots used to establish the wetland boundaries were 5-foot radius plots within which absolute percent cover of herbaceous vegetation was estimated and recorded.

6 RESULTS

Six wetlands and 11 non-wetland waters were delineated within the project corridor during site visits conducted on June 2, July 29 and 30, August 7, and November 18, 2009 (Figure 6, Appendix A). The majority of the wetlands within the entire study area were associated with a drainage feature or stream. Two wetlands were depressional in nature and isolated from other waters. The November 18 visit was conducted to encompass an additional transmission line study corridor, and resulted in the delineation of two new waterways, but no new wetland areas. No sign of wetland vegetation or hydrology was found within or near the new corridor.

6.1 VEGETATION COMMUNITIES

6.1.1 Cultivated Wheat (Non-hydrophytic)

As would be expected, the Cultivated Wheat Community was dominated by cultivated wheat (*Triticum aestivum*). These areas were considered to fall under the atypical situation category and so the plant community parameter was not factored in when determining wetland status for these areas. Only soils and hydrology were used. Nonetheless, no area containing the cultivated wheat community was delineated as wetland. This community is represented by Sample Plot 19, and is considered to be non-hydrophytic.

6.1.2 CRP (Non-hydrophytic)

The CRP community consisted of planted bunch grasses, as well as more weedy species. Sage and rabbitbrush were occasionally found within this community, but not at high enough percentages to be considered dominant species. Table 7 provides a listing of dominant plant species found within the CRP community. This plant community was found in upland cultivated fields out of rotation and under the CRP Program. This community is represented by Sample Plots 13, 17, and 18, and is considered to be non-hydrophytic.

Table 7. CRP Community

Common Name	Scientific Name	Indicator Status
Intermediate wheatgrass	*Agropyron intermedium*	NL
Crested wheatgrass	*Agropyron cristatum*	NL
Sandberg bluegrass	*Poa secunda*	NL
Cheat grass	*Bromus tectorum*	NL
Bulbous bluegrass	*Poa bulbosa*	FAC
Redstem stork's bill	*Erodium cicutarium*	NL

6.1.3 Upland Herbaceous Community (Non-hydrophytic)

The upland grass community was primarily found in uncultivated ruderal areas, along roadsides and between cultivated fields. This community was generally heavily disturbed by grazing and other disturbance, and was dominated by non-native and invasive upland species. Table 8 provides a listing of dominant plant species found within the upland grass community. This community was considered to be non-hydrophytic.

Table 8. Upland Herbaceous Community

Common Name	Scientific Name	Indicator Status
Bulbous bluegrass	*Poa bulbosa*	FAC
Redstem stork's bill	*Erodium cicutarium*	NL
Cultivated wheat	*Triticum aestivum*	NL
Cheat grass	*Bromus tectorum*	NL
Sandberg bluegrass	*Poa secunda*	NL
Tall tumblemustard	*Sisymbrium altissimum*	FACU
Stinking chamomile	*Anthemis cotula*	FACU
Diffuse knapweed	*Centaurea diffusus*	NL
Common yarrow	*Achillea millefolium*	UPL
Diffuse knapweed	*Centaurea diffusus*	NL
Prickly lettuce	*Lactuca serriola*	FACU

6.1.4 Upland Shrub (Non-hydrophytic)

The upland shrub community was identified in non-wetland riparian areas, as well as less-disturbed areas between cultivated fields. This community was comprised of a mix of native and non-native shrub and herbaceous species. Table 9 provides a listing of dominant plant species found within the upland shrub community. This community was considered to be non-hydrophytic.

Table 9. Upland Shrub Community

Common Name	Scientific Name	Indicator Status
Big sagebrush	*Artemisia tridentata*	NL
Rubber rabbitbrush	*Ericameria nauseosa*	NL
Wood's rose	*Rosa woodsii var. ultramontana*	FACU
Russian thistle	*Salsola kali*	UPL
Lupine sp.	*Lupinus sp.*	UPL
Tall tumblemustard	*Sisymbrium altissimum*	FACU
Sandberg bluegrass	*Poa secunda*	NL
Bulbous bluegrass	*Poa bulbosa*	FAC
Cheatgrass	*Bromus tectorum*	NL
Cultivated wheat	*Triticum aestivum*	NL

6.1.5 Upland Tree (Non-hydrophytic)

The upland tree community was found in non-wetland riparian areas and upland sites in canyon bottoms and other protected locations. Table 10 provides a listing of dominant plant species found within this community. This community was considered to be non-hydrophytic.

Table 10. Dominant Plant Species

Common Name	Scientific Name	Indicator Status
Hybrid Lombardy poplar	*Populus X nigra*	NL
Black locust	*Robinia pseudoacacia*	FACU
Wood's rose	*Rosa woodsii var. ultramontana*	FACU
Basin wildrye	*Elymus cinereus*	FAC
Meadow horsetail	*Equisetem pratensis*	FACW
Canada thistle	*Circium arvense*	FAC
Bedstraw	*Galium aparine*	FAC
Wavy-leaved thistle	*Cirsium undulatum*	FACU
Intermediate wheatgrass	*Agropyron intermedium*	NL
Reed canarygrass	*Phalaris arundinacea*	FACW

6.1.6 Emergent Wetland Community (Hydrophytic)

Emergent wetland communities were identified in a few locations, including a small depressional area in an excavated roadside swale, and on a low terrace adjacent to narrow intermittent and perennial streams. Although the composition of species was different between these wetlands, dominant species were similar, with greater diversity in the larger streamside wetlands. These communities were comprised of both hydrophytic and non-hydrophytic herbaceous species with hydrophytic species dominating.

Table 11 provides a listing of dominant plant species found within the emergent wetland community, which was considered to be hydrophytic.

Table 11. Emergent Wetland Community

Common Name	Scientific Name	Indicator Status
Toad rush	*Juncus bufonis*	FACW
Willow dock	*Rumex salicifolius*	FACW
Spike bentgrass	*Agrostis exarata*	FACW
Rabbitfoot grass	*Polypogon mospeliensis*	FACW
Soft Rush	*Juncus effusus*	FACW
Tall fescue	*Schoenodorus phoenix*	FAC
American brooklime	*Veronica americana*	OBL
Mint sp.	*Mentha sp.*	FAC
Field horsetail	*Equisetum arvense*	FAC
Prostrate knotweed	*Polygonum aviculare*	FACW
Scouler's popcornflower	*Plagiobothrys scouleri*	FACW
Western marsh cudweed	*Gnaphalium palustre*	FAC
Prickly lettuce	*Lactuca serriola*	FACU
Navarretia	*Navarretia sp*	NL

6.1.7 Shrub Wetland Community (Hydrophytic)

Shrub wetland communities were identified within the riparian fringe of larger creeks. These communities were comprised of both hydrophytic and non-hydrophytic herbaceous species with hydrophytic species dominating. Table 12 provides a listing of dominant plant species found within the shrub wetland community, which was considered to be hydrophytic. This plant community is best represented by Sample Plot 14, which is located along the riparian fringe of Dry Creek north of Adkisson Road.

Table 12. Shrub Wetland Community

Common Name	Scientific Name	Indicator Status
Pacific willow	*Salix lasiandra*	FACW
Coyote willow	*Salix exigua*	FACW
Wood's rose	*Rosa woodsii var. ultramontana*	FACU
Douglas' hawthorn	*Crataegus douglasii*	FAC
Stinging nettle	*Urtica dioica*	FAC
Rabbitfoot grass	*Polypogon mospeliensis*	FACW
Spikerush	*Eleocharis palustris*	OBL
Soft Rush	*Juncus effusus*	FACW
American speedwell	*Veronica americana*	OBL
Reed canarygrass	*Phalaris arundinacea*	FACW

6.1.8 Forested Wetland Community (Hydrophytic)

A small forested wetland was found in a remnant channel north of Dry Creek. In addition, a mixture of shrub and forested wetland communities were identified within the riparian fringe of larger creeks. Based on the arid west supplement, all woody plants with a diameter at breast height (dbh) greater than three inches qualify as trees. Since some of the willows within the riparian fringe are greater than three inches dbh, these areas would be considered forested wetlands. This community was comprised of both hydrophytic and non-hydrophytic herbaceous species with hydrophytic species dominating. Table 13 provides a listing of dominant plant species found within the forested wetland community, which was considered to be hydrophytic. This plant community is best represented by Sample Plot 14, which is located along the riparian fringe of Dry Creek north of Adkisson Road, and in Plot 12, located west of Plot 14 and north of Dry Creek.

Table 13. Forested Wetland Community

Common Name	Scientific Name	Indicator Status
Pacific willow	*Salix lasiandra*	FACW
Thinleaf alder	*Alnus incana ssp. tenuifolia*	FACW
Coyote willow	*Salix exigua*	FACW
Stinging nettle	*Urtica dioica*	FAC
fringed willowherb	*Epilobium ciliatum*	FAC
Rabbitfoot grass	*Polypogon mospeliensis*	FACW
Spikerush	*Eleocharis palustris*	OBL
Common velvetgrass	*Holcus lanatus*	FAC
Soft rush	*Juncus effusus*	FACW
American speedwell	*Veronica americana*	OBL

6.2 HYDROLOGY

With the exception of waterways, precipitation is the primary source of hydrology throughout the project area. The soils within the project area are well-drained silt loams or loess, thus any precipitation falling upon it drains away quickly. The exception to this is areas of compaction and excavation due to human disturbance, such as stock watering ponds, un-drained roadside ditches (Wetland A), and swale wetlands (Wetland F). All other wetlands delineated within the project area were associated with drainage features and seeps below 1,800-foot elevation at which point they become intermittent or perennial with enough water to sustain hydrophytic vegetation and hydric soil conditions.

6.3 SOILS

In general, the soils observed throughout the project corridor matched the mapped soil series. Cantala silt loam and Condon-Bakeoven complex soils were found on ridges and upper reaches of drainages within the project area, represented by Sample Plots 1 – 7, and others. These soils were very dark brown to very dark grayish brown, fine silty loams, and were considered to be non-hydric. Two depressional wetlands were found in this soil complex and contained a different profile that was considered to be hydric due to the following indicators: redox dark surface (F6) and hydrogen sulfide (A4). These soils were considered to be hydric.

Several soils were found down in the ravine bottoms along drainages, including Hermiston silt loam, Tygh fine sandy loam, Riverwash, and Nansene silt loam. These soils ranged from very dark brown to very dark grayish brown, silty loams often with bedrock, cobble, or gravel inhibitive layers at 5-10 inches deep. These soils are represented by Sample Plots 8-15. Tygh fine sandy loam and Riverwash soils are considered hydric, and wetlands were found in each of the soils listed above.

6.4 WETLANDS

Wetlands within the study area are described individually below, and summarized in Table 14. Wetlands B, C, D, and E are predicted to be jurisdictional for the Corps and DSL, because of their connection to jurisdictional waterways. Wetland A and Wetland F are isolated from all waters and thus are likely not Corps jurisdictional wetlands.

6.4.1 Wetland A

Wetland A (0.02 acre) is located near the center of the project corridor (T2S R15E Sec 5), just west of Center Ridge Road. This palustrine emergent wetland is dominated by prostrate knotweed and toadrush. The wetland occupies a 5-foot wide roadside ditch or swale that does not contain a culvert, and therefore ponds water for long enough to induce wetland conditions, but is isolated from other water features. Indicators of wetland hydrology include sediment deposits, surface soil cracks, and water-stained leaves. Soils in the wetland displayed faint areas of depletions while adjacent upland soils lacked this feature (See Sample Plots 4 and 5, and Photo 4). The boundary of this wetland is defined by a steep topographic break and a distinct change in vegetative community between toad rush and prostate knotweed in the wetland, and cheatgrass in the upland, and lack of hydrology and hydric soils in the upland.

6.4.2 Wetland B

Wetland B (0.09 acre) is located at the western end of the transmission line corridor (T1S R14E Sec 21), along Adkisson Road near the existing BPA powerlines. This palustrine emergent wetland contains some shrub species such as coyote willow but is overall dominated by herbaceous vegetation such as spikerush and spike bentgrass. The wetland lies along a low terrace adjacent to Dry Creek, a 10-15-foot wide perennial stream. A layer of bedrock was found below 8 inches in Plot 10, resulting in a perched water table in places within the wetland. Indicators of wetland hydrology include soil saturation to the surface and sulfidic odor. Soils in the wetland displayed distinct redox concentrations while adjacent upland soils lacked this feature (See Sample Plots 10 and 11 and Photo 6). The boundary of this wetland is defined by a steep topographic break and a distinct change in vegetative community between coyote willow, reed canarygrass, and spike bentgrass in the wetland, and cheatgrass in the upland, and lack of hydrology and hydric soils in the upland.

Table 14. Characteristics of Wetland Resources Within the Study Area

Wetland ID	Size in acres*	NWI Class**	Isolated?	Description
A	0.02	PEM	Yes	Roadside depressional swale along Center Ridge Road
B	0.09	PEM	No	Riparian fringe wetland along Dry Creek south of Adkisson Road
C	0.12	PSS/PFO	No	Old channel/swale north of Dry Creek
D	0.10	PEM	No	Riparian fringe wetland along Shotgun Hollow at Steuber Road
E	0.25	PSS	No	Riparian fringe wetland along Dry Creek north of Adkisson Road
F	0.03	PEM	Yes	Depressional swale along ephemeral water upstream of gravel road crossing

**Acreage within the study area limits. **Wetland class provided is for dominant type within the study area limits.*

6.4.3 Wetland C

Wetland C (0.12 acre) is also located at the western end of the transmission line corridor (T1S R14E Sec 21), along Adkisson Road near the existing BPA powerlines, but lies off the main channel of Dry Creek and may have been an old channel that has been abandoned and revegetated. This palustrine forested wetland is dominated by thinleaf alder, with common velvetgrass and spike bentgrass dominant in the understory. The wetland lies within a narrow swale that is not connected to the main channel, except perhaps during times of extreme high flow. Indicators of wetland hydrology include soil saturation to the surface and sulfidic odor. Soils in the wetland displayed distinct redox concentrations while adjacent upland soils lacked this feature (See Sample Plots 12 and 13 and Photo 7). The boundary of this wetland is defined by a moderate topographic break and a distinct change in vegetative community between gray alder, velvetgrass, and spike bentgrass in the wetland, and bluebunch wheatgrass and Himalayan blackberry in the upland, and lack of hydrology and hydric soils in the upland.

6.4.4 Wetland D

Wetland D (0.10 acre) is located at the western end of the transmission line corridor (T1S R14E Sec 16 and 21), along Steuber Road. This palustrine emergent wetland is dominated by tall fescue and spike bentgrass. The wetland lies along a low terrace adjacent to a 2 – 4-foot wide perennial stream. The wetland is bisected by a bridge. Grazing has removed some of the biomass within the wetland north of the bridge, but the plant community is similar to that found south of the bridge, with greater cover by reed canarygrass and 10 percent bare ground to the north. Indicators of wetland hydrology include soil saturation to the surface and sulfidic odor. Soils in the wetland displayed faint areas of redox concentrations while adjacent upland soils lacked this feature (See Sample Plots 8 and 9 and Photos 8 and 9). The boundary of this wetland is defined by a moderate topographic break and a distinct change in vegetative community between spike bentgrass and field mint in the wetland, and cheatgrass and Himalayan blackberry in the upland, and lack of hydrology and hydric soils in the upland.

6.4.5 Wetland E

Wetland E (0.25 acre) is located downstream of Wetland B and is separated from it by a bridge (T1S R14E Sec 16). This palustrine scrub-shrub wetland is dominated by coyote willow and Pacific willow, which indicates that it may have been less subject to grazing historically than Wetland B. Dominant understory vegetation includes spike bentgrass with lesser cover by stinging nettle. The wetland lies along a narrow terrace adjacent to Dry Creek. A layer of bedrock was found below 7 inches in Plot 14, resulting in a perched water table in places within the wetland. Indicators of wetland hydrology include soil saturation at four inches. Soils in the wetland displayed distinct redox concentrations while adjacent upland soils lacked this feature (See Sample Plots 14 and 15 and Photo 10). The boundary of this wetland is defined by a moderate topographic break and a distinct change in vegetative community between willow dock and prostate knotweed in the wetland, and cheatgrass and cultivated wheat in the upland, and lack of hydrology and hydric soils in the upland.

6.4.6 Wetland F

This palustrine emergent wetland (0.03 acre) lies within a shallow swale located at the upper end of an ephemeral waterway, from which it is separated by a 10-foot wide rock and gravel roadway (T1S R14E Sec 24). The wetland occupies a 5-foot wide swale that is not connected to a culvert, and is therefore isolated from the ephemeral drainage downslope of it. Groundwater within this portion of the otherwise ephemeral waterway channel appears to be the main source of hydrology. It may be enhanced by the roadway obstruction, which may pond water for long enough during the early growing season to induce wetland conditions. Water likely flows over the roadway during extreme high flows, but the roadway contains little to no soil, and is bare of vegetation.

Wetland F is dominated by prostrate knotweed, toadrush, and willow dock. Indicators of wetland hydrology include surface soil cracks. Soils in the wetland displayed redox concentrations and low chroma soils, while adjacent upland soils lacked this feature (See Sample Plots 6 and 7 and Photo 13). The boundary of this wetland is defined by a moderately steep topographic break along the edges of the swale, a distinct change in vegetative community between Pacific willow and spike bentgrass in the wetland, and black locust and cheatgrass in the upland, and lack of hydrology and hydric soils in the upland. A short section of ephemeral drainage extends upslope of the wetland until it meets another gravel road.

6.5 WATER RESOURCES

Water resources within the study area are described individually below, as well as a summary of their predicted jurisdictionally for DSL and the Corps. DSL criteria are set forth in OAR 141-085-0025(3)(j) and OAR 141-085-0121 through 141-085-0151. For Corps jurisdiction, the Oregon Streamflow Duration Assessment Method (OSDAM) was used to determine whether each resource would be considered perennial (score >25), intermittent (score>13 and <25), or ephemeral (score <13). OSDAM data sheets are provided in Appendix F.

6.5.1 Water Resource 1 (WR-1, Dry Creek)

This perennial waterway crosses the western end of the transmission corridor and is named Dry Creek in spite of the presence of slowly flowing water in late July. It is a Relatively Permanent Water, and scored 41 on the Oregon Streamflow Duration Assessment Method (OSDAM). Average channel width is fifteen feet and ranges from 10 to 30 feet or more. Average depth is three feet at OHWM, ranging from two to five feet. Substrate is dominated by bedrock with patches of gravel and fines. The channel displays a distinct lichen line and contained an inch to two feet of standing water in pools as well as areas of dry bed. The OHWM was based on a distinct break between shrubs present along the heavily vegetated bank and the scoured, less-vegetated channel. A wetland fringe (Wetlands B and E) lies along much of the banks of the creek and extends below the OHWM along much of the waterway. Fish were present within the waterway at the time of the site visits, although species is unknown.

6.5.2 Water Resource 2 (WR-2, Steuber Road Creek/Shotgun Hollow)

This perennial waterway lies near the western end of the transmission corridor, and flows into Dry Creek, within the study corridor. It appears to be unnamed, but lies along Steuber Road. It contained one inch of slowly flowing water in late July, with slightly deeper water retained in pools. It scored 33.5 on the OSDAM. Average channel width is six feet and ranges from five to eleven or so within the corridor. Average depth is three feet, ranging from two to five feet. Substrate is dominated by bedrock with patches of gravel and fines. The channel displays a distinct lichen line and contained an inch to two feet of standing water in pools as well as areas of dry bed. The OHWM was based on a distinct break between shrubs present along the heavily vegetated bank and the scoured, less-vegetated channel. A wetland fringe (Wetland D) lies along portions of the banks of the creek and extends below the OHWM along much of the waterway. Although no fish were seen, it was assumed that they were present due to the perennial nature of the stream and its proximity to Dry Creek, where fish presence was observed.

6.5.3 Water Resource 3 (WR-3, unnamed drainage)

This intermittent waterway lies within Stubb Hollow near the western end of the corridor. It lies within a steep U channel and contained no signs of recent water at the end of July 2009. It scored 18.75 on the OSDAM, which strongly indicates that it would be considered intermittent, rather than ephemeral water, and would be jurisdictional to the Corps and DSL. Average channel width is three feet and ranges from three to six feet within the corridor (Photo 11). Average depth is two feet, ranging from two to five feet. Substrate is dominated by boulders, gravel and fines. The channel displays a distinct lichen line, but generally lacked a distinct riparian area. The OHWM was based on a distinct break between the heavily vegetated bank and the scoured, less-vegetated channel. Due to the intermittent nature of the waterway, lack of vegetation or pools within the channel, and distance from known fish-bearing streams, it was assumed that fish were not present within this water resource.

6.5.4 Water Resource 4 (WR-4, unnamed drainage)

This ephemeral waterway originates downslope from Wetland F. The waterway is downcut immediately below the roadway, likely due to the presence of agricultural lands adjacent, which appear to have pushed soil toward the waterway, causing erosion. Average channel width is four feet, with depth ranging from one to four feet and substrate ranging from bare dirt and cheatgrass to patches of bedrock and weedy grasses (Photo 12). The ordinary high water mark was based on a vaguely discernable break between the vegetated bank and the less-vegetated channel. WR-4 scored 6.0 on the OSDAM, due to a nearly complete lack of intermittent waterway characteristics, and may or may not be considered jurisdictional by DSL. However, since it was noted that a spring exists within the drainage approximately 400 feet downslope of the study area corridor, the Corps may take jurisdiction of WR-4 within the study corridor because it maintains a significant nexus to the Relatively Permanent Water emerging from the spring. Due to the intermittent nature of the waterway, lack of vegetation or pools within the channel, and distance from known fish-bearing streams, it was assumed that fish were not present within this water resource.

6.5.5 Water Resource 5 (WR-5, Jameson Canyon Creek Tributary 1)

This perennial waterway lies near the angle point of the transmission corridor and eventually flows into Fifteenmile Creek more than three miles northwest of the study corridor. It contained no water in early August, but scored 26.5 on the OSDAM, indicating that it would be considered perennial rather than intermittent. Average channel width is four feet and ranges from three to feet within the corridor (Photo 14). Average depth is two feet, ranging from two to five feet. Substrate is dominated by bedrock, boulders, gravel and pebbles. The channel displays a distinct lichen line, but generally lacked a distinct riparian area. The OHWM was based on a distinct break between shrubs present along the heavily vegetated bank and the scoured, less-vegetated channel. No wetlands were present, adjacent to the waterway. Although no fish were seen, and no water was present at the time of the site visits, it was assumed that they could be present at times of the year due to the occasional pool formations and proximity to Fifteenmile Creek, which is mapped as Essential Fish Habitat by DSL.

6.5.6 OUTSIDE STUDY AREA: Water Resource 6 (WR-6, Jameson Canyon Creek Trib 2, lower crossing)

This waterway is a tributary to WR-5, but lies outside the corridor. Information is provided here to inform the jurisdiction of WR 8 and 9. WR-6 contained no water in early August. It scored 19.25 on the OSDAM, and would therefore be considered intermittent. Average channel width is two feet and ranges from two to three feet within the corridor. Average depth is two feet, ranging from one to four feet. Substrate is dominated by bedrock with patches of gravel and fines. The channel displays a distinct lichen line and he the OHWM was based on a distinct break between shrubs present along the heavily vegetated bank and the scoured, less-vegetated channel. As a result of these conditions, it would be considered a Relatively Permanent Water, and jurisdictional to the Corps and DSL. Water Resource 7 is located in the same tributary, but further up the drainage. Although no fish were seen, and no water was present at the time of the site visits, it was assumed that they could be present at times of the year due to the occasional pool formations and proximity to Fifteenmile Creek, which is mapped as Essential Fish Habitat by DSL.

6.5.7 OUTSIDE STUDY AREA: Water Resource 7 (WR-7, Jameson Canyon Creek Trib 2, upper crossing)

This drainage leads into WR-6 downslope of the study reach, which lies outside the study corridor. Information is provided here to inform the jurisdiction of WR 8 and 9. It scored only 4.75 on the OSDAM, and would therefore be considered ephemeral. Average channel width is one foot and ranges from one to three feet within the corridor. Average depth is one foot, ranging from one to three feet as well. Substrate is dominated by gravel and fines, with vegetation growing in the channel in many places. The channel displays no lichen line and the OHWM was based on a weak break between shrubs present along the heavily vegetated bank and the partially scoured, less-vegetated channel. A shrub wetland fringe lies along portions of the banks of the creek and extends below the OHWM along much of the waterway.

As a result of these conditions, it would not be considered a Relatively Permanent Water. Water Resource 8, which lies within the study area, leads into WR-7 further up the drainage and is described below. Although no fish were seen, and no water was present at the time of the site visits, it was assumed that they could be present at times of the year due to the occasional pool formations and proximity to Fifteenmile Creek, which is mapped as Essential Fish Habitat by DSL.

6.5.8 Water Resource 8 (WR-8, Tributary to Jameson Canyon Creek Tributary 2)

This ephemeral waterway leads into WR-7 just outside the study corridor. It was dry in early August and scored 7.0 on the OSDAM, which strongly indicates that it would be considered ephemeral and therefore may not be jurisdictional for DSL or the Corps. Average channel width is two feet and ranges from one to three feet within the corridor. Average depth is two feet, ranging from two to four feet. The OHWM was based on weakly distinct break between shrubs present along the vegetated bank and the somewhat less-vegetated channel. Since this waterway leads to the ephemeral WR-7, which doesn’t become intermittent for at least 0.5 miles downslope (at WR-6), the Corps would likely not take jurisdiction of WR-8 within the study corridor, because it does not maintain a significant nexus to a Relatively Permanent Water. Due to the ephemeral nature of the waterway, lack of vegetation or pools within the channel, and distance from known fish-bearing streams, it was assumed that fish were not present within this water resource.

6.5.9 Water Resource 9 (WR-9, Tributary to Jameson Canyon Creek Tributary 1)

This ephemeral waterway leads into WR-5 well downslope of the study corridor. It was dry in early August and scored 6.5 on the OSDAM. Average channel width is one foot, and average depth is one foot, within the corridor. No OHWM was discernable and due to its ephemeral nature may not be considered jurisdictional to the Corps or DSL. Due to the ephemeral nature of the waterway, lack of vegetation or pools within the channel, and distance from known fish-bearing streams, it was assumed that fish were not present within this water resource.

6.5.10 Water Resource 10 (WR-10, unnamed drainage)

This ephemeral waterway was dry in early June and scored 5 on the OSDAM. It is located at the north end of the study area east of Emerson Road and is a tributary of Fall Canyon (T1S R15E Sec 11).

Average channel width is one foot, and average depth is one foot, within the corridor. No OHWM was discernable (See Photo 10). This is typical of the other drainages which are present within the corridor which carry water only during times of highest flow, and due to its ephemeral nature may not be considered jurisdictional to the Corps or DSL. Table 15 provides a summary of water resources within the study corridor, as well as two waterways located outside the study area, since these provide a context for the drainages located upslope of them (WR 8 and 9). Due to the ephemeral nature of the waterway, lack of vegetation or pools within the channel, and distance from known fish-bearing streams, it was assumed that fish were not present within this water resource.

6.5.11 Water Resource 11 (WR-11, unnamed drainage)

This ephemeral waterway lies within Stubb Hollow near the western end of the corridor. It lies within a moderately steep channel and contained no signs of recent water in mid-November, 2009. It scored 4.5 on the OSDAM, which strongly indicates that it would be considered ephemeral, and may not be jurisdictional to the Corps or DSL. Average channel width is one foot and ranges from three to six feet within the corridor (Photo 16). Average depth is two feet, ranging from two to three feet. No OHWM was discernable and due to its ephemeral nature.

6.5.12 Water Resource 12 (WR-12, unnamed drainage)

This ephemeral waterway lies along a drainage upslope of Wetland F, just west of Hastings Ridge Road. The drainage does not connect to Wetland F under normal conditions, since a gravel road without a culvert separates it from the ephemeral waterway leading to Wetland F. WR-12 lies within a moderately steep channel and contained no signs of recent water in mid-November, 2009 (Photo 17). It scored 5.0 on the OSDAM, which strongly indicates that it would be considered ephemeral, and would likely not be jurisdictional to the Corps or DSL because it is not connected to other waters during normal flow. A gravel road separates it from the ephemeral channel leading to Wetland F, and any water passing down WR-12 from storm flows would infiltrate. Average channel width is two feet, and average depth is two feet, ranging from two to three feet. The ordinary high water mark was based on a vaguely discernable break between the vegetated bank and the less-vegetated channel.

6.5.13 Water Resource 13 (WR-13, unnamed drainage)

This ephemeral waterway lies within Stubb Hollow near the western end of the corridor. It lies within a moderately steep channel and contained no signs of recent water in mid-November, 2009. It scored 4.5 on the OSDAM, which strongly indicates that it would be considered ephemeral, and would likely not be jurisdictional to the Corps or DSL because it is not connected to other waters during normal flow. A plowed and cultivated wheat field separates it from the downstream drainage, and it appears that any water passing down WR-13 from storm flows would infiltrate into the field. Average channel width is one foot (Photo 16), and average depth is two feet. No OHWM was discernable and due to its ephemeral nature. Table 15 provides a summary of water resources and their predicted jurisdictionally for DSL and the Corps.

Table 15. Summary of Water Resources Within Study Corridor

WR #	OSDAM score	Persistence	Width *(feet)	Predicted Jurisdictionality
WR-1	41.0	Perennial	15	Likely Corps and DSL
WR-2	33.5	Perennial	7	Likely Corps and DSL
WR-3	18.75	Intermittent	4	Likely Corps and DSL
WR-4	6.0	Ephemeral	4	Likely Corps, potentially DSL
WR-5	26.5	Perennial	5	Likely Corps and DSL
WR-6	19.25	Intermittent	2	NOT IN STUDY AREA
WR-7	4.75	Ephemeral	1	NOT IN STUDY AREA
WR-8	7.0	Ephemeral	2	Potentially not Corps or DSL
WR-9	6.5	Ephemeral	1	Potentially not Corps or DSL
WR-10	5.0	Ephemeral	1	Potentially not Corps or DSL
WR-11	4.5	Ephemeral	1	Potentially not Corps or DSL
WR-12	5.0	Ephemeral	2	Likely not Corps or DSL
WR-13	5.0	Ephemeral	1	Likely not Corps or DSL

**Average within the study area limits and study reach*

6.6 UPLAND AREAS WITHIN THE PROJECT CORRIDOR

The majority of the project area is comprised of upland dominated by cultivated wheat, CRP, and ruderal grass or shrub communities. These areas are best represented by Sample Plots 7, 11, and 19, (See photos 3, 5, and 14, Appendix C). No signs of jurisdictional waterways or wetland communities were present in these areas.

7 DEVIATION FROM LWI OR NWI

Few wetlands or waters were encountered within the main project area (vs. the transmission line corridor), as evident on the Summit Ridge, Oregon NWI map (Appendix A, Figure 3). Many of the wetlands mapped by the NWI were found to be absent. For instance, an un-named drainage on both sides of Center Ridge Road (T2S R15E Sec 4 and 5) is mapped as a palustrine, emergent, temporarily flooded wetland. Field investigations found that this drainage is not wetland (see Sample Plots 1 and 2) but likely conducts stormflows following substantial precipitation events. Wetland A was not mapped on the NWI, perhaps because it is associated with a road structure rather than a natural drainage feature.

A palustrine, unconsolidated shore, temporarily flooded, and excavated wetland is mapped adjacent to Center Ridge Rd (T2S R15E Sec 7 and 8). Based on the site visit, it is clearly a human-made feature less than 0.5 acres in size, designed to provide water for cattle, isolated from other waters, and therefore non-jurisdictional for both the Corps and DSL (Photo 16). Finally, two small wetlands are mapped near Summit Ridge itself (T1S R15E Sec 28), but were found to be non-wetland, as shown in Plots 17 and 18 and Photo 4. These areas did contain low points, but wetland soils, hydrology, and vegetation were all lacking. The drainage features encountered along transmission line matched their NWI designation fairly closely, including the wetlands associated with them.

8 MAPPING METHOD

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH Global Positioning System (GPS) receiver with typical accuracy of three feet or better.

9 ADDITIONAL INFORMATION

All streams listed as perennial or intermittent are likely to be considered jurisdictional, non-navigable waters of the state by DSL. The Corps would likely classify these streams as "relatively permanent waters" (RPW) of the U.S. that are tributary to the Columbia River, which is a "traditional navigable water" of the U.S. Ephemeral tributaries may not be considered jurisdictional by DSL or the Corps, especially when plowed fields or roads separate them from downstream channels, but in some cases may be Corps jurisdictional due to a "significant nexus" with the RPWs found downslope of the ephemeral tributaries. Fish were potentially present in all perennial waters, and may be present during the wet season within intermittent waters, but are unlikely to be present within the ephemeral drainages under normal conditions. All delineated wetlands are likely considered jurisdictional by the state of Oregon (OAR 141-085-0015), and the Corps.

10 CONCLUSION

Seventeen "waters of the U.S. and the State" were delineated within the project corridor. These include six wetland areas and 11 water resources. Four of the six wetland areas are located along drainages receive their primary sources of hydrology in the form of creek flows. The remaining two wetlands are depressional in nature and receive hydrology in the form of direct precipitation and sheet flow. The wetlands contain a variety of plant communities from emergent to forested.

Four of the 11 streams within the project corridor were perennial or intermittent in nature and drained to either the Deschutes or Columbia River, while the other seven were ephemeral. Adjacent upland areas were comprised of cultivated fields, CRP areas, and steep slopes dominated by ruderal herbaceous and scrub-shrub plant communities.

11 DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of the investigator's knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at own risk until it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through OAR 141-090-0555.

12 PREPARERS AND CONTRIBUTORS

Phil Rickus, DEA Ecologist, Ethan Rosenthal, DEA Ecologist, and Ian Read, DEA Biologist, performed the site delineation. Mr. Read and Mr. Rickus are the authors of this report. Ethan Rosenthal provided

Total Quality Management reviews. Angie Jones, DEA Project Assistant, provided editing and text processing. Melissa Foltz, DEA Project Assistant, prepared the report graphics.

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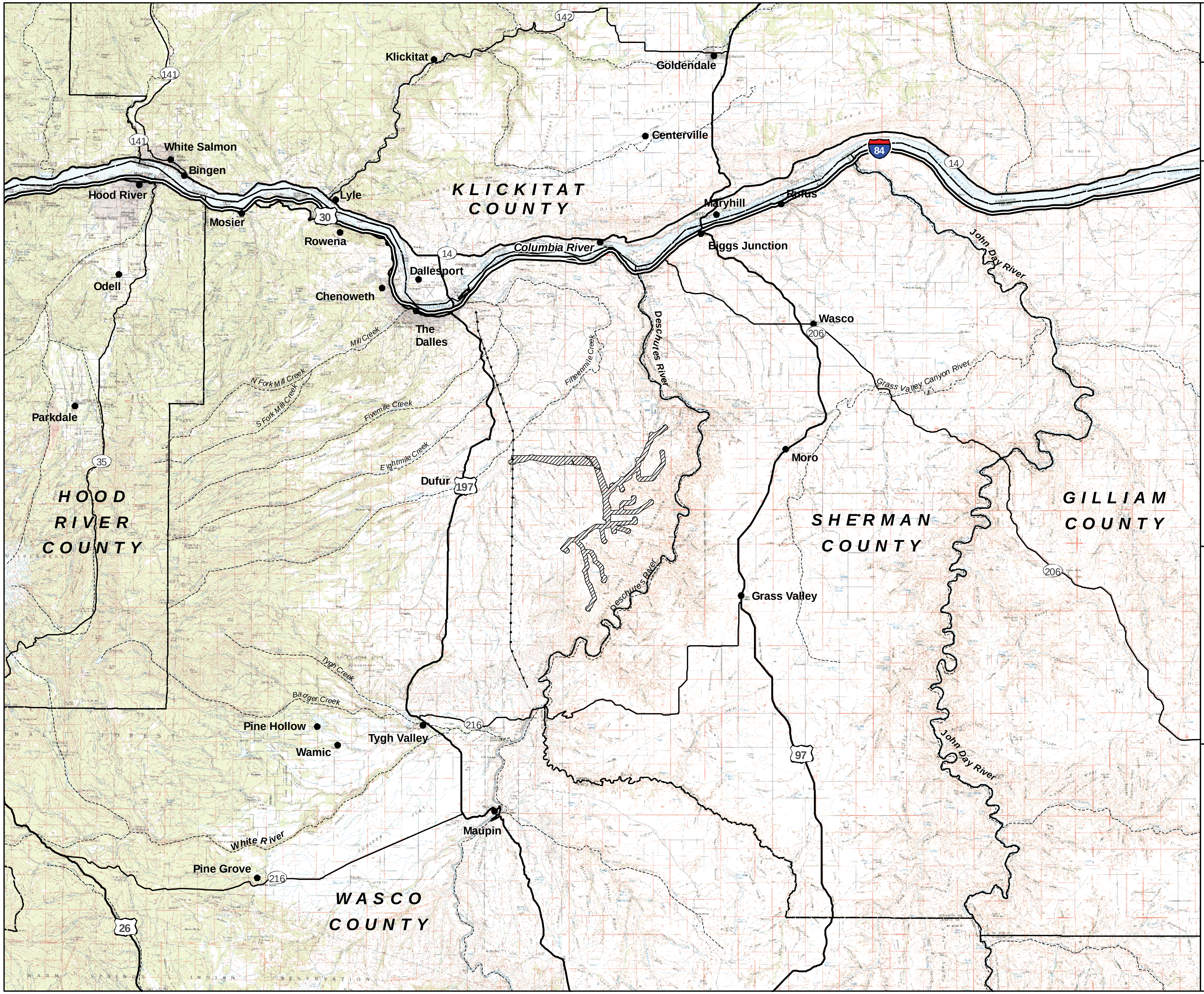
APPENDICES

APPENDIX A – MAPS

LotusWorks - Summit Ridge I, LLC

Figure 1
Location Map



Legend

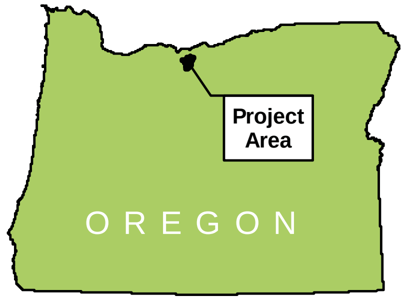
- Wetland Study Area
- County Line
- Interstate Highway
- Other Highway
- Major Road
- Bonneville 230 KV Line

N

0 4 8 12 16

Miles

Location Map



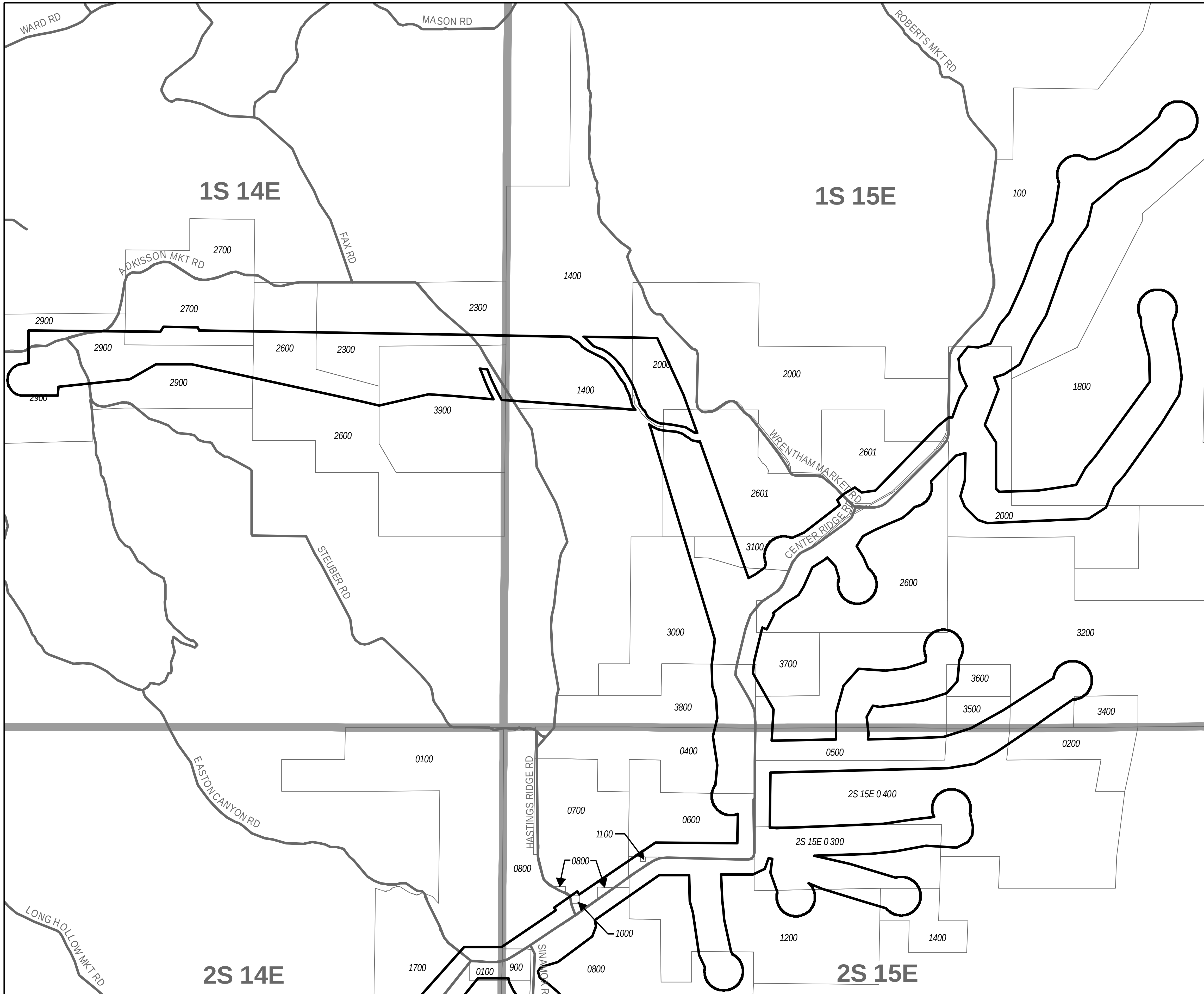
Data Sources:

Lotusworks, 2009
USGS 30x60 Ortho Quadrangles:
Condon, OR; Goldendale, OR;
Hood River, OR; Mt. Hood, OR

lotusworks

LotusWorks - Summit Ridge I, LLC

Figure 2
Taxlots, Sheet 1

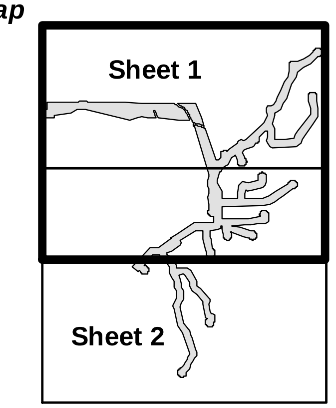


Legend
- Wetland Study Area
- Townships
- Taxlots
- Roads

N

0 1 2
Miles

Location Map



Data Sources:
LotusWorks, 2009
Oregon Imagery Explorer, 2005
Wasco County GIS, 2009

LotusWorks Summit Ridge I

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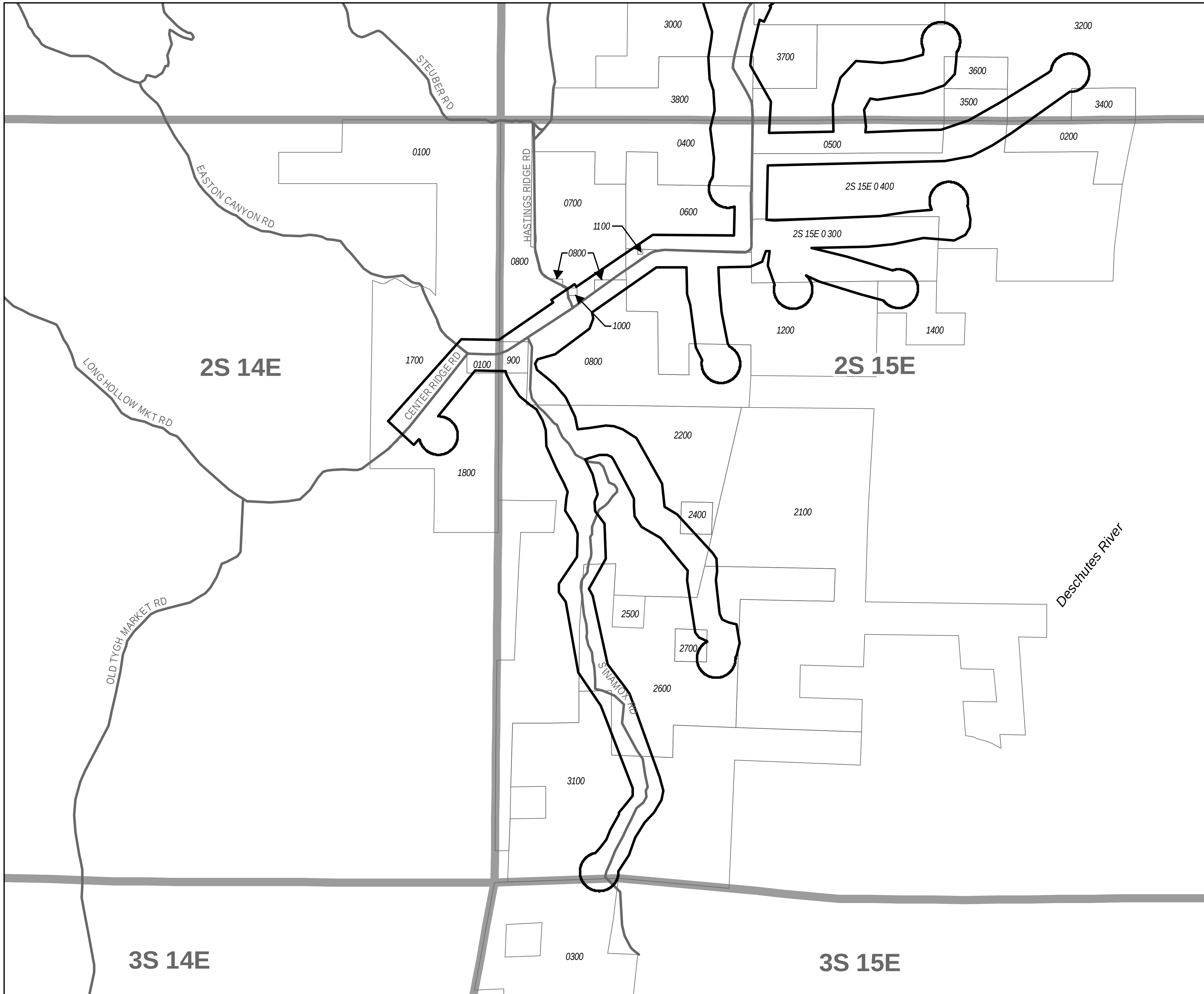


LotusWorks - Summit Ridge I, LLC

Figure 2
Taxlots, Sheet 2

Legend

Wetland Study Area

Townships

Taxlots

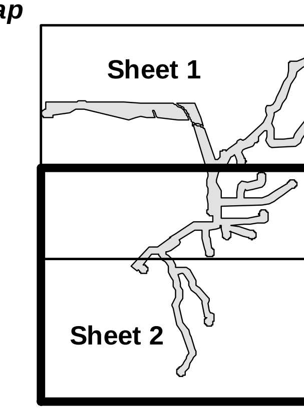
Roads

N

0 1 2

Miles

Location Map



Data Sources:

LotusWorks, 2009

Oregon Imagery Explorer, 2005

Wasco County GIS, 2009

LotusWorks Summit Ridge I

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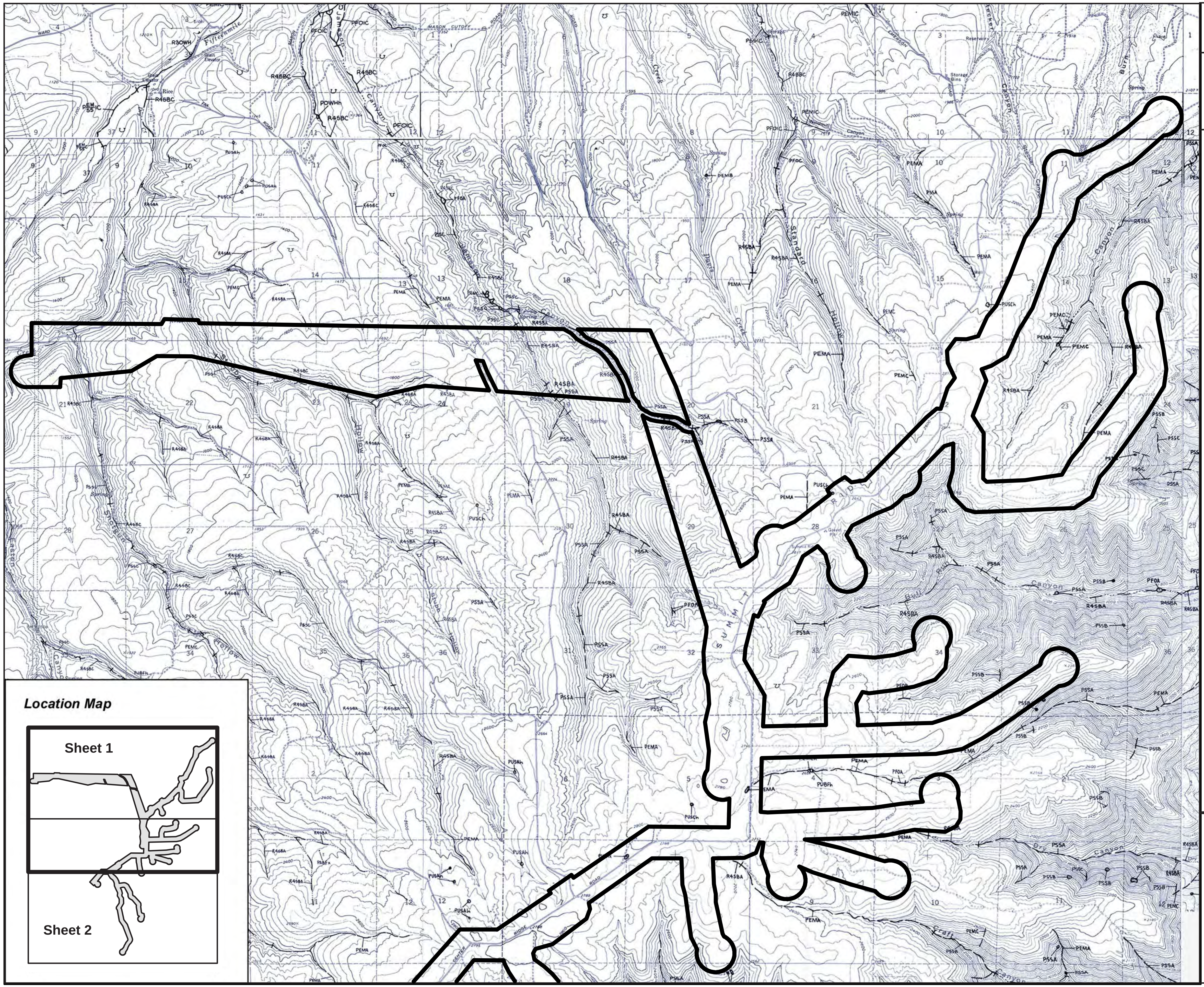
LotusWorks - Summit Ridge I, LLC

Figure 3

National Wetlands Inventory, Sheet 1



Wetland Study Area

Wetlands in Survey Corridors

PEMA	Palustrine, emergent, temporarily flooded
PEMC	Palustrine, emergent, seasonally flooded
PSSA	Palustrine, scrub-shrub, temporarily flooded
PSSB	Palustrine, scrub-shrub, saturated
PSSC	Palustrine, scrub-shrub, seasonally flooded
PSS1C	Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded
PUSAx	Palustrine, unconsolidated shore, temporarily flooded, excavated
PUSCh	Palustrine, unconsolidated shore, seasonally flooded, diked/impounded
R4SBA	Riverine, intermittent, stream bed, temporarily flooded
R4SBC	Riverine, intermittent, stream bed, seasonally flooded

N

0 1 2

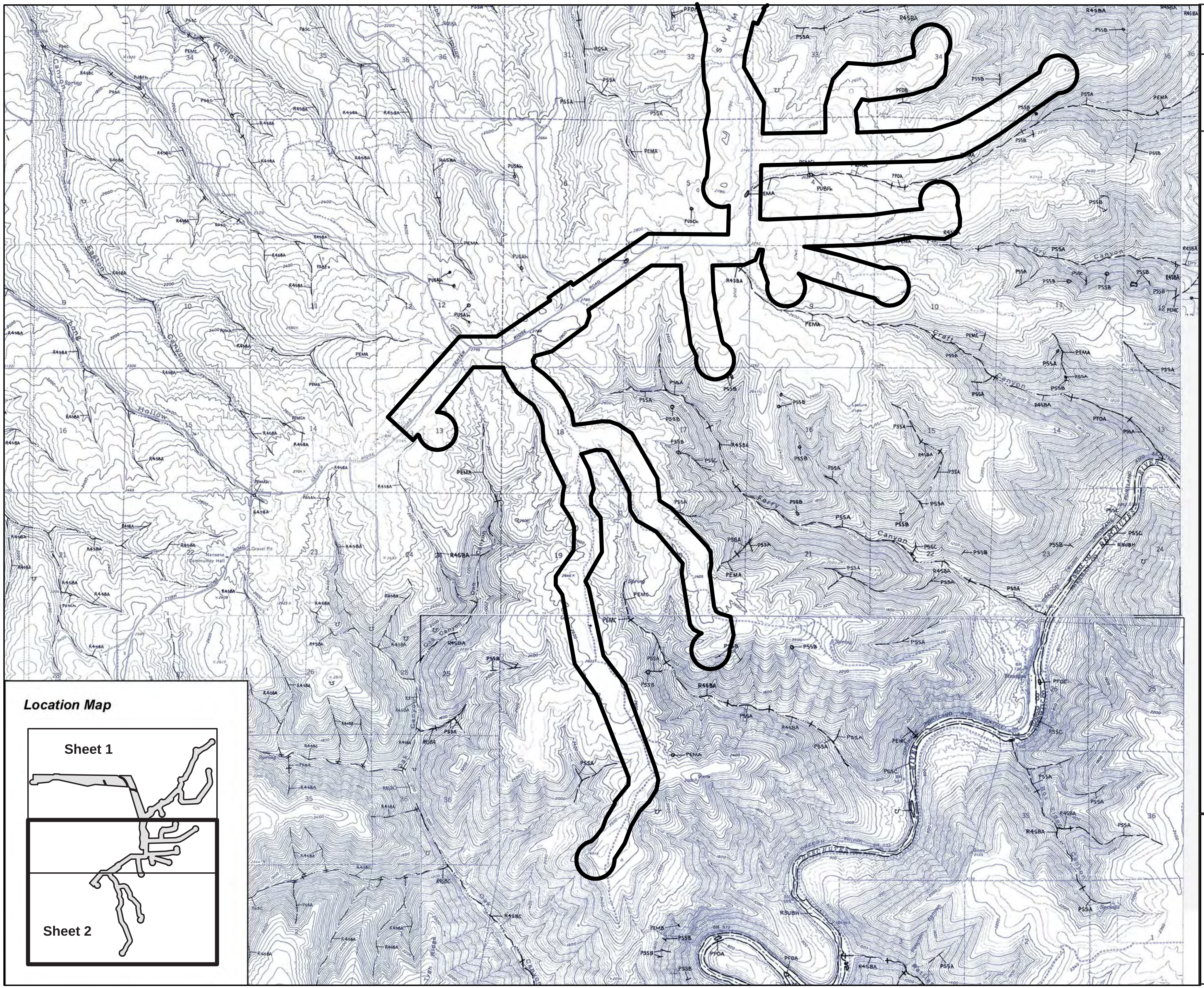
Miles

Data Source:

LotusWorks, 2009

National Wetlands Inventories: Oregon (Dufur East, Emerson, Erskine, Locust Grove, Petersburg, Sinomox, and Summit Ridge)

LotusWorks Summit Ridge I



LotusWorks - Summit Ridge I, LLC

Figure 3

National Wetlands Inventory, Sheet 2

Wetland Study Area

Wetlands in Survey Corridors

PEMA	Palustrine, emergent, temporarily flooded
PEMC	Palustrine, emergent, seasonally flooded
PSSA	Palustrine, scrub-shrub, temporarily flooded
PSSB	Palustrine, scrub-shrub, saturated
PSSC	Palustrine, scrub-shrub, seasonally flooded
PSS1C	Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded
PUSAx	Palustrine, unconsolidated shore, temporarily flooded, excavated
PUSCh	Palustrine, unconsolidated shore, seasonally flooded, diked/impounded
R4SBA	Riverine, intermittent, stream bed, temporarily flooded
R4SBC	Riverine, intermittent, stream bed, seasonally flooded

N

0 1 2

Miles

Data Source:

LotusWorks, 2009

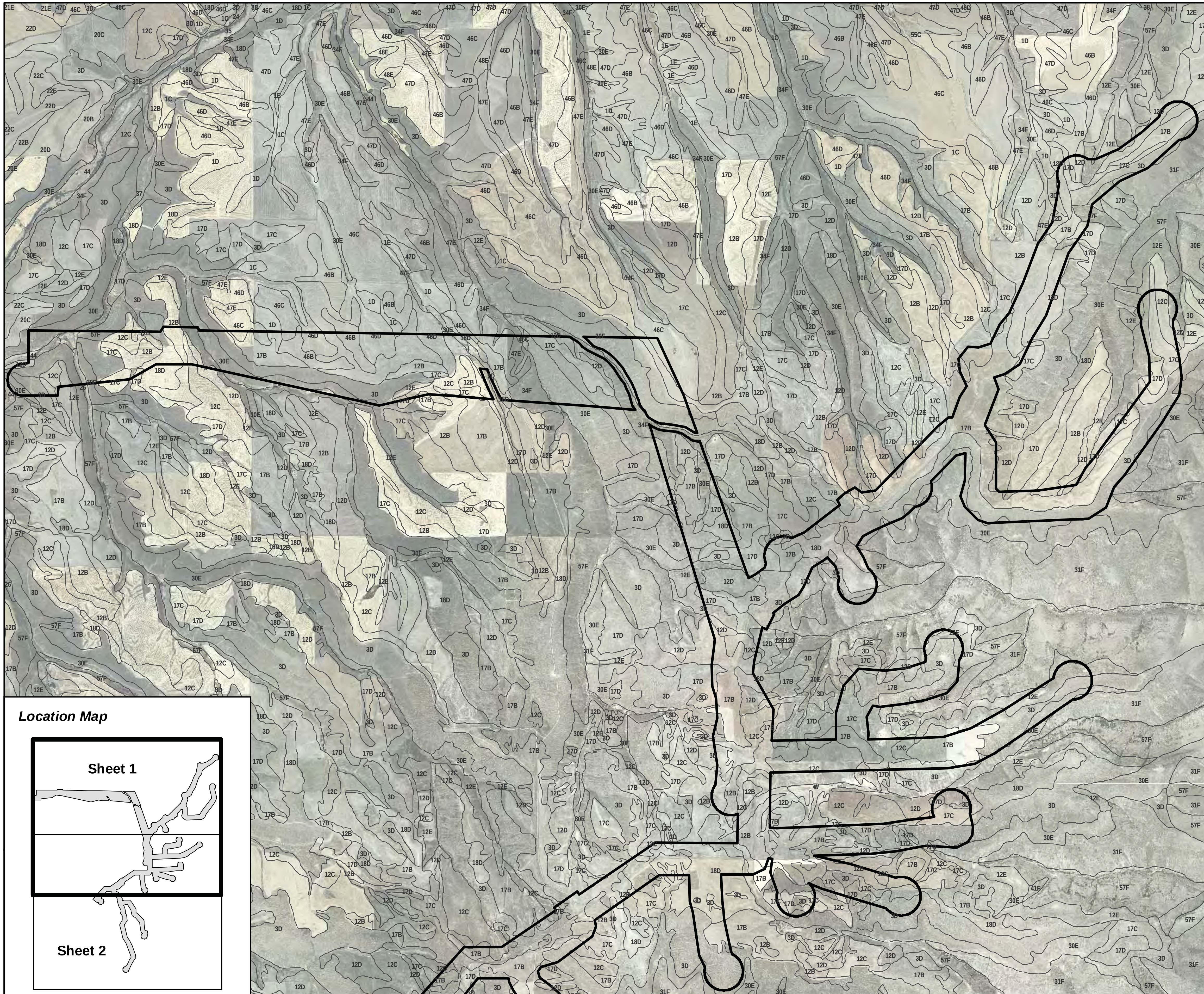
National Wetlands Inventories:
Oregon (Dufur East, Emerson, Erskine, Locust Grove, Petersburg, Sinomox, and Summit Ridge)

LotusWorks
Summit Ridge I

LotusWorks - Summit Ridge I, LLC

Figure 4

County Soil Survey Map, Sheet 1



Legend

Wetland Study Area

Soil Types

Soil Types in Survey Corridors

1C	Anderly silt loam, 7 to 12 percent slopes
1D	Anderly silt loam, 12 to 20 pecent slopes
2D	Bakeoven very cobbly loam, 2 to 20 percent slopes
3D	Bakeoven-Condon complex, 2 to 20 percent slopes
12B	Cantala silt loam, 1 to 7 percent slopes
12C	Cantala silt loam, 7 to 12 percent slopes
12D	Cantala silt loam, 12 to 20 percent slopes
12E	Cantala silt loam, 20 to 35 percent slopes
17B	Condon silt loam, 1 to 7 percent slopes
17C	Condon silt loam, 7 to 12 percent slopes
17D	Condon silt loam, 12 to 25 percent slopes
18D	Condon-Bakeoven complex, 2 to 20 percent slopes
26	Hermiston silt loam
30E	Lickskillet very stony loam, 15 to 40 percent slopes
31F	Lickskillet extremely stony loam, 40 to 70 percent slopes
34F	Nansene silt loam, 35 to 70 percent slopes
37	Riverwash
44	Typh fine sandy loam
46B	Walla Walla silt loam, 3 to 7 percent slopes
46C	Walla Walla silt loam, 7 to 12 percent slopes
46D	Walla Walla silt loam, 12 to 20 percent north slopes
47E	Walla Walla silt loam, 20 to 35 percent north slopes
57F	Wrentham-Rock outcrop complex, 35 to 70 percent slopes

N

0 1 2

Miles

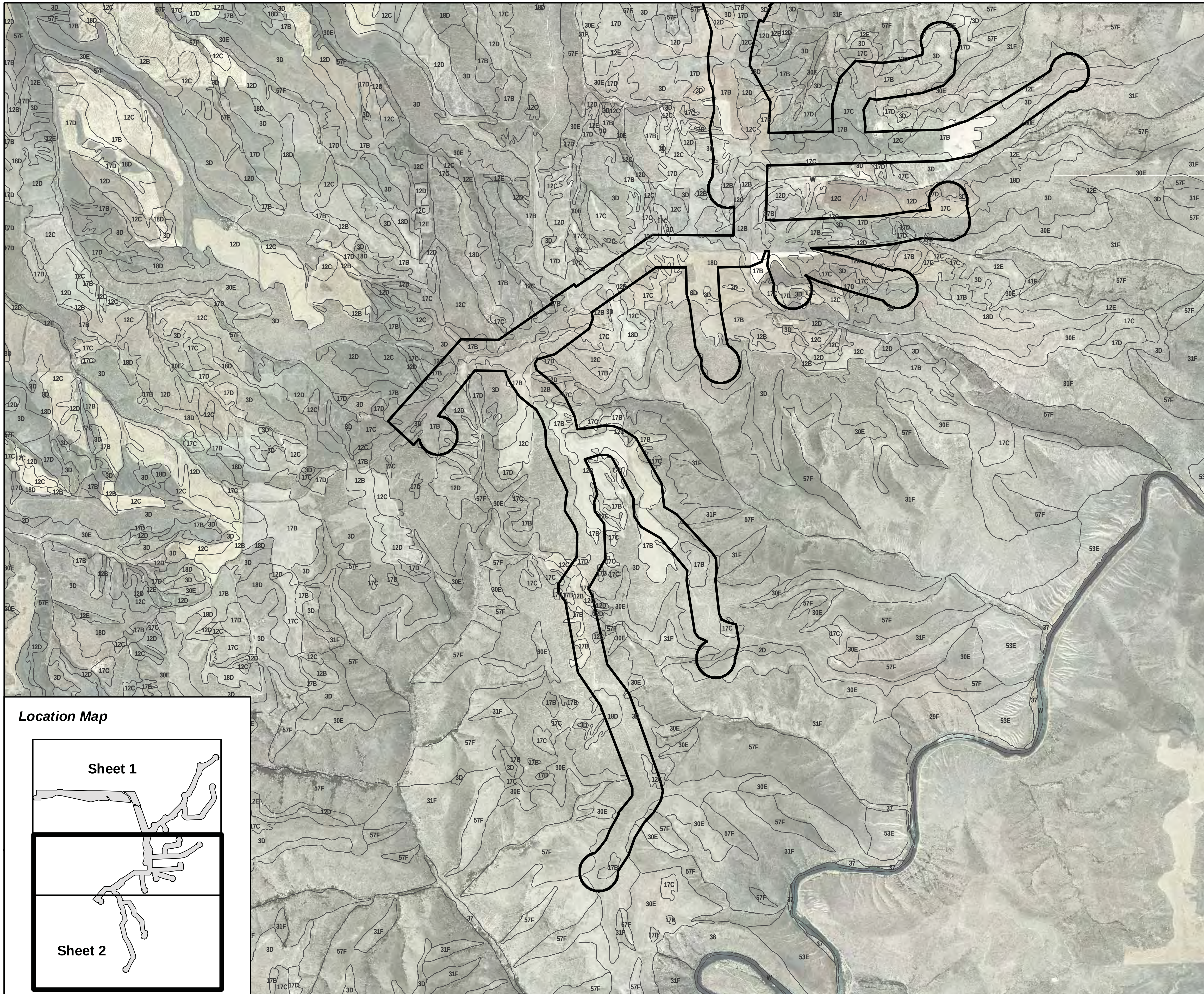
Data Sources:

Lotusworks, 2009

Soil Survey Geographic (SSURGO) database
Wasco County, Oregon, Northern Part, 2006

Oregon Imagery Explorer, 2005

LotusWorks
Summit Ridge I



LotusWorks - Summit Ridge I, LLC

Figure 4

County Soil Survey Map, Sheet 2

Legend

- Wetland Study Area
- Soil Types

Soil Types in Survey Corridors

1C Anderly silt loam, 7 to 12 pecent slopes
1D Anderly silt loam, 12 to 20 pecent slopes
2D Bakeoven very cobbly loam, 2 to 20 percent slopes
3D Bakeoven-Condon comples, 2 to 20 percent slopes
12B Cantala silt loam, 1 to 7 percent slopes
12C Cantala silt loam, 7 to 12 percent slopes
12D Cantala silt loam, 12 to 20 percent slopes
12E Cantala silt loam, 20 to 35 percent slopes
17B Condon silt loam, 1 to 7 percent slopes
17C Condon silt loam, 7 to 12 percent slopes
17D Condon silt loam, 12 to 25 percent slopes
18D Condon-Bakeoven complex, 2 to 20 percent slopes
26 Hermiston silt loam
30E Lickskillet very stony loam, 15 to 40 percent slopes
31F Lickskillet extremely stony loam, 40 to 70 percent slopes
34F Nansene silt loam, 35 to 70 percent slopes
37 Riverwash
44 Typh fine sandy loam
46B Walla Walla silt loam, 3 to 7 percent slopes
46C Walla Walla silt loam, 7 to 12 percent slopes
46D Walla Walla silt loam, 12 to 20 percent north slopes
47E Walla Walla silt loam, 20 to 35 percent north slopes
57F Wrentham-Rock outcrop complex, 35 to 70 percent slopes

N

0 1 2
Miles

Data Sources:

Lotusworks, 2009

Soil Survey Geographic (SSURGO) database Wasco County, Oregon, Northern Part, 2006

Oregon Imagery Explorer, 2005

LotusWorks
Summit Ridge I

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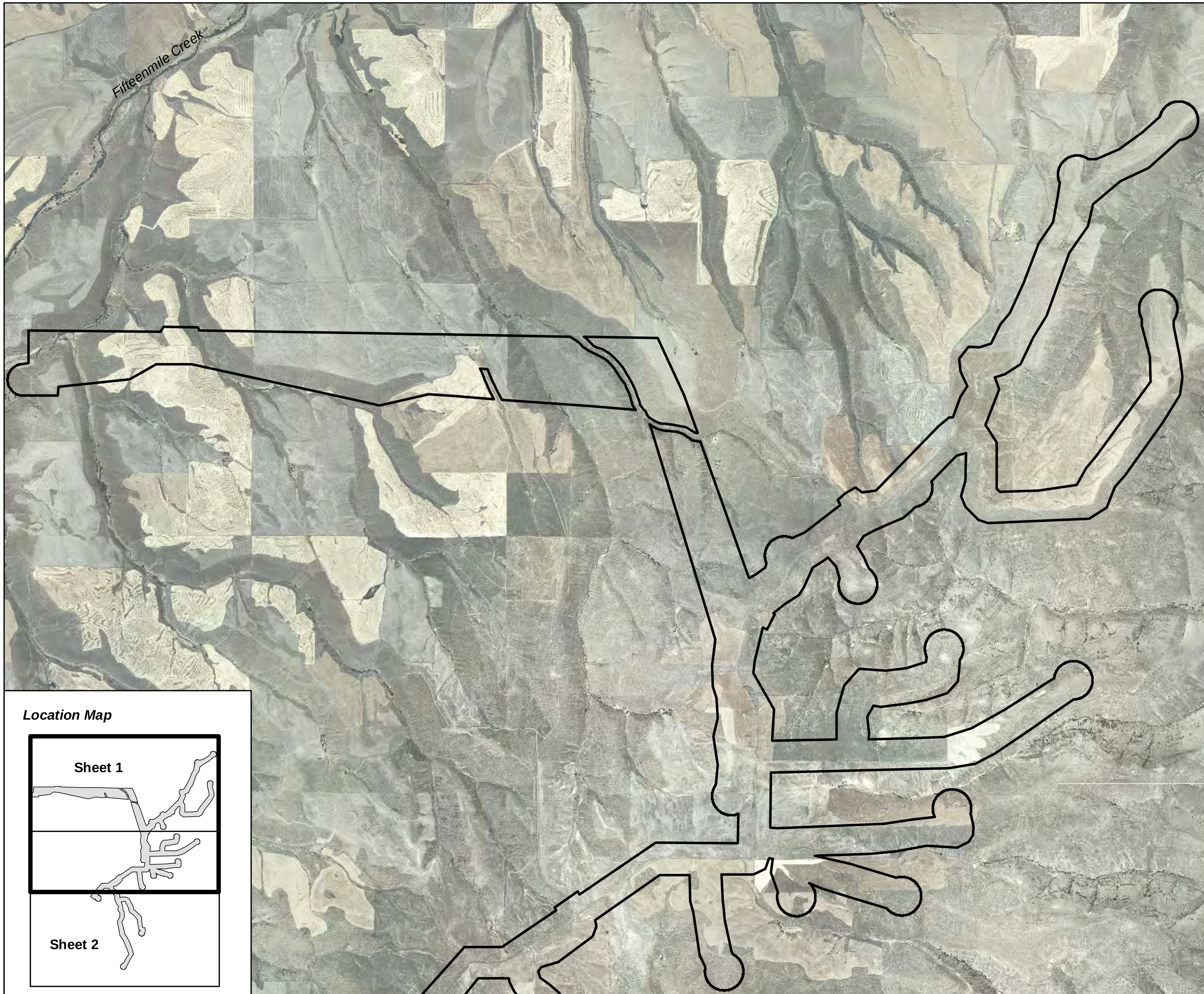


LotusWorks - Summit Ridge I, LLC

Figure 5

June 2005 Aerial Photograph

Sheet 1

Legend

Wetland Study Area

N

0 *1* *2*

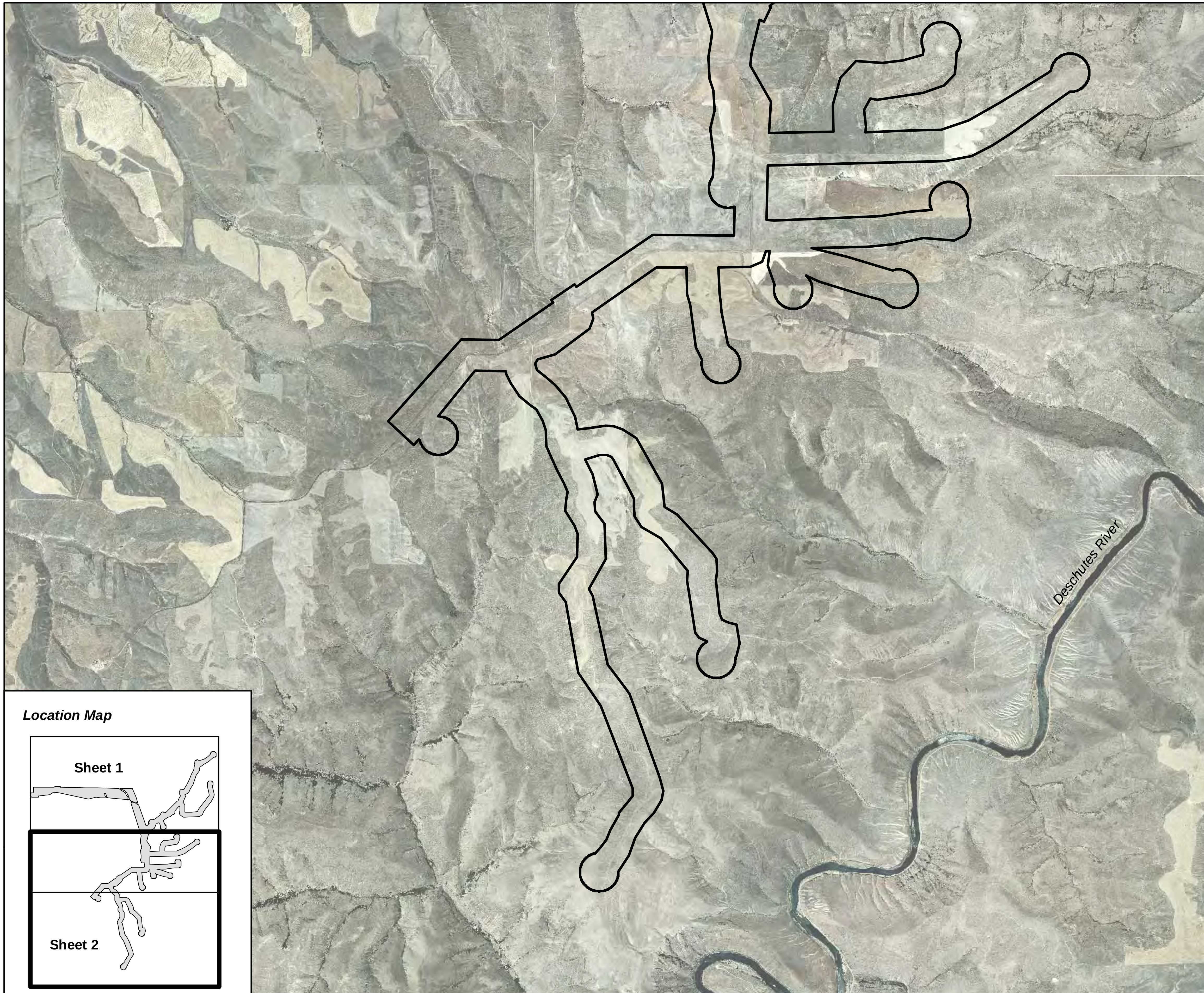
Miles

Data Sources:

LotusWorks, 2009

Oregon Imagery Explorer, 2005

LotusWorks Summit Ridge I



LotusWorks - Summit Ridge I, LLC

Figure 5

June 2005 Aerial Photograph

Sheet 2

Legend

Wetland Study Area

N

0 1 2

Miles

Data Sources:

LotusWorks, 2009

Oregon Imagery Explorer, 2005

LotusWorks Summit Ridge I

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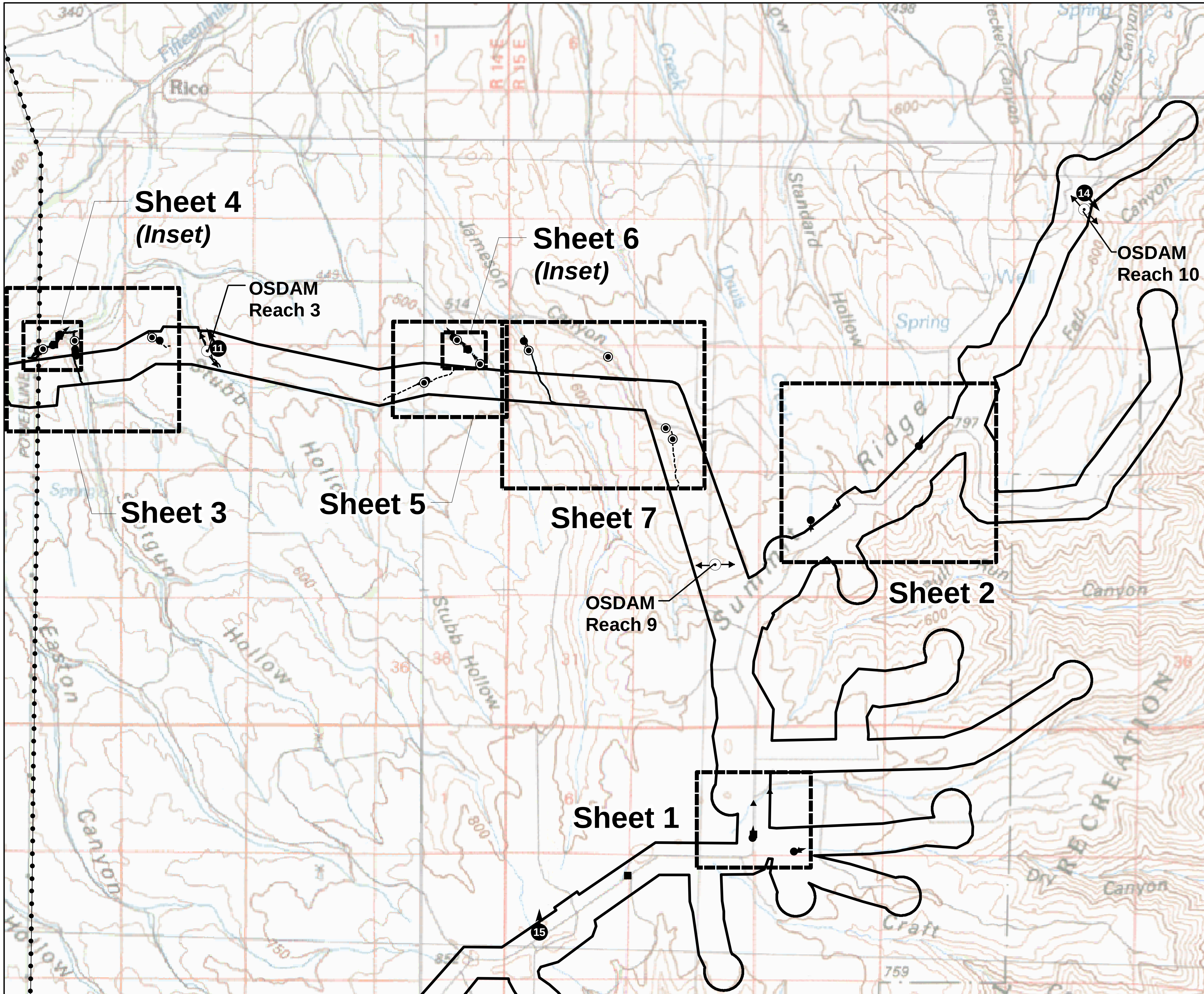


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation Index, Sheet 1

Legend

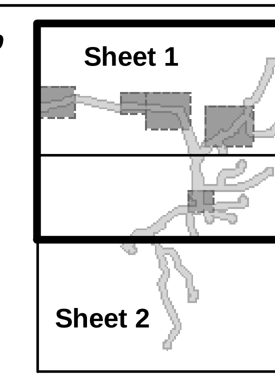
- Site Boundary
- Bonneville 230 KV Line
- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

NOTE:
Index sheets 1 and 2 show DOE "site boundary". Remainder of sheets show the more detailed wetland delineation study area.

N

0 1 2
Miles

Location Map



Data Sources:

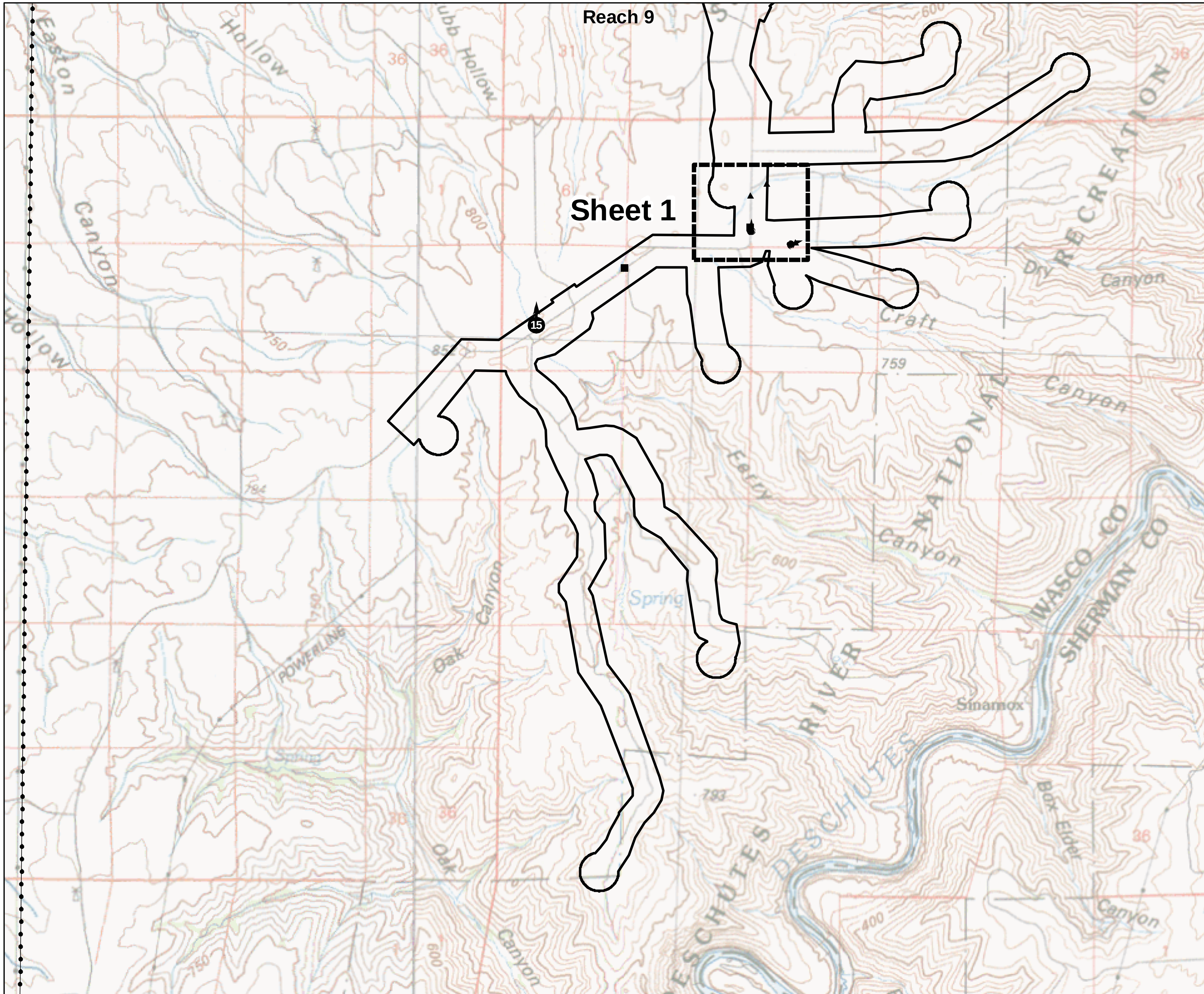
LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation Index, Sheet 2



Legend

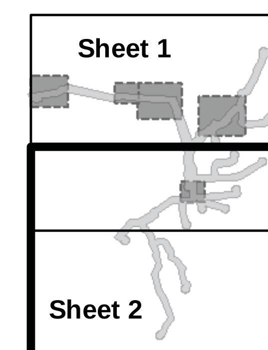
- Site Boundary
- Bonneville 230 KV Line
- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

NOTE:
Index sheets 1 and 2 show DOE "site boundary". Remainder of sheets show the more detailed wetland delineation study area.

N

0 1 2
Miles

Location Map



Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks Summit Ridge I

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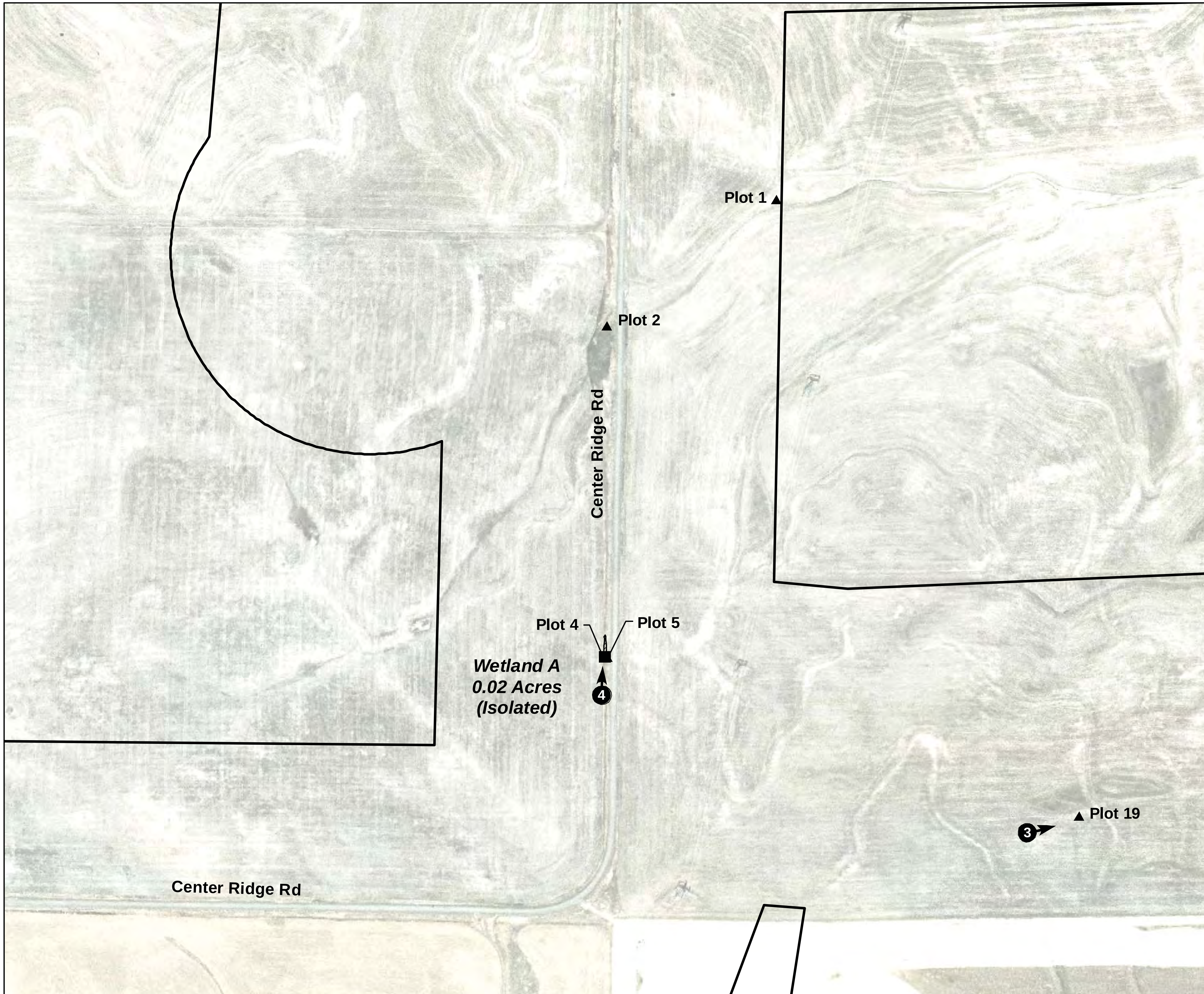
LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 1



Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

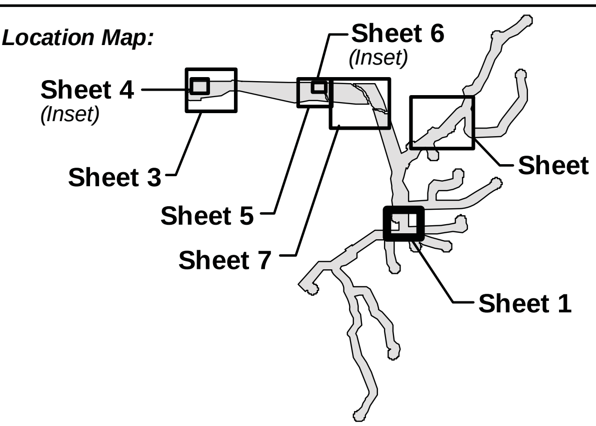
N

0 400 800

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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Pioneer Surveying and Engineering, Inc, 2009
Wasco County GIS, 2009

LotusWorks
Summit Ridge I

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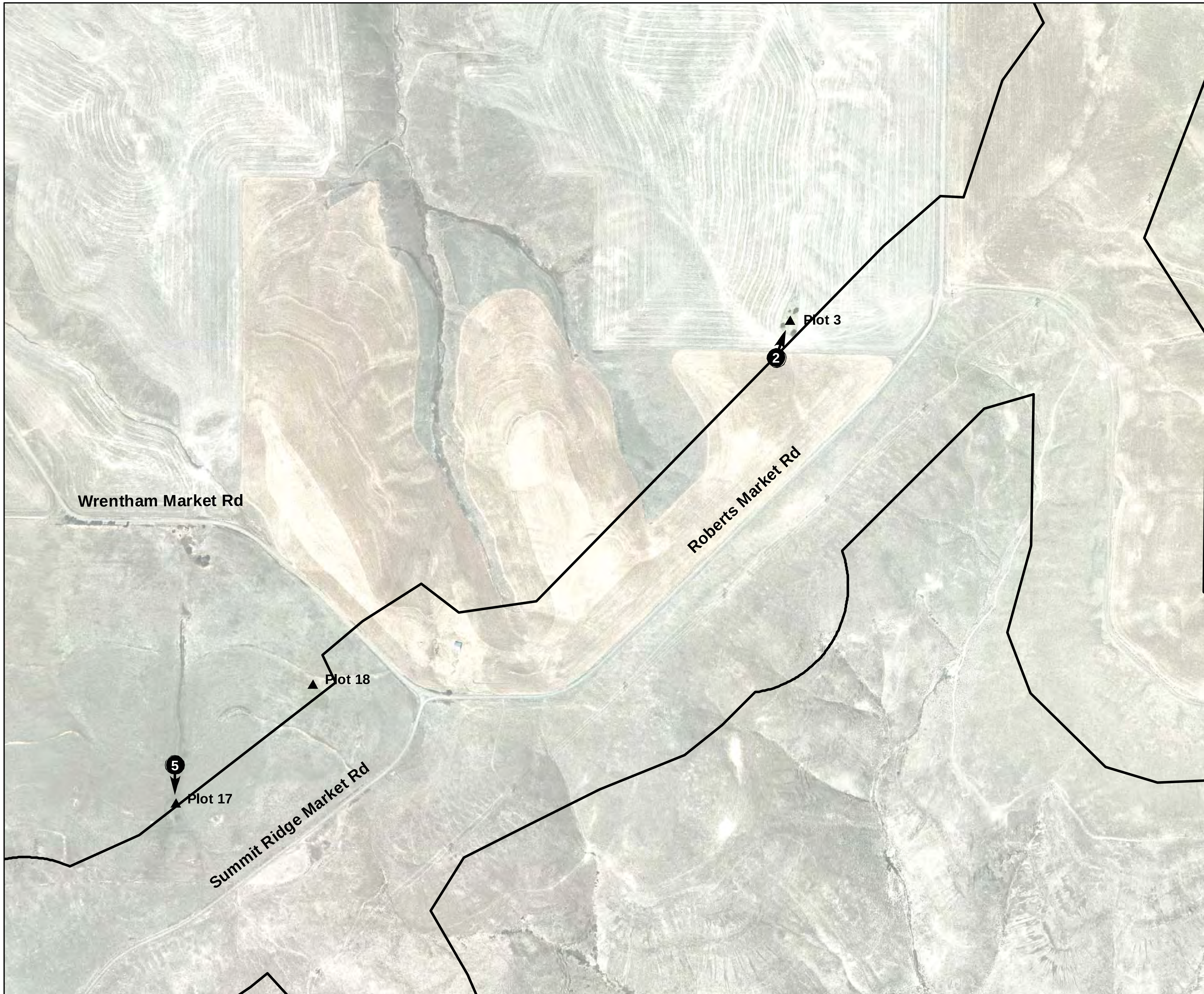


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 2

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

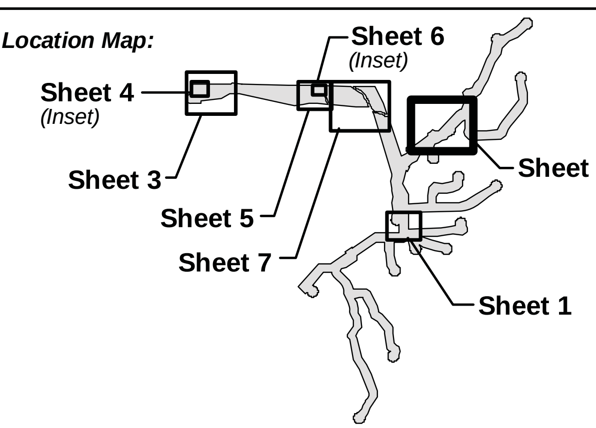
N

0 750 1,500

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009
Wasco County GIS, 2009

LotusWorks Summit Ridge I

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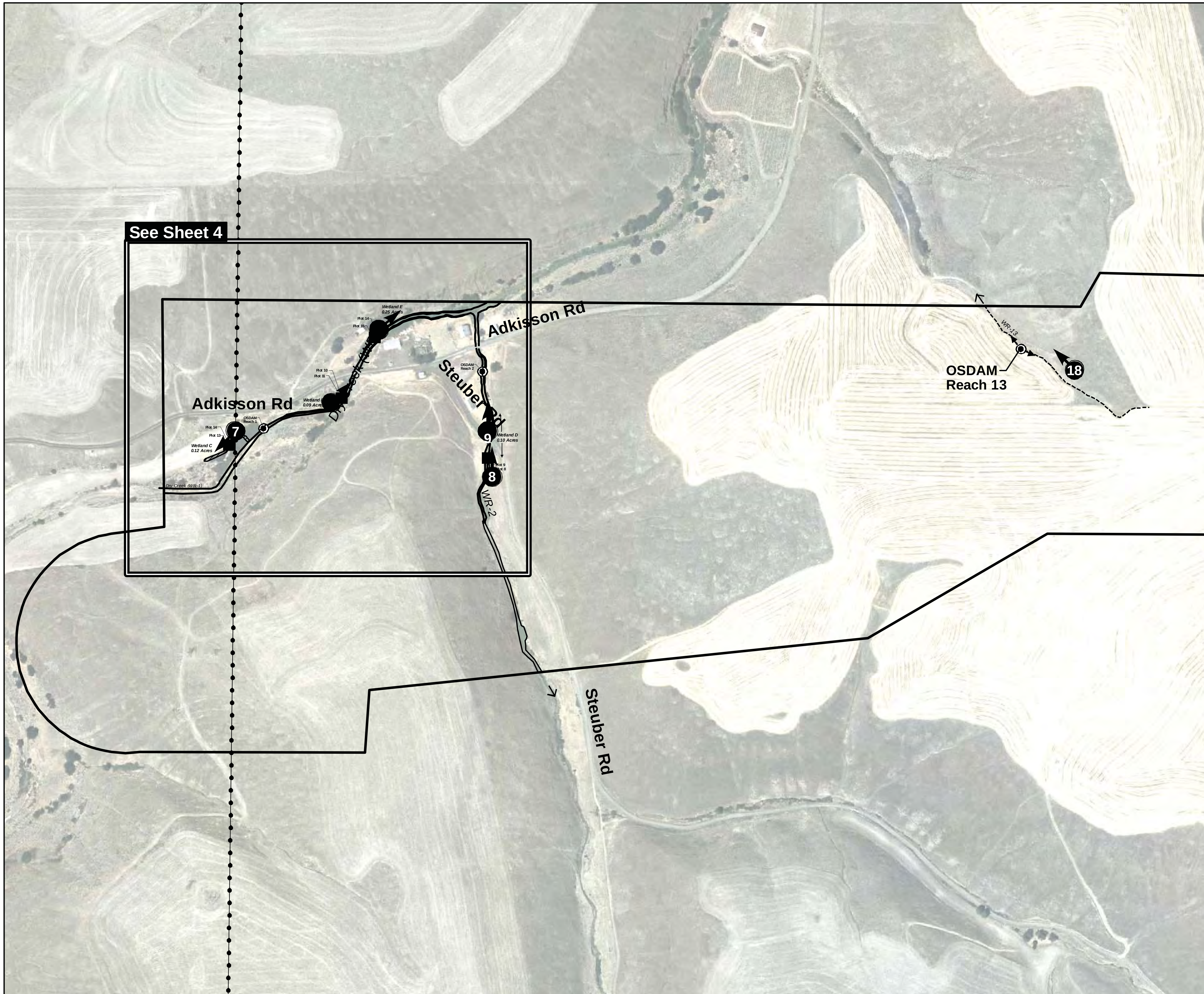


LotusWorks - Summit Ridge I, LLC

Figure 6
Wetland Delineation, Sheet 3

Legend

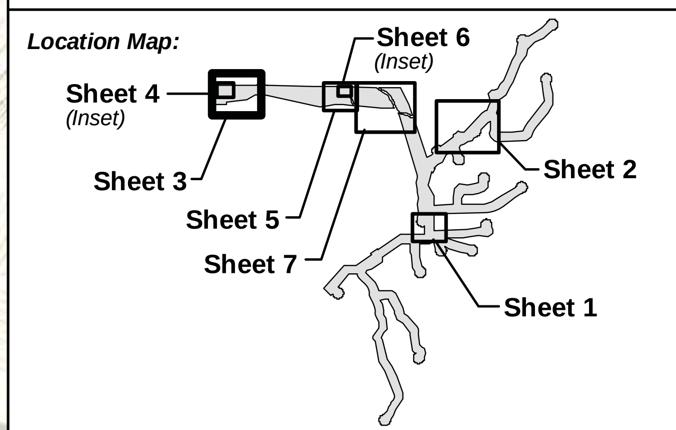
- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

N

0 600 1,200
Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009
Wasco County GIS, 2009

LotusWorks
Summit Ridge I

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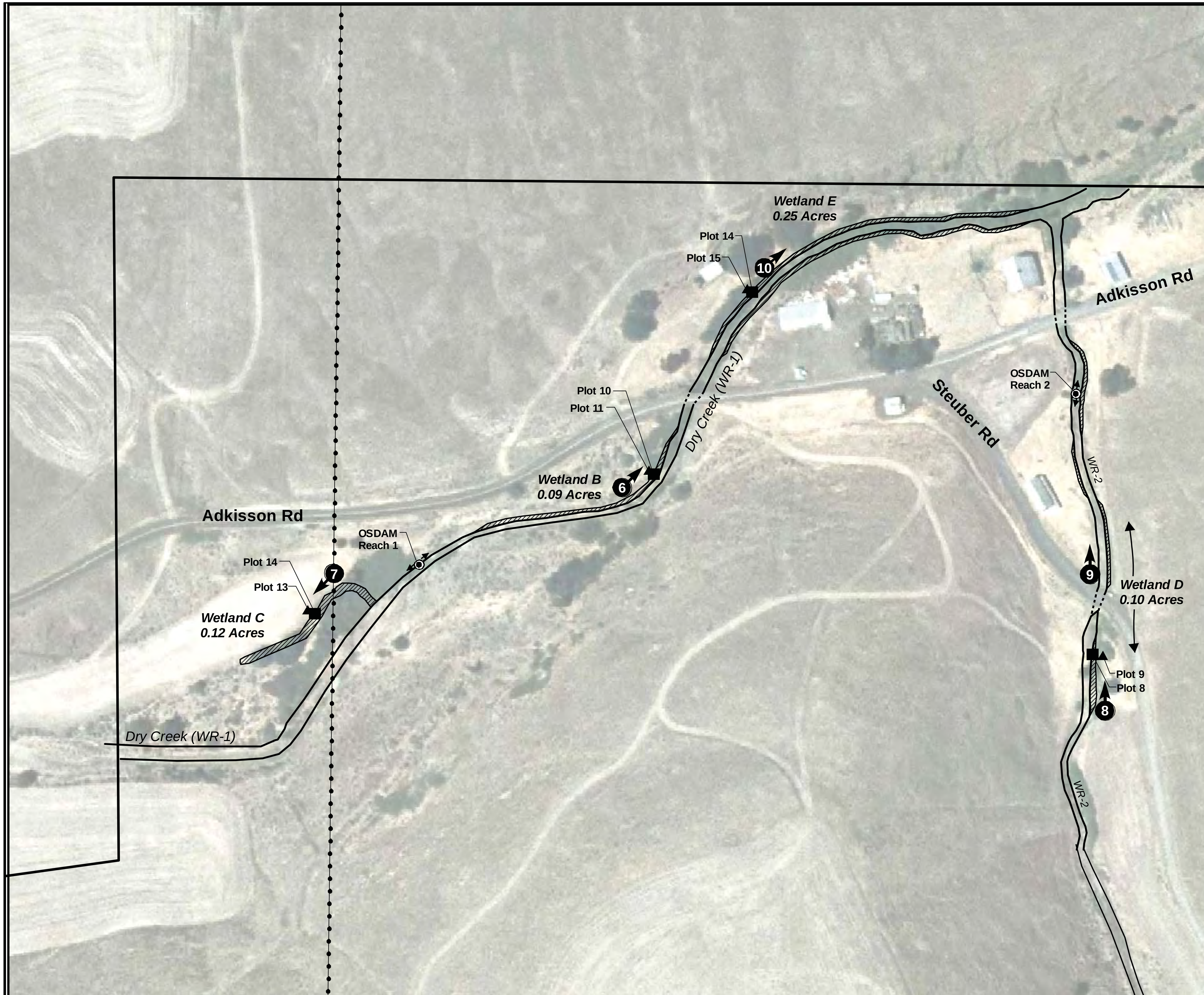
LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 4



Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

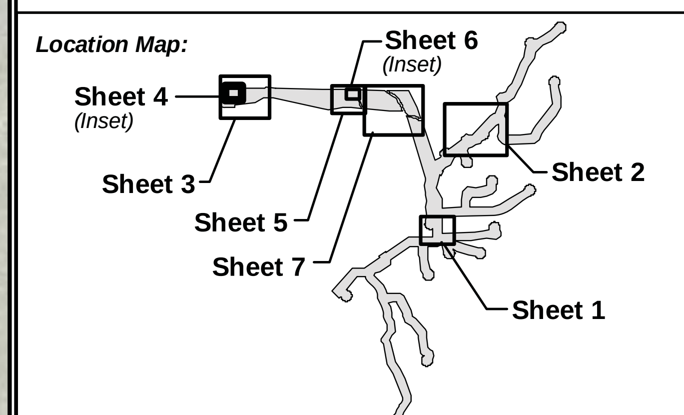
N

0 200 400

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

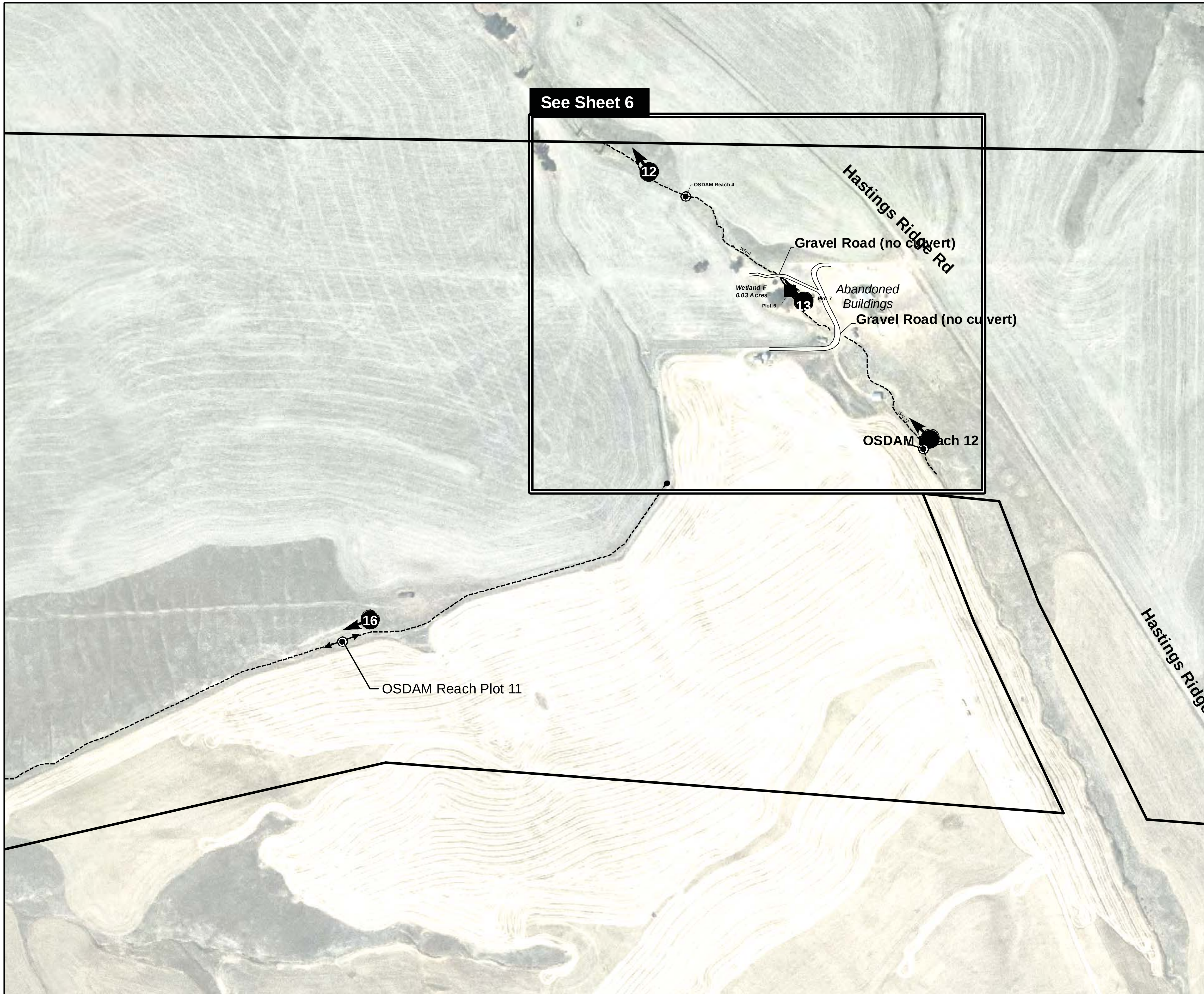
Location Map:



Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009
Wasco County GIS, 2009

LotusWorks
Summit Ridge I



LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 5

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

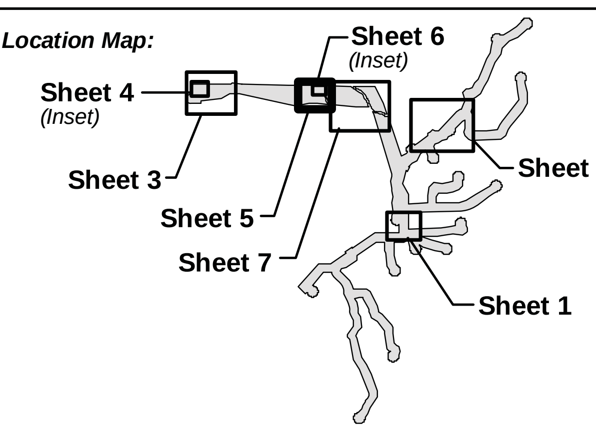
N

0 400 800

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009
Wasco County GIS, 2009

LotusWorks
Summit Ridge I

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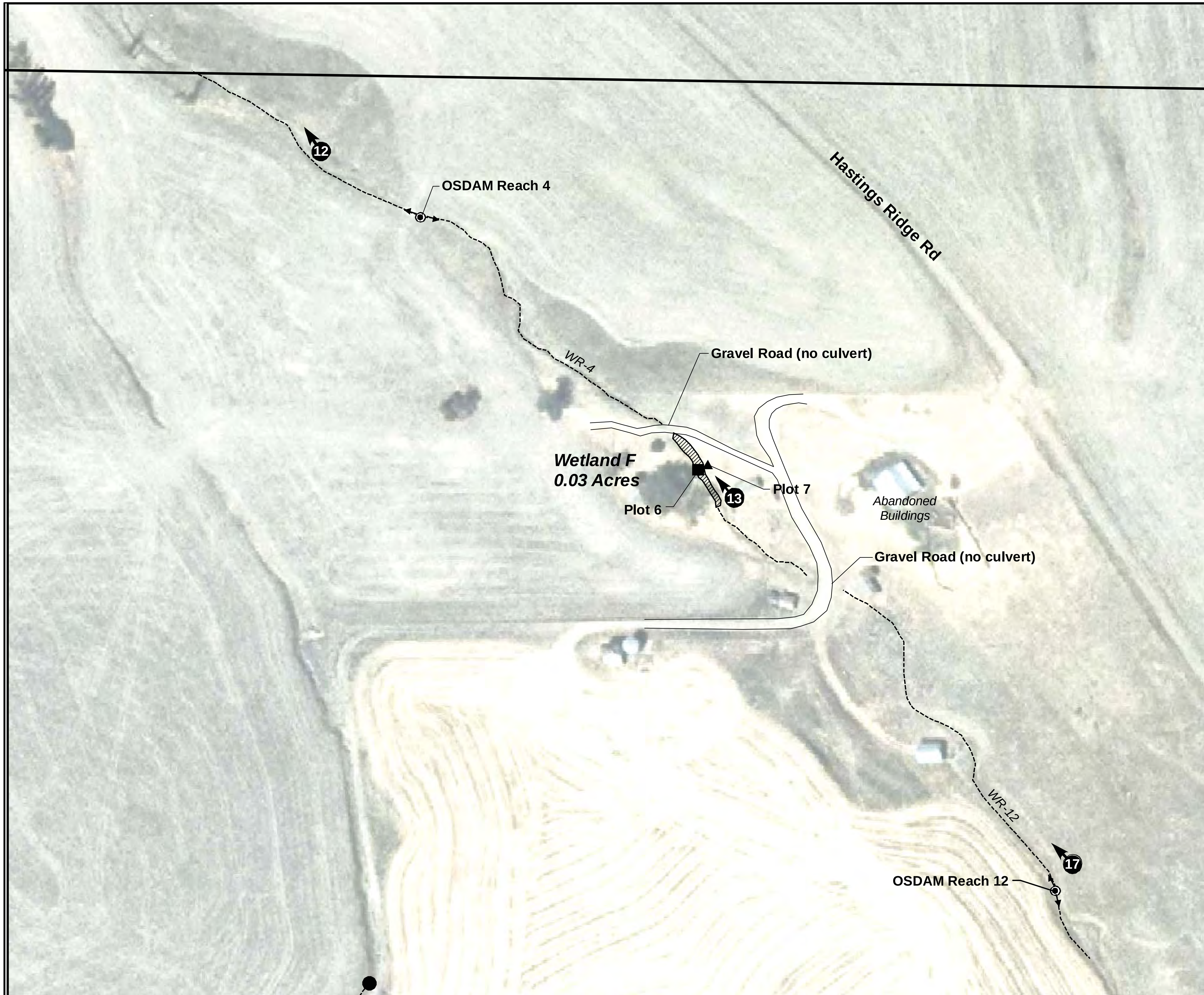


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 6

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

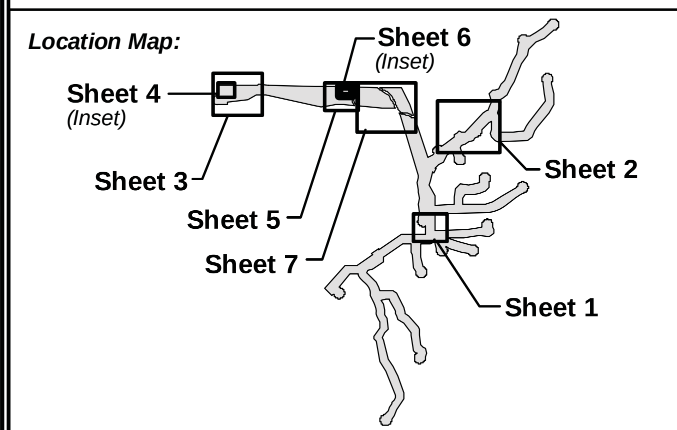
N

0 150 300

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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Pioneer Surveying and Engineering, Inc, 2009
Wasco County GIS, 2009

LotusWorks
Summit Ridge I

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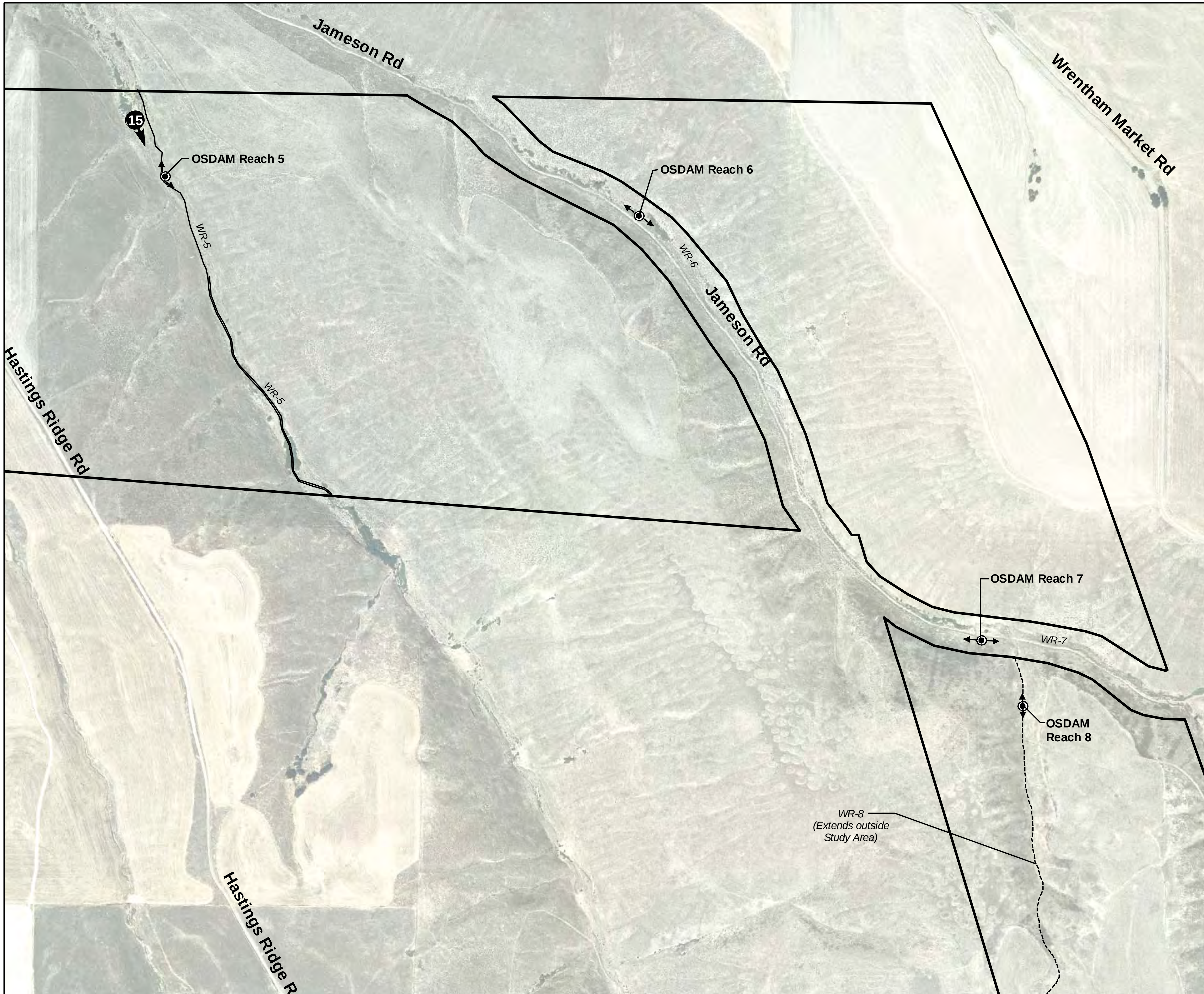


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 7

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

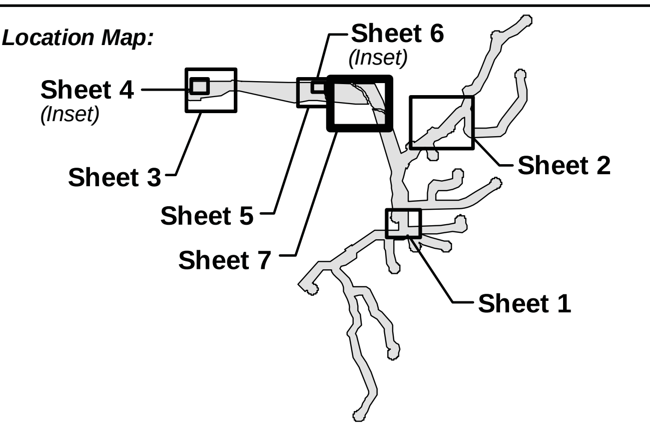
N

0 *700* *1,400*

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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Pioneer Surveying and Engineering, Inc, 2009
Wasco County GIS, 2009

LotusWorks
Summit Ridge I

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APPENDIX B – WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 6/2/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 1

Investigator(s): Read, Rickus, E. Rosenthal Section, Township, Range: ______

Landform (hillslope, terrace, etc.): draw Local relief (concave, convex, none): concave Slope (%): 5

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Cantala silt loam, 12-20% slopes (12D) NWI classification: PEMA

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

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? **Yes** ______ **No** X

Remarks: Plot lies at bottom of draw between fields cultivated last year with wheat.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	30	y	NL
2. Elytrigia epens	30	y	FAC
3. Poa pratensis	20	y	FAC
4. Poa bulbosa	10		NL
5. Taeniatherum caput-medusae	10		NL
6. Geranium sp	T		
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

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** X

Remarks:

SOIL

Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	100	none				fine silt	

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No X

Remarks:

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) (**Nonriverine**)
___ 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 Tilled 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**)
X 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 X Depth (inches): ______

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 6/2/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 2

Investigator(s): Read, Rickus, E. Rosenthal Section, Township, Range: ______

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Cantala silt loam, 12-20% slopes (12D) NWI classification: PEMA

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks: Plot lies at bottom swale above culvert at Center Ridge Rd.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Verbascum thapsus	30	y	NL
2. Elytrigia repens	20	y	FAC
3. Bromus tectorum	10		NL
4. Sisymbrium altissimum	10		FACU
5. Cirsium arvense	2		FACU
6. Amsinckia lycopsoides	2		NL
7.			
8.			
	74 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ______

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** X

Remarks:

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	100	none				fine 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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No X

Remarks:

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) (**Nonriverine**)
- ___ 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 Tilled 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**)
- X 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 X	Depth (inches): ______
Water Table Present?	Yes ______	No X	Depth (inches): ______
Saturation Present? (includes capillary fringe)	Yes ______	No X	Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 6/2/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 3

Investigator(s): Read, Rickus, E. Rosenthal Section, Township, Range: ______

Landform (hillslope, terrace, etc.): draw Local relief (concave, convex, none): concave Slope (%): 4

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Cantala silt loam, 12-20% slopes (12D) NWI classification: none

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? **Yes ____ No X**

Remarks: Plot lies at bottom of draw near trees in uncultivated portion of field.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	60	y	NL
2. Amsinckia lycopsoides	10		NL
3. Cirsium arvense	5		FACU
4. Sisymbrium altissimum	5		FACU
5. Descurainia pinnata	5		NL
6. Lactuca serriola	5		FACU
7. Unkown forb 1	5		
8. Unkown forb 2	5		
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ______

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 X**

Remarks:

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	100	none				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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No X

Remarks:

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) (**Nonriverine**)
- ___ 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 Tilled 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**)
- X 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 X Depth (inches): ______

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 6/2/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 4

Investigator(s): Read, Rickus, E. Rosenthal Section, Township, Range: ______

Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Cantala silt loam, 1-7% slopes (12B) NWI classification: none

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

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ______	**Is the Sampled Area within a Wetland?** **Yes X No ______**
Hydric Soil Present?	Yes X	No ______	
Wetland Hydrology Present?	Yes X	No ______	

Remarks: Plot lies in bottom of wide roadside ditch.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Polygonum aviculare	30	y	FACW
2. Juncus bufonis	20	y	FACW
3. Plagiobothrys scouleri	15		FACW
4. Gnaphalium palustre	10		FAC
5. Navarretia sp	10		NL
6. Lactuca serriola	10		FACU
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 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 X No ______**

Remarks:

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100	none				silt loam	
6-16	10YR 3/1	100	10YR 5/1	10	D	M	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 Mucky 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)
X 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: __________

Depth (inches): __________

Hydric Soil Present? **Yes** X **No** ___

Remarks:

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**)
X Drift Deposits (B3) (**Nonriverine**)
X Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
X 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 Tilled 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 X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 6/2/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 5

Investigator(s): Read, Rickus, E. Rosenthal Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 10

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Cantala silt loam, 1-7% slopes (12B) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes ___ No X**

Remarks: Plot lies on slope approximately 3' above wetland plot 4.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	100	y	NL
2. Amsinckia lycopsoides	5		NL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	105		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ______

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 X**

Remarks:

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	none				silt loam w/ gravel	

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: __________

Depth (inches): __________

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

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) (**Nonriverine**)
___ 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 Tilled 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 X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 6

Investigator(s): Read, Rickus , Section, Township, Range: ______

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Condon-Bakeoven complex, 2-20% slopes (18D) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ___	**Is the Sampled Area within a Wetland?** **Yes X No ___**
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks: Plot lies in bottom of narrow swale which functions as the headwaters of an ephemeral drainage

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Polygonum aviculare	20	y	FACW
2. Juncus bufonis	15		FACW
3. Rumex salicifolius	20	y	FACW
4. Polypogon monspeliensis	10		FACW
5. Anthemis cotula	5		FACU
6. Triticum aestivum	10		NL
7. Conium maculatum	1		FAC
8.			
= Total Cover	81		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ______	x 1 = ______
FACW species ______	x 2 = ______
FAC species ______	x 3 = ______
FACU species ______	x 4 = ______
UPL species ______	x 5 = ______
Column Totals: ______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 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 X No ___**

Remarks:

Vegetation in wetland was green at a dry time of year while upland vegetation was predominately dead

SOIL

Sampling Point: 6

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100	10YR 4/4	10	C	M	silty clay loam	
5+	Hardpan							Shovel refusal in hardpan

[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 Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hardpan

Depth (inches): unknown

Hydric Soil Present? Yes _X_ No ___

Remarks:

Hardpan exists at 5 inches. Impossible to examine with shovel.

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) (**Nonriverine**)
_X_ 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 Tilled 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 _X_ Depth (inches): ___
Water Table Present? Yes ___ No _X_ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No _X_ Depth (inches): ___

Wetland Hydrology Present? Yes _X_ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 7

Investigator(s): Read, Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Condon-Bakeoven complex, 2-20% slopes (18D) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes** ___ **No** X
Hydric Soil Present?	Yes ___	No X	
Wetland Hydrology Present?	Yes ___	No X	

Remarks: Plot lies on slope approximately 3' above wetland plot 6.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	30	y	NL
2. Triticum aestivum	40	y	NL
3. Lactuca serriola	15		FACU
4. Anthemis cotula	20		FAC
5. Rumex salicifolius	2		FACW
6. Polygonum aviculare	10		FACW
7. Centaurea diffusus	3		NL
8.			
= Total Cover	120		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ______	x 1 = ______
FACW species ______	x 2 = ______
FAC species ______	x 3 = ______
FACU species ______	x 4 = ______
UPL species ______	x 5 = ______
Column Totals: ______ (A)	______ (B)

Prevalence Index = B/A = ______

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** X

Remarks:

SOIL

Sampling Point: 7

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100	none				silt loam	
10+								shovel refusal in rock and gravel

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? **Yes** ____ **No** X

Remarks:

Rock and gravel are found below 10 inches

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) (**Nonriverine**)
___ 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 Tilled 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 X Depth (inches): ______

Water Table Present? Yes ____ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ______

Wetland Hydrology Present? **Yes** ____ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 8

Investigator(s): Read, Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Hermiston silt loam (26) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ___
Hydric Soil Present?	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? Yes X No ___

Remarks: Plot lies along a low terrace ajacent to a small stream above a bridge in an ungrazed area

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Salix exigua	2	y	OBL
2.			
3.			
4.			
5.			
= Total Cover	2		
Herb Stratum (Plot size: 5' radius)			
1. Schoenodorus phoenix	60	y	FAC
2. Juncus effusus	5		FACW
3. Agrosits exarata	15	y	FACW
4. Veronica americana	10		OBL
5. Mentha arvense	15	y	FACW
6. Epilobium ciliatum	5		FACW
7. Equisetum arvense	10		FAC
8 Rumex salicifolius	2		FACW
9. Cirsium arvense	5		FACU
10.			
= Total Cover	127		

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 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 X No ___

Remarks:

SOIL

Sampling Point: 8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100	10YR 4/4	5	C	M	silt loam	
8-16	10YR 3/1	100	10YR 4/6	10	C	M	silty clay 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)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ 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 Tilled 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 X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 2

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 9

Investigator(s): I. Read, P. Rickus, E. Rosenthal Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 4

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Hermiston silt loam (26) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks: Plot lies on slope approximately 3' above wetland plot 8.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1. Robinia pseudoacacia	25	y	FACU
2.			
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rubus armeniacus	10	y	FACU
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	90	y	NL
2. Centaurea diffusus	10		NL
3.			
4.			
5.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ______

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** X

Remarks:

SOIL

Sampling Point: 9

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100	none				silt loam	
10+								shovel refusal in bedrock/gravel

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No X

Remarks:

Rock and gravel are found below 10 inches

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) (**Nonriverine**)
- __ 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 Tilled 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 X Depth (inches): ______

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 10

Investigator(s Read, Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Tygh fine sandy loam (44) NWI classification: none

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

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ______	**Is the Sampled Area within a Wetland?** **Yes X No ______**
Hydric Soil Present?	Yes X	No ______	
Wetland Hydrology Present?	Yes X	No ______	

Remarks: Plot lies along a low terrace adjacent to Dry Creek in an ungrazed area that contains some shrub species but is overall dominated by herbaceous vegetation

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Salix exigua	7	y	OBL
2. Crataegus douglasii	2		FAC
3. Rosa woodsii var. ultramontana	3	y	FACU
4.			
5.			
= Total Cover	12		
Herb Stratum (Plot size: 5' radius)			
1. Phalaris arundinacea	20	y	FAC
2. Eleocharis palustris	15	y	OBL
3. Agrostis exarata	30	y	FACW
4. Xanthium strumarium	5		FAC
5. Rumex salicifolius	5		FACW
6. Polypogon monspeliensis	5		FACW
7. Schoenodorus phoenix	10		FACW
8 Echinochloa crus-galli	10		FACW
9.			
10.			
= Total Cover	100		

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	______	x 1 =	______
FACW species	______	x 2 =	______
FAC species	______	x 3 =	______
FACU species	______	x 4 =	______
UPL species	______	x 5 =	______
Column Totals:	______ (A)		______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 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 X No ______**

Remarks:

SOIL

Sampling Point: 10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100	10YR 4/6	10	C	M	silty clay loam	
8+	shovel refusal							shovel refusal in bedrock/gravel

[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)
X Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: bedrock

Depth (inches): at 8 inches

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
X Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 11

Investigator(s): I. Read, P. Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Tygh fine sandy loam (44) NWI classification: none

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

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ______	No X
Wetland Hydrology Present?	Yes ______	No X

Is the Sampled Area within a Wetland? **Yes** ______ **No** X

Remarks: Plot lies on slope approximately 2' above wetland plot 10.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rosa woodsii var. ultramontana	10	y	FACU
2. Artemesia tridentata	50	y	NL
3.			
4.			
5.			
= Total Cover	60		
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	95	y	NL
2.			
3.			
4.			
5.			
= Total Cover	95		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

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** X

Remarks:

SOIL

Sampling Point: 11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/4	100	none				silt loam	
10+								shovel refusal in bedrock/gravel

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: bedrock/gravel

Depth (inches): 10

Hydric Soil Present? Yes ______ No X

Remarks:

Rock and gravel are found below 10 inches

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) (**Nonriverine**)
___ 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 Tilled 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 X Depth (inches): ______
Water Table Present? Yes ______ No X Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 12

Investigator(s Read, Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Tygh fine sandy loam (44) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ___	**Is the Sampled Area within a Wetland?** **Yes X** **No ___**
Hydric Soil Present?	Yes X	No ___	
Wetland Hydrology Present?	Yes X	No ___	

Remarks: Plot lies in a vegetated swale, likely a historic channel of nearby Dry Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus incana	25	y	FACW
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Agrostis exarata	35	y	FACW
2. Holcus lanatus	25	y	FAC
3. Phleum pratense	10		FAC
4. Polypogon monspeliensis	10		FACW
5. Rumex salicifolius	5		FACW
6. Veronica americana	5		OBL
7. Epilibium ciliatum	5		FACW
8			
9.			
10.			
= Total Cover	95		

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 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 X** **No ___**

Remarks:

SOIL

Sampling Point: 12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	10YR 4/4	15	C	M	silty clay 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)
X Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
X Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
X Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
X Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled 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 X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 13

Investigator(s): I. Read, P. Rickus, E. Rosenthal Section, Township, Range: ____

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR): B Lat: ____ Long: ____ Datum: ____

Soil Map Unit Name: Tygh fine sandy loam (44) NWI classification: none

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks: Plot lies in field upslope approximately 2' above wetland plot 12.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rubus armeniacus	10	y	FACU
2.			
3.			
4.			
5.			
= Total Cover	10		
Herb Stratum (Plot size: 5' radius)			
1. Pseudoroegneria spicata	50	y	UPL
2. Verbascum thapsus	20	y	NL
3. Equisetum hyemale	10		FACW
4. Cirsium arvense	10		FACU
5.			
= Total Cover	90		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

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** X

Remarks:

SOIL

Sampling Point: 13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100	none				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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

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) (**Nonriverine**)
- ___ 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 Tilled 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 14

Investigator(s Read, Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): toe of bank Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Riverwash (37) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ___
Hydric Soil Present?	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? **Yes X** **No ___**

Remarks: Plot lies at toe of bank along Dry Creek downstream from bridge.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Salix lasiandra	50	y	FACW
2.			
3.			
4.			
5.			
= Total Cover	50		
Herb Stratum (Plot size: 5' radius)			
1. Agrostis exarata	35	y	FACW
2. Urtica dioica	10		FAC
3. Mentha arvensis	10		FACW
4. Veronica americana	8		OBL
5. Rumex crispus	2		FAC
6.			
7.			
8			
9.			
10.			
= Total Cover	65		

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 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 X** **No ___**

Remarks:

SOIL

Sampling Point: 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	100	10YR 4/4	10	C	M	silty clay loam	
7+	shovel refusal							shovel refusal in bedrock

[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 Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: bedrock

Depth (inches): at 7 inches

Hydric Soil Present? **Yes** _X_ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
_X_ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
_X_ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled 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 _X_ Depth (inches): ___

Water Table Present? Yes ___ No _X_ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes _X_ No ___ Depth (inches): 4

Wetland Hydrology Present? **Yes** _X_ **No** ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 7/29/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 15

Investigator(s): I. Read, P. Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Riverwash (37) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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.

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

Remarks: Plot lies on slope approximately 3' above wetland plot 14.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1. Robinia pseudoacacia	50	y	FACU
2.			
3.			
4.			
= Total Cover	50		
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Rosa woodsii ssp ultramontana	50	y	FACU
2.			
3.			
4.			
5.			
= Total Cover	50		
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	20	y	NL
2. Bromus diandrus ssp rigidus	10	y	NL
3.			
4.			
5.			
= Total Cover	30		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

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** X

Remarks:

SOIL

Sampling Point: 15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100	none				silt loam	
12+								shovel refusal in bedrock

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: bedrock

Depth (inches): 12

Hydric Soil Present? **Yes** ______ **No** X

Remarks:

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) (**Nonriverine**)
__ 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 Tilled 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 X Depth (inches): __________
Water Table Present? Yes ______ No X Depth (inches): __________
Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): __________

Wetland Hydrology Present? **Yes** ______ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 8/07/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 16

Investigator(s): Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Condon silt loam, 1-7% slopes (17B) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks: Plot lies low spot adjacent to road (no culvert). Soil was dry, but plants still green.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	2		NL
2. Triticum aestivum	15	y	NL
3. Lactuca serriola	15	y	FACU
4. Conyza canadensis	35	y	FACU
5. Rumex salicifolius	1		FACW
6. Cirsium vulgare	10		FACU
7. Chenopodium album	15	y	FAC
8.			
= Total Cover	93		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

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 X

Remarks:

SOIL

Sampling Point: 16

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100	none				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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

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) (**Nonriverine**)
___ 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 Tilled 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 8/07/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 17

Investigator(s): Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Condon silt loam, 7-12% slopes (17C) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

Remarks: Plot lies in a shallow depressional area in a field mapped as PEMA on the NWI, but soils are well-drained

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Cirsium arvense	55	y	UPL
2. Bromus tectorum	20	y	NL
3. Elytrigia repens	15		FAC
4. Poa bulbosa	10		FAC
5.			
= Total Cover	100		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ______

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 X

Remarks:

SOIL

Sampling Point: 17

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100	none				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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ______ No X

Remarks:

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) (**Nonriverine**)
___ 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 Tilled 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 X Depth (inches): ______

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 8/07/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 18

Investigator(s): Rickus, Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Condon silt loam, 1-7% slopes (17B) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes** ___ **No** X

Remarks: Plot lies in a shallow depressional area in a field mapped as PUSch on the NWI, but no wetland present

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1. Agropyron cristatum	30	y	UPL
2. Bromus tectorum	20	y	NL
3. Poa secunda	15		NL
4. Poa bulbosa	20	y	FAC
5.			
= Total Cover	85		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ______	x 1 = ______
FACW species ______	x 2 = ______
FAC species ______	x 3 = ______
FACU species ______	x 4 = ______
UPL species ______	x 5 = ______
Column Totals: ______ (A)	______ (B)

Prevalence Index = B/A = ______

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** X

Remarks:

SOIL

Sampling Point: 18

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100	none				silt loam	
10+								shovel refusal in gravel

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: gravel

Depth (inches): 10

Hydric Soil Present? Yes ___ No X

Remarks:

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) (**Nonriverine**)
- ___ 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 Tilled 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 X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 8/07/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 19

Investigator(s): Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Cantala silt loam, 12-20% slopes (12D) NWI classification: none

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** **Yes ____ No X**
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Plot lies in a shallow depressional area in a wheat field , but soils are well-drained

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' radius)			
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' radius)			
1 Triticum aestivum	100	y	NL
2. Lactuca serriola	5		FACU
3.			
4.			
5.			
= Total Cover	105		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust ______

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

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 X**

Remarks:

SOIL

Sampling Point: 19

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/4	100	none				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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** X

Remarks:

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) (**Nonriverine**)
- ___ 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 Tilled 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 X Depth (inches): ______

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? **Yes** ______ **No** X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 8/7/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 20

Investigator(s Read, Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): low terrace Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Nansene silt loam, 35-70% slopes (34F) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	No ___
Hydric Soil Present?	Yes X	No ___
Wetland Hydrology Present?	Yes X	No ___

Is the Sampled Area within a Wetland? **Yes X** **No ___**

Remarks: Plot lies along a low terrace ajacent to a small ephemeral stream (WR-7)

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Salix lasiandra	50	y	FACW
2. Crataegus douglasii	15	y	FAC
3. Rosa woodsii var. ultramontana	10	y	FACU
4. Lonicera involucrata	5		FAC
5.			
= Total Cover	80		
Herb Stratum (Plot size: 5' radius)			
1. Urtica dioica	10	y	FAC
2. Phleum pratense	5		OBL
3. Agrostis exarata	25	y	FACW
4. Veronica americana	5		OBL
5. Rumex salicifolius	5		FACW
6.			
7			
9.			
10.			
= Total Cover	50		

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X 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 X** **No ___**

Remarks:

SOIL

Sampling Point: 20

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	10YR 4/4	10	C	M	silt loam	with gravel

[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 Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- _X_ 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ____________

Hydric Soil Present? Yes _X_ No ______

Remarks:

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) (**Nonriverine**)
- _X_ 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 Tilled 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 _X_ Depth (inches): ___________

Water Table Present? Yes _____ No _X_ Depth (inches): ___________

Saturation Present? (includes capillary fringe) Yes _____ No _X_ Depth (inches): ___________

Wetland Hydrology Present? Yes _X_ No ______

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Summit Ridge Wind Project City/County: Wasco Sampling Date: 8/7/09

Applicant/Owner: Lotus Group USA, Inc. State: OR Sampling Point: 21

Investigator(s): Read, Rickus Section, Township, Range: ______

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): convex Slope (%): 10

Subregion (LRR): B Lat: ______ Long: ______ Datum: ______

Soil Map Unit Name: Nansene silt loam, 35-70% slopes (34F) NWI classification: none

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

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? **Yes ___** **No X**

Remarks: Plot lies on slope approximately 3' above wetland plot 4.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: 30' radius)			
1. Artemesia tridentata	20	y	NL
2. Rubus armeniacus	30	y	FACU
3.			
4.			
5.			
= Total Cover	50		
Herb Stratum (Plot size: 5' radius)			
1. Bromus tectorum	75	y	NL
2. Elytrigia repens	20	y	FAC
3. Erigonum sp.	5		unk
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: 30' radius)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

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 X**

Remarks:

SOIL

Sampling Point: 21

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/4	100	none				silt loam w/ gravel	

[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 Mucky 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, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ______ **No** X

Remarks:

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) (**Nonriverine**)
- ___ 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 Tilled 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 X Depth (inches): ______

Water Table Present? Yes ______ No X Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? **Yes** ______ **No** X

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

Remarks:

APPENDIX C – GROUND LEVEL COLOR PHOTOGRAPHS

Table of Contents

Photo 1. Sample Plot 2 (upland) in drainage above Center Ridge Rd, looking north-northeast.

Photo 2. Sample Plot 3 (upland) in a different drainage, looking north.

Photo 3. Upper reach of Dry Canyon within study area, looking east toward Plot 19.

Photo 4. Sample Plot 4 (wetland) in Wetland A west of Center Ridge Rd, looking north.

Photo 5. Sample Plot 17 in NWI-mapped PEMA wetland that is not wetland. Plot lies within and adjacent to typical herbaceous upland vegetative community.

Photo 6. Dry Creek (WR-1) upstream of bridge, looking northeast. Fringe to left of the creek is Wetland B

Photo 7. Wetland C, looking west

Photo 8. Wetland D upstream of bridge, adjacent to a narrow portion of WR-2 (perennial Steuben Road Creek), looking north. Sample Plots 8(w) & 9(u) in foreground

Photo 9. Wetland D downstream of bridge in grazed area, looking N. Shrub and herbaceous upland habitat adjacent.

Photo 10. Wetland E downstream of bridge, looking E. Dry Creek (WR-1) flows through wetland

Photo 11. WR-3, looking north

Photo 12. WR-4, looking north downslope of Wetland F. narrow scoured channel visible beneath vegetation and more evident in some places.

Photo 13. WR-5 (unnamed- Jameson Canyon Creek Tributary 1), looking southeast

Photo 14. WR-10, as described in OSDAM Data Sheet 10, looking downslope at ephemeral drainage typical of USGS-mapped drainages within the study corridor

Photo 15. Excavated cattle watering pond (Non-jurisdictional), looking northheast. Culvert is used for cattle crossing of roadway and does not contain water flow.

Photo 16. WR- 11, looking downslope at ephemeral drainage

Photo 17. WR- 12, looking downslope at ephemeral drainage

Photo 18. WR- 13, looking downslope at ephemeral drainage

APPENDIX D – WETS TABLES

WETS Station : DUFUR, OR2440
Latitude: 4527 Longitude: 12108 Elevation: 01330
State FIPS/County(FIPS): 41065 County Name: Wasco
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	avg daily min	avg	Precipitation (Inches) avg	30% chance will have less than	more than	avg # of days w/.1 or more	avg total snow fall
January	40.7	24.9	32.8	2.07	1.23	2.51	6	7.3
February	46.8	27.9	37.4	1.51	0.84	1.85	4	3.9
March	55.6	31.1	43.4	1.27	0.84	1.53	4	0.9
April	63.0	34.4	48.7	0.98	0.51	1.20	2	0.0
May	71.2	39.4	55.3	0.84	0.46	1.03	2	0.0
June	78.3	44.5	61.4	0.62	0.30	0.76	2	0.0
July	86.4	48.8	67.6	0.33	0.10	0.40	0	0.0
August	86.1	48.8	67.4	0.45	0.07	0.54	1	0.0
September	78.2	43.3	60.7	0.54	0.17	0.69	1	0.0
October	64.7	35.7	50.2	0.91	0.47	1.15	3	0.2
November	48.6	30.5	39.5	1.83	1.09	2.22	5	3.0
December	40.3	25.7	33.0	2.04	1.05	2.49	6	6.4
Annual	-----	-----	-----	------	11.54	14.83	--	----
Average	63.3	36.2	49.8	------	------	------	--	----
Total	-----	-----	-----	13.40	------	------	36	21.7

GROWING SEASON DATES

Probability	Temperature 24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	4/ 2 to 11/ 2 215 days	5/ 2 to 10/12 164 days	5/24 to 10/ 1 130 days
70 percent *	3/25 to 11/ 9 229 days	4/26 to 10/18 175 days	5/20 to 10/ 6 139 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1904-2002 prcp

WETS Station : PENDLETON WSO AIRPORT, OR6546 Creation Date: 09/09/2002
Latitude: 4541 Longitude: 11851 Elevation: 01480
State FIPS/County(FIPS): 41059 County Name: Umatilla
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	avg daily min	avg	Precipitation (Inches) avg	30% chance will have less than	more than	avg # of days w/.1 or more	avg total snow fall
January	40.1	27.5	33.8	1.45	0.95	1.74	5	4.8
February	46.2	30.9	38.6	1.22	0.80	1.47	4	3.4
March	54.4	35.4	44.9	1.26	0.92	1.48	4	0.9
April	61.8	39.7	50.7	1.13	0.70	1.37	3	0.1
May	69.7	45.9	57.8	1.22	0.68	1.48	3	0.0
June	78.3	52.0	65.1	0.78	0.41	0.95	2	0.0
July	87.2	57.5	72.4	0.41	0.15	0.50	0	0.0
August	86.1	57.3	71.7	0.56	0.07	0.65	1	0.0
September	76.7	49.7	63.2	0.63	0.17	0.80	2	0.0
October	63.5	40.7	52.1	0.99	0.59	1.24	3	0.3
November	48.4	33.8	41.1	1.63	1.08	1.96	4	2.1
December	40.1	27.7	33.9	1.48	0.89	1.80	5	5.0
Annual	-----	-----	-----	------	11.32	13.96	--	----
Average	62.7	41.5	52.1	------	------	------	--	----
Total	-----	-----	-----	12.76	------	------	36	16.7

GROWING SEASON DATES

Probability	Temperature 24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	2/21 to 11/23 276 days	3/14 to 11/ 3 234 days	4/12 to 10/16 187 days
70 percent *	2/13 to 12/ 1 292 days	3/ 7 to 11/10 248 days	4/ 7 to 10/21 197 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

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APPENDIX F – OREGON STREAMFLOW DURATION ASSESSMENT METHOD DATA SHEETS

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit	Evaluator PRR Attended [ ] Orientation [ ] Field Training
Address	Date 7-29-9
Waterway Name Dry Creek (WR-1) Reach Boundaries	Coordinates at downstream end (ddd.mm.ss) Lat. N Long. W
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 2 — Channel Width (m) 1.5

Observed Hydrology:
"Dry Channel": [ ] Water Absent; [ ] No surface flow but at least one pool present
"Wet Channel": [x] Surface flow present but not spatially continuous; [ ] Continuous surface flow

[ ] Disturbed Site / Difficult Situation (Describe in "Notes")

		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	[ ] 0	[ ] 1	[ ] 2	[x] 3
	2. In-channel Structure / Organized Sequences	[ ] 0	[ ] 1	[ ] 2	[x] 3
	3. Soil texture or stream substrate sorting	[ ] 0	[ ] 1	[ ] 2	[x] 3
	4. Erosional Features ([ ] Check this box if >50% of the streambed consists of exposed bedrock)	[ ] 0	[ ] 0.5	[ ] 1	[x] 1.5
	5. Depositional Features	[ ] 0	[ ] 1	[ ] 2	[x] 3
	6. Sinuosity	[ ] 0	[ ] 1	[ ] 2	[x] 3
	7. Headcuts And Grade Controls	[ ] 0	[ ] 0.5	[x] 1	[ ] 1.5
	GEOMORPHOLOGY SUBTOTAL:				17.5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	[ ] 0	[ ] 1	[ ] 2	[x] 3
	9. Springs And Seeps (Note Locations)	[ ] 0	[ ] 1	[x] 2	[ ] 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	[x] 1.5	[ ] 1	[ ] 0.5	[ ] 0
	11. Debris Piles And Wrack Lines	[ ] 0	[ ] 0.5	[x] 1	[ ] 1.5
	12. Redoximorphic Features In Toe Of Bank	[ ] Absent = 0		[x] Present = 1.5	
	HYDROLOGY SUBTOTAL:				9
Biology	13. Wetland Plants In / Near Streambed	[ ] FAC 0.5	[ ] FACW 0.75	[ ] OBL 1.5	[x] SAV 2 [ ] None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	[x] 3	[ ] 2	[ ] 1	[ ] 0
	15. Streamer Mosses And Algal Mats	[ ] 0	[ ] 0.5	[x] 1	[ ] 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	[ ] 0	[ ] 1	[x] 2	[ ] 3
	17. Macroinvertebrates	[ ] 0	[ ] 1	[x] 2	[ ] 3
	18. Amphibians	[x] 0	[ ] 0.5	[ ] 1	[ ] 1.5
	19. Fish	[x] 0	[ ] 1	[ ] 2	[ ] 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	[ ] 0	[ ] 0.5	[ ] 1	[x] 1.5
	21. Riparian Corridor (Arid Regions Only)	[ ] 0	[ ] 1	[ ] 2	[x] 3
	BIOLOGY SUBTOTAL:				14.5
	★ TOTAL SCORE:				41.0

Single Indicators: [ ] Fish [ ] Amphibians [ ] Macroinvertebrates

Flow Duration (select only one)
- Ephemeral [ ] Total Score < 13
- Intermittent [ ] Total Score ≥ 13 or Single Indicator
- Perennial [x] Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit PRR	Evaluator Attended ☐ Orientation ☐ Field Training
Address	Date 7-29-9
Waterway Name Unnamed (Steub Rd Creek)	Coordinates at downstream end (ddd.mm.ss) Lat. N
Reach Boundaries (WR-2)	Long. W
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 3 — Channel Width (m) 2

Observed Hydrology:
- "Dry Channel": ☐ Water Absent; ☐ No surface flow but at least one pool present
- "Wet Channel": ☑ Surface flow present but not spatially continuous; ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

	Indicator	Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	☐ 2	☑ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☐ 1	☐ 2	☑ 3
	3. Soil texture or stream substrate sorting	☐ 0	☐ 1	☑ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☐ 0.5	☐ 1	☑ 1.5
	5. Depositional Features	☐ 0	☐ 1	☑ 2	☐ 3
	6. Sinuosity	☐ 0	☑ 1	☐ 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	☐ 0.5	☑ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				13.5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☐ 0	☐ 1	☐ 2	☑ 3
	9. Springs And Seeps (Note Locations)	☐ 0	☐ 1	☐ 2	☑ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☑ 1.5	☐ 1	☐ 0.5	☐ 0
	11. Debris Piles And Wrack Lines	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☐ Absent = 0		☑ Present = 1.5	
	HYDROLOGY SUBTOTAL:				9.5
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5	☐ FACW 0.75	☑ OBL 1.5	☐ SAV 2 ☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☑ 3	☐ 2	☐ 1	☐ 0
	15. Streamer Mosses And Algal Mats	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☐ 0	☑ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☐ 0	☑ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	☐ 0.5	☐ 1	☑ 1.5
	21. Riparian Corridor (Arid Regions Only)	☐ 0	☐ 1	☑ 2	☐ 3
	BIOLOGY SUBTOTAL:				10.5
	★ TOTAL SCORE:				33.5

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)
- Ephemeral ☐ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 or Single Indicator
- Perennial ☑ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit PCR	Evaluator Attended ☐ Orientation ☐ Field Training
Address	Date 7-29-9
Waterway Name WR-3	Coordinates at downstream end (ddd.mm.ss) Lat. N
Reach Boundaries	Long. W

Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 3	Channel Width (m) 1.2

Observed Hydrology: "Dry Channel" [x] Water Absent ☐ No surface flow but at least one pool present; "Wet Channel" ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	☐ 2	[x] 3
	2. In-channel Structure / Organized Sequences	☐ 0	☐ 1	[x] 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☐ 1	☐ 2	[x] 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☐ 0.5	[x] 1	☐ 1.5
	5. Depositional Features	☐ 0	[x] 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☐ 1	[x] 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	[x] 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				12.5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	[x] 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	[x] 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	[x] 0.5	☐ 0
	11. Debris Piles And Wrack Lines	☐ 0	[x] 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	[x] Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				1.0
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5 [x] FACW 0.75	☐ OBL 1.5	☐ SAV 2	☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	[x] 3	☐ 2	☐ 1	☐ 0
	15. Streamer Mosses And Algal Mats	[x] 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	[x] 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	[x] 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	[x] 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	[x] 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	[x] 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☐ 0	[x] 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				4.75

★ TOTAL SCORE: 18.75

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)

- Ephemeral ☐ Total Score < 13
- Intermittent [x] Total Score ≥ 13 or Single Indicator
- Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit PRR	Evaluator Attended ☐ Orientation ☐ Field Training
Address	Date 7-29-9
Waterway Name WR-4	Coordinates at downstream end (ddd.mm.ss) Lat. N
Reach Boundaries	Long. W

Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 2	Channel Width (m) 4

Observed Hydrology:

"Dry Channel": ☑ Water Absent; ☐ No surface flow but at least one pool present

"Wet Channel": ☐ Surface flow present but not spatially continuous; ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☑ 1	☐ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☑ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☑ 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	5. Depositional Features	☑ 0	☐ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☑ 1	☐ 2	☐ 3
	7. Headcuts And Grade Controls	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				4.5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☑ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☑ 0.5	☐ 0
	11. Debris Piles And Wrack Lines	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				.5
Biology	13. Wetland Plants In / Near Streambed	☑ FAC 0.5	☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2 ☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☑ 1	☐ 0
	15. Streamer Mosses And Algal Mats	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☑ 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☑ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☑ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				1

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

★ TOTAL SCORE: 6.0

Flow Duration (select only one)

- Ephemeral ☑ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 or Single Indicator
- Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit PRR		Evaluator Attended ☐ Orientation ☐ Field Training	
Address		Date 8-7-9	
Waterway Name WR-5		Coordinates at downstream end (ddd.mm.ss)	Lat. N
Reach Boundaries			Long. W
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 3	Channel Width (m) ~~4~~ 5	

Observed Hydrology:
"Dry Channel": ☑ Water Absent ☐ No surface flow but at least one pool present
"Wet Channel": ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

	Indicator	Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	☐ 2	☑ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☐ 1	☑ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☐ 1	☑ 2	☐ 3
	4. Erosional Features (☑ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☐ 0.5	☐ 1	☑ 1.5
	5. Depositional Features	☐ 0	☐ 1	☐ 2	☑ 3
	6. Sinuosity	☐ 0	☐ 1	☑ 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	☐ 0.5	☑ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				14.5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☐ 0	☑ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☑ 1.5	☐ 1	☐ 0.5	☐ 0
	11. Debris Piles And Wrack Lines	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				3.0
Biology	13. Wetland Plants In / Near Streambed	☑ FAC 0.5 ☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2	☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☑ 2	☐ 1	☐ 0
	15. Streamer Mosses And Algal Mats	☐ 0	☐ 0.5	☑ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☐ 0	☑ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☐ 0	☐ 1	☑ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	☐ 0.5	☐ 1	☑ 1.5
	21. Riparian Corridor (Arid Regions Only)	☐ 0	☑ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				9.0
	★ TOTAL SCORE:				26.5

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)
- Ephemeral ☐ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 **or** Single Indicator
- Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit PRR		Evaluator Attended ☐ Orientation ☐ Field Training	
Address		Date 8-7-9	
Waterway Name WR-6		Coordinates at downstream end (ddd.mm.ss)	Lat. N
Reach Boundaries			Long. W
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 3	Channel Width ~~(m)~~ ft 3	

Observed Hydrology: "Dry Channel" ☐ Water Absent ☐ No surface flow but at least one pool present; "Wet Channel" ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

	Indicator	Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	☐ 2	☑ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☑ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☐ 1	☑ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☐ 0.5	☐ 1	☑ 1.5
	5. Depositional Features	☐ 0	☑ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☐ 1	☑ 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				11.0
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☑ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☑ 1	☐ 0.5	☐ 0
	11. Debris Piles And Wrack Lines	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				2.5
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5 ☑ FACW 0.75	☐ OBL 1.5	☐ SAV 2	☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☑ 1	☐ 0
	15. Streamer Mosses And Algal Mats	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☐ 0	☑ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☑ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	☐ 0.5	☐ 1	☑ 1.5
	21. Riparian Corridor (Arid Regions Only)	☐ 0	☐ 1	☐ 2	☑ 3
	BIOLOGY SUBTOTAL:				6.75
	★ TOTAL SCORE:				19.25

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)
- Ephemeral ☐ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 **or** Single Indicator
- Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit MR		Evaluator Attended ☐ Orientation ☐ Field Training	
Address		Date 8-7-9	
Waterway Name WR-7		Coordinates at downstream end (ddd.mm.ss)	Lat. N / Long. W
Reach Boundaries			
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 3	Channel Width ~~(m)~~ ~~4~~ 2	

Observed Hydrology:
"Dry Channel": ☑ Water Absent ☐ No surface flow but at least one pool present
"Wet Channel": ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	☑ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☐ 1	☑ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☐ 1	☑ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☐ 0.5	☑ 1	☐ 1.5
	5. Depositional Features	☐ 0	☑ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☐ 1	☑ 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	☐ 0.5	☑ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:	11			
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☑ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☑ 1	☐ 0.5	☐ 0
	11. Debris Piles And Wrack Lines	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:	1.5			
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5	☑ FACW 0.75	☐ OBL 1.5	☐ SAV 2 ☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☑ 1	☐ 0
	15. Streamer Mosses And Algal Mats	☐ 0	☐ 0.5	☑ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☐ 0	☑ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☑ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	☐ 0.5	☐ 1	☑ 1.5
	21. Riparian Corridor (Arid Regions Only)	☐ 0	☑ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:	4.75			

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

★ **TOTAL SCORE:** ______

Flow Duration (select only one)
- Ephemeral ☐ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 or Single Indicator
- Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name: Summit PRR	Evaluator Attended ☐ Orientation ☐ Field Training
Address	Date
Waterway Name: WR-8	Coordinates at downstream end (ddd.mm.ss) Lat. N / Long. W
Reach Boundaries	
Precipitation w/in 48 hours (cm): 0	Channel Gradient (%): 5 — Channel Width (m): ~~A~~ 2

Observed Hydrology:

"Dry Channel": ☑ Water Absent ☐ No surface flow but at least one pool present

"Wet Channel": ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

	Indicator	Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	☑ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☑ 0	☐ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☑ 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☐ 0.5	☑ 1	☐ 1.5
	5. Depositional Features	☑ 0	☐ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☐ 1	☑ 2	☐ 3
	7. Headcuts And Grade Controls	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				6.0
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☑ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	☑ 0
	11. Debris Piles And Wrack Lines	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				0
Biology	13. Wetland Plants In / Near Streambed: ☑ FAC 0.5	☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2	☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☐ 1	☑ 0
	15. Streamer Mosses And Algal Mats	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☑ 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☑ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☑ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				1.0
	★ TOTAL SCORE:				7.0

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)

- Ephemeral ☐ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 **or** Single Indicator
- Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit PRR	Evaluator Attended ☐ Orientation ☐ Field Training
Address	Date 8-7-9
Waterway Name WR-9	Coordinates at downstream end (ddd.mm.ss) Lat. N Long. W
Reach Boundaries	
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 3 / Channel Width ~~(m)~~ ft - 1

Observed Hydrology:
"Dry Channel": [x] Water Absent; ☐ No surface flow but at least one pool present
"Wet Channel": ☐ Surface flow present but not spatially continuous; ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

	Indicator	Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	[x] 2	☐ 3
	2. In-channel Structure / Organized Sequences	[x] 0	☐ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	[x] 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	[x] 0.5	☐ 1	☐ 1.5
	5. Depositional Features	[x] 0	☐ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☐ 1	[x] 2	☐ 3
	7. Headcuts And Grade Controls	[x] 0	☐ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				5.5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	[x] 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	[x] 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	[x] 0
	11. Debris Piles And Wrack Lines	[x] 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	[x] Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				0
Biology	13. Wetland Plants In / Near Streambed	[x] FAC 0.5	☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2 ☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☐ 1	[x] 0
	15. Streamer Mosses And Algal Mats	[x] 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	[x] 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	[x] 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	[x] 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	[x] 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	[x] 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	[x] 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				1.0
	★ TOTAL SCORE:				6.5

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)
Ephemeral ☐ Total Score < 13
Intermittent ☐ Total Score ≥ 13 or Single Indicator
Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name SUMMIT RIDGE PRR / IXRE	Evaluator Attended ☐ Orientation ☐ Field Training
Address	Date 6/1/09
Waterway Name DRAINAGE (WR-10)	Coordinates at downstream end (ddd.mm.ss) Lat. N Long. W
Reach Boundaries	

Precipitation w/in 48 hours (cm)	Channel Gradient (%)	Channel Width ~~(m)~~ ft
0	9	4 - 1

Observed Hydrology:

"Dry Channel": ☒ Water Absent ☐ No surface flow but at least one pool present

"Wet Channel": ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☒ 1	☐ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☒ 0	☐ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☒ 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☒ 0.5	☐ 1	☐ 1.5
	5. Depositional Features	☐ 0	☒ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☒ 1	☐ 2	☐ 3
	7. Headcuts And Grade Controls	☒ 0	☐ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:	4.5			
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☒ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☒ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	☒ 0
	11. Debris Piles And Wrack Lines	☐ 0	☒ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☒ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:	0.5			
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5	☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2 ☒ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☐ 1	☒ 0
	15. Streamer Mosses And Algal Mats	☒ 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☒ 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☒ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☒ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☒ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☒ 0	☐ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☒ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:	0			

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

★ TOTAL SCORE: 5.0

Flow Duration (select only one)

Ephemeral ☒ Total Score < 13

Intermittent ☐ Total Score ≥ 13 **or** Single Indicator

Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit Ridge	Evaluator PRR / EJRO Attended ☐ Orientation ☐ Field Training
Address	Date 11-18-9
Waterway Name WR-11	Coordinates at downstream end (ddd.mm.ss) Lat. N Long. W
Reach Boundaries	
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 4
Channel Width (m) .3	

Observed Hydrology:
"Dry Channel": ☐ Water Absent ☐ No surface flow but at least one pool present
"Wet Channel": ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

	Indicator	Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☑ 1	☐ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☑ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☑ 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	5. Depositional Features	☑ 0	☐ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☑ 1	☐ 2	☐ 3
	7. Headcuts And Grade Controls	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				4.5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☑ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	☑ 0
	11. Debris Piles And Wrack Lines	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				0
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5 ☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2	☑ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☐ 1	☑ 0
	15. Streamer Mosses And Algal Mats	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☑ 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☑ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☑ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				0

★ TOTAL SCORE: 4.5

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)
Ephemeral ☑ Total Score < 13
Intermittent ☐ Total Score ≥ 13 **or** Single Indicator
Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit	Evaluator PRR / EJRO; Attended ☐ Orientation ☐ Field Training
Address	Date 11-18-9
Waterway Name INR-12	Coordinates at downstream end (ddd.mm.ss) Lat. N Long. W
Reach Boundaries	

Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 3	Channel Width (m) .6

Observed Hydrology:
- "Dry Channel": ☐ Water Absent; ☐ No surface flow but at least one pool present
- "Wet Channel": ☐ Surface flow present but not spatially continuous; ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

	Indicator	Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☑ 1	☐ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☑ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☑ 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	5. Depositional Features	☑ 0	☐ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☑ 1	☐ 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☑ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	☑ 0
	11. Debris Piles And Wrack Lines	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				0
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5	☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2 ☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☐ 1	☑ 0
	15. Streamer Mosses And Algal Mats	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☑ 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☑ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☑ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				0
	★ TOTAL SCORE:				5

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Note: Scoring scale is reversed for indicators marked with ▼.

Flow Duration (select only one)
- Ephemeral ☒ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 or Single Indicator
- Perennial ☐ Total Score ≥ 25

(outside study area)

Notes: This reach begins 200' downslope of the locn. where a narrow seep with goes subsurface and does not re-emerge.

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name Summit	Evaluator EJRO, PRR Attended ☐ Orientation ☐ Field Training
Address	Date 11-18-9
Waterway Name WR - 13	Coordinates at downstream end (ddd.mm.ss) Lat. N Long. W
Reach Boundaries	
Precipitation w/in 48 hours (cm) 0	Channel Gradient (%) 5 — Channel Width (m) .3

Observed Hydrology:
"Dry Channel": ☑ Water Absent; ☐ No surface flow but at least one pool present
"Wet Channel": ☐ Surface flow present but not spatially continuous; ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☑ 1	☐ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☑ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☑ 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	5. Depositional Features	☑ 0	☐ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☑ 1	☐ 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	☑ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				5
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☑ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☑ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	☑ 0
	11. Debris Piles And Wrack Lines	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☑ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				0
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5	☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2 ☑ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☐ 1	☑ 0
	15. Streamer Mosses And Algal Mats	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☑ 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☑ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☑ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☑ 0	☐ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☑ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				0
	★ TOTAL SCORE:				5

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Flow Duration (select only one)
- Ephemeral ☒ Total Score < 13
- Intermittent ☐ Total Score ≥ 13 or Single Indicator
- Perennial ☐ Total Score ≥ 25

Note: Scoring scale is reversed for indicators marked with ▼.

ATTACHMENT J-2

DSL LETTER OF CONCURRENCE OF WETLAND DELINEATION REPORT

Oregon
Theodore R. Kulongoski, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregonstatelands.us.

April 5, 2010

Steven Ostrowski
Lotus Group USA, Inc.
9611 NE 117th Ave. Suite 2840
Vancouver, WA 98662

Re: Wetland Delineation Report for the Summit Ridge Wind Project, Wasco County; T1S R15E; T1S R14E; T2S R15E; T2S R14E; and T3S R15E; Portions of Multiple Sections and Tax Lots; WD #09-0445

Dear Mr. Ostrowski:

The Department of State Lands has reviewed the wetland delineation report prepared by David Evans and Associates, Inc for the sites referenced above. Based upon our review and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in the revised index (Figure 6, Sheets 1 – 2) and delineation sheets (Figure 6, Sheets 1 – 7) of the report. Please replace all copies of the preliminary wetland maps with these final Department-approved maps. Within the study area, 6 wetlands, 13 waterways, and 1 stock pond were identified. Five of the six wetlands (Wetlands B, C, D, E, and F, totaling approximately 0.59 acres) and six of the thirteen waterways (WR-1, 2, 3, 5, 6 and 7) are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high water line (OHWL) of a waterway (or the 2 year recurrence interval flood elevation if OHWL cannot be determined).

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at (503) 986-5232 if you have any questions.

Sincerely,

Peter

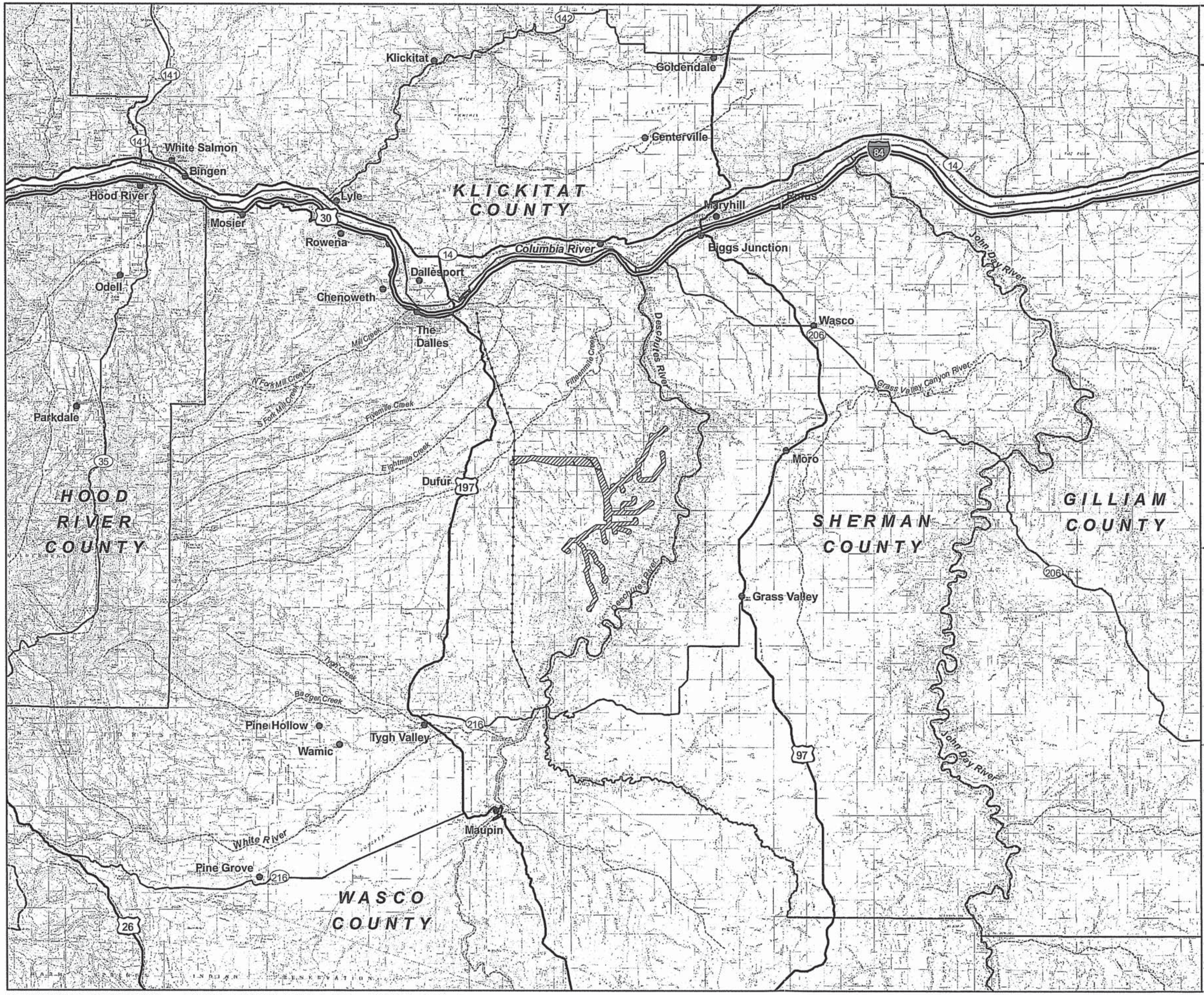
Peter Ryan, PWS
Wetland Specialist

Approved by Kathy Verble
for Janet C. Morlan, PWS
Wetlands Program Manager

Enclosures

ec: Phil Rickus, David Evans and Associates, Inc.
Wasco County Planning Department
Debra Henry, Corps of Engineers
Sarah Kelly, DSL

WD #09-0445



LotusWorks - Summit Ridge I, LLC

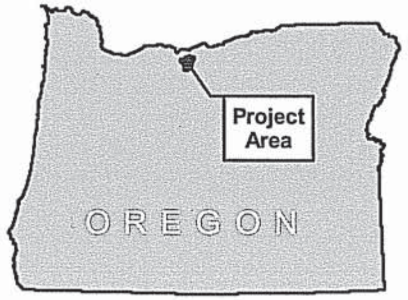
Figure 1
Location Map

Legend
- Wetland Study Area
- County Line
- Interstate Highway
- Other Highway
- Major Road
- Bonneville 230 KV Line

N

0 4 8 12 16
Miles

Location Map



Data Sources:
Lotusworks, 2009
USGS 30x60 Ortho Quadrangles:
Condon, OR; Goldendale, OR;
Hood River, OR; Mt. Hood, OR

lotusworks

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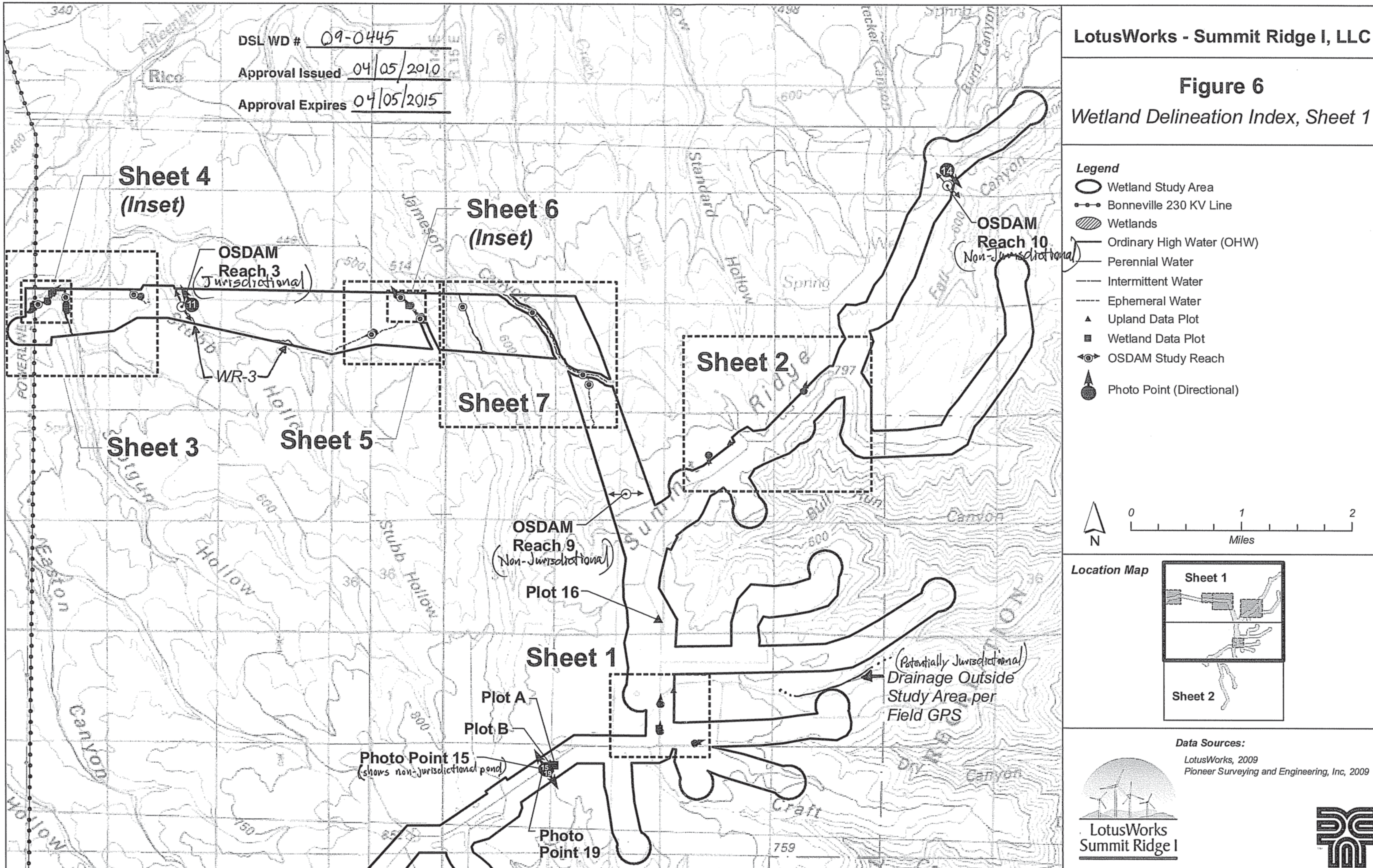

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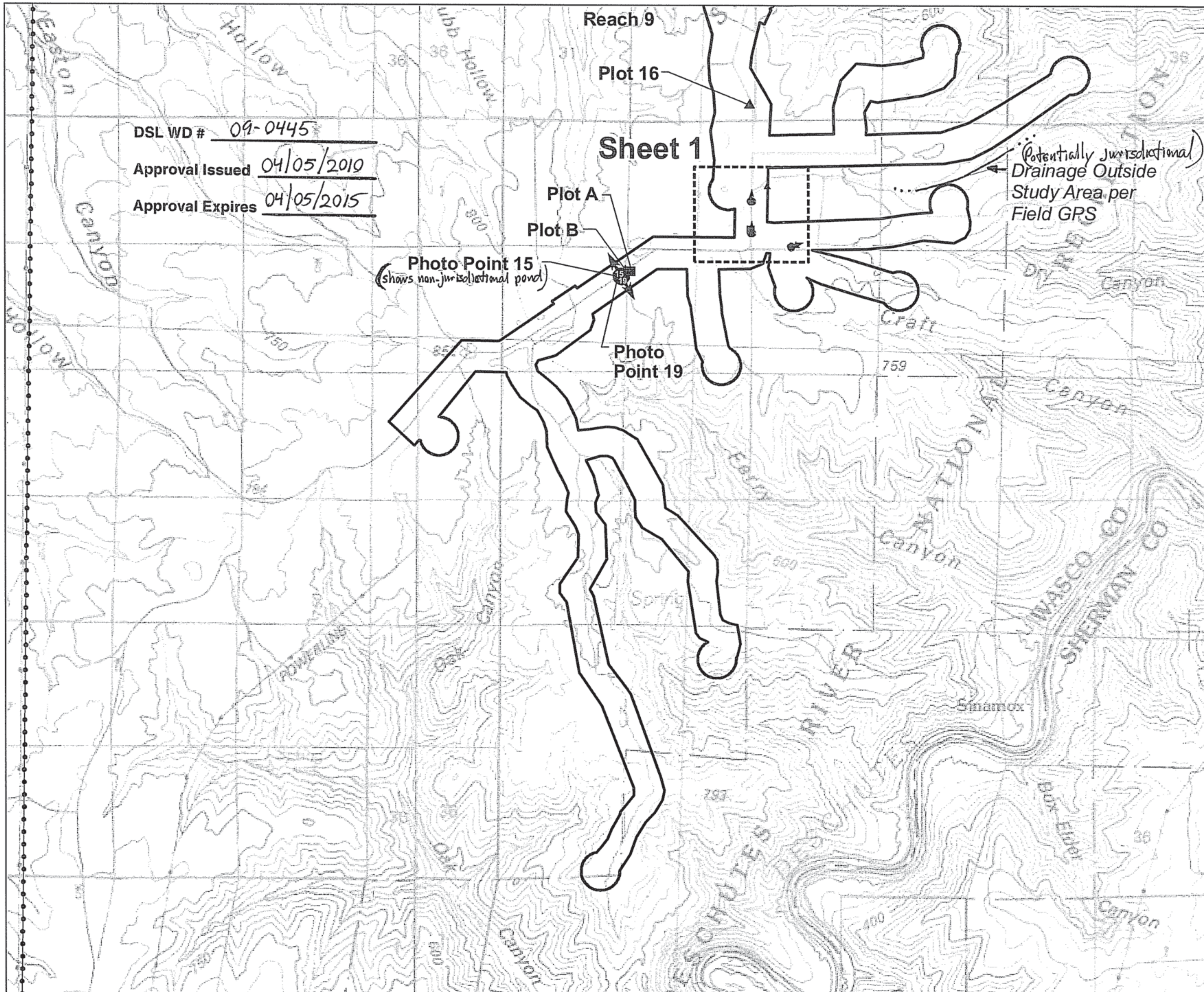


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation Index, Sheet 2

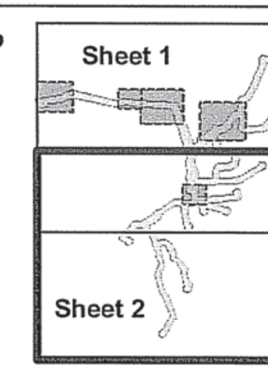
Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Wetlands
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

N

0 1 2
Miles

Location Map



Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

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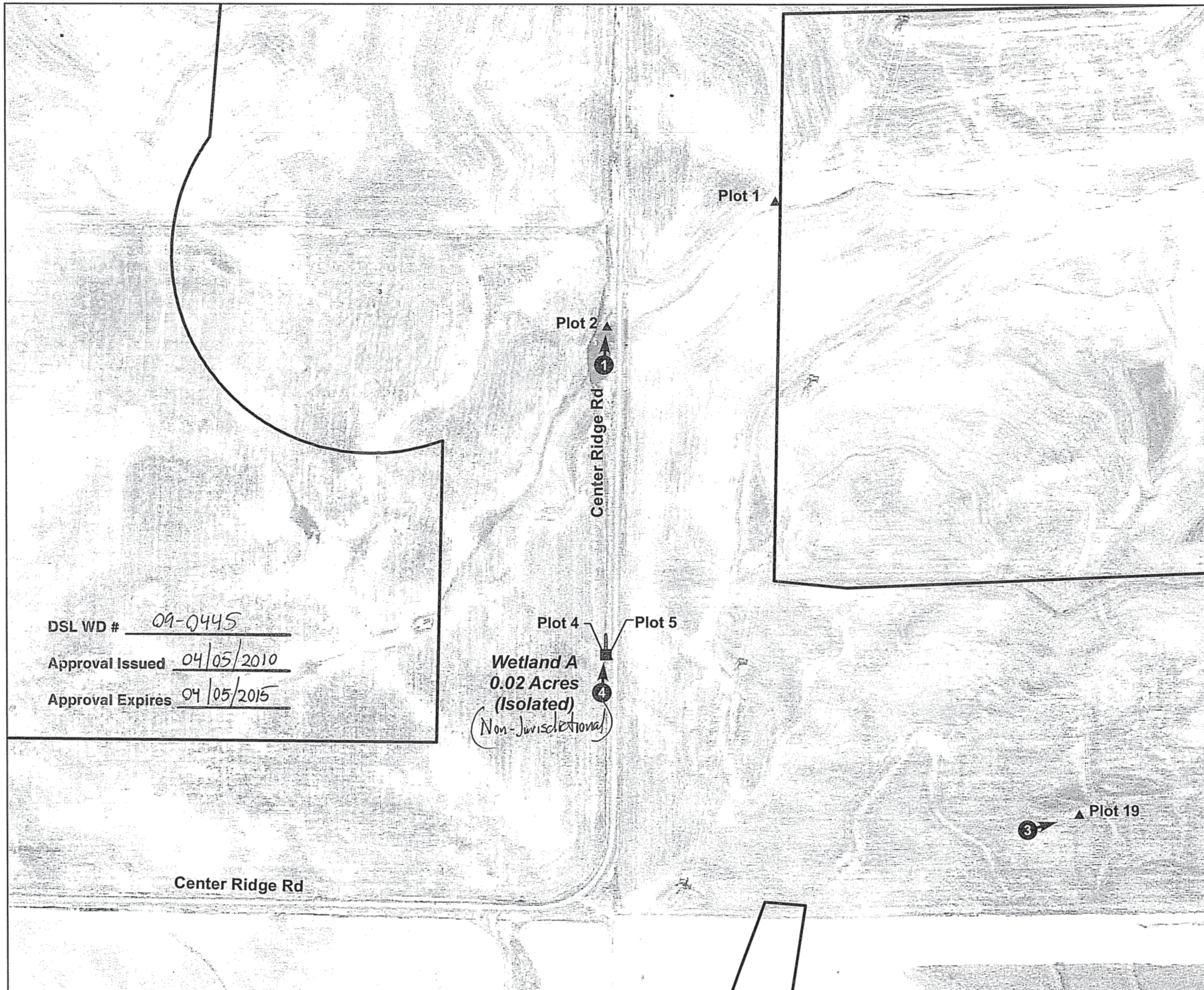


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 1

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

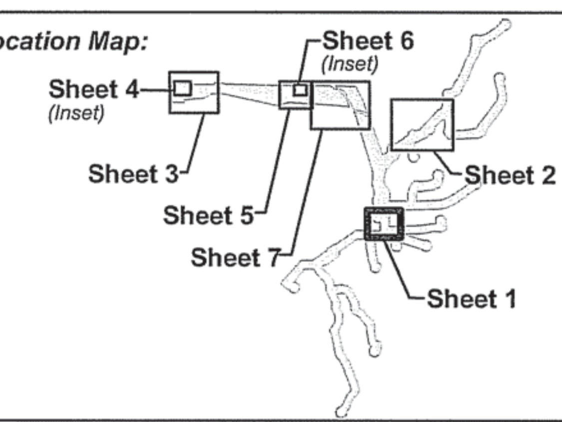
N

0 325 650

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



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Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

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DSL WD # 09-0445

Approval Issued 04/05/2010

Approval Expires 04/05/2015

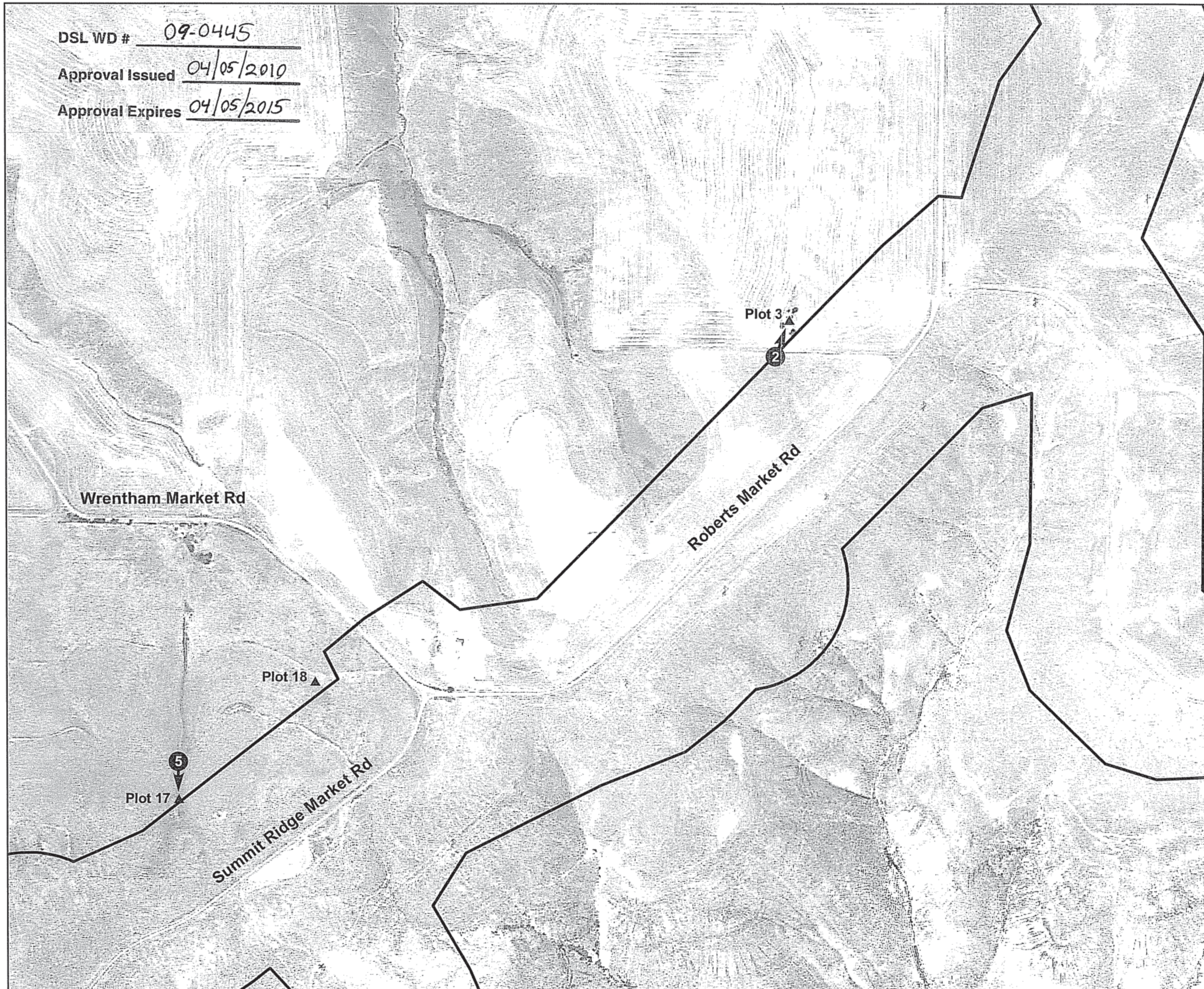

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Figure 6

Wetland Delineation, Sheet 2

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

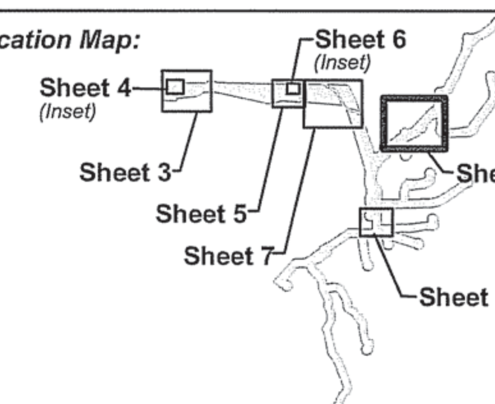
N

0 600 1,200

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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Pioneer Surveying and Engineering, Inc, 2009

LotusWorks Summit Ridge I

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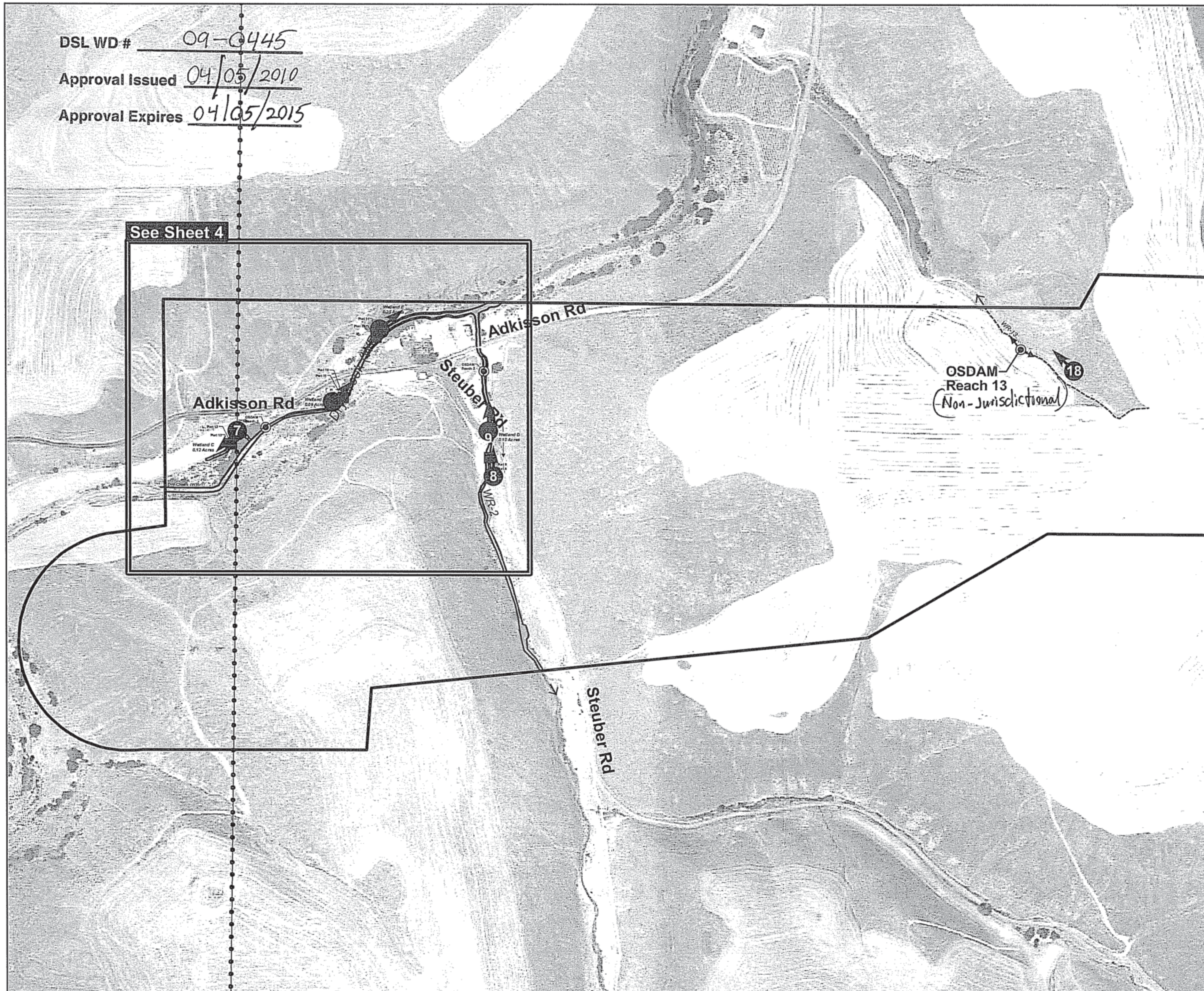


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 3

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

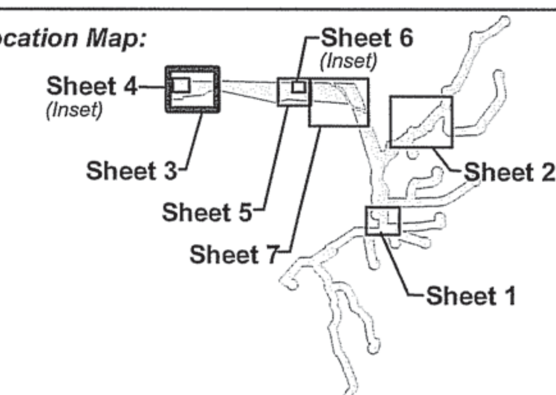
N

0 470 940

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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Pioneer Surveying and Engineering, Inc, 2009

LotusWorks Summit Ridge I

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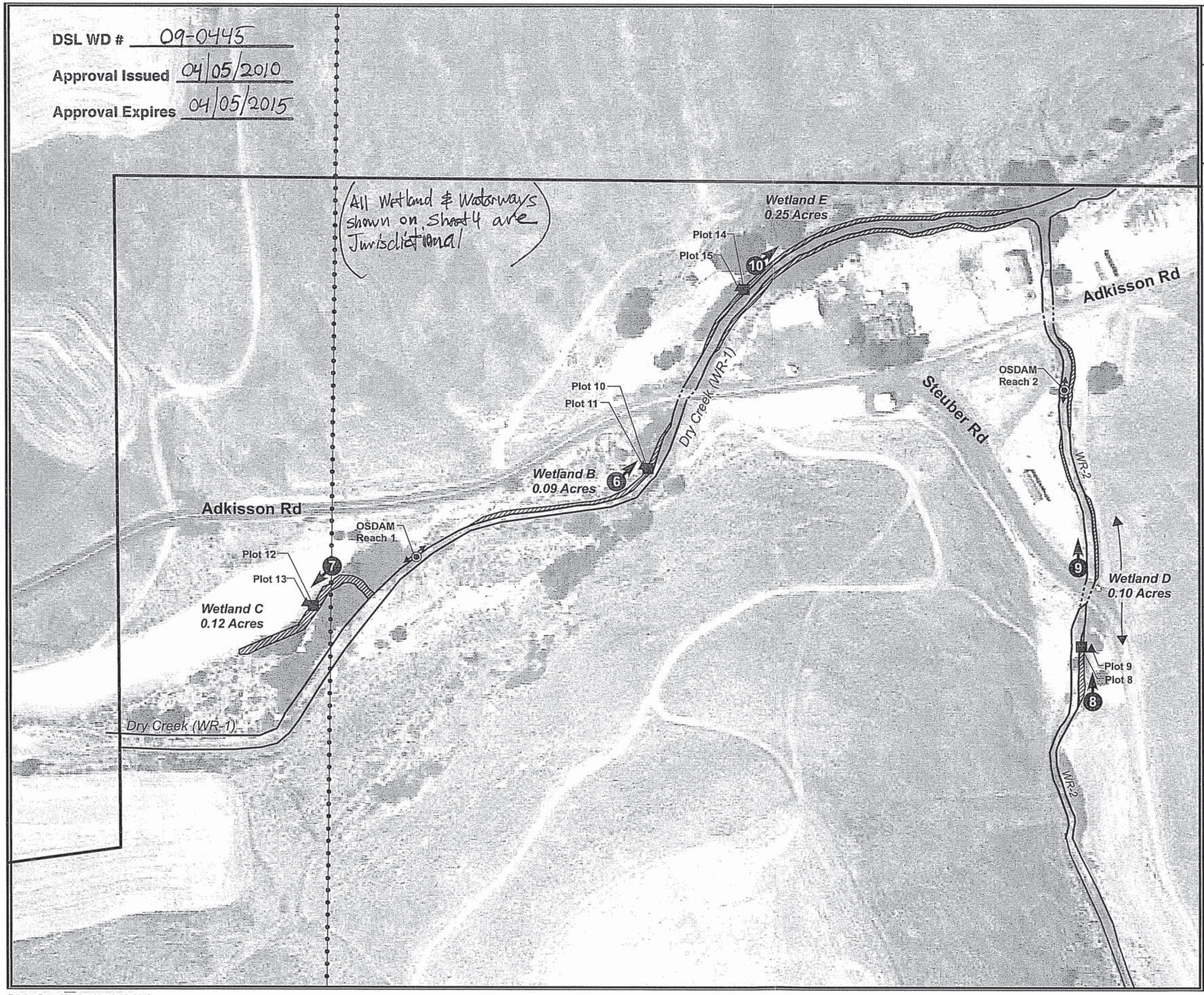


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 4

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

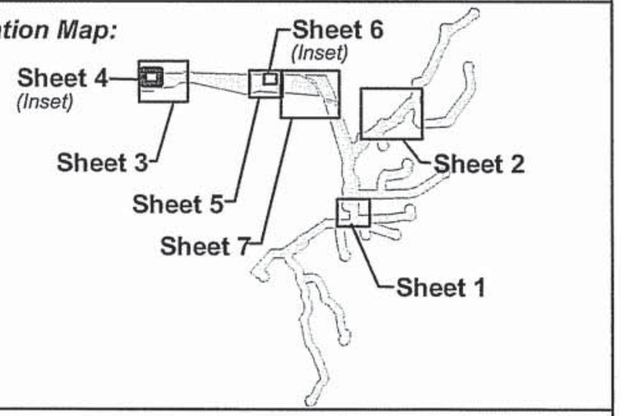
N

0 160 320

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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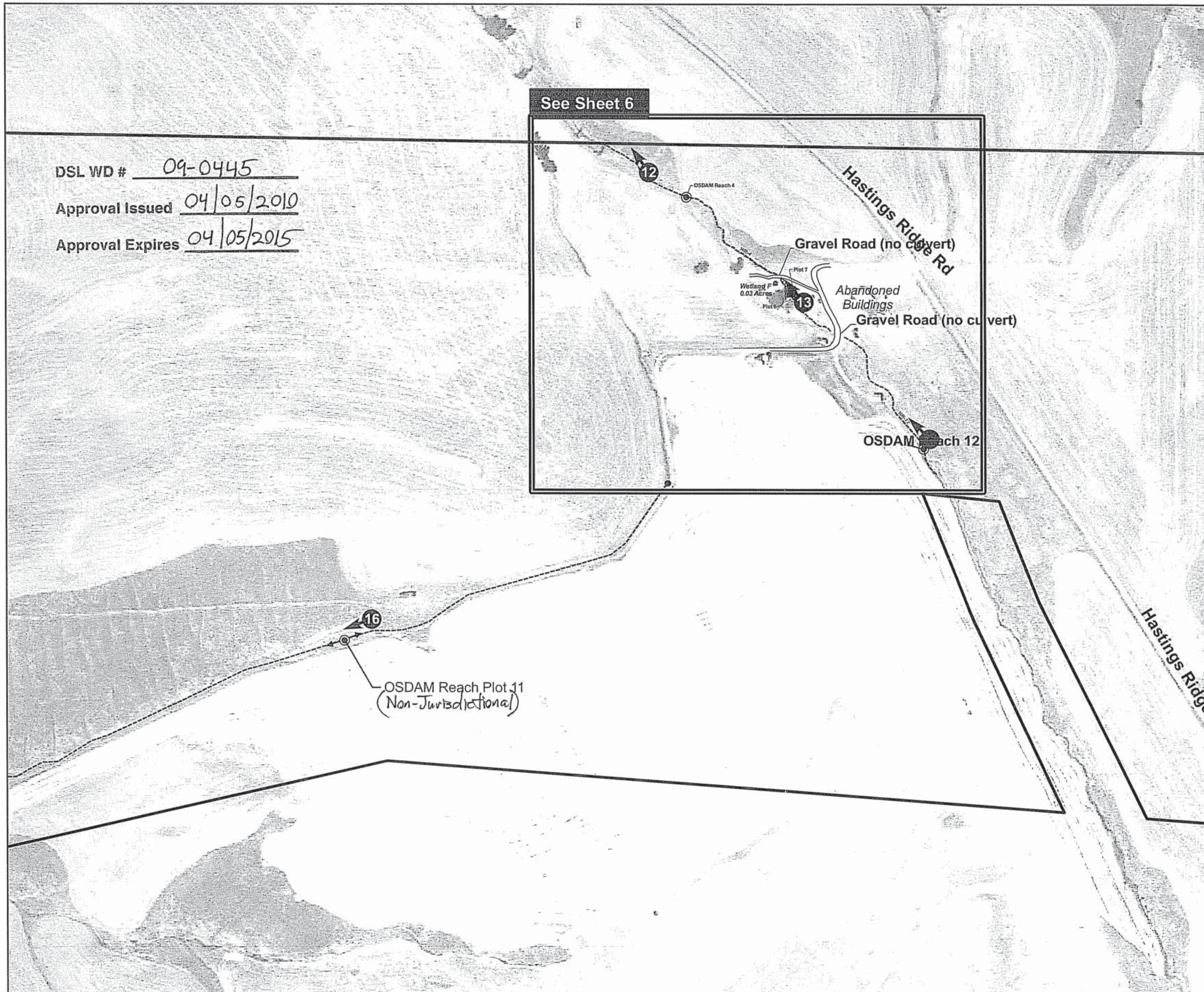

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Figure 6

Wetland Delineation, Sheet 5

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

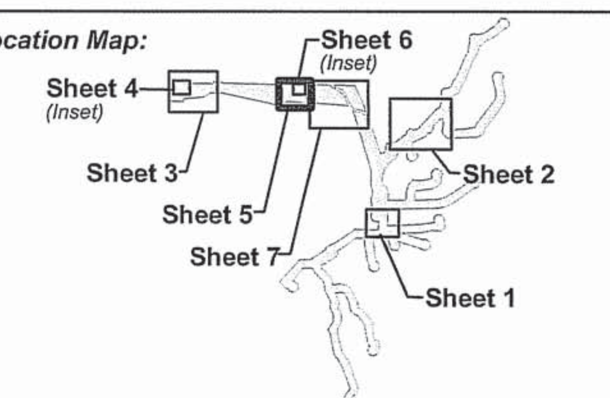
N

0 320 640

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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Pioneer Surveying and Engineering, Inc, 2009

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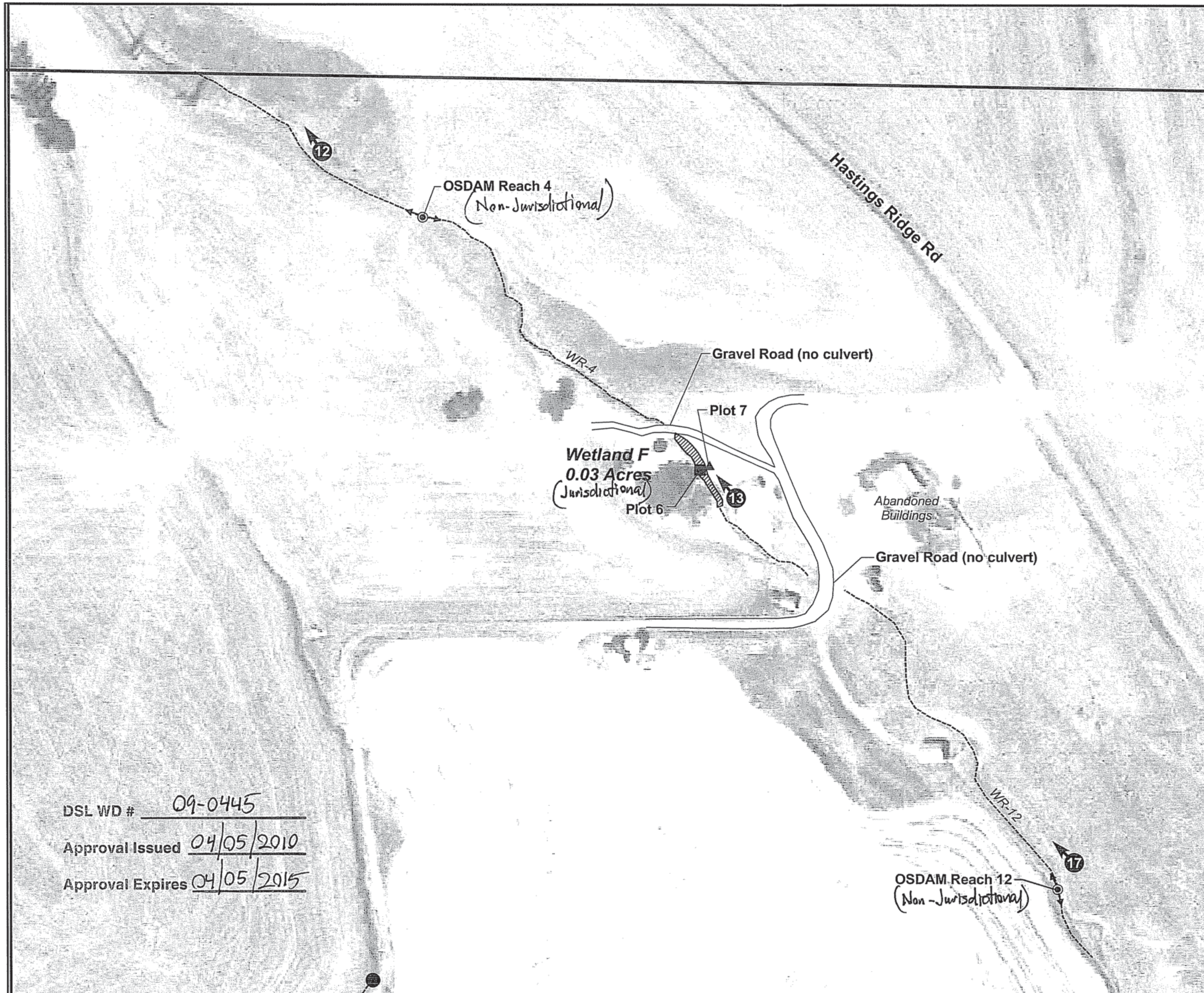


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 6

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

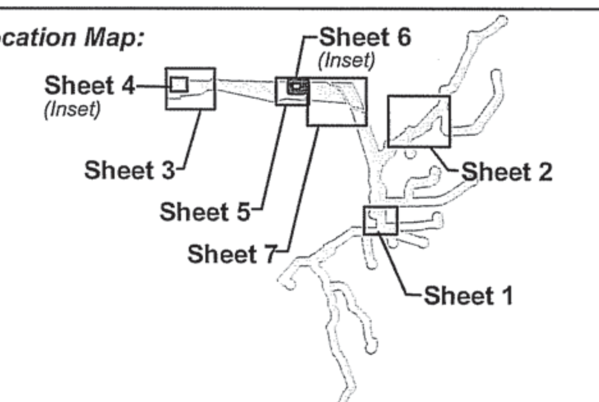
N

0 120 240

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

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LotusWorks Summit Ridge I

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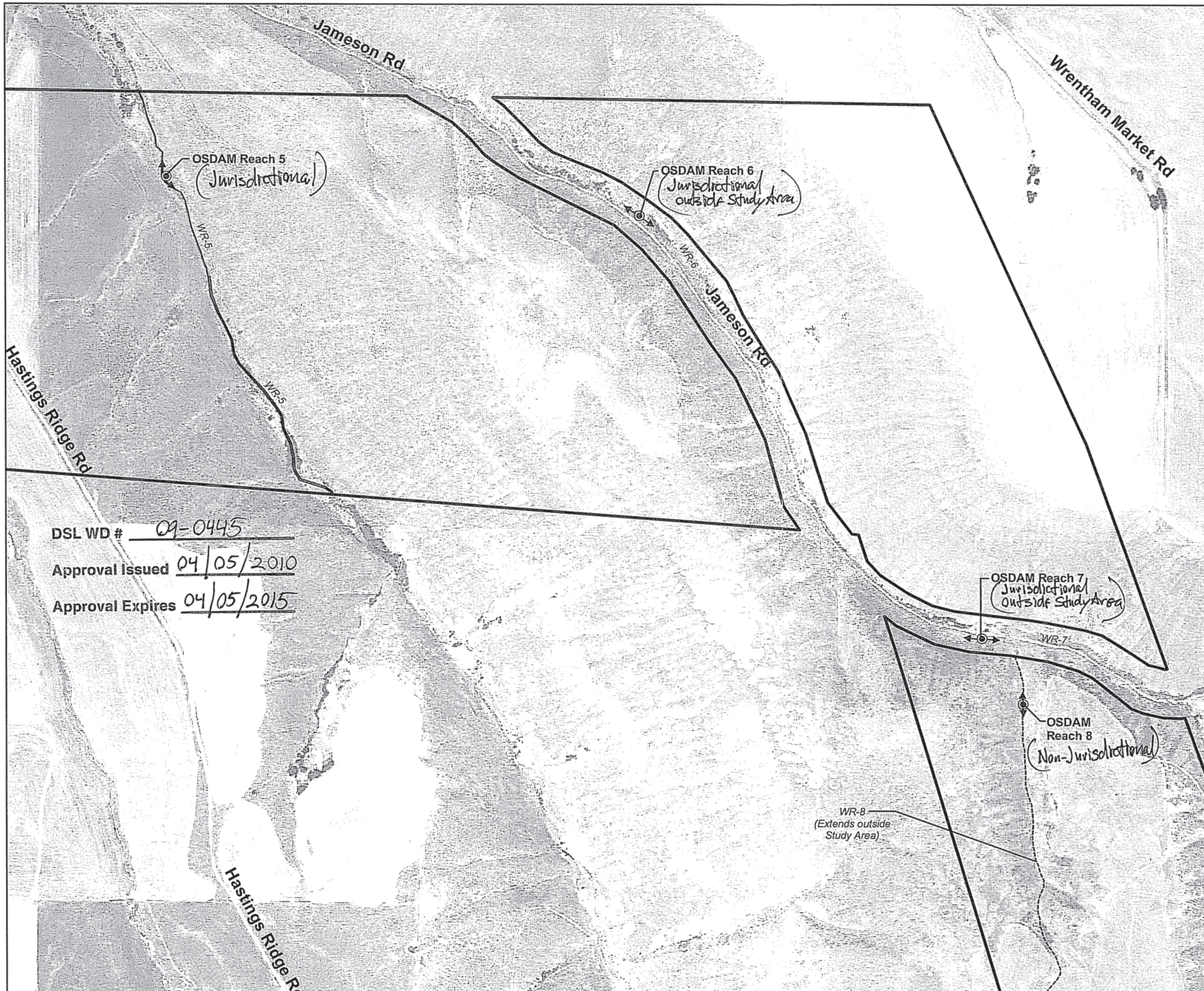


LotusWorks - Summit Ridge I, LLC

Figure 6

Wetland Delineation, Sheet 7

Legend

- Wetland Study Area
- Bonneville 230 KV Line
- Ordinary High Water (OHW)
- Perennial Water
- Intermittent Water
- Ephemeral Water
- Bridge
- Wetlands
- Upland Data Plot
- Wetland Data Plot
- OSDAM Study Reach
- Photo Point (Directional)

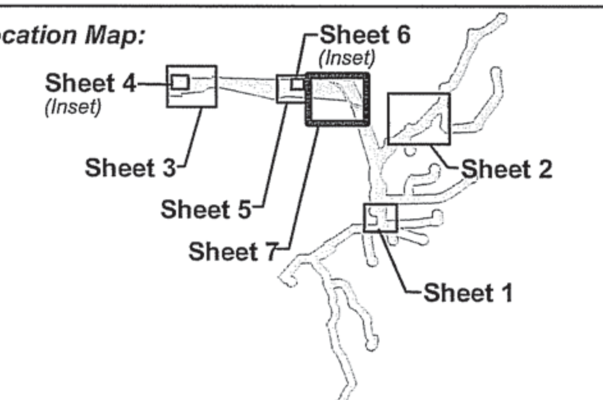
N

0 550 1,100

Feet

Wetland boundaries and plot locations were mapped using a Trimble Pathfinder Geo XH GPS receiver with typical accuracy of three feet or better.

Location Map:



Data Sources:

LotusWorks, 2009
Pioneer Surveying and Engineering, Inc, 2009

LotusWorks
Summit Ridge I

Printing Date: Monday, March 22, 2010
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EXHIBIT K

LAND USE
OAR 345-021-0010(1)(k)

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ATTACHMENTS

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K.1 INTRODUCTION AND LAND USE REVIEW PATH

OAR 345-021-0010(1)(k) *Information about the proposed facility's compliance with the statewide planning goals adopted by the Land Conservation and Development Commission, providing evidence to support a finding by the Council as required by OAR 345-022-0030. The applicant shall state whether the applicant elects to address the Council's land use standard by obtaining local land use approvals under ORS 469.504(1)(a) or by obtaining a Council determination under ORS 469.504(1)(b). An applicant may elect different processes for an energy facility and a related or supporting facility but may not otherwise combine the two processes. Notwithstanding OAR 345-021-0090(2), once the applicant has made an election, the applicant may not amend the application to make a different election. In this subsection, "affected local government" means a local government that has land use jurisdiction over any part of the proposed site of the facility.*

Response: To issue a site certificate, the Oregon Energy Facility Siting Council (Council) must find that the Facility complies with the statewide land use planning goals (goals) adopted by the Land Conservation and Development Commission (LCDC) (OAR 345-022-0030(1)). ORS 469.503(4); OAR 345-022-0030(1). ORS 469.504(4) allows the applicant to decide whether it will demonstrate compliance with statewide planning goals through a local land use approval process under ORS 469.504(1)(a) or by obtaining a Council determination under ORS 469.504(1)(b). The Applicant hereby elects to seek a Council determination of compliance with the Council's land use standard under ORS 469.504(1)(b).
ORS 469.504(1)(b) authorizes the Council to make a determination of compliance with the statewide planning goals under one of the three tracks:

A. The facility complies with applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and in effect on the date the application is submitted, and with any Land Conservation and Development Commission administrative rules and goals and any land use statutes that apply directly to the facility under ORS 197.646;
B. For an energy facility or a related or supporting facility that must be evaluated against the applicable substantive criteria pursuant to subsection (5) of this section, that the proposed facility does not comply with one or more of the applicable substantive criteria but does otherwise comply with the applicable statewide planning goals, or that an exception to any applicable statewide planning goal is justified under subsection (2) of this section; or
C. For a facility that the Council elects to evaluate against the statewide planning goals pursuant to subsection (5) of this section, that the proposed facility complies with the applicable statewide planning goals or that an exception to any applicable statewide planning goal is justified under subsection (2) of this section.

ORS 469.504(5) requires the Council to designate a "special advisory group" consisting of the governing body of the local government where the facility is located—here, Wasco County Court. The special advisory group is charged with recommending "applicable substantive criteria"[1] for the Council to apply in its recommendation. Id. ORS 469.504 further provides that if the special advisory group recommends applicable criteria and the facility does not pass through more than one local government jurisdiction or more than three zones in any one jurisdiction, "the council shall apply the criteria recommended by the special advisory group." In this circumstance, the Council may elect to make its land use determination under either ORS 469.504(1)(b)(A) (for facilities that comply with all applicable substantive criteria) or ORS 469.504(1)(b)(B) (for facilities that do not comply with one or more applicable substantive criteria).

The Oregon Supreme Court has held that "ORS 469.504(1)(b)(B) allows a comprehensive inquiry that requires the council to determine compliance with the most specific criteria that it can: local "applicable substantive criteria" where possible; findings of compliance with the statewide planning goals in the alternative; and exceptions to the goals if necessary." Save our Rural Oregon v. Energy Facility Siting Council, 339 Or 353 (2005). The more general criteria (goal compliance and goal exceptions) are only considered to the extent that the more specific criteria (applicable substantive criteria and goal compliance) are not met.

The Applicant requests the Council to make its land use determination pursuant to ORS 469.504(1)(b)(B). This Exhibit K demonstrates that the Facility complies with the applicable substantive criteria from the Wasco County acknowledged comprehensive plan and land use ordinances, and with any LCDC administrative rules and goals and land use statutes directly applicable to the Facility. Although the turbine locations have not been finalized, some of the proposed locations may not meet the setback standards in WCLUDO Sections 19.030(C)(3)(a) and (F)(1)(b). For these criteria, Exhibit K demonstrates compliance with applicable statewide planning goals (Goal 3 and Goal 13). Because the Facility complies with all applicable substantive criteria, and to the extent that those criteria are not met, the Facility complies with applicable statewide planning goals, a goal exception is not required.

K.2 LAND USE ANALYSIS AREA AND MAP

OAR 345-021-0010(1)(k)(A) *Include a map showing the comprehensive plan designations and land use zones in the analysis area.*

Response: Figure K-1 is a map that shows the Facility's location, the Wasco County Comprehensive Plan (WCCP or Comprehensive Plan) designations and County land use zone of the Facility site, all areas of the site that may be temporarily disturbed during the design, construction or operation of the proposed Facility, property adjacent to the site, and a half-mile study corridor around all of the proposed facilities. Land use designations within the Facility site boundary area are described in Section K.4.

The Facility component map is shown on Figure C-2 in Exhibit C.

[1] OAR 345-022-0030(3) defines "applicable substantive criteria" as criteria from the "local government's acknowledged comprehensive plan and land use ordinances that are required by the statewide planning goals and that are in effect on the date the applicant submits the application."

K.3 ENERGY FACILITY AND RELATED OR SUPPORTING FACILITIES

The Facility is a wind energy facility with a peak electric generating capacity of approximately 200 megawatts (MW). The Facility site is located in unincorporated Wasco County. The Facility is on private land that has been leased by the Applicant to develop the Facility. It will consist of:

- 87 wind turbine generators of 2.3 MW and with a hub height of approximately 80 meters. Some turbines will include the minimum aviation warning lights required by the Federal Aviation Administration (FAA). The number of turbines with lights and the lighting pattern of the turbines will be determined in consultation with the FAA.
- Approximately 19 miles of newly constructed access roads and turnaround areas.
- Up to three permanent meteorological towers and a supervisory control and data acquisition (SCADA) system.
- A 34.5-kilovolt (kV) power collection system linking each turbine to the next and to the Facility substation. The majority of the power collection system will be underground, although where site-specific conditions render underground installation infeasible, the power collection system will be above ground on wood poles. It is estimated that approximately 10 percent of the power collection system will be above ground (see Exhibit B).
- One substation located within the Facility site (see Exhibit C)
- An operations and maintenance (O&M) facility, including shop facilities, a control room, a maintenance yard, a kitchen, an office, a washroom, and other facilities typical of this type of Facility. This facility will be collocated with the Facility substation.

The Facility site consists of privately owned agricultural and grazing land used for winter wheat production and some grazing. Grazing and farming and grazing operations will continue adjacent to the turbines and access roads. The turbines and related or supporting facilities will be sited in a manner that minimizes disruption to existing farm operations. The Facility will preclude farming on approximately 13 acres of high value farmland.

The Facility components are described individually below.

K.3.1 Principal Facility

As is noted above, the energy facility will consist of 87 turbines, most likely with an installed peak generating capacity of 2.3 MW per turbine, associated turbine towers, turbine pads, and related equipment. See Exhibit B for detailed information about the components and dimensions of the turbines. Each turbine will be mounted on a tapered monopole supported by a reinforced concrete foundation.

K.3.2 Related or Supporting Facilities

Facility Roads

Existing unpaved roads within the site boundary will be utilized to the extent practicable to reduce the need for new road construction. Where needed, the existing roads will be improved to the following general configuration: site access roads that will be used for construction equipment, including erector cranes, will be designed to a total width of 40 feet, consisting of a 20-foot-wide graveled surface and two 10-foot wide compacted shoulders. Erosion control and drainage best management practices will be included in the design of all roads. After the completion of construction, the road shoulders, which are needed during construction to accommodate the cranes, will be removed and restored to pre-existing conditions, whether arable land or natural habitat. The 20-foot width of the graveled surface will be left to facilitate operation of the Facility and the convenience of the landowners. All areas temporarily disturbed during road construction will be restored to their existing condition and contours. There will be no separate "crane paths" constructed to allow the construction crane access from string to string.

In areas where there are no existing roads to access wind turbine strings or proposed facilities, new access roads will be constructed to the dimensions described above. Permanent turnaround areas will be situated at or near the end of each turbine string.

Meteorological Towers and SCADA

A maximum of three permanent un-guyed meteorological (met) towers will be placed throughout the Facility site. The meteorological towers will collect wind resource data. These towers will be the same height as the hub of the turbines, approximately 80 meters (210 feet) tall. Permanent met tower foundations are generally 15 to 20 feet deep, but in the worst-case scenario, could be as deep as 40 feet depending on height, soil conditions, and geotechnical engineering requirements.

A SCADA system will be installed to enable remote operation of the wind turbines, collect operating data from each wind turbine, and archive wind and performance data from various sources. The SCADA system will be buried in the same alignment as the collector system and linked (via fiber optic cables or other means of communication) to a central computer in the O&M facility.

Electrical System

The electrical system will consist of: (1) a power collection system, which will collect energy generated by each wind turbine at approximately 600 to 690 volts, increase voltage through a generator step-up (GSU) transformer located either in the nacelle or adjacent to the turbine (pad-mounted) to approximately 34.5 kV, and deliver it via electric collector cables to (2) the Facility step-up substation, where transformers will further increase the voltage delivered by the power collection system to approximately 230 kV, (3) a high-voltage transmission line that will deliver power from the Facility step-up substation to (4) the Facility interconnect location at the 230 kV Bonneville Power Administration (BPA) Big Eddy to Maupin-Redmond transmission.

In some locations, the collector cables might be constructed above ground, likely on wood structures. Examples of specific conditions that will make it environmentally advantageous to run portions of the collection system above ground are as follows:

- Steep terrain where the use of construction equipment would be infeasible or unsafe;
- Stream or wetland crossings where an above ground line avoids impacts;
- Rare plant communities or archeological/cultural resources to avoid impacts;
- Soil with low thermal conductivity preventing adequate heat dissipation from the conductor; and/or
- Rocky conditions that would significantly increase ground impacts or fail to achieve the required heat dissipation.

Any overhead structures that may be needed to carry the collector system above ground will be wooden poles approximate 55 feet tall. It is estimated that 10% of the collector system may be constructed above ground. However, until the final layout is established, and site-specific geotechnical borings have been studied, the Applicant will not know whether any above ground collector cables will be required.

Interconnection and Substation System

The collector cable system will link each turbine to the proposed Facility substation located within the Facility site. A 230 kV transmission feeder line capable of handling the nameplate capacity of the Facility will connect the Facility substation to the interconnection location. The 230 kV transmission feeder line is expected to be carried on wooden H-frame poles. The Facility substation site will be on approximately five acres surrounded by a graveled, fenced area. The transformer, a control building with protective relaying, switching equipment, and an area to park utility vehicles will also be located at the substation site. Transformers will use nontoxic material, such as mineral oil, rather than polychlorinated biphenyl (PCB).

O&M Facility

The permanent O&M facility will be co-located with the Facility substation and will have up to approximately 10,000 square feet of enclosed space, which may include office and workshop areas, control room, kitchen, bathroom, shower, parking facilities, utility sink, and other facilities typical of this type of facility. Water for the bathroom and kitchen will be acquired from an onsite well constructed and permitted by a licensed contractor according to local and state requirements. Water use will not exceed 5,000 gallons per day. Domestic wastewater generated at the O&M facility will drain into an onsite septic system, which will be permitted according to local and state requirements. A graveled parking area for employees, visitors, and equipment will be located in the vicinity of the building. The O&M facility area will be secured and will have outside lighting directed downward to limit nighttime glare.

Laydown Areas

Six temporary laydown areas of approximately four acres will be needed for construction, for the delivery and staging of wind turbine components and other equipment and materials, as well as for the staging of construction trailers for the construction crews. Each temporary laydown area will be covered with gravel, which will be removed following construction when the area is restored. A temporary batch plant will be set up to prepare concrete for the project. It will be on a graveled 2-acre site, located within the site boundary, as shown on Figure C-2

K.4 COUNCIL DETERMINATION ON LAND USE

OAR 345-021-0010(1)(k)(C) *If the applicant elects to obtain a Council determination on land use:*

i. Identify the affected local government(s);

Response: The Facility will be sited solely in Wasco County, which is the affected local government.

ii. Identify the applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and that are in effect on the date the application is submitted and describe how the proposed facility complies with those criteria;

Response: The WCCP designates land where all related or supporting facilities are located as A-1 Exclusive Farm Use, as shown on Figure K-1.

The Facility complies with the applicable Wasco County Comprehensive Plan (WCCP) and the Wasco County Land Use and Development Ordinance (WCLUDO or Zoning Ordinance) review criteria, as described in following sections of Exhibit K. Applicable substantive WCCP and WCLUDO criteria are:

Wasco County Land Use & Development Ordinance

Chapter 1 – Introductory Provisions

Section 1.030 (Severability)

Section 1.090 (Definitions)

Chapter 3 – Basic Provisions

Exclusive Farm Use (A-1) Zone

Section 3.210(B)(7) (Reconstruction or Modification of Roads)

Section 3.210(D)(12) (Utility Facilities Necessary for Public Service)

Section 3.210(D)(13)	(Transmission Facilities under 200 Feet in Height)
Section 3.210(E)(8)	(Commercial Utility Facility)
Section 3.210(E)(12)	(Mining, Crushing or Stockpiling of Mineral Aggregate)
Section 3.210(E)(13)	(Processing of Aggregate into Asphalt)
Section 3.210(F)	(Property Development Standards)
Section 3.210(H)	(Agricultural Protection)
Section 3.210(J)(8)	(Additional Standards for Utility Facilities)
Section 3.210(J)(17)	(Additional Standards for Wind Power Generation Facilities)

Chapter 4 – Supplemental Provisions

Section 4.070	(General Exceptions to Building Height Requirements)

Chapter 5 – Conditional Use Review

Section 5.020	(Authorization to Grant or Deny Conditional Uses, and Standards and Criteria Used)
Section 5.030	(Conditions)
Section 5.040	(Revocation)

Chapter 10 – Fire Safety Standards

Section 10.110	(Siting Standards)
Section 10.120	(Defensible Space)
Section 10.130	(Construction Standards for Dwellings and Structures)
Section 10.140	(Access Standards)
Section 10.150	(Fire Protection or On-Site Water Required)

Chapter 19 – Standards for Energy Facilities and Commercial Energy Facilities

Section 19.030(C)	(A Wind Facility as a Use Permitted Subject to Standard)
Section 19.030(F)	(Conditional Use Standards for Wind Facilities)
Section 19.040	(Additional Approval Standards)

Section 19.050 (Conditions of Approval)

Wasco County Comprehensive Plan

Section V – Community Facilities and Services

J. (Parks and Recreation and Scenic Areas which include Highway 30 & 84 and the Columbia River Gorge)

Section XV – Goals and Policies

Goal 1 (Citizen Involvement)

Goal 2 (Land Use Planning)

Goal 3 (Agricultural Lands)

Goal 5 (Open Space, Scenic, and Historic Areas and Natural Resources)

Goal 6 (Air, Water and Land Resources Quality)

Goal 8 (Recreational Needs)

Goal 9 (Economy of the State)

Goal 11 (Public Facilities and Services)

Goal 12 (Transportation)

Goal 13 (Energy Conservation)

Compliance with all applicable County zoning ordinance criteria and comprehensive plan policies are addressed in Sections K-5 and K-6, respectively.

iii. Identify all Land Conservation and Development Commission administrative rules, statewide planning goals and land use statutes directly applicable to the facility under ORS 197.646(3) and describe how the proposed facility complies with those rules, goals and statutes.

Response: In addition to the acknowledged Comprehensive Plan and Zoning Ordinance policies and criteria that incorporate the majority of LCDC administrative rules, goals, applicable to the Facility, the following Oregon Administrative Rules and Oregon Revised Statutes apply:

Oregon Revised Statutes

215.296 Standards for approval of certain uses in exclusive farm use zones; violation of standards; complaint; penalties; exceptions to standards

iv. If the proposed facility might not comply with all applicable substantive criteria, identify the applicable statewide planning goals and describe how the proposed facility complies with those goals.

Response: Although the turbine layout in the Application for Site Certificate is not final, some of the proposed turbine locations may not meet the setback standards in WCLUDO Sections 19.030(C)(3)(a) and (F)(1)(b). The applicable statewide planning goals to the turbine setbacks are Goal 3 and Goal 13. Compliance with Goal 3 and 13 is generally addressed in Section K.6.2[2] and more specifically to the turbine setbacks in the response to WCLUDO Sections 19.030(C)(3)(a) and (F)(1)(b) in Section K.5.

v. *If the proposed facility might not comply with all applicable substantive criteria or applicable statewide planning goals, describe why an exception to any applicable statewide planning goal is justified, providing evidence to support all findings by the Council required under ORS 469.504(2).*

Response: The Facility complies with all of the applicable substantive criteria and applicable goals, and as shown in this exhibit, does not require an exception to statewide planning goals.

K.5 WASCO COUNTY LAND USE AND DEVELOPMENT ORDINANCE CRITERIA

Section 1.030 - Severability

The provisions of this Ordinance are severable. If any section, sentence, clause, or phrase of this Ordinance is adjudged to be invalid by a court of competent jurisdiction, that decision shall not affect the validity of the remaining portion of this Ordinance. The Director, the Director's designee or other Approving Authority shall not approve a development or use of land that has been previously divided or otherwise developed in violation of this Ordinance, regardless of whether the applicant created the violation, unless the violation can be rectified as part of the development proposal.

Response: To the Applicant's knowledge, all parcels within the lease area are legal parcels. The Applicant has completed its due diligence for all parcels included as part of the Facility and did not identify any unapproved parcel divisions. The due diligence process included property title research and coordination with Wasco County.

Section 1.090 - Definitions

Section 1.090 Defines a (Legal) Parcel as a unit of land created as follows:

a. A lot in an existing, duly recorded subdivision; or

b. A parcel in an existing, duly recorded major or minor land partition; or

c. By deed or land sales contract prior to September 4, 1974.

A unit of land shall not be considered a separate parcel simply because the subject tract of land;

a. Is a unit of land created solely to establish a separate tax account;

b. Lies in different counties;

[2] Section K.6.2 addresses the goals and policies of the Wasco County Comprehensive Plan, which are acknowledged and equivalent to the statewide planning goals.

c. Lies in different sections or government lots;

d. Lies in different land use or zoning designations; or

e. Is dissected by a public or private road.

Response: As described in WCLUDO Section 1.030, all parcels within the lease area were determined to be legal parcels based on the Applicant's due diligence process completed prior to submitting this Application for Site Certificate. Any other relevant definitions are also addressed under the standards to which the terms are relevant.

Section 1.090 Defines a "Structure" as:

Anything constructed, erected or air inflated, permanent or temporary, which requires location on the ground. Among other things, structure includes buildings, walls, fences, billboards, poster panels and parking lots. Retaining walls less than four (4) feet in height are not considered structures for the sake of general property line setbacks.

Response: The Facility proposes structures, as defined above. As described throughout this exhibit, all structures meet the specific development standards required with the A-1 zoning district. Any other relevant definitions are also addressed under the standards to which the terms are relevant.

Section 3.210 - Exclusive Farm Use Zone

B. Uses Permitted Without Review

The following uses may be allowed on lands designated Exclusive Farm Use without review.

7. Reconstruction or modification of public roads and highways, including the placement of utility facilities overhead and in the subsurface of public roads and highways along the public right-of-way, but not including additional travel lanes, where no removal or displacement of buildings would occur and not resulting in any new land parcels.

Response: The Facility may improve some public roads where the existing roadbed is inadequate to accommodate construction equipment. No improvements are proposed to US 197 or other highways. Improvements to existing roads will neither remove nor displace any structures nor result in new land parcels. New access roads within the Facility boundaries may be constructed where no roads currently exist to access wind turbine strings or other facilities. Construction of new gravel access roads is allowed as a component of the Facility pursuant to Section 3.210(J)(17).

D. Uses Permitted Subject to Standards

The following uses and activities may be allowed subject to a Type II Review on a legal parcel designated Exclusive Farm Use subject to the Subsection F – Property Development Standards, H – Agricultural

Protection, Chapter 10 - Fire Safety Standards, as well as any other listed, referenced or applicable standards.

UTILITY/ENERGY FACILITIES
Pursuant to Section 4.070, General Exceptions to Building Height Requirements, these uses do not require a variance if they exceed 35 feet in height.

12. Utility facilities "necessary" for public service, including wetland waste treatment systems, but not including commercial utility facilities for the purpose of generating electrical power for public use by sale, or transmission towers over 200 feet in height, subject to Section J(8), Additional Standards below and the applicable provisions of Chapter 20, Site Plan Review.

13. A Transmission Facility under 200 feet in height subject to J(8)(a)(1) – (6) below and the applicable Subject to Standards criteria of Chapter 19.

Response: Only the 230 kV transmission feeder line connecting the Facility to the BPA Big Eddy to Maupin-Redmond transmission line is subject to this standard. The remainder of the Facility and its related facilities are a "Wind Power Generation Facility," which is a type of "commercial utility facility," and allowed pursuant to Section 3.210(E)(8) and Section 3.210(J)17). A determination and justification that the 230 kV transmission feeder line is necessary for public service is described below in response to WCLUDO Section 3.210(J)(8), which implements ORS 215.275. The 230 kV transmission feeder line would deliver power from the Facility to the interconnect location at the 230 kV BPA Big Eddy to Maupin-Redmond transmission line, which is a public facility that delivers power to customers throughout the Northwest, including Wasco County.

The 230 kV transmission feeder line is also a "Transmission Facility under 200 feet in height" pursuant to Section 3.210(D)(13). The standards in J(8)(a)(1) – (6) and Chapter 19 are addressed below.[3]

E. Conditional Uses

The following uses and activities may be allowed subject to a Type II or Type III Review on a legal parcel designated Exclusive Farm Use subject to Subsection F - Property Development Standards, H – Agricultural Protection, Chapter 5 – Conditional Use Review, Chapter 10 - Fire Safety Standards as well as any other listed, referenced, or applicable standards.

ENERGY/UTILITY/SOLID WASTE DISPOSAL FACILITIES

8. Commercial utility facilities (Wind, Hydroelectric or Other) for the purpose of generating power for public use by sale. This use is subject to the applicable provisions of Chapter 19, Standards for Energy Facilities

[3] Although the 230 kV transmission feeder line complies with the relevant standards of Chapter 19, addressed below, those standards are preempted because they are inconsistent with the criteria for utility facilities necessary for public service in ORS 215.283(1)(d). *Brentmar v. Jackson County*, 321 Or 481 (1995).

and Commercial Energy Facilities and Chapter 20, Site Plan Review. A wind power generation facility shall also be subject to Section J(17), Additional Standards below

Response: With the exception of the 230 kV transmission line, the Facility and its related or supporting facilities are a "wind power generation facility" for purposes of this section. WCLUDO Chapter 19 is addressed below.

MINERAL/AGGREGATE/GEOTHERMAL USES

12. Aggregate: Operations conducted for the mining, crushing or stockpiling of mineral, aggregate and other subsurface resources subject to Section J(9), Additional Standards below, Section 3.800, Mineral & Aggregate Overlay and the applicable provisions of Chapter 20, Site Plan Review.

Response: The Facility does not propose to develop aggregate resources. Aggregate will be purchased from local gravel operations that already have applicable permits and developed resources in accordance with Wasco County standards.

13. Processing, as defined by ORS 517.750, of aggregate into asphalt or Portland cement, except that asphalt production shall not be permitted within two miles of a producing orchard or vineyard, which is planted as of the date that the application for asphalt production is filed, and subject to WCLUDO Section 3.800, Mineral and Aggregate Overlay and the applicable provisions of Chapter 20, Site Plan Review.

Response: There are no producing orchards within two miles of the site boundary. The surrounding lands are used for grazing and dry land wheat. A temporary batch plant will be located in one of the temporary laydown areas to mix concrete for the turbine pads and foundations for the other components of the Facility (see Figure C-2). Materials for the temporary batch plant typically consists of aggregate material, Portland cement, water, and other materials added to the concrete with areas designated for materials delivery, mixing, and pickup after the concrete is mixed. When construction is completed, the temporary batch plant will be disassembled and removed from the Facility site. No permanent processing facilities are proposed.

TRANSPORTATION

20. Roads, highways and other transportation facilities and improvements not otherwise allowed by this ordinance subject to:

Response: The proposed new and expanded private access roads for the Facility are allowed as components of a wind power generation facility. Section 3.210(J)(17). Therefore, this standard does not apply.

F. Property Development Standards

Property development standards are designed to preserve and protect the character and integrity of agricultural lands, and minimize potential conflicts between agricultural operations and adjoining property owners. A variance subject to WCLUDO Chapter 6, or Chapter 7 may be utilized to alleviate an exceptional or extraordinary circumstances that would otherwise preclude the parcel from being utilized. A variance to these standards is not to be used to achieve a preferential siting that could otherwise be achieved by adherence to these prescribed standards.

<u>Response:</u> With the exception of any improvements to existing roads under Section 3.210(B)(7), the entire Facility is subject to the property development standards under this Section.

1. Setbacks
a. Property Line

(1) All dwellings (farm and non farm) and accessory structures not in conjunction with farm use, shall comply with the following property line setback requirements:

(a) If adjacent land is being used for perennial or annual crops, the setback shall be a minimum of 200 feet from the property line.
(b) If adjacent land is being used for grazing, is zoned Exclusive Farm Use and has never been cultivated or is zoned F-1 or F-2, the setback shall be a minimum of 100 feet from the property line.
(c) If the adjacent land is not in agricultural production and not designated Exclusive Farm Use, F-1 or F-2, the setback shall be a minimum 25 Feet from the property line.
(d) If any of the setbacks listed above conflict with the Sensitive Wildlife Habitat Overlay the following shall apply and no variance shall be required:

(i) The structure shall be set back a minimum of 25 feet from the road right of way or easement;
(ii) The structure shall be located within 300 feet of the road right of way or easement pursuant Section 3.920(F)(2), Siting Standards; and
(iii) As part of the application the applicant shall document how they are siting the structure(s) to minimize impacts to adjacent agricultural uses to the greatest extent practicable.

<u>Response:</u> All turbines and other above ground elements of the proposed Facility, with the exception of some transmission lines and poles, will be located at least 200 feet from property lines, which is sufficient to comply with setback requirements. Because the transmission lines and poles are part of a linear facility that crosses several individual properties to connect with the BPA transmission line, these components of the Facility must be located within 200 feet of the property lines. As explained in the response to WCLUDO Section 19.050(B), below, the Sensitive Wildlife Habitat Overlay District is not located within the Site Boundary.

(2) Farm structures shall be set back a minimum of 25 feet from the property line.

(3) Additions, modifications or relocation of existing structures shall comply with all EFU setback standards.

Response: The Facility does not include construction of any farm dwellings, nor any additions or modifications to existing structures.

b. Waterways:

(1) Resource Buffers: All bottoms of foundations of permanent structures, or similar permanent fixtures shall be setback from the high water line or mark, along all streams, lakes, rivers, or wetlands.

(a) A minimum distance of one hundred (100) feet when measured horizontally at a right angle for all waterbodies designated as fish bearing by any federal, state or local inventory.

(b) A minimum distance of fifty (50) feet when measured horizontally at a right angle for all waterbodies designated as non fish bearing by any federal, state or local inventory.

(c) A minimum distance of twenty five (25) feet when measured horizontally at a right angle for all waterbodies (seasonal or permanent) not identified on any federal, state or local inventory.

(d) If the proposal does not meet these standards it shall be subject to Section (a)(3), Additions or Modifications to Existing Structures, above.

(e) The following uses are not required to meet the waterway setbacks, however they must be sited, designed and constructed to minimize intrusion into the riparian area to the greatest extent possible:

(i) Fences;

(ii) Streets, roads, and paths;

(iii) Drainage facilities, utilities, and irrigation pumps;

(iv) Water-related and water-dependent uses such as docks and bridges;

(v) Forest practices regulated by the Oregon Forest Practices Act;

(vi) Agricultural activities and farming practices, not including the construction of buildings, structures or impervious surfaces; and

(vii) Replacement of existing structures with structures in the same location that do not disturb additional riparian surface area.

Response: No foundations of permanent structures will be located within 100 feet of waterways. The 230 kV transmission feeder line is a utility, and therefore exempt from this standard pursuant to WCLUDO Section 3.210(F)(1)(b)(1)(e)(iii).

(2) Floodplain: Any development including but not limited to buildings, structures or excavation, proposed within a FEMA designated flood zone shall be subject to Section 3.740, Flood Hazard Overlay and Chapter 22, Flood Damage Prevention.

Response: No development will be located within the 100-year floodplain.

c. Irrigation Ditches:

(1) All dwellings and structures shall be located outside of the easement of any irrigation or water district. In the absence of an easement, all dwellings and structures shall be located a minimum of 50 feet from the centerline of irrigation ditches and pipelines which continue past the subject parcel to provide water to other property owners. Substandard setbacks must receive prior approval from the affected irrigation district. These setbacks do not apply to fences and signs.

Response: No structures will be located within 50 feet of the centerline of an irrigation ditch or pipeline which continues past the subject parcel to provide water to other property owners.

2. Height: Except for those uses allowed by Section 4.070, General Exception to Building Height Requirements, no building or structure shall exceed a height of 35 feet. Height is measured from average grade.

Response: The only building anticipated to be constructed is the O&M building (see Exhibit B.8.6), which will be a single-story structure and will not exceed 35 feet in height. The other structural components of the Facility are exempt from the height standards as described in WCLUDO Section 4.070, which provides that "energy facilities and commercial energy facilities…may be erected above the height limits of the zone in which they are located provided no usable floor space is provided in such structures above the required height limits." Because no usable floor space is provided in any structure except the O&M building, height requirements do not apply to any component of the Facility except the O&M building.

4. Signs:

a. Permanent signs shall not project beyond the property line.

Response: The only signs included in the Facility are those required for safety, per 19.030(7). The proposed signs will not project beyond the property line.

b. Signs shall not be illuminated or capable of movement.

Response: The proposed signs will not be illuminated or capable of movement.

c. Permanent signs shall describe only uses permitted and conducted on the property on which the sign is located.

Response: The only signs included in the Facility are those required for safety, per 19.030(7) and will be related only to the Facility.

d. Size and Height of Permanent Signs:

(1) Freestanding signs shall be limited to twelve square feet in area and 8 feet in height measured from natural grade.
(2) Signs on buildings are permitted in a ratio of one square foot of sign area to each linear foot of building frontage but in no event shall exceed 32 square feet and shall not project above the building.

Response: The safety signs required per 19.030(7) will either be: (1) free standing and less than 12 square feet in area and 8 feet in height; or (2) located on a building, less than 32 square feet in area, and will not project above the building.

e. Number of permanent signs:

(1) Freestanding signs shall be limited to one at the entrance of the property. Up to one additional sign may be placed in each direction of vehicular traffic running parallel to the property if they are more than 750 feet from the entrance of the property.
(2) Signs on buildings shall be limited to one per building and only allowed on buildings conducting the use being advertised.

Response: The only signs at the Facility will be the safety signs required by 19.030(7).

f. Temporary signs such as signs advertising the sale or rental of the premise are permitted provided the sign is erected no closer than ten feet from the public road right-of-way.

Response: The Facility does not include any temporary signs other than construction safety warnings, and those will be installed only at construction locations.

5. Lighting: Outdoor lighting shall be sited, limited in intensity, shielded and hooded in a manner that prevents the lighting from projecting onto adjacent properties, roadways and waterways. Shielding and hooding materials shall be composed of nonreflective, opaque materials.

Response: The O&M facility building and parking area will have outside lighting directed downward to limit nighttime glare. Turbines and other Facility components are generally not illuminated unless required by the FAA. Some turbines and meteorological towers will have flashing red beacons to reduce the potential hazards to airplanes.

6. New Driveways: All new driveways and increases or changes of use for existing driveways which access a public road shall obtain a Road Approach Permit from the appropriate jurisdiction, either the Wasco County Public Works Department or the Oregon Dept. of Transportation.

Response: The Applicant does not propose any new driveways or access points to public rights-of-way within Wasco County. Access to the Facility will be provided through existing access points or from private roads within the Facility site boundary.

H. Agricultural Protection: The uses listed in Section D, Uses Allowed Subject to Standards and E, Conditional Uses must meet the following standards:

1. Farm-Forest Management Easement: The landowner is required to sign and record in the deed records for the county a document binding the landowner, and the landowner's successors in interest, prohibiting them from pursuing a claim for relief or case of action alleging injury from farming or forest practices for which no action or claim is allowed under ORS 30.936 or 30.937.

2. Protection for Generally Accepted Farming and Forestry Practices – Complaint and Mediation Process: The landowner will receive a copy of this document.

Response: The Applicant will comply with 3.210(H)(1) and 3.210(H)(2) as required.

J. Additional Standards

8. Utility Facility:

Response: Section 3.210(J)(8) implements ORS 215.275, which establishes the criteria for determining whether a utility facility located on EFU lands is necessary for public service. Only the 230 kV transmission feeder line connecting the Facility to the BPA Big Eddy to Maupin-Redmond transmission line is a "utility facility". The remainder of the Facility and its related facilities are a "Wind Power Generation Facility," which is a type of "commercial utility facility," and allowed pursuant to ORS 215.283(2)(g), WCLUDO Section 3.210(E)(8) and Section 3.210(J)17). As described below, the 230 kV transmission feeder line meets the applicable criteria for locating the line in the EFU/A-1 zone.

a. *A utility facility is necessary for public service if the facility must be sited in an exclusive farm use zone in order to provide the service. To demonstrate that a utility facility is necessary, an applicant must show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:*

   (1) Technical and engineering feasibility;
   (2) The proposed facility is locationally dependent. A utility facility is locationally dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;
   (3) Lack of available urban and nonresource lands;
   (4) Availability of existing rights of way;
   (5) Public health and safety; and
   (6) Other requirements of state and federal agencies.

Response: The 230 kV transmission feeder line must be located on EFU land, because the majority of land outside of urban growth boundaries in Wasco County is zoned Exclusive Farm Use (A-1), as shown on Figure K-1. There is no alternative location that is of sufficient size and that is compatible with the Facility within Wasco County that is not zoned for exclusive farm uses. Because the principal components (turbines) and related and supporting facilities (roads, O&M building, and substation) are located on EFU (A-1) zoned land, the 230 kV transmission feeder line must also be located in the vicinity of the turbine strings and BPA interconnection point to transfer energy to the BPA grid. It is not feasible or technically possible to interconnect to the BPA transmission grid without the 230 kV transmission feeder line and, for these reasons, the proposed substations and 230 kV transmission feeder line are locationally dependent. This is also the only technically feasible option, because the transmission line must be located in proximity to the proposed wind turbines (where the power would be generated), meeting factors (1) and (2). Factor (3) focuses on whether there is a lack of available urban or nonresource lands to site the transmission line, but as described above, the entire area is zoned for exclusive farm uses and there are no urban or nonresource lands available in which to locate any of the Facility components where they could serve the Facility. Factor (4) is not applicable to the Facility because there is no public right-of-way located in the vicinity of the Facility.

As described in Exhibit B.11, the Facility is designed to minimize exposure to electromagnetic fields (EMF) from the transmission line by locating it away from populated areas, meeting factor (5). Finally, as described throughout this Application for Site Certificate, the Facility is able to meet applicable state and federal requirements, or has identified mitigation measures to address Facility-related impacts, meeting factor (6).

b. Costs associated with any of the factors listed in a. may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities and the siting of utility facilities that are not substantially similar.

Response: Land costs were not a significant consideration in determining the location of the 230 kV transmission feeder line. As described in response to ORS 215.275(2), the majority of Wasco County in the vicinity of the Facility is zoned A-1 (EFU) and no alternative location exists, regardless of cost, to locate the 230 kV transmission feeder line nor any other Facility component in the area and avoid impacts to EFU land. The Applicant has designed the 230 kV transmission feeder line to minimize, to the greatest degree practicable, impacts to EFU land.

c. The owner of a utility facility approved under this section shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this subsection shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.

Response: This section requires that the owner of a utility facility to be responsible for restoring agricultural land and associated improvements to their former condition if they are damaged or disturbed by the siting, maintenance, repair, or reconstruction of the facility. When construction is completed, lands temporarily affected by construction would be returned to their original condition. Exhibit W also identifies specific procedures that will be undertaken for when the Facility is retired to restore land affected by operation of the Facility.

d. The governing body of the County or its designee shall impose clear and objective conditions on an application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on surrounding farm lands.

Response: Construction of the 230 kV transmission feeder line will not have a substantial impact on EFU land. Permanent impacts to EFU (A-1) are approximately 82 acres for the entire Facility. The 230 kV transmission feeder line will have an even smaller permanent impact. As explained below in the response to WCLUDO Sections 5.020(J) and (K), locating the Facility, including the 230 kV transmission feeder line, on agricultural land would not cause a significant change in accepted farm practices or significantly increase the cost of those practices.

In addition, landowners and farm operators will be compensated for the loss of land for agricultural production. Landowners and farm operators surveyed for the Facility did not identify any significant impacts related to the Facility. Some landowners did state that the location of facilities may slightly alter how they farm; however, they did not identify significant changes in farming practices (see Attachments K-1, K-2 and K-4).

e. In addition to a. through d. of this section, the establishment or extension of a sewer system as defined by OAR 660-011-0060(1)(f) in an exclusive farm use zone shall be subject to the provisions of OAR 660-011-0060.

Response: No sewer system will be established in connection with the Facility.

f. The provisions of a. through d. do not apply to interstate natural gas pipelines and associated facilities authorized by an subject to regulation by the Federal Energy Regulatory Commission.

Response: No interstate natural gas pipelines and associated facilities authorized by and subject to regulation by the Federal Energy Regulatory Commission are proposed.

17. Wind Power Generation Facility: For purposes of this section a wind power generation facility includes, but is not limited to, the following system components: all wind turbine towers and concrete pads, permanent meteorological towers and wind measurement devices, electrical cable collection systems connecting wind turbine towers with the relevant power substation, new or expanded private roads (whether temporary or permanent) constructed to serve the wind power generation facility, office and operation and maintenance buildings, temporary lay-down areas and all other necessary appurtenances.

Response: The criteria in WCLUDO Section 3.210(J)(17) implement LCDC's January 2009 amendments to the Oregon Administrative rules to allow "wind power generation facilities" located on agricultural lands subject to the standards in OAR 660-033-0130(37) without taking an exception to statewide planning goals. With the exception of the 230 kV transmission feeder line, the energy facility and its related and supporting facilities are part of the "wind power generation facility" for purposes of OAR 660-033-0130(37) and WCLUDO Section 3.210(J)(17).

a. *For high-value farmland soils described in ORS 195.300(10), it must be found that all of the following are satisfied:*

Response: ORS 195.300(10) defines "high-value farmland" as follows:

(10) "High-value farmland" means:

(a) High-value farmland as described in ORS 215.710 that is land in an exclusive farm use zone or a mixed farm and forest zone, except that the dates specified in ORS 215.710 (2), (4) and (6) are December 6, 2007.

(b) Land west of U.S. Highway 101 that is composed predominantly of the following soils in Class III or IV or composed predominantly of a combination of the soils described in ORS 215.710 (1) and the following soils:

(A) Subclassification IIIw, specifically Ettersburg Silt Loam and Croftland Silty Clay Loam;

(B) Subclassification IIIe, specifically Klooqueth Silty Clay Loam and Winchuck Silt Loam; and

(C) Subclassification IVw, specifically Huffling Silty Clay Loam.

(c) Land that is in an exclusive farm use zone or a mixed farm and forest zone and that on June 28, 2007, is:

(A) Within the place of use for a permit, certificate or decree for the use of water for irrigation issued by the Water Resources Department;

(B) Within the boundaries of a district, as defined in ORS 540.505; or

(C) Within the boundaries of a diking district formed under ORS chapter 551.

(d) Land that contains not less than five acres planted in wine grapes.

(e) Land that is in an exclusive farm use zone and that is at an elevation between 200 and 1,000 feet above mean sea level, with an aspect between 67.5 and 292.5 degrees and a slope between zero and 15 percent, and that is located within:

(A) The Southern Oregon viticultural area as described in 27 C.F.R. 9.179;

(B) The Umpqua Valley viticultural area as described in 27 C.F.R. 9.89; or

(C) The Willamette Valley viticultural area as described in 27 C.F.R. 9.90.

(f) Land that is in an exclusive farm use zone and that is no more than 3,000 feet above mean sea level, with an aspect between 67.5 and 292.5 degrees and a slope between zero and 15 percent, and that is located within:

(A) The portion of the Columbia Gorge viticultural area as described in 27 C.F.R. 9.178 that is within the State of Oregon;

(B) The Rogue Valley viticultural area as described in 27 C.F.R. 9.132;

(C) The portion of the Columbia Valley viticultural area as described in 27 C.F.R. 9.74 that is within the State of Oregon;

(D) The portion of the Walla Walla Valley viticultural area as described in 27 C.F.R. 9.91 that is within the State of Oregon; or

(E) The portion of the Snake River Valley viticultural area as described in 27 C.F.R. 9.208 that is within the State of Oregon.

As discussed in Exhibit I, the Facility site contains soils that meet the definition of "high-value farmland" in ORS 215.710, and therefore qualify as "high-value farmland" under ORS 197.300(10)(a). Specifically, the wind power generation facility (the energy facility and its related or supporting facilities, except the 230 kV transmission line) will impact one soil type—12B, Cantala silt loam, 1 to 7 percent slopes—that is "high-value farmland" under ORS 215.710(b) because it is "not irrigated and classified prime, unique, Class I or Class II."[4]

[4] There is a small area of Hermiston silt loam, which also qualifies as high-value farmland under ORS 215.710, at the far western end of the proposed corridor for the 230 kV transmission line. That transmission line, however, is not

The Facility site does not include soils that qualify as high-value farmland under ORS 195.300(10)(b)-(f).

The location of the high-value farmland soil relative to the proposed corridors for the wind power generation facility is shown on Figure I-1. 12B soils comprise a relatively small portion of the corridors and are interspersed with numerous other soil types that are not high-value farmland.

(1) Reasonable alternatives have been considered to show that siting the wind power generation facility or component thereof on high-value farmland soils is necessary for the facility or component to function properly or if a road system or turbine string must be placed on such soils to achieve a reasonably direct route considering the following factors:

(a) Technical and engineering feasibility;

(b) Availability of existing rights of way; and

(c) The long term environmental, economic, social and energy consequences of siting the facility or component on alternative sites, as determined under paragraph (2) of this subsection.

Response: As discussed in Exhibit I and in Section H.2.3 of Exhibit H, and as shown on Figure I-1, surficial soils that underlie the proposed Facility include primarily the Cantala silt loam and Condon silt loam. The high-value farmland soil—12B, Cantala silt loam, 1 to 7 percent slopes—is located primarily along or near the tops of ridges, and is interspersed with other soil types that are not high-value farmland soils. Indeed, the Cantala silt loam, when present on slopes steeper than 7 percent, does not qualify as high-value farmland. The Cantala silt loam and Condon silt loam soils are formed in the loess that caps the plateau. The steeper canyon walls are underlain primarily by the Lickskillet extremely stony loam and Wrentham-Rock outcrop complex. The stony loam soils typically form on slopes and in areas of shallow basalt rock.

The turbine corridors, which will also include connecting roads and the electric collector system, follow the topography of the site. More specifically, the Applicant has located the turbine corridors to optimize the capture of the wind energy resource, which requires placing the corridors along or near the tops of ridges and plateaus. That is also the location of the silt loam soils. The specific location of turbines and turbine pads within those corridors will be determined in the micrositing process, which takes into account numerous factors including the wind resource, potential for interference between turbines, topography, and geologic issues that may affect the ability to construct improvements. As shown on Figure I-1, while substantial areas of the Applicant's proposed corridors are free of high-value farmland soil, in several areas there is no practical way to avoid impacts to the "12B – Cantala silt loam" soil because it covers much if not all of the area along the top of the ridge.

within the definition of "wind power generation facility" under OAR 660-033-0130(37) and WCLUDO Section 3.210(J)(17).

(2) The long-term environmental, economic, social and energy consequences resulting from the wind power generation facility or any components thereof at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located on other agricultural lands that do not include high-value farmland soils.

Response: Although the Applicant is evaluating 1,300-foot corridors, the long-term impacts to high-value farmland soils will be limited to the area immediately surrounding the turbine pads and to the 20-foot graveled surface of new roads. These areas will be unavailable for cultivation during the operating life of the Facility.

Agricultural uses in the area consist of dry land wheat farming and grazing. As discussed above, the high-value farmland soils are interspersed with non-high-value soils, primarily Cantala silt loam and Condon silt loam. There is no distinction in agriculture practices between the high-value farmland soils and the other soils: moving wind farm improvements from high-value soils to other soils, even if feasible, will remove land from cultivation for the same crop.

Creating a corridor alignment that allows for the installation of turbines, roads, and collector lines with fewer or no impacts to high-value farmland soil likely would result in greater adverse environmental, economic, social, and energy consequences over the long term than would use of the proposed corridor alignment. As shown on Figure I-1, in several areas the "12B" high-value farmland soil covers most or all of an area of a ridge. That soil by definition is on the areas that are relatively flat. Avoiding or minimizing impact to those soils could be accomplished by attempting to divert the corridors and wind farm improvements away from the ridge top or by making corridors discontinuous where the high-value farmland is located. The canyon walls in the area, however, are characterized by steeper slopes and rockier or more erosive soils. Routing improvements along the sides of the canyons will likely be less direct (resulting in more miles of roads and collectors), will reduce the number of optimal wind turbine locations available (reducing energy output of the Facility and possibly impacting payments to landowners), and will complicate efforts to prevent erosion.

Making corridors discontinuous may not be technically or economically feasible. For example, as shown on Sheets 3 and 4 of Figure I-1, a swath of high-value farmland soil spans a plateau near the center of the Facility area, where several corridors converge. Avoiding those soils would reduce the number of potential turbine locations (lowering energy output from the Facility and reducing payments to landowners). Moreover, permanent access roads will in any event be necessary for maintenance of the wind turbines. If roads cannot be connected through areas of high-value farmland soil, it may be necessary to develop roads that are less direct and/or located on steeper slopes.

(3) Costs associated with any of the factors listed in paragraph (1) of this subsection may be considered, but costs alone may not be the only consideration in determining that siting any component of a wind power generation facility on high-value farmland soils is necessary.

Response: Costs of developing a wind power generation facility without impacting high-value farmland soils would undoubtedly be higher for the reasons set forth in our response to WCLUDO Section 3.210(J)(17)(a)(2): avoidance of high-value farmland soils would either involve more development on steeper slopes, which is likely to be more expensive if it is technically feasible at all. Costs alone, however, are not the only consideration or even the primary consideration. Rather, optimal use of the renewable energy resource—wind—requires placing turbines and associated access roads and collector lines along the ridges and plateaus, which is where the high-value farmland soil is located.

(4) The owner of a wind power generation facility approved under Section (a) above shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this subsection shall prevent the owner of the facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.

Response: The Applicant will be responsible for restoring agricultural land to its prior condition; the Applicant is not aware of any existing improvements that will be damaged or disturbed by siting, maintenance, repair, or reconstruction of the Facility. Pursuant to Council rules, the Applicant will be required to provide financial assurance in the form of a bond or letter of credit in an amount sufficient to restore the property to a useful, nonhazardous condition, and will be required pursuant to OAR 345-027-0020(9) to retire the Facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110. The Applicant will be required to pay for the entire cost of retirement, regardless of the amount of financial assurance. The retirement plan is approved only after Council review with the opportunity for public comment. Therefore, the current Council rules and mandatory site certificate condition ensure that this standard is met.

(5) The criteria in Section (b), below are satisfied.

Response: The criteria of WCLUDO Section 3.210(J)(17)(b) are satisfied, as discussed below.

b. For arable lands, meaning lands that are cultivated or suitable for cultivation, including high-value farmland soils described at ORS 195.300(10), it must be found that:

Response: The Facility site includes lands that are cultivated or suitable for cultivation. Specifically, the dominant use of the Facility site is dry land wheat farming.

(1) The proposed wind power facility will not create unnecessary negative impacts on agricultural operations conducted on the subject property. Negative impacts could include, but are not limited to, the unnecessary construction of roads, dividing a field or multiple fields in such a way that creates small or isolated pieces of property that are more difficult to farm, and placing wind farm components such as meteorological towers on lands in a manner that could disrupt common and accepted farming practices; and

Response: Roads will be constructed only as necessary to provide access to and along the turbine corridors. Existing roads will be used where feasible. The Applicant will not develop separate "crane paths" for use during Facility construction. Rather, the access road system will be used, with 10-foot shoulders temporarily provided on either side of the 20-foot graveled access roads during construction of the Facility.

Because cultivation in the area is for dry land wheat farming, the Applicant will avoid constructing improvements that would impede passage of large farm equipment used in cultivation and harvesting. Collector lines will be placed underground except where site-specific conditions require that they be above ground. Any above ground collector lines placed through or around cultivated fields or farm roads would have sufficient ground clearance to avoid blocking or interfering with farm equipment.

(2) The presence of a proposed wind power facility will not result in unnecessary soil erosion or loss that could limit agricultural productivity on the subject property. This provision may be satisfied by the submittal and county approval of a soil and erosion control plan prepared by an adequately qualified individual, showing how unnecessary soil erosion will be avoided or remedied and how topsoil will be stripped, stockpiled and clearly marked. The approved plan shall be attached to the decision as a condition of approval; and

<u>Response:</u> Construction of all features of the Facility will be conducted in compliance with a NPDES 1200-C permit and Erosion and Sediment Control Plan (ESCP), provided in Attachment I-1 of Exhibit I. Therefore, a separate "soil and erosion control plan" is not necessary.

(3) Construction or maintenance activities will not result in unnecessary soil compaction that reduces the productivity of soil for crop production. This provision may be satisfied by the submittal and county approval of a plan prepared by an adequately qualified individual, showing how unnecessary soil compaction will be avoided or remedied in a timely manner through deep soil decompaction or other appropriate practices. The approved plan shall be attached to the decision as a condition of approval; and

<u>Response:</u> Construction access will utilize existing and new roads. The Applicant will not install separate crane paths. The Applicant's proposed measures for addressing impacts to soil during construction are set forth in Section I.4 ("Identification and Assessment of Impacts to Soils") and I.5 ("Description of Proposed Mitigation Measures") of Exhibit I, and will adequately address any potential for soil compaction that could reduce the productivity of soil for crop production.

Retirement of the Facility is addressed in Exhibit W. During retirement, turbines will be removed, any roads not wanted by the landowner will be removed, and turbine pads will be removed to a depth of three feet. Soils will be restored to farmable condition in areas that will be under cultivation. This may require importation of topsoil, because it is not practical to stockpile topsoil for the duration of the Facility's operation. The specifics of soil restoration during the retirement of the Facility will be addressed in the final retirement plan, which would be reviewed and approved by the Council, with opportunity for public comment, pursuant to OAR 345-027-0110.

(4) Construction or maintenance activities will not result in the unabated introduction or spread of noxious weeds and other undesirable weeds species. This provision may be satisfied by the submittal and county approval of a weed control plan prepared by an adequately qualified individual that

includes a long-term maintenance agreement. The approved plan shall be attached to the decision as a condition of approval.

Response: During construction and operation of the Facility, the Applicant will implement a plan to control the introduction and spread of noxious weeds. The Applicant has developed weed control plan in consultation with the Wasco County Weed Department, which has responsibility for managing the invasion and spread of noxious weeds throughout the County (see Exhibit I).

c. For nonarable lands, meaning lands that are not suitable for cultivation, it must be found that the requirements of Subsection (b)(4) above are satisfied.

Response: The Facility site includes both arable and nonarable lands. Therefore, pursuant to WCLUDO Section 3.210(J)(17)(d), all of the approval criteria of WCLUDO Section 3.210(J)(17)(b) apply to the entire wind power generation facility.

d. In the event that a wind power generation facility is proposed on a combination of arable and nonarable lands as described in Sections (b) and (c) above, the approval criteria of Section (b) shall apply to the entire Facility.

Response: The Facility site includes both arable and nonarable lands. Therefore, all of the approval criteria of WCLUDO Section 3.210(J)(17)(b) apply to the entire wind power generation facility.

Chapter 4 – Supplemental Provisions

Section 4.070 General Exceptions to Building Height Requirements

Necessary roof structures housing elevators, stairways, tanks, fans and ventilators and towers, steeples, flagpoles, smokestacks, silos, grain elevators, energy facilities and commercial energy facilities, water tanks and skylights and fire or parapet walls may be erected above the height limits of the zone in which they are located provided no usable floor space is provided in such structures above the required height limits. Transmission towers over 200 feet in height require a Conditional Use Permit.

Response: The only building anticipated to be constructed is the O&M building (see Exhibit B.8.6), which will be a single-story structure and will not exceed 35 feet in height. The other structural components of the Facility are exempt from the height standards because no usable floor space is provided in any structure except the O&M building; therefore, height requirements do not apply. Transmission towers will be approximately 70 feet high, well below the 200-foot height identified as requiring a conditional use permit.

Chapter 5 – Conditional Use Review

SECTION 5.020 Authorization to Grant or Deny Conditional Uses, and Standards and Criteria Used

Conditional uses listed in this Ordinance shall be permitted, enlarged or otherwise altered or denied upon authorization by Administrative Action in accordance with the procedures set forth in Chapter 2 of this Ordinance. In judging whether or not a conditional use proposal shall be approved or denied, the Administrative Authority shall weigh the proposal's appropriateness and desirability or the public convenience or necessity to be served against any adverse conditions that would result from authorizing the particular development at the location proposed, and to approve such use, shall find that the following criteria are either met, can be met by observance of conditions, or are not applicable.

<u>Response:</u> Except for the 230 kV transmission feeder line (permitted subject to standards) and improvements to existing public roads (permitted without review), all components of the Facility are subject to the conditional use criteria in Chapter 5.

A. The proposal is consistent with the goals and objectives of the Comprehensive Plan and implementing Ordinances of the County.

<u>Response:</u> Section K.6 addresses all applicable WCCP policies related to the Facility. The Facility is consistent with the WCCP goals and policies, particularly Goal 9-Economy of the State and Goal 13-Energy Conservation because the Facility provides for a more diversified income stream for area farmers and the County and also reduces the need for fossil fuels to generate electricity.

B. Taking into account location, size, design and operational characteristics of the proposed use, the proposal is compatible with the surrounding area and development of abutting properties by outright permitted uses.

<u>Response:</u> The Facility will have no impact to existing agricultural operations abutting it and will have only a minimal impact to existing agricultural operations affected by the Facility, requiring approximately 82 acres of land to be permanently removed from farm use, totaling about 1.3 percent of the total site boundary, a very small amount of agricultural land.

The Facility and private access roads will not materially alter the stability of the existing land use pattern that prevails over this area and much of the County. Local farmers will be able to maneuver around the turbine strings and transmission towers and across the gravel access roads, although minor changes in sowing and harvesting patterns in the immediate vicinity of the strings will be necessary. Since the farming in the area is dry land farming, no irrigation patterns will be affected. Any financial impacts on the affected farmers resulting from removal of lands from farm production will be offset by the lease payments they will receive for use of their land to site the Facility, as demonstrated in the technical memorandum supporting this exhibit (Attachment K-1) and elsewhere in the site certificate application.

The Facility lease area is sparsely populated and there are few residences. The most likely impact to residents will be visual (see Exhibit R) (the Facility components will be visible to varying degrees near the Facility), and also from noise. A noise analysis was completed for the Facility and is described in Exhibit X. This noise analysis concluded that applicable Department of Environmental Quality (DEQ) noise regulations will be met for construction and operation of the Facility, with all receptors complying with the 50 dBA noise limit. When the precise turbine layout has been selected and before construction of the Facility, the Applicant will submit for DEQ administrative review (pursuant to Council-approved methodology) an acoustical analysis of the Facility performed with the same methodology as the analysis conducted for Exhibit X. The Applicant will also submit evidence that it has secured the noise easements as necessary for any sensitive receptors.

No forest operations occur in the vicinity of the Facility. Given the limited impacts and the landowners' ability to maintain farming operations in and around the turbines and other Facility components with minimal loss of farmland, the Facility is compatible with existing land use in the vicinity of the Facility.

C. The proposed use will not exceed or significantly burden public facilities and services available to the area, including, but not limited to: roads, fire and police protection, sewer and water facilities, telephone and electrical service, or solid waste disposal facilities.

<u>Response:</u> The Facility will not have an adverse impact on public facilities in Wasco County, and in some cases will actually provide a benefit for its users.

Exhibit U identifies the public services and utility providers within a 30-mile radius of the Facility. Service providers were contacted to identify the existing condition of their facilities and/or services, identify any needs to maintain operations, and assess whether the Facility would have any significant adverse impact on their ability to provide those services. No service providers identified any concerns with the Facility, except for the City of Dufur Fire and Ambulance Service, which would be the first responder in the event of an emergency. They stated that they do not have the training or equipment for rope rescue operations. The Applicant proposes several measures, identified in Exhibit U, to address this need and reduce the potential for fires related to the Facility.

During construction, highways, County roads, and private access roads will be used to access the site. The Facility will use several public roads during the Facility's construction and operation and, where necessary, will improve the roadbed of public roads to accommodate construction equipment, a benefit to Wasco County because the Facility will bear the cost of these improvements and when the improvements are completed, they will be available for public use. An improved road system will also provide better access for emergency vehicles in the event an accident occurs.

Construction traffic will use US 197 to connect to local Wasco County roads to access private land where the construction staging areas and turbine strings will be located. County-designated rural collectors such as Emerson Loop Road and Boyd Loop Market Road could potentially be used for access into northern and southern portions, respectively, of the site area. Local roads are generally gravel rural roadways with little traffic other than local agricultural and residential traffic. Portions of local roads that may be used include: Fifteen Mile Road, Roberts Market Road, Summit Ridge Market Road, Center Ridge Market Road, Old Tygh Market Road, Wrentham Market Road, and Long Hollow Market Road.

The Facility will also require construction of approximately 19 miles of new access roads and renovation or improvement of approximately six miles of existing public roads. Planned new roads, road improvements, and access improvements are shown in Exhibit C.

Existing unpaved roads within the boundaries of the Facility will be utilized to the extent practicable to reduce the need for new road construction. Where needed, the existing roads will be improved to the following general configuration: site access roads that will be used for construction equipment, including erector cranes, will be designed to a total width of 40 feet, consisting of a 20-foot wide graveled surface and two 10-foot compacted shoulders. Erosion control and drainage best management practices will be included in the design of all roads. After the completion of construction, the road shoulders, which are needed during construction to accommodate the cranes, will be removed and restored to pre-existing conditions. The 20-foot width of the graveled surface will generally be left to facilitate operation of the Facility and for the convenience of the landowner. All areas temporarily disturbed during road construction will be restored to their existing condition and contours. There will be no separate crane paths constructed to allow the construction crane access from string to string.

In areas where there are no existing roads to access wind turbine strings or proposed facilities, new access roads will be constructed to the dimensions described above. Permanent turnaround areas will be situated at or near the end of each turbine string.

Construction-related traffic may cause some short-term delays when deliveries of large components occur. Delays will be temporary in nature and, given that the existing traffic on most roads in the Facility vicinity is very sparse and generally limited to area residences and farmers, impacts related to construction will be minimal. During operation, the Facility will employ fewer than 25 people and will contribute very little traffic to the local road system.

D. The proposed use will not unduly impair traffic flow or safety in the area.

Response: As described in response to criterion (C) above, construction-related traffic may cause some short-term delays when components of the Facility, such as turbine nacelles and towers, meteorological towers, and substation components, are delivered to the staging areas. These delays will be temporary and will not have any permanent adverse impact on traffic flow or safety. On the contrary, with the proposed road improvements, travel along County roads may be safer after the Facility-related improvements are completed.

The Facility will not have any significant permanent impact on traffic flow or safety because it will employ only a limited number of people, not all of whom will travel of the Facility at the same time. The additional road improvements will also improve safety by improving the road beds of several roads in the area used by the Facility.

E. The effects of noise, dust and odor will be minimized during all phases of development and operation for the protection of adjoining properties.

Response: Exhibit X includes the results of a noise analysis for the Facility. This noise analysis concluded that applicable DEQ noise regulations will be met for construction and operation of the Facility, with all receptors complying with the 50 dBA noise limit. When the precise turbine layout has been selected and before construction of the Facility, the Applicant will submit (pursuant to Council-approved methodology) an acoustical analysis of the Facility performed with the same methodology as the analysis conducted for Exhibit X. The Applicant will also submit evidence that it has secured the noise easements necessary for any sensitive receptors.

As identified in Exhibit I, The Applicant will obtain an National Pollution Discharge Elimination System (NPDES) Construction Stormwater Permit (1200-C), which requires the development and implementation of an erosion control plan and the use of best management practices to minimize the potential for erosion, including windblown erosion. Best management practices will include using hay bales or other similar forms of containment, watering to prevent windblown erosion in disturbed areas, and revegetation. Further, to minimize soil exposure during installation of collector lines, the Facility will attempt to open only as much trench in one day as can be excavated and backfilled, and in no case will a trench remain open more than seven days, as allowed by the 1200-C. Staging areas will need to be stripped and the soil stockpiled before gravel is placed on the laydown areas. The stockpiling will occur during the time of year when rainfall is the lowest, thus very little erosion is likely to result. The Applicant will apply best available practices to prevent weed infestation and erosion of the stockpiled soils, developed in consultation with the landowners and the local weed control authority.

The Facility will not generate any odors, other than from vehicles used for construction and operation of the Facility.

F. The proposed use will not significantly reduce or impair sensitive wildlife habitat, riparian vegetation along streambanks and will not subject areas to excessive soil erosion.

Response: The Facility will not have any significant impact on wildlife habitat or riparian vegetation, or nor will it increase the likelihood of soil erosion. Exhibits P and Q identify specific fish and wildlife resources, including state and federally listed species in the area, and any potential impacts to those resources. As discussed in those exhibits, the Facility is not expected to significantly affect any listed endangered or threatened species or adversely affect fish and wildlife species or habitat, and there is little or no habitat in the site area to support such species.

As part of Exhibit P, the Facility identified and categorized all fish and wildlife habitats within the habitat analysis area. There is not Category 1 habitat in the analysis area. The bulk of the habitat within the analysis area is Categories, 3, 4, and 6. The majority of permanent impacts would be to Category 6 –developed land, accounting for approximately over 50 percent of habitat that will be permanently affected. Temporary impacts will occur primarily on primarily Category 6 habitat, accounting for approximately 52 percent of the temporary impact to habitat areas. A monitoring plan will be developed in coordination with ODFW to evaluate actual Facility impacts.

As described in Exhibit J, six wetlands were identified during the field investigation. No impacts will occur to any wetland and jurisdictional water resources, because the Facility has been designed to avoid these features.

As identified in Exhibit I, the Applicant will obtain an NPDES Construction Stormwater Permit (1200-C) that will limit erosion by applying best management practices to reduce erosion potential.

G. The proposed use will not adversely affect the air, water, or land resource quality of the area.

Response: The Facility will have little impact to air, water, and land resources. The Facility will not create a new pollution source, and traffic associated with the Facility will be minimal. The Facility will not significantly increase the amount of exposed soils in the site area and will have little or no impact to air quality. Any soils exposed during construction will be revegetated to prevent soil erosion from wind and rain (see Exhibit P).

Temporary impacts to land within the site area will occur with the creation of the staging areas and excavation for underground collector lines. To minimize soil exposure during installation of the collector lines, the Facility will open only as much trench in a day as can be excavated and backfilled; in no case will a trench remain open for more than the seven days allowed by the general NPDES Construction Stormwater (1200-C) Permit issued by DEQ.

Establishing the proposed staging areas will involve stripping and temporarily stockpiling topsoil before placing gravel on the laydown areas. Because stockpiling will occur during the time of year when rainfall is lowest, very little erosion will result from precipitation. Construction of the Facility will be conducted pursuant to an NPDES General Construction Stormwater (1200-C) Permit issued by the DEQ. The NPDES permit will require the use of best management practices to minimize the potential for erosion.

Best management practices will include a variety of means to minimize the impacts of wind erosion. In actively farmed areas, the wheat crop will protect the stockpiles from wind erosion. In other areas, hay bales or other similar containment features will be used during construction of the Facility. As needed, water from water trucks will be sprayed on disturbed areas to keep wind-borne erosion losses to a minimum. After the need for the staging areas ends, the staging area locations will be brought back to their original contours, topsoil will be spread in these areas, and they will be revegetated or prepared for planting of wheat or barley, or for use as range land.

The O&M building will have an exempt on-site well producing less than 5,000 gallons per day. Wastewater generated on-site will be limited to the O&M building, which will be connected to a DEQ approved on-site septic system. The only wastewater generated during construction will be from washdown of concrete trucks after concrete loads have been emptied. Washdown will be done by the contractor and will occur either at a temporary batch plant located in a proposed staging area where washdown water will infiltrate into the ground, or at an off-site, a contractor-owned batch plant.

No industrial wastewater will be generated during operations. See further discussion in Exhibit V.

As described in Exhibit J, six wetlands were identified during the field investigation, two of which are isolated, with no connection to jurisdictional water features. The remaining four wetlands are associated with the drainage features of Dry Creek and Shotgun Hollow and are tributaries to the Columbia River. No impacts will occur to any wetland and jurisdictional water resources, because the Facility has been designed to avoid these features.

Impacts to land resources will be limited to the permanent impacts associated with construction of the Facility that will affect approximately 82 acres of EFU/A-1 land. As described throughout Exhibit K, the amount of land used for the Facility is a very small percent of land within the site boundary; landowners will be compensated through lease agreements for facilities on their properties; and project facilities will be located in a fashion that minimizes impacts to existing farming operations. Additionally, landowners and Natural Resource Conservation Service (NRCS) staff were contacted to identify any potential impact to existing land uses related to the Facility, and the results of these interviews are included as Attachments K-1 and K-2. Interviews did not identify any significant concerns or adverse impacts to interviewee's use of the land for their agricultural operations, except for NRCS staff, who did identify weeds as a potential concern. The Applicant proposes to coordinate with the Wasco County Weed Department to develop a weed management plan to minimize the spread of weeds related to construction of the Facility.

H. The location and design of the site and structures for the proposed use will not significantly detract from the visual character of the area.

Response: Exhibit R describes the potential impacts that may occur to the scenic and aesthetic resources in the vicinity of the Facility, while Exhibit T describes the potential impact to recreational opportunity areas. The WCCP also identifies the Columbia River Gorge National Scenic Area and the Deschutes River State Recreation Area as outstanding scenic and recreation areas, and I-84 as a scenic corridor. A visibility analysis was completed (see Exhibit R) to identify where the Facility components would be visible from these resources. The proposed Facility would not be visible from I-84. Portions of turbines may be marginally visible from the Columbia River Gorge Scenic Area in some locations, but access to these locations is very limited. Further, turbines from other wind facilities unrelated to this Facility and located in Washington are already clearly visible. Impacts associated with this Facility will not have a significant additional adverse impact on the existing character of the Columbia River Gorge in this area. Portions of turbines will be intermittently visible along the Deschutes River and associated hiking and multi-use trails, but will not dominate views. The Applicant has attempted to minimize any visual impacts to these scenic and recreational resources by reducing the number of proposed turbines from 167 to 87, including those most visible from the Deschutes River. With these mitigation measures, visual impacts are expected to be minimal.

I. The proposal will preserve areas of historic value, natural or cultural significance, including archaeological sites, or assets of particular interest to the community.

Response: Exhibit S describes existing cultural and historic resources in the analysis area and any potential impacts associated with construction of the Facility. There are no historic or cultural resources listed on the National Register of Historic Places (NRHP) within the analysis area. During the archaeological survey for this Facility, 12 prehistoric archaeological sites, 1 historic archaeological site, 22 isolated finds, and 3 historic buildings were documented. Ten of the prehistoric archaeological sites are significant and possibly eligible for listing on the NRHP. One historic building, the Center Ridge Schoolhouse, is possibly eligible for NRHP listing.

The Facility will avoid all of these sites (see Exhibit S, Section S.4). A 100-foot avoidance buffer will be placed around the lithic scatter sites, and a 200-foot avoidance buffer around all rock features. The design of the Facility will require slight relocation of wind turbines and modification to the access road layout. All of this will be accomplished within the 400-foot corridor that was surveyed. The buffer zones around each site will be flagged/barricaded to prevent disturbance during construction.

The Facility has been designed to avoid impacts to cultural resources. It is possible that unidentified properties may be exposed during construction, or known sites may be inadvertently affected despite precautions for avoidance, so in order to avoid such impacts a monitoring program is proposed.

J. The proposed use will not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to or available for farm and forest use. (Revised 1-92)

<u>Response:</u> The Facility is located in an area where the predominant land uses patterns are growing winter wheat and grazing. There are no forest operations in the vicinity of the Facility. Construction of the Facility will not substantially increase the cost of farming and grazing operations because the Facility components, such as the turbines and access roads, will be located in a fashion that limits, to the greatest degree practicable, changes in planting and harvesting patterns. There will be no impact to grazing operations because cattle will be able to roam freely abound the turbines located in the fields. Additionally, a farmer survey was completed (see Attachment K-1) that asked whether or not the Facility would have an impact on their operations. The majority of local farmers said they will be able to maneuver around the turbine strings and transmission towers and across the gravel access roads, although minor changes in sowing and harvesting patterns in the immediate vicinity of the strings will be necessary. Any financial impacts on the affected farmers resulting from removal of lands from farm production will be offset by the lease payments they will receive for use of their land.

No impact to surrounding lands outside of the Facility site boundary area will occur because no construction will occur on those sites.

K. The proposed use will not force a significant change in accepted farm or forest practices on surrounding lands devoted to or available for farm or forest use. (Revised 1-92)

<u>Response:</u> There are no forest operations in the Facility vicinity. Existing farm practices in the immediate vicinity of the Facility and on surrounding lands outside of the site boundary are primarily composed of dry land wheat farming and cattle grazing. Local farmers within

the lease area were contacted to identify specific uses on their properties. The majority of survey respondents stated that they grow winter wheat while some respondents have cattle grazing in areas where crops aren't suitable either because of steep terrain, soils are too rocky or on fields left fallow in a rotation cycle. All respondents had 200 head or less of cattle.

The Facility will permanently remove approximately 82 acres of land from farm use, primarily for turbine and new access road construction, while 98 acres of farmland will be affected temporarily. The amount removed from production is about 1.3 percent of the total site boundary area. Additionally, impacts to high-value farmland are also expected to be 13 acres, or 0.02 percent of high-value farmland within the site boundary area. The results of the Farmer Survey (see Attachment K-1) did not identify any significant compatibility or concerns that the Facility would change agricultural practices. The only issue raised was that some minor alterations to planting and harvesting patterns would likely be required, but that local farmers could accommodate those changes.

Construction of the Facility is compatible with existing farming and grazing operations and will not significantly alter accepted farming practices, as demonstrated in the technical memorandum supporting this exhibit (Attachment K-1) because, (1)while some minor changes in sowing and harvesting patterns in the immediate vicinity of the turbines strings will likely be necessary, local farmers will be able to maneuver around the turbine strings and transmission towers and across the gravel access roads; (2) gravel access roads will be available for the farmers to use to move equipment, which they identified as a critical component in how they manage their land; (3) very little land will be removed from production, accounting for 0.3 percent of the less area; (4) since farming in the area is dry land farming, no irrigation patterns will be affected; and (5) any financial impacts to the affected farmers resulting from removal of lands from farm production will be offset by the lease payments they will receive for use of their land to site the Facility.

SECTION 5.030 Conditions & SECTION 5.040 Revocation of Conditional Use Permit

Response: WCLUDO Sections 5.030 and 5.040 are administrative criteria that permit the Wasco County Planning Commission to revoke a Conditional Use Permit if the applicant has failed to meet the requirements associated with the approval. The Applicant has elected to pursue Council rather than Wasco County Facility approval and will be accountable to the Conditions set forth in the Council's Facility Order.

Chapter 10-Fire Safety Standards

Response: The Applicant has coordinated with the Wasco County Planning Department to determine the appropriate measures with which to address Chapter 10, Fire Safety Standards. The County determined that only the substation and not the other Facility components would be required to comply with County standards. Additionally, Wasco County stated that the appropriate method to show compliance with Chapter 10 is to provide the fire prevention plan for the Facility. Exhibit U, Section 5.12 identifies the proposed fire prevention measures to minimize the potential for fires and also outlines how the Applicant will coordinate with the Columbia Rural Fire District, Dufur Fire, and BLM, the primary fire and emergency service providers in the area. As described in greater detail in Exhibit U, the Applicant will provide training, fire prevention equipment, and facility information to service providers, and other measures to minimize the potential for a fire.

Additionally, the wind turbines will be equipped to shut down automatically before mechanical problems create excess heat or sparks. Each wind turbine generator and pad-mounted transformer will be constructed with a concrete pad around each base, with a minimum of 10 feet of nonflammable groundcover on all sides. The use of underground power collector cables, which will be used where practicable, substantially reduces the risk of fire from short circuits caused by wildlife or lightning.

Each maintenance truck will also carry a fire extinguisher to respond to any fires that might be sparked.

Chapter 19 – Standards for Energy Facilities and Commercial Energy Facilities

SECTION 19.010 Classification of Energy Facilities

A. Permitted Subject to Standards. A proposed energy facility shall be approved by the Planning Director as a use permitted subject to standards if the proposed facility complies with the applicable standards of subsection 19.030 (A) through (C) and section 19.040, subject to the applicable conditions of section 19.050.

B. Conditional Use. A proposed energy facility that is not permitted subject to standards may be approved by the Planning Commission as a conditional use if the proposed facility complies with the applicable standards of subsection 19.030 (D) through (F) and section 19.040, subject to the conditions of section 19.050 and other conditions found necessary to fulfill the purpose of this chapter.

Response: The 230 kV transmission feeder line is "Permitted Subject to Standards" pursuant to Section 19.010(A). Section 19.030(B) provides the relevant standards for the 230 kV transmission feeder line, which is subject to:

Section 19.030(B)(1) or (B)(2) and (B)(3);

Section 19.040(A)(1) through (3) except as permitted by Section 10.040(A)(4);

Section 19.040(B) and (C); and

The applicable conditions of Section 19.050

The remainder of Facility, excluding the improvements to existing public roads, is permitted as a "Conditional Use" pursuant to Section 19.010(B). Section 19.030(F) provides the relevant conditional use standards for wind facilities. Pursuant to Section 19.030(F), the Facility is subject to:

Section 19.030(C)(3)(a) and (b);

Section 19.030(C)(4)(b);

Section 19.030(C)(5) through C(8);

Section 19.030(F)(1) through F(6);

Section 19.040; and

The applicable conditions of Section 19.050

The Facility's compliance with each of these provisions is addressed in order below.

SECTION 19.030 Standards for Approval

B. A Transmission Facility as a use Permitted Subject to Standards. A transmission facility is a use permitted subject to standards if it complies with part 19.030(B)(1) or with parts (B)(2) and (B)(3), and the applicable conditions of section 19.050.

1. Location and Height.

a. The facility shall comply with subsections 19.040(B) and (C), and

b. The facility shall result in clearing of a right-of-way or easement with an average width not greater than 50 feet in the F-F and F-1 zones, or

c. The facility shall not increase the extent to which the right-of-way or easement is in an area listed in parts 19.040(A)(1) through (3), except as permitted by part 19.040(A)(4).

d. The facility is less than 200 feet.

Response: The 230 kV transmission feeder line complies with Section 19.030(B)(1). WCLUDO Section 19.040(B) applies to energy facilities or commercial energy facilities located with conditionally protected areas; the transmission feeder line is not located in a conditionally protected area designated by the WCCP and, therefore, Section 19.040(B) does not apply to the Facility. Section 19.040(C) applies to transmission facilities located in the F-1 zoning district. Because the proposed transmission feeder line is located entirely within the A-1 zoning district Section 19.040(C) does not apply.

WCLUDO Section 19.030(B)(1)(b) does not apply to the proposed transmission line because it will not be located in the F-F or F-1 zones. As described above, the entire transmission line is located within the A-1 zoning district. WCLUDO Section 19.030(B)(1)(c) will not be sited in any areas described in WCLUDO Section 19.040(A)(1) through (3). Section 19.040(A)(1) identifies:

"National parks, national monuments, national wildlife refuges, BLM Outstanding Natural Areas, BLM Areas of Critical Environmental Concern, Federal Research Natural Areas, U.S. Forest Service Special Interest Areas, Wilderness areas under the Federal Wilderness Act and areas recommended for designation as wilderness areas pursuant to section 603 of the Federal Land Policy Management Act of 1976, Federally designated Wild and Scenic Rivers or any rivers recommended for designation by the National Park Service."

The proposed transmission feeder line will not be sited in any of the areas listed in Section 19.040(A)(1). Section 19.040(A)(2) identifies State of Oregon owned of managed facilities including:

"State of Oregon parks, waysides, refuges, wildlife management areas, and natural area preserves, scenic waterways and adjacent lands designated pursuant to ORS 309.845, wild fish streams designated by the Oregon Department of Fish and Wildlife, and experimental areas established by the Rangeland Resources Programs, School of Agricultural, OSU."

The proposed transmission feeder line will not be sited in any of the areas listed in Section 19.040(A)(2). Section 19.040(A)(3) identifies additional locations where transmission facilities may not be located including:

"Areas which the comprehensive plan designates as not suitable for a given type and size of energy facility, because the area contains significant open space, mineral resources, fish and wildlife habitat, scenic views and sites, waterbodies, wilderness, cultural, geologic, historic, botanical, research, or recreational resources that cannot be protected from the adverse consequences of the facility."

The WCCP designates areas with the specific features listed in this criterion, such as for wildlife habitat, open space, etc., but the WCCP does not designate any areas that preclude energy development. Therefore, the proposed transmission feeder line is located in an area that permits the Facility.

WCLUDO Section 19.030(B)(1)(d) identifies a transmission "facility is less than 200 feet," but does not specify whether 200 feet is a height limit or the length of the actually facility. However, the Section 19.030(B)(1) standards are for "location and height." Similarly, WCLUDO Section 3.210(D)(13) identifies "A Transmission Facility under 200 feet in height…and the applicable Subject to Standards criteria of Chapter 19. Consequently, the Applicant assumes "200 feet" refers to the height of the facility, not its length. The towers will be wood H-frame supports up to 70 feet high spaced approximately 800 feet apart. This is well below the 200-foot height limit, therefore the transmission line meets this standard.

2. Existing Use. The facility shall be built in or adjoining an existing public road or utility right-of-way or easement, and

3. Width. The facility will not increase the average width of the clearing for the existing right-of-way or easement by more than 50% nor result in clearing of a right-of-way or easement with an average width greater than 125 feet, whichever is less.

<u>Response:</u> The proposed transmission feeder line is required to comply with either WCLUDU Section 19.030(B)(1), or WCLUDU Section 19.030(B)(2) and (B)(3). The proposed transmission feeder line complies with WCLUDU Section 19.030(B)(1), is therefore not subject to WCLUDU Section 19.030(B)(2) and (B)(3).

C. A Wind Facility as a Use Permitted Subject to Standards. A proposed wind facility is a use permitted subject to standards if it complies with parts 19.030(C)(1) through (8). A wind measurement device is a use permitted subject to standards if it complies with subpart 19.030(C)(3)(b) and parts (C)(5), (C)(7) and (C)(8). In addition, a WECS and a wind measurement device are subject to the standards of subsection 19.040(A) through (C) and the applicable conditions of section 19.050.

Response: Pursuant to Section 19.030(F), only parts C(3)(a), (b), C(4)(b), and (C)(5) through (8) apply to the Facility.

3. Setbacks.

a. A WECS shall be setback from all adjoining property lines as described in (1) and (2) below. An easement that complies with ORS 105.900 through .915 may be substituted for required setbacks. The setback shall be measured from the center point of the tower or pedestal.

1. A horizontal axis WECS shall be setback at least five rotor diameters.

Response: The rotor diameter of the turbines will be 101 meters (331 feet), which requires a setback of 1,655 feet. The Applicant coordinated with Wasco County regarding the interpretation of this standard. The County has interpreted this standard only to apply to adjoining properties that are not within the Facility boundary downwind from the Facility, not internal property lines.[5] Under this interpretation, the proposed locations of most of the turbines will be setback at least 1,655 feet from all adjoining property lines that are outside the Facility boundary. Figure K-2 shows where the 1,665-foot setback extends beyond the project site boundary onto properties downwind of the proposed Facility. Generally, the wind blows from the west/northwest. As shown, a very small amount of land outside of the project leased boundary would be affected, which is not conducive for wind power generation given the steep topography sloping downward towards the Deschutes River. While the turbine layout in the Application for Site Certificate is not final, some of the proposed turbine locations may not meet the 1,655 foot setback standard. However, these turbine locations may be approved because they comply with applicable statewide planning goals pursuant to ORS 469.504(b)(1)(B). First, although the setback criterion has been acknowledged by LCDC to be in compliance with the statewide planning goals, the setback criterion does not implement any statewide planning goal, nor is it required by any statewide planning goal.[6] Second, the Facility's general compliance with the statewide planning goals is explained below in the response to the goals and policies of the Wasco County Comprehensive Plan (See Section K.6.2), which are acknowledged and equivalent to the statewide planning goals.

Third, the only statewide planning goals that are potentially relevant to the turbine setbacks are Goal 3 (Agricultural Lands) and Goal 13 (Energy Conservation). Goal 3 provides that "[a]gricultural lands shall be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest and open space and with the state's agricultural land use policy expressed in ORS 215.243 and 215.700." Effective in January 2009, LCDC adopted new administrative rules at OAR 660-033-0130(37) which allow wind

[5] The County also indicated in its correspondence with ODOE on November 14, 2009 that it expects to substantially amend WCLUDO Chapter 19, which would include eliminating the setback requirement because it is outdated and unworkable. See attachment K-3.

[6] Because the setback criterion is not a land use regulation *required* by the statewide planning goals, it does not qualify as one of the "applicable substantive criteria" defined in OAR 345-022-0030(4). Therefore, the Facility may be exempt from the setback criterion.

power generation facilities on agricultural lands subject to Goal 3 without a goal exception. These rules have been implemented by Wasco County at WCLUDO Section 3.210(J)(17). As demonstrated in the response to WCLUDO Section 3.210(J)(17), above, the Facility satisfies these criteria and, therefore, is consistent with Goal 3. The 1,665 foot setback requirement does not implement Goal 3, nor does it affect the impact of the Facility on agricultural lands. That is, locating a few of the turbines closer to 1,665 feet to property lines adjacent to the Facility boundary will not increase (or decrease) any impacts to agricultural lands. Therefore, the Facility is consistent with Goal 3 even if the setback criterion is not met for a few of the turbines.

Goal 13 provides that "[l]and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles." Further, Goal 13 guidelines specifically promote the use of renewable energy resources, including wind power. The 1,665 foot turbine setback requirement does not provide any energy efficiency benefit for properties that are not downwind of the Facility. Instead, with respect to these properties the setback actually reduces energy efficiency because it prevents the turbines from being located to maximize efficiency. The setback requirement may provide some benefit to *downwind* property owners by reducing the chances that wind turbines on upwind property will impact the flow of wind to the downwind property. However, this does not necessarily increase energy efficiency or promote wind development. That is particularly true here, where downwind properties that are not within the Facility boundary are primarily owned by the Bureau of Land Management and either prohibited or extremely unlikely to be developed with wind turbines. Consequently, even if the setback criterion is not met for a few turbines, the Facility will actually be more supportive of Goal 13.

For the above reasons, even though some of the turbines may not meet the 1,665 foot setback requirement, the Facility complies with the applicable statewide planning goals and therefore meets the standard in ORS 469.504(1)(b)(B). Consequently, a goal exception is not required.

b. The furthest horizontal extension of a WECS or wind measurement device (including guy wires) shall not extend into yards required in the underlying zones or be closer than twelve feet to any major structure, or right-of-way or easement for above-ground telephone, electrical transmission and distribution lines.

<u>Response:</u> Setback requirements for structures located in A-1 zoning district are identified in WCLUDO Section 3.210(F)(1), which requires 200-foot setbacks from property lines for all dwellings and accessory structures within the A-1 zoning district. As shown in Figure K-2, all turbines will be more than 200 feet from any property line as shown in Figure C-2, sheets 1 through 7. No components of the Facility will require guy wires,

4. Minimum Height. The lowest point in the sweep of a WECS blade shall be a minimum height above the tallest current or foreseeable obstruction within a horizontal, 500 foot radius of a WECS or a radius of 10 rotor diameters (for horizontal axis) and 5 WECS heights (for vertical axis), whichever is greater, as described in (a), (b), and (c) below. The radius shall be measured from the center point of the tower.

b. At least 30 feet above current or foreseeable obstructions within 45 degrees of the direction(s) of prevailing wind for a horizontal axis WECS on a site with site-specific wind direction data or representative off-site data.

Response: The location of existing structures are shown in Figure K-2. No other structures were identified with the site boundaries. These structures are assumed to meet the height limitation standards described in WCLUDO Section 3.210(F)(2), which requires structures within the A-1 zoning district have a maximum height of 35 feet. Section 3.210(C)(4)(b) requires a 30-foot clearance above the tallest allowable structure,[7] requiring a total a distance of 75 feet from grade to the lowest sweep of the WECS rotor. Turbines with an 80-meter (262 feet) hub height and a rotor radius of the approximately 51.5 meters (165 feet), will provide approximately 28.5 meters (93 feet) of clearance from grade. This provides more than adequate clearance to comply with the standard height requirement for the A-1 zone.

5. Public Access. Public access to a horizontal axis WECS shall be limited using one or a combination of the following methods:

a. Removal of tower climbing fixtures to 12 feet from the ground,
b. Installation of a locking, anti-climb device on the tower, or
c. Installation of a protective fence at lease six feet tall with a locking gate.

Response: No public access to the turbines will be provided. The turbine towers are smooth and do not have any external fixtures that would permit climbing the tower. Each turbine tower will have a door that will be locked at all times to prevent access from the interior of the tower, and all climbing fixtures will be enclosed inside the tower, preventing any access other than operations and maintenance staff who have keys to the outside door. Public access to the substation and operations and maintenance facility storage area will be fenced to prevent any public access. No fences are proposed around the turbines.

6. Visual Effects. Except when the applicant demonstrates that such measures will significantly interfere with wind access over the life of the WECS, a WECS shall be sited to reduce visual impacts using means including, but not limited to, the following:

a. Setting the WECS against a visual backdrop that, because of color, texture or topography, helps the WECS blend into its surrounding environment.
b. Using non-reflective materials and colors that blend into the background unless otherwise required by the Federal Aviation Administration or Oregon State Aeronautics Division.
c. No advertising shall be placed on the WECS. Advertising does not include the manufacturer's label or other signs required by law.
d. Setting the WECS back from scenic highways and zones containing any of the protected areas listed in subsections 19.040(A) and (B).

Response: The turbines will be gray or off-white and constructed of nonreflective materials, typical of what is used in other windpower facilities in the region. Some turbines and

[7] Pursuant to Section 19.030(F)(2), the other turbines in the Facility are not "obstructions" for purposes of this standard.

meteorological towers will have warning beacons, as required by FAA to warn airplanes of their locations, meeting criteria (a) and (b). No advertising will be placed on the turbines, meeting criterion (c). Criterion (d) does not specify a particular setback for reducing the visual effects of the Facility on scenic areas. The visual impact of the Facility on scenic and protected areas is described in detail in Exhibit R. As explained in Exhibit R, the turbines will be set back and blended into the surroundings to reduce the impacts to scenic and protected areas which satisfies Criterion (d).

7. Notice. The following signs shall be clearly visible on the WECS tower and accessory facilities.
a. "No Trespassing" signs shall be attached to any perimeter fence.
b. "Danger" signs shall be posted at the height of five feet on WECS towers and accessory structures.
c. A sign shall be posted on the tower showing an emergency telephone number.
d. The manual electrical and/or overspeed shutdown disconnect switch(es) shall be clearly labeled.

Response: Signs, as described in this criterion, will be posted on each WECS tower and accessory facility.

8. Guy Wires. All guy wires shall be sheathed in a bright orange or yellow covering from three to eight feet above the ground.

Response: No guy wires are proposed

F. Conditional Use Standards for Wind Facilities. A wind energy conversion system (WECS) shall be approved if it complies with parts 19.030(C)(6), (C)(7), (C)(8) and the standards in (F)(1) through (6) below. In addition, a WECS is subject to the standards in section 19.040 and the applicable conditions of section 19.050.
1. Setbacks. WECS shall comply with subparts (a), (b) and (c) below.

a. WECS shall comply with the requirements of subparts 19.030(C)(3)(a) and (b).

Response: Sections 19.030(C)(3)(a) and (b) are addressed above.

b. A WECS tower or pedestal shall be setback as described in (1) and (2) below from the edge of a public arterial right-of-way and property lines of downwind lots. An easement that complies with ORS 105.900 through .915 may be substituted for required setbacks. The setback shall be measured from the center point of the tower or pedestal.

(1) A horizontal axis WECS shall be setback at least five rotor diameters or 100 feet, whichever is greater.

Response: The rotor diameter of the turbines will be 101 meters (331 feet), which requires a setback of 1,655 feet. The Applicant coordinated with Wasco County regarding the interpretation of this standard. The County has interpreted this standard only to apply to downwind property lines that are not within the Facility boundary, not internal property lines.[8] Under this interpretation, the proposed locations of most of the turbines will be setback at least 1,655 feet from all downwind property lines that are outside the Facility boundary.

Although the turbine layout in the Application for Site Certificate is not final, a few of the proposed turbine locations may not meet the 1,655 foot downwind setback standard. However, these turbine locations may be approved because they comply with applicable statewide planning goals pursuant to ORS 469.504(b)(1)(B). First, although the setback criterion has been acknowledged by LCDC to be in compliance with the statewide planning goals, the setback criterion does not implement any statewide planning goal, nor is it required by any statewide planning goal.9 Second, the Facility's general compliance with the statewide planning goals is explained below in the response to the goals and policies of the Wasco County Comprehensive Plan (See Section K.6.2), which are acknowledged and equivalent to the statewide planning goals.

Third, the only statewide planning goals that are potentially relevant to the turbine downwind setbacks are Goal 3 (Agricultural Lands) and Goal 13 (Energy Conservation). Goal 3 provides that "[a]gricultural lands shall be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest and open space and with the state's agricultural land use policy expressed in ORS 215.243 and 215.700." Effective in January 2009, LCDC adopted new administrative rules at OAR 660-033-0130(37) which allow wind power generation facilities on agricultural lands subject to Goal 3 without a goal exception. These rules have been implemented by Wasco County at WCLUDO Section 3.210(J)(17). As demonstrated in the response to WCLUDO Section 3.210(J)(17), above, the Facility satisfies these criteria and, therefore, is consistent with Goal 3. The 1,665 foot downwind setback requirement does not implement Goal 3, nor does it affect the impact of the Facility on agricultural lands. That is, locating a few of the turbines closer to 1,665 feet to downwind property lines outside the Facility boundary will not increase (or decrease) any impacts to agricultural lands. Therefore, the Facility is consistent with Goal 3 even if the downwind setback criterion is not met for a few of the turbines.

Goal 13 provides that "[l]and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles." Further, Goal 13 guidelines specifically promote the use of renewable energy resources, including wind power. The setback requirement may provide some benefit to *downwind* property owners by reducing the chances that wind turbines on upwind property will impact the flow of wind to the downwind property. However, this does not necessarily increase energy efficiency or promote wind development. That is particularly true here, where downwind properties that are not within the Facility boundary are primarily owned by the Bureau of Land Management and either prohibited or extremely unlikely to be developed

[8] The County also indicated that it expects to substantially amend WCLUDO Chapter 19, which would include eliminating the setback requirement because it is outdated and unworkable. See Attachment K-3.

[9] Because the setback criterion is not a land use regulation *required* by the statewide planning goals, it does not qualify as one of the "applicable substantive criteria" defined in OAR 345-022-0030(4). Therefore, the Facility may be exempt from the setback criterion.

with wind turbines. Applying the downwind setback requirement to this Facility could, in fact, have the unfortunate effect of reducing development in the most efficient locations on a good site in order to protect the potential for wind development on a site that is inferior for wind energy development from the standpoint of the wind resource, the size of the site, and the likelihood of wind development on the downwind site. Even if the setback criterion is not met for a few turbines, the Facility will comply with Goal 13.

For the above reasons, even though some of the turbines may not meet the 1,665 downwind foot setback requirement, the Facility complies with the applicable statewide planning goals and therefore meets the standard in ORS 469.504(1)(b)(B). Consequently, a goal exception is not required.

c. A WECS shall be set back from lots in residential zones and significant visual resources identified in the comprehensive plan one quarter mile or as described in (1) and (2) below, whichever is less.

Response: As depicted in Figure K-1, the Facility is entirely surrounded by A-1 zoned lands. There are no residential zones within one quarter mile of the site boundary.

The WCCP identifies the Columbia River Gorge National Scenic Area and the Deschutes River State Recreation Area as outstanding scenic and recreation areas, and I-84 as a scenic corridor. All turbines associated with the Facility will be located at least one quarter mile from these resources.

2. Minimum Height.

a. A horizontal axis WECS shall comply with subpart 19.030(C)(4)(b). However, a WECS in a windfarm is not an obstruction to other WECS on-site.

Response: Section 19.030(C)(4)(b) is addressed above.

3. Public Access. Public access to WECS shall be limited using one or a combination of the methods contained in section 19.030(C)(5) and a protective fence at least six feet tall enclosing the site.

Response: As described in the response to Section 19.030(C)(5), above, public access to the turbines will be limited by a door located at the based of each turbine tower that will be locked at all times to prevent access to the interior of the tower. All climbing fixtures will be enclosed inside the tower, preventing any access other than Facility operations and maintenance staff who have keys to the outside door. A six-foot fence will be installed to prevent public access to the substation and operations and maintenance facility storage area. No fences are proposed around the turbines because the turbines are already designed to limit public access.

4. Wind Resources. The site shall have site-specific data documenting wind speed and direction or off-site data from within the same topoclimatological zone as the proposed site.

Response: The Applicant has collected site specific wind data since 2001 and based on this information has determined that the wind resources are adequate to support the Facility as proposed.

5. Fish, Wildlife, and Plant Resources. The facility shall not have a significant adverse effect on endangered species or their critical habitats or on other significant habitats identified in the comprehensive plans.

Response: The Facility will not have any significant impact on wildlife habitat or riparian vegetation, nor will it increase the likelihood of soil erosion. Exhibits P and Q identify specific fish and wildlife resources, including state and federally listed species in the area, and any potential impacts to those resources. As discussed in those exhibits, the Facility is not expected to significantly affect any listed endangered or threatened species or adversely affect fish and wildlife species or habitat, and there is little or no habitat in the Facility area to support such species.

As part of Exhibit P, the Facility identified and categorized all fish and wildlife habitats within the habitat analysis area. There is not Category 1 habitat in the analysis area. The bulk of the habitat within the analysis area is Categories, 3, 4, and 6. The majority of permanent impacts would be to Category 6 – developed land, accounting for over 50 percent of habitat that will be permanently affected. Temporary impacts will occur primarily on primarily Category 6 habitat, accounting for approximately 52 percent of the temporary impact to habitat areas. Mitigation for these impacts will be developed in consultation with the ODFW and a monitoring plan will be implemented to evaluate actual Facility impacts.

As described in Exhibit J, six wetlands were identified during the field investigation. No impacts will occur to any wetland and jurisdictional water resources, because the Facility has been designed to avoid these features.

6. Bonding. An applicant who is not the owner of the proposed site shall post a bond or an alternative acceptable to the county which is sufficient to guarantee removal and disposal of the wind farm components and restoration of the land in case of noncompliance with the provisions of the ordinance.

Response: The Applicant proposes to, prior to construction of the Facility; obtain a letter of credit in an amount up to $6,000,000 to meet the required financial security instrument. A comfort letter from the Bank of America (see Exhibit M, Attachment M-2) expresses interest in providing a letter of credit in the amount of up to $6,000,000, subject to their due diligence requirements.

SECTION 19.040 Additional Approval Standards for Energy Facilities and Commercial Energy Facilities

A. Protected Areas. An energy facility may not be sited in the areas listed in part 19.040(A)(1) through (3) unless the facility complies with part (A)(4) below.

1. National parks, national monuments, national wildlife refuges, BLM Outstanding Natural Areas, BLM Areas of Critical Environmental Concern, Federal Research Natural Areas, U.S. Forest Service Special Interest Areas, Wilderness areas under the Federal Wilderness Act and areas recommended for designation as *wilderness areas pursuant to section 603 of the Federal Land Policy Management Act of 1976, Federally designated Wild and Scenic Rivers or any rivers recommended for designation by the National Park Service.*

Response: The Facility is not located within any of the designated areas described in this criterion, although there are portions of three rivers designated as Wild and Scenic in the vicinity of the Facility boundaries. The White River is approximately 10 miles to the south, the Deschutes River is 1 mile to the east, and the John Day River is approximately 20 miles to the east. There are no Wild and Scenic rivers in the Facility vicinity. There are no National Parks, monuments, sites, or trails in the vicinity. The closest National Wildlife Refuge, the Umatilla, is approximately 75 miles northeast of the Facility. The closest Wildernesses, Badger Creek and Mt. Hood, are approximately 20 and 25 miles west of the Facility, respectively. None of the Facility components would be located within any of these areas.

2. State of Oregon parks, waysides, refuges, wildlife management areas, and natural area preserves, scenic waterways and adjacent lands designated pursuant to ORS 309.845, wild fish streams designated by the Oregon Department of Fish and Wildlife, and experimental areas established by the Rangeland Resources Programs, School of Agricultural, OSU.

Response: The Facility is not located within any of the designated areas described in this criterion.

3. Areas which the comprehensive plan designates as not suitable for a given type and size of energy facility, because the area contains significant open space, mineral resources, fish and wildlife habitat, scenic views and sites, waterbodies, wilderness, cultural, geologic, historic, botanical, research, or recreational resources that cannot be protected from the adverse consequences of the facility.

Response: The WCCP designates areas with the specific features listed in this criterion, such as for wildlife habitat, open space, etc., but the WCCP does not designate any areas that preclude energy development. Therefore, the Facility is located in an area that permits the Facility.

4. Exceptions. An energy facility may be permitted in an area listed in parts 19.040(A)(1) through (3) above if it complies with at least one of the following exceptions, and it will be compatible with adjacent uses and resources. However, a hydroelectric dam or diversion is not permitted in a scenic waterway or adjacent lands designated pursuant to ORS 390.825.

a. Accessory Use. A proposed energy facility is accessory to a permitted use.

b. Authority Granted by Management. The public agency responsible for designation or management of a protected area in which an energy facility is proposed has authorized the application or approved the proposed facility. However, this is not an exception for areas listed in part 19.040 (A)(3).

c. Substantially Equivalent Substitute. The applicant provides resources equal or better in quantity and quality to those adversely affected by the energy facility.

d. Comprehensive Plan Designation. The comprehensive plan designates the site for an energy facility of the scale and type proposed.

Response: The Facility complies with WCLUDO 19.040(A)(1) through (3) and does not require an exception.

B. Conditionally Protected Areas. An energy facility or commercial energy facility in an area which the comprehensive plan designates as conditionally suitable for the scale and type of facility proposed shall comply with the conditions provided for the facility in the comprehensive plan.

Response: The Facility is not located in a Conditionally Protected Area designated by the Comprehensive Plan. The criterion does not apply.

D. Compliance with the Comprehensive Plan. The facility shall comply with the applicable policies of the comprehensive plan.

Response: The Facility complies with the applicable WCCP goals and policies, as described in K.6, below.

SECTION 19.050 Conditions of Approval

Approval of an energy facility shall be subject to the following conditions. In addition, the approval authority may require an energy facility that is approved as a conditional use to comply with other conditions as necessary to fulfill the purpose of this chapter.

A. Coordination

1. Continuing Notice. The applicant shall provide the county with a copy of all applications for, or notices of, state or federal permits, licenses, exemptions, or variances in conjunction with the construction and licensing of the facility and proposed significant changes to the facility. The applicant shall make a good faith effort to provide the copy at the earliest possible time.

2. State and Federal Authority. The applicant should demonstrate that all necessary state and federal permits, licenses, exemptions, variances, or authority are approved before initiating construction of the facility.

3. Other Terms & Conditions. The terms and conditions of the following authorities satisfy substantially similar standards and conditions of this chapter and supersede inconsistent county conditions.

a. A dredge and fill permit is granted by the Division of State Lands under ORS 541.615;

b. The proposed action is a forest operation that complies with the Forest Practices Act under ORS 526 - 527 and the Rules of Forest Practices;

c. Written approval of development within the Oregon Scenic Waterways System is granted by the Department of Transportation under ORS 390.800, the Energy Facility Siting Council under ORS 469.430-469.570, or the Water Resources Department under ORS 537.130 through 537.450;

d. Written approval of the Department of Environmental Quality when air or water quality discharge permits, exemptions, or variances are granted; or

e. The facility complies with substantially similar standards of the special districts listed in section (F)(4) below.

4. Consistency with Service Districts and Special Purpose Agencies. The development shall comply with the hazardous or solid waste, flood, surface, or groundwater, soil conservation, or resource management program(s) adopted by the appropriate emergency management authority, drainage district, soil conservation agency, or resource management agency(ies).

Response: WCLUDO Section 19.050(A) contains administrative criteria that require the Applicant to supply documentation that the Facility has received approval from various local and state regulatory agencies. The Applicant has elected to pursue Council rather than Wasco County Facility approval; other agency documentation and approvals will be coordinated through that process and identified in the Council's Facility Order.

B. Environmental Protection Overlay Districts. An energy facility or commercial energy facility in the following overlay, combining, or floating districts shall comply with applicable terms of those districts:

1. The Flood Hazard Overlay district,
2. The Geologic Hazard Overlay district,
3. The Mineral Resources Overlay district,
4. The Cultural, Historic and Archaeological Overlay district,
5. The Sensitive Wildlife Habitat district,
6. The Columbia Gorge Overlay district,
7. The Airport Impact Overlay district, and
8. The Natural Areas Overlay district.

Response: The Applicant has been coordinating with the Wasco County Planning Department staff to identify any critical issues and criteria that the Applicant would need to address as part of Exhibit K. As part of that process, Wasco County staff overlayed the layers listed above on the location of the tower corridors and roads that were digitally provided by the Applicant and found none of them to be applicable. This criterion does not apply.

C. Protection of Water Quality.

1. The development shall comply with the water quality standards for dissolved oxygen and temperature adopted by the Oregon Environmental Quality Commission (EQC) and codified in OAR 340-41 and shall not increase turbidity. Water quality effects of forest operations shall comply with the Oregon Rules for Forest Practices (ORFP) and the Forest Practices Act.

2. To the extent not inconsistent with EQC and ORFP rules, the Planning Director may allow these standards to be exceeded for a specified short time when necessary to accommodate essential construction, emergency, or other permitted uses and actions.

Response: These criteria do not apply. The Facility will use one well on-site exclusively for the O&M facility and will drain into the on-site septic system. Any vehicle or component washdown will occur on land, where the water will infiltrate the ground. Additionally, the Applicant will obtain a NPDES 1200-C Stormwater permit that will identify best management practices to prevent erosion (see Exhibit I) during construction.

D. Protection of Water Bodies and Wetlands. The development will incorporate mitigation and conditions to protect Class I and Class II streams and wetlands and the banks and vegetation along those streams and wetlands affected.

Response: No impacts will occur to wetlands or other waterways. As described in Exhibit J, six wetlands were identified during the field investigation, two of which are isolated, with no connection to jurisdictional water features. The remaining four wetlands are associated with the drainage features of Dry Creek and Shotgun Hollow and are tributaries to the Columbia River. No impacts will occur to any wetland and jurisdictional water resources, because the Facility has been designed to avoid these features.

E. Soil Protection. Development shall not cause a significant increase in erosion or sedimentation based on the topography, use and soil classification of the site and access to it. Practices to reduce or avoid erosion and sedimentation include but are not limited to the following.

1. Structures and access avoid areas of steep slopes where high cuts and fills are required and shall use natural contours.

2. The smallest practical area of land is to be exposed for the shortest practical time during development.

3. Measures are used such as seeding and sodding, temporary use of straw or fabric cover, aggregate cover, diversions authorized by state permit, sediment basins, and filters.

Response: The Facility will obtain a NPDES 1200-C Stormwater permit, as described in Exhibit I, that will address erosion from the Facility's construction. The NPDES permit will require the use of best management practices to minimize the potential for erosion.

Best management practices will include a variety of means to minimize the impacts of wind erosion. In actively farmed areas, the wheat crop will protect the stockpiles from wind erosion. In other areas, hay bales or other similar containment features will be used during construction of the Facility. As needed, water from water trucks will be sprayed on disturbed areas to keep wind-borne erosion losses to a minimum. After the need for the staging areas ends, the staging area locations will be brought back to their original contours, topsoil will be spread in these areas, and they will be revegetated or prepared for planting, or for use as range land.

F. Health and Safety.

1. Drinking Water. No water sources shall be used for consumption unless approved in writing by the Oregon State Health Division.

Response: As described in Exhibit O, drinking water will be provided in the O&M building from an exempt on-site well because it will provide less than 5,000 gallons per day. Water obtained from the exempt well for the O&M building will be discharged to the on-site septic system.

2. Toilets. Field toilets approved by the county sanitarian or Oregon Department of Environmental Quality shall be available at construction sites in the vicinity and upstream of Class I or Class II streams or other water supplies.

Response: During construction, porta-potties will be provided in locations near construction areas and will be maintained by a local supplier

3. Grounding. All structures which may be charged with lightning shall be grounded according to the Oregon State Electrical Specialty Code.

Response: All structures will be grounded according to the Oregon State Electrical Specialty Code.

4. Electrical Safety. Transmission lines associated with the facility shall not generate an electrical field greater than 9 kV per meter measured at grade and shall comply with the National Electrical Safety Code, based on a written decision by the Public Utility Commissioner.

Response: As described in Exhibit AA (Table AA-1), the proposed transmission feeder line will not exceed the 9 kV per meter limit at grade. The proposed transmission line will generate a maximum electrical field of 3.8 kV per meter measured at one meter above ground level along the transmission line right-of-way.

5. Air Safety. Any structure that is more than 200 feet above grade or exceeds airport imaginary surfaces defined in OAR 738, shall comply with the air hazard rules of the Oregon State Aeronautics Division (OSAD) and Federal Aviation Administration (FFA), based on a written action by those agencies.

Response: As described in Exhibit B, some turbine and meteorological towers will include flashing red beacons, as required by the FAA.

6. Communications. The proposed facility shall not unduly reduce or interfere with electromagnetic communication signals. If undue reduction or interference occurs, the applicant shall return reception levels to pre-facility levels.

Response: No interference with existing communications is anticipated with construction of the Facility.

7. Noise. Construction and operation of the proposed facility shall comply with the noise regulations of the Oregon Department of Environmental Quality (DEQ) in OAR 340-35, based on a written decision by DEQ. In addition, a wind farm application shall identify noise sensitive property(ies) and ambient noise levels prior to construction.

Response: A noise analysis was completed for the Facility and is described in Exhibit X. The Facility components will be located on private land for which the Applicant has negotiated long-term wind energy leases or easements with the landowners. The wind energy leases allow the Applicant to permit, construct, and operate wind energy facilities for a defined period. The area is sparsely populated; all identified homes are located on lands for which the Applicant has entered into wind energy leases or easements with the landowners.

This noise analysis concluded that applicable DEQ noise regulations will be met for construction and operation of the Facility, with all receptors complying with the 50 dBA noise limit. When the precise turbine layout has been selected and before construction of the Facility, the Applicant will submit for DEQ administrative review (pursuant to Council-approved methodology) an acoustical analysis of the Facility performed with the same methodology as the analysis conducted for Exhibit X. The Applicant will also submit evidence that it has secured the noise easements as necessary for any sensitive receptors.

8. Public Roads. Mud and other debris from related construction, road wear from related vehicles, or facility operation shall not create a hazard on public roads and highways. Mud and debris that fall onto a county road should be removed by the applicant as soon as possible.

Response: As described in Section K.3 and in Exhibit U, several roads will be used during construction to deliver Facility components and for construction workers to access the site. Mud and other debris will be removed, as necessary, to maintain the safety of the public road system.

Some existing roads will require either resurfacing with gravel, widening to accommodate construction and component delivery vehicles, or both. Public road improvements proposed as part of the Facility will benefit the County because these improvements will be paid for by the Facility and when completed will be available for public use.

G. Fish and Wildlife.

1. The applicant shall consult with the Oregon Department of Fish and Wildlife (ODFW) concerning the facility and shall provide information as requested to ODFW. The development shall be subject to ODFW recommendations that are consistent with the county decision regarding the facility.

Response: The Facility will not have any significant impact on wildlife habitat or riparian vegetation, nor will it increase the likelihood of soil erosion. Exhibits P and Q identify specific fish and wildlife resources, including state and federally listed species in the area, and any potential impacts to those resources. As discussed in those exhibits, the Facility is not expected to significantly affect any listed endangered or threatened species or adversely affect fish and wildlife species or habitat, and there is little or no habitat in the Facility area to support such species. Mitigation for impacts to wildlife habitat is being coordinated with the ODFW. A copy of the mitigation plan will be submitted prior to the Department prior to deeming the application complete. A monitoring plan will also be developed in coordination with ODFW to evaluate actual Facility impacts.

2. A transmission line sited adjacent to wetlands or water bodies identified as critical bird habitat in the comprehensive plan shall comply with (a), (b), or (c) below:

a. The line is lower than the level of surrounding treetops.

b. The line is at least 50 feet from the edge of the nearest wetland or water body.

c. The line is separated from the nearest wetland or water body by topography or substantial vegetation, does not use static or lightning wires, does use marker balls or flags on the line, or is perpendicular to the prevailing winds.

Response: As described in response to WCLUDO Section 19.050(B), Wasco County Planning staff did not identify any critical habitat areas or overlays that could be affected by the Facility. This criterion does not apply.

K.6 COMPLIANCE WITH APPLICABLE COMPREHENSIVE PLAN PROVISIONS

K.6.1 Section V. Community Facilities and Services

K.6.1.1 Section V (J). Parks and Recreation and Scenic Areas

Scenic highways are "those adjacent to or passing through scenic areas in State or Federal parks, historic sites, or any area of natural beauty that has been designated a scenic area by the Scenic Area Board", (p. 5.42). Table 7 lists the scenic high-ways in Wasco County as designated by the Board, which has recently been replaced by the Travel Advisory Council.

Response: Table 7 of the WCCP designates scenic highways within Wasco County, of which three are located in the vicinity of the Facility: I-84 from the Hood River/Wasco County line to the Wasco/Sherman County line (with the exception of the stretch located within the Dalles city limits), US 197 between I-84 and Dufur and from the Tygh Ridge Summit to the Maupin city limits, and OR 216 between the US 26/OR 216 intersection and the US 197/OR 216 intersection west of Maupin. Table 7 identifies the scenic area in the vicinity of I-84 and OR 216 as 660 feet on either side of the highway right-of-way; the scenic area along US 197 in the designated scenic area corridor is any area within view of the highway.

The Facility components will be visible from US 197 and OR 216, as identified in Exhibit R. Impacts to these roads associated with scenic value are expected to be negligible given the viewing distances of over eight miles and the fact that the turbines would be subordinate to the surrounding landscape.

K.6.1.2 Section V (J)(3) Outstanding Scenic and Recreational Areas

Outstanding scenic and recreational areas have exceptional qualities which draw visitors from out-side the county, as well as provide local citizens with excellent recreational opportunities. These areas are listed in Table 11.

Response: Table 11 of the WCCP lists the following outstanding scenic and recreational areas in Wasco County in the vicinity of the Facility:

- *Columbia River Gorge: Includes area defined by the Columbia River Gorge Commission and O.R.S. 390.460.*
- *Deschutes River: Areas within the river canyon that can be seen from the Deschutes River or lands designated under the State Scenic Rivers Act. This is a potential Federal Wild and Scenic River.*

Exhibit R describes the potential impacts that may occur to the scenic and aesthetic resources in the vicinity of the Facility, while Exhibit T describes the potential impact to recreational opportunity areas. A visibility analysis was completed (see Exhibit R) to identify where the Facility components would be visible from these resources. The proposed Facility would not be visible from I-84. Portions of turbines may be marginally visible from the Columbia River Gorge Scenic Area in some locations, but access to these locations is very limited. Further, turbines from other Facilities unrelated to this Facility and located in Washington are already clearly visible. Impacts associated with this Facility will not have a significant additional adverse impact on the existing character of the Columbia River Gorge in this area. Portions of turbines will be intermittently visible along the Deschutes River and associated hiking and multiuse trails, but will not dominate views. The Applicant has attempted to minimize any visual impacts to these scenic and recreational resources by reducing the number of proposed turbines from 167 to 87, including those most visible from the Deschutes River. With these mitigation measures, visual impacts are expected to be minimal.

K.6.2 Section XV. Goals and Policies

K.6.2.1 Goal 1 – Citizen Involvement

To develop and maintain a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.

Response: The application review process provides several opportunities for the surrounding community and public agencies to provide comments on the Facility. After the application is submitted to the Oregon Department of Energy, it will determine whether the application is complete, and if it is deemed complete, the Council will provide public notice in local newspapers and will conduct a public information meeting concerning the application. Afterward, a noticed public hearing will be held on the Council's proposed order, offering another opportunity for public input. The Council's process also provides affected public agencies and area landowners with notice of the application and an opportunity to comment.

The Applicant has consulted with several agencies throughout the process, including the U.S. Fish and Wildlife Service (USFWS), the Wasco County Planning Department, the Oregon State Historical Preservation Office (OSHPO), and the Oregon Natural Heritage Information Center (ONHIC). These agencies, offices, and organizations have provided information regarding the Facility site and adjacent lands, including whether listed and sensitive species occur within the analysis area. The Applicant also contacted the Oregon Department of Agriculture (ODA) for information about plant distribution and protection and conservation programs, and the Oregon Department of Fish and Wildlife (ODFW) for information on fish and wildlife habitat regulations and requirements.

K.6.2.2 Goal 2 – Land Use Planning

To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions.

Response: The Applicant is seeking a Council determination of compliance with land use standards and the Council's procedures rather than the County's specific procedures as they apply to the land use determination. Section K.1 outlines the proposed land use approval path. The Applicant, as described in Exhibit K, has addressed the relevant substantive Wasco County development criteria and Comprehensive Plan policies as well as relevant statewide land use planning goals, Oregon Administration Rules, and Oregon Revised Statutes.

K.6.2.3 Goal 3 – Agricultural Lands

To preserve and maintain agricultural lands.

Policy 1
Maintain Exclusive Farm Use zoning.

Implementation
(B)(3) Non-farm uses permitted within farm use zones adopted pursuant to O.R.S. 215.213 should be minimized to allow for maximum agricultural productivity.

Response: ORS 215.213 identifies which land uses are permitted in exclusive farm use zones. As it relates to the Facility, ORS 215.213(d) permits "Utility facilities necessary for public service…but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height. A utility facility necessary for public service may be established as provided in ORS 215.275." Wasco County has revised the WCLUDO to incorporate ORS 215.275 requirements as part of it A-1 zoning district criteria. WCLUDO Section 3.210(J)(8) includes the relevant review criteria as identified in ORS 215.275, and is described in Section K.5 of this exhibit.

Justification for locating a commercial utility facility per ORS 215.275 is provided in Section K.5. Additionally, WCLUDO Section 3.210(C)(19) identifies "Commercial utility facilities for the purpose of generating power for public use by sale" permitted as a conditional use within the A-1 zoning district, provided it does not preclude more than 12 acres of high-value farmland or 20 acres of other land from commercial farm use unless an exception is approved pursuant to OAR 660 Division 4. Effective in January 2009, "wind power generation facilities" located on agricultural lands became subject to new standards in OAR 660-033-0130(37) and do not require taking an exception to statewide planning goals. Wasco County has also revised the WCLUDO to incorporate OAR 660-033-0130(37) requirements as part of it A-1 zoning district criteria. WCLUDO Section 3.210(J)(17) includes the relevant review criteria for "wind power generation facilities" located on agricultural lands, and is described in Section K.5 of this exhibit.

The Facility does not propose any change in zoning and will minimize impacts to existing farming operations. The Facility will require approximately 82 acres of land to be permanently removed from farm use, while 98 acres of farmland will be temporarily affected. The amount removed from production is a very small percentage of agricultural land within the site boundary. Because high-value soil is only 9.8 percent of the overall disturbed area, a very small percentage of high value farmland will be impacted. (see also Section K.5).

The Facility and private access roads will not materially alter the stability of the existing land use pattern that prevails over this area and much of the County. Local farmers will be able to maneuver around the turbine strings and transmission towers and across the gravel access roads, although minor changes in sowing and harvesting patterns in the immediate vicinity of the strings will be necessary. Since the farming in the area is dry land farming, no irrigation patterns will be affected. Any financial impacts on the affected farmers resulting from removal of lands from farm production will be offset by the lease payments they will receive for use of their land to site the Facility, as demonstrated in the technical memorandum supporting this exhibit (Attachment K-1) and elsewhere in the site certificate application.

Given the relatively small footprint and existing land uses and annual compensation through long-term leases of land for the Facility , the Facility will not make a significant change in existing farming operations or have an adverse financial impact on land uses within the lease boundary.

K.6.2.4 Goal 5 – Open Space, Scenic, and Historic Areas and Natural Resources

To conserve open space and protect natural and scenic resources.

Policy 1 Implementation D
New mineral and aggregate sites shall not be allowed within the quarter mile boundary of either the John Day or Deschutes Rivers.

<u>Response:</u> The Facility does not propose to develop aggregate resources. Aggregate will be purchased from local gravel operations that already have applicable permits and developed resources in accordance with Wasco County standards.

Policy 3
The Deschutes and John Day River Scenic Waterways shall be maintained and protected as natural and open space areas with consideration for agriculture and recreation.

Response: No portion of the Facility will be directly located in the Deschutes or John Day Scenic Waterway, although some components may be visible from the Deschutes River Scenic Waterway. Exhibit R describes the potential impacts that may occur to the scenic and aesthetic resources in the vicinity of the Facility, while Exhibit T describes the potential impact to recreational areas. A visibility analysis was completed (see Exhibit R) to identify where the Facility components would be visible from these resources. Portions of turbines will be intermittently visible along the Deschutes River and associated hiking and multiuse trails, but will not dominate views. The Facility will not be visible from the John Day River Scenic Waterway.

The Applicant has attempted to minimize any visual impacts to these scenic and recreational resources by reducing the number of proposed turbines from 167 to 87, including those most visible from the Deschutes River. With these mitigation measures, visual impacts are expected to be minimal.

Policy 5
Maintain the existing aesthetic quality of the Columbia River Gorge.

Response: A visibility analysis was completed (see Exhibit R) to identify where the Facility components would be visible from important scenic and aesthetic resources including the CRGNSA. The visibility analysis indicates some portion of the Facility would be visible from the eastern portion of the CRGNSA within the analysis area. Much of the visible area identified in the visibility analysis is not publicly accessible; there are limited roads and most land is held in private ownership. Modeling results and field investigation indicate that the proposed Facility would not be visible from I-84, Historic Columbia River Highway, Rowena Plateau and Nature Conservancy Viewpoint, and the Columbia River. The most likely locations from which to view the proposed Facility occur along Washington SR-14 in the vicinity of Wishram, Washington.

Where visible, the proposed facility would be subordinate to the landscape setting that typically includes significant anthropocentric development such as interstate and rail transportation corridors, extensive wind turbine development, transmission corridors, radio and cellular towers, and urban and rural development in the foreground and middleground.

Given the relative amount of existing encroachment in the foreground and middleground views, that proposed turbines (or portions of turbines) would likely be visible in the background, and limited opportunities to view turbines, the proposed Facility would result in minimal impacts, if any, to the CRGNSA.

Policy 7
Fish and Wildlife

> *-Encourage land use and land management practices which contribute to the preservation and enhancement of fish and wildlife resources, with consideration for private agricultural practices.*
>
> *-To conserve and protect existing fish and wildlife areas.*

-To maintain wildlife diversity and habitat so that it will support optimum numbers of game and nongame wildlife for recreation and aesthetic opportunities.

Response: Exhibits P and Q identify specific fish and wildlife resources, including state and federally listed species in the area, and any potential impacts to those resources. As discussed in those exhibits, the Facility is not expected to significantly affect any listed endangered or threatened species or adversely affect fish and wildlife species or habitat, and there is little or no habitat in the Facility area to support such species. A monitoring plan will be developed in coordination with ODFW to evaluate actual Facility impacts

As this relates to the Facility, construction equipment can be a source of the dispersal of weed seed that may not otherwise be found in the area, and disturbed ground offers an opportunity for weeds to establish themselves. The Facility will develop a weed management plan to prevent the establishment of weeds, as described in Exhibit P, Mitigation Measures. The plan will be developed in consultation with the Wasco County Weed Department and will likely include a restoration effort to clear weeds through a combination of burning (if possible), spraying, and mowing. Additional steps may include planting native grass seed mix (certified weed free) with a no-till drill in the fall, followed by application of broadleaf-specific and post-emergent herbicides as needed.

The Energy Facility Siting process also requires the Applicant to consider and comply with the ODFW Fish and Wildlife Habitat Mitigation Policy as set forth in OAR 635-415-0000 through -0025. As part of Exhibit P, the Facility identified and categorized all fish and wildlife habitats within the habitat analysis area. There is no re Category 1 habitat in the analysis area. The bulk of the habitat within the analysis area is Categories, 3, 4, and 6. The majority of permanent impacts would be to Category 6 – developed land, accounting for approximately over 50 percent of habitat that will be permanently affected. Temporary impacts will occur primarily on primarily Category 6 habitat, accounting for approximately 52 percent of the temporary impact to habitat areas. Mitigation for these impacts will be developed in consultation with the ODFW prior to issuance of the site certificate.

No impacts are anticipated to threatened and endangered species from the construction, operation, and retirement of the Facility, as described in Exhibit Q. The turbines are sited approximately 10 miles from the Columbia River and over one mile from the Deschutes River, which results in minimizing impacts to wildlife including bald eagles and peregrine falcons, species that are much more concentrated along these features. There are no anticipated impacts to the bald eagle from the construction and operation of the wind power facility.

Policy 8
Historic, cultural and archaeological areas should be preserved.

Response: Exhibit S describes existing cultural and historic resources in the analysis area and any potential impacts associated with construction of the Facility. There are no historic or cultural resources listed on the NRHP within the analysis area. During the archaeological survey for this Facility, 12 prehistoric archaeological sites, 1 historic archaeological site, 22 isolated finds, and 3 historic buildings were documented. Ten of the prehistoric archaeological sites are significant and possibly eligible for listing on the NRHP. One historic building, the Center Ridge Schoolhouse, is possibly eligible for NRHP listing.

The design of the Facility will avoid all of these sites (See Exhibit S, Section S.4). A 100-foot avoidance buffer will be placed around the lithic scatter sites, and a 200-foot avoidance buffer around all rock features. The Facility design will require slight relocation of wind turbines and modification to the access road layout. All of this will be accomplished within the 400-foot corridor that was surveyed. The buffer zones around each site will be flagged/barricaded to prevent disturbance during construction.

The proposed wind tower farm has been designed to avoid impacts to cultural resources. It is possible that unidentified resources may be exposed during construction, or known sites may be inadvertently affected despite precautions for avoidance, so in order to avoid such impacts a monitoring program is proposed.

K.6.2.5 Goal 6 – Air, Water and Land Resources Quality

To maintain and improve the quality of the air, water and land resources of the County.

Policy 1
Encourage land uses and land management practices which preserve both the quantity and quality of air, water and land resources.

Response: The Facility will have little impact to air, water, and land resources. The Facility will not create a new pollution source, and traffic associated with the Facility will be minimal. The Facility will not significantly increase the amount of exposed soils in the site area and will have little or no impact to air quality. Any soils exposed during construction will be revegetated to prevent soil erosion from wind and rain (see Exhibit P).

Construction of the Facility will be conducted pursuant to an NPDES General Construction Stormwater (1200-C) Permit issued by the DEQ. The NPDES permit will require the use of best management practices to minimize the potential for erosion.

Best management practices will include a variety of means to minimize the impacts of wind erosion. In actively farmed areas, the wheat crop will protect the stockpiles from wind erosion. In other areas, hay bales or other similar containment features will be used during construction of the Facility. As needed, water from water trucks will be sprayed on disturbed areas to keep wind-borne erosion losses to a minimum. After the need for the staging areas ends, the staging area locations will be brought back to their original contours, topsoil will be spread in these areas, and they will be revegetated or prepared for planting, or for use as range land. Any disturbed non-cropped vegetated areas will be revegetated with the appropriate species.

Wastewater generated on-site will be limited to the O&M building, which will be connected to a DEQ-approved on-site septic system. The only wastewater generated during construction will be from washdown of concrete trucks after concrete loads have been emptied, which will infiltrate into the ground. Washdown will be done by the contractor and will occur at a contractor-owned batch plant, either located in a proposed staging area or off-site at a contractor-owned facility.

No industrial wastewater will be generated during operations. See further discussion in Exhibit V.

As described in Exhibit J, six wetlands were identified during the field investigation, two of which are isolated, with no connection to jurisdictional water features. The remaining four wetlands are associated with the drainage features of Dry Creek and Shotgun Hollow and are tributaries to the Columbia River. No impacts will occur to any wetland and jurisdictional water resources, because the Facility has been designed to avoid these features.

Impacts to land resources will be limited to the permanent impacts associated with construction of the Facility that will affect approximately 82 acres of A-1 land. As described throughout Exhibit K, the amount of land used for the Facility is a very small percent of land with the site boundary area; landowners will be compensated through lease agreements for facilities on their properties; and Facility facilities will be located in a fashion that minimizes impacts to existing farming operations. Additionally, landowners and NRCS staff were contacted to identify any potential impact to existing land uses related to the Facility, and the results of these interviews are included as Attachment K-1. No concerns or adverse impacts were identified, except for the potential for weeds in disturbed areas. The Applicant has coordinated with the Wasco County Weed Department to develop measures to minimize weeds and develop a weed management plan (see Exhibit I).

Policy 4
Noise levels should be maintained in compliance with state and federal standards.

Implementation

A. *Noise levels for all new industries must be kept within standards set by state and federal agencies.*

B. *Consideration for the effects of noise on the surrounding environment will be given when a new development of any kind is proposed.*

C. *Noise sensitive areas should be identified and only compatible uses permitted in their vicinity.*

Response: A noise analysis was completed for the Facility and is described in Exhibit X. The Facility components will be located on private land for which the Applicant has negotiated long-term wind energy leases or easements with the landowners. The wind energy leases allow the Applicant to permit, construct, and operate wind energy facilities for a defined period. The area is sparsely populated; all identified homes are located on lands for which the Applicant has entered into wind energy leases or easements with the landowners.

This noise analysis concluded that applicable DEQ noise regulations will be met for construction and operation of the Facility, with all receptors complying with the 50 dBA noise limit. When the precise turbine layout has been selected and before construction of the

Facility, the Applicant will submit for review (pursuant to Council-approved methodology) an acoustical analysis of the Facility performed with the same methodology as the analysis conducted for Exhibit X. The Applicant will also submit evidence that it has secured the noise easements as necessary for any sensitive receptors.

K.6.2.6 Goal 8 – Recreational Needs

To satisfy the recreational needs of the citizens of Wasco County and visitors.

Policy 1
Manage the Deschutes and John Day Scenic Waterways to minimize recreational over-use, accumulation of solid waste and conflicts with agricultural use, while maximizing their scenic and recreational values.

Response: The Facility will not provide any recreational amenities that would attract additional users to the John Day or Deschutes Scenic Waterways, nor would it alter the land uses in the vicinity of those rivers. The area is primarily used for winter wheat and grazing and will continue to be used for those purposes.

Solid waste generated in the construction and operation of the proposed Facility will not have an impact on the John Day or Deschutes Scenic Waterways. The Facility will generate minimal construction waste and very little solid waste that would require off-site disposal. The nearest landfill is the Wasco County Landfill, which is located approximately 3 miles south of The Dalles, and as described in Exhibit U, is not Facilityed to reach capacity for at least 50 years. Conversations with landfill operators did not identify any concerns regarding solid waste generation from construction or operation of the Facility.

Policy 2
Develop and maintain a variety of recreational sites and open spaces adjacent to population concentrations to adequately meet the County's recreational needs.

Implementation

D. *Aesthetic values in existing and future re-creational sites should be preserved and enhanced.*

Response: Exhibit R describes the potential impacts that may occur to the scenic and aesthetic resources in the vicinity of the Facility, while Exhibit T describes the potential impact to recreational areas. A visibility analysis was completed (see Exhibit R) to identify where the Facility components would be visible. Some Facility components may be visible from existing recreational sites, such as the Columbia River Gorge Scenic Area in some locations and along portions of the Deschutes River and associated hiking and multiuse trails. No future recreation sites where the Facility would be visible were identified.

The Applicant has attempted to minimize any visual impacts to these scenic and recreational resources by reducing the number of proposed turbines from 167 to 87, including those most visible from the Deschutes River. With these mitigation measures, visual impacts are expected to be minimal.

K.6.2.7 Goal 9 – Economy of the State

To diversify and improve the economy of Wasco County.

Policy 1
Maintain agriculture and forestry as a basis of the County's rural economy.

Response: The Facility will benefit the local economy by providing stable revenue for area landowners, who will receive lease payments for use of their land. The Facility will result in a net benefit to farm incomes. The minimal loss of farm income based on the limited amount of land that the Facility proposes to withdraw from farm production will be more than offset by revenue to local farmers from wind turbine leases. Assuming that an average of 41 bushels of wheat per acre is harvested in this area and, as of February 2009, sells for an average of $5.70 per bushel, there would be a revenue of approximately $233 per acre. The Facility will permanently remove approximately 82 acres of land from farm production. Revenue from 82 acres of wheat sold at $233 per acre would be $19,106 annually. Royalty payments to landowners and operators vary, but typically range from $2,000 to $4,000 per turbine, per year. If the Facility consists of 87 turbines, the total in annual lease payments that would be paid by the Facility would be between $174,000 and $348,000, which will more than offset the annual losses in revenue from growing wheat. The additional revenues received by farmers from wind Facility lease payments will provide a stable and predictable source of income that will supplement farm revenues and help ensure that landowners' farming operations can remain viable in years with lower crop yields or prices.

Policy 2
Commercial and industrial development compatible with the County's agricultural and forestry based economy will be encouraged.

Response: The Facility is consistent with the purposes of the A-1 zone, which allows for the development of commercial utility facilities as a conditional use. Further, the Facility will result in a net benefit to farm incomes, as described above in response to Policy (1). The minimal loss of farm income based on the limited amount of land that the Facility proposes to withdraw from farm production will be more than offset by revenue to local farmers from wind turbine leases.

Policy 3
Wasco County will support the expansion and increased productivity of existing industries and firms as a means to strengthen local and regional economic development.

Response: As described above, the Facility, through lease payment to landowners, will provide a stable long-term income for the farming operation, compared to current revenues from agricultural products that can fluctuate significantly on a seasonal basis, often depending on weather and worldwide conditions outside of the farm operator's control. Lease payments are dependable sources of income and improve the potential that landowners and farm operators can purchase additional equipment and hire staff, as needed, to support their existing operations and potentially expand. This directly supports the local economy.

The Facility will benefit the local economy in the short term by providing short-term construction-related employment, as described in Exhibit U. Facility construction is anticipated to take about seven months and employ an estimated 250 workers at peak construction periods. When feasible, preference will be given to local workers.

During construction, construction workers and their employers will purchase goods and supplies, stay in area hotels, and eat at local restaurants, all of these providing an economic benefit to the local and regional economy by supporting area businesses

Development of the Facility will increase economic diversity within the County and offer nonagricultural employment opportunities for local residents. When operational, the Facility will add approximately 26 full- and part-time jobs within Wasco County, a portion of which will be filled locally.

Finally, operation of the Facility will also produce additional revenue for Wasco County. This additional revenue will contribute to improved local services such as roads, schools, police, and fire that benefit the entire area.

K.6.2.8 Goal 11 – Public Facilities and Services

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

Policy 1
Provide an appropriate level of fire protection, both structural and wildfire, for rural areas.

Response: Exhibit U identifies the fire and emergency service providers covering the analysis area. There are several fire departments located in the vicinity of the Facility that could respond in the event of an emergency, but all are staffed by volunteers and, given the rural nature of the area, can take some time to respond. Federal and state agencies such as United States Forest Service (USFS), Bureau of Land Management (BLM), or Oregon State Forestry Department (ODF) also provide fire suppression, and additional support is available from other adjacent fire protection districts, the closest being the City of Dufur. Generally, landowners are the first responders for fires and rely on available farm equipment, mainly 100-gallon water tanks placed in the back of trucks, for fire suppression.

The City of Dufur Fire and Ambulance Service is the first responder in the event of a structural fire and/or medical emergency, although the department does not have the training or equipment for rope rescue operations. The Applicant proposes several measures (identified in Exhibit U) to address this need and reduce the potential for fires related to the Facility. To minimize the potential of fires starting from construction-related activities, roads will be established prior to construction to minimize vehicle contact with dry grass; idling vehicles in grassy areas will be avoided; and open flames, such as cutting torches, will be kept away from grassy areas. Staging areas will be graveled to minimize fire potential; in addition, a water truck will be available on-site to respond to any potential fire incidents.

The Applicant will also coordinate response protocols with the Columbia Rural Fire District, Dufur Fire, and the BLM. The Applicant will work closely with the area fire districts to address the potential incidents that may arise from construction-related traffic. Finally, the Applicant will have trained staff and appropriate equipment on-site to respond to events, such as high angle rescue, that cannot be handled by the fire departments. The nature of the training and equipment will be decided after consultation with the above-mentioned responders.

Policy 3
Minimize adverse impacts resulting from power line corridor and utility development.

Implementation

A. *The Bonneville Power Administration should compensate for damage resulting from power-line corridor development at levels based on the loss of agricultural and residential values and productivity.*

B. *When economically and physically feasible, transmission lines should be laid underground.*

C. *The Planning Commission and Citizen Advisory Groups should review all future Bonneville Power Administration power line corridor developments which may be routed through Wasco County, as well as all electrical substation and power plant development proposals.*

D. *Public utility easements and transmission line corridors should be designed to provide for multiple land use.*

E. *Maximum utilization of existing utility right-of-way should be encouraged to minimize the need for additional rights-of-way.*

F. *Public utilities shall be responsible for appropriate maintenance including noxious weed control on all existing and future rights-of-way.*

<u>Response:</u> The proposed feeder transmission line is described in Exhibit B, Section B.11. No additional BPA right-of-way is needed, and interconnection to the BPA Big Eddy to Maupin-Redmond transmission line will not require BPA to acquire any additional right-of-way; therefore, (A) does not apply. The proposed transmission line will be constructed by the Applicant on private right-of-way obtained by the Applicant from willing landowners, who will be compensated for use of their property and any loss of agricultural income.

The topography of area between the Facility substation and the BPA interconnection point located east of the Facility is composed of flat or rolling agricultural land interspersed with deep valleys, preventing the transmission line from being located underground. The feeder transmission line towers are currently proposed to be wood H-frame supports up to 70 feet high, spaced approximately 800 feet apart. No alternative location exists that is either physically or economically feasible, as identified in (B), that can provide a direct route from the substation to the interconnection point because the transmission lines runs generally east/west, while the deeper valley runs in a north/south direction.

As described above, no additional BPA right-of-way is required; therefore, (C) is not applicable, although the Application for Site Certificate process does provide opportunities during the application process for public comment on any component of the Facility .

The proposed transmission line right-of-way is 150 feet wide across private land, not public land; therefore (D), does not apply. Where feasible, agricultural uses will be preserved within the right-of-way to minimize impacts to existing agricultural operations and reduce the amount of land taken out of production. There is no existing public right-of-way in the vicinity of the Facility that can be used for the proposed feeder transmission line as described in (E). The proposed easement on private land is approximately five miles shorter than the closest route available along public right-of-way. The shorter line minimizes visual impacts and power losses, reduces the amount of land needed for the Facility, improves the transmission line's efficiency, and locates it away from residential areas.

K.6.2.9 Goal 12 – Transportation

To provide and encourage a safe, convenient and economic transportation system.

Policy 1
Develop and maintain an adequate County road system.

Response: The Facility will use several public roads during the Facility's construction and operation and, where necessary, will improve the roadbed to accommodate construction equipment. This is a benefit to Wasco County because the Facility will bear the cost of these improvements, and when the improvements are completed, they will be available for public use. Private roads will remain private and be used exclusively by the Applicant or landowner.

Construction traffic will use US 197 to connect to local Wasco County roads to access private land where the construction staging areas and turbine strings will be located. County-designated rural collectors such as Emerson Loop Road and Boyd Loop Market Road potentially could be used for access into northern and southern portions, respectively, of the Facility area. Local roads are generally gravel rural roadways with little traffic other than local agricultural and residential traffic. Portions of local roads that may be used include: Fifteen Mile Road, Roberts Market Road, Summit Ridge Market Road, Center Ridge Market Road, Old Tygh Market Road, Wrentham Market Road, and Long Hollow Market Road.

The Facility will also require construction of approximately 19 miles of new access roads and renovation or improvement of approximately six miles of existing public roads. Planned new roads, road improvements, and access improvements are shown in Exhibit C.

Existing unpaved roads will be utilized to the extent practicable to reduce the need for new road construction. Where needed, the existing roads will be improved to the following general configuration: site access roads that will be used for construction equipment, including erector cranes, will be designed to a total width of 40 feet, consisting of a 20-foot wide graveled surface and two 10-foot compacted shoulders. Erosion control and drainage best management practices will be included in the design of all roads. After the completion of construction, the road shoulders, which are needed during construction to accommodate the cranes, will be removed and restored to farmable condition. The 20-foot width of the graveled surface will generally be left to facilitate operation of the Facility and for the convenience for the farmer, unless removal is requested. All areas temporarily disturbed during road construction will be restored to its existing condition and contours. There will be no separate crane paths constructed to allow the construction crane access from string to string.

In areas where there are no existing roads to access wind turbine strings or proposed facilities, new access roads will be constructed to the dimensions described above. Permanent turnaround areas will be situated at or near the end of each turbine string.

All road work will be conducted in compliance with the Facility's erosion control plan as part of the Facility's NPDES Construction Stormwater (1200-C) Permit. The erosion control plan will include best management practices for erosion control during and after construction, and permanent drainage and erosion control facilities as necessary to allow stormwater passage without damage to local roads or to adjacent areas and without increasing sedimentation to any intermittent streams in the vicinity of the Facility.

K.6.2.10 Goal 13 – Energy Conservation

To conserve energy.

Policy 1
The County will work with appropriate State and Federal agencies to identify and protect, and if feasible, develop potential energy resources, especially renewable energy resources.

Response: This policy refers to coordination between Wasco County and state and federal agencies and is not directly applicable to the Facility. The policy does identify, however, the importance that Wasco County places on developing renewable energy resources within the county boundaries. The Facility supports this goal by developing an energy facility that is renewable, sustainable, and nonpolluting.

Policy 2
Reduce the consumption of non-renewable sources of energy whenever possible.

Implementation

A. *Conversion of energy sources from non-renewable sources to renewable sources shall be encouraged.*

B. *The allocation of land and uses permitted on the land should seek to minimize the depletion of non-renewable sources of energy.*

Response: The Facility is a renewable wind resource generating Facility, and while it does not propose to convert nonrenewable energy sources to renewable energy, the Facility will provide additional capacity from renewable energy sources so that nonrenewables, such as coal and fossil fuels, may be needed less than if the Facility were not constructed. During construction, nonrenewable energy will be used, primarily from fossil fuels. However, when the Facility is operational, it will require little nonrenewable energy to operate, needing only limited supplies of fuel for maintenance vehicles that still rely on fossil fuels. Given the minimal amount nonrenewable energy needed to operate the Facility compared to the much greater output of renewable energy that will be produced, there will be a significant benefit from the construction and operation of the Facility.

Policy 5
Use of renewable energy shall be encouraged.

Implementation

A. Wind generators will be permitted in the forestry, agricultural and rural zones.

Response: The Facility is locate entirely within the A-1 zoning district, which permits "Commercial utility facilities for the purpose of generating power for public use by sale" as a conditional use within the A-1 zoning district.

K.7 DIRECTLY APPLICABLE STATUTES, GOALS AND LCDC RULES

K.7.1.1 Oregon Revised Statutes

197.646 Implementation of new or amended goals, rules or statutes; rules.

(1) A local government shall amend its acknowledged comprehensive plan, regional framework plan and land use regulations implementing either plan by a self-initiated post-acknowledgment process under ORS 197.610 to 197.625 to comply with:

(a) A new statutory requirement; or

(b) A new land use planning goal or rule requirement adopted by the Land Conservation and Development Commission.

(2) Periodic review is not the implementation process for new statutory, land use planning goal or rule requirements.

(3)(a)The Department of Land Conservation and Development shall notify local governments when a new statutory requirement or a new land use planning goal or rule requirement adopted by the commission requires changes to an acknowledged comprehensive plan, a regional framework plan and land use regulations implementing either plan.

(b) The commission shall establish, by rule, the time period within which an acknowledged comprehensive plan, a regional framework plan and land use regulations implementing either plan must be in compliance with:

(A) A new statutory requirement, if the legislation does not specify a time period for compliance; and

(B) A new land use planning goal or rule requirement adopted by the commission.

(4) When a local government does not adopt amendments to a comprehensive plan, a regional framework plan and land use regulations implementing either plan as required by subsection (1) of this section, the new statutory, land use planning goal or rule requirements apply directly to the local government's land use decisions. The failure to adopt amendments to a comprehensive plan, a regional framework plan and land use

regulations implementing either plan required by subsection (1) of this section is a basis for initiation of enforcement action pursuant to ORS 197.319 to 197.335. [1991 c.612 §7; 2005 c.829 §7; 2007 c.71 §67]

Response: Wasco County most recently amended the WCLUDO on August 4, 2009. The current version of the WCLUDO fully implements Oregon's land use statutes, statewide planning goals, and administrative rules that are potentially applicable to the Facility. WCLUDO Section 3.210(J)(8) implements ORS 215.275 (criteria for utility facilities necessary for public service) and is addressed above. The criteria in WCLUDO Section 3.210(J)(17) implement LCDC's January 2009 amendments to the Oregon administrative rules to allow "wind power generation facilities" located on agricultural lands subject to the standards in OAR 660-033-0130(37) without taking an exception to statewide planning goals. These criteria are addressed above in the response to WCLUDO Section 3.210(J)(17). Finally, WCLUDO Section 5.020(J) and (K) implement the substantive standards in ORS 215.296(1) (conditional use standards for non-farm uses in EFU zones), and are also addressed above. The procedural standards in ORS 215.296 are addressed below. There are no other directly applicable statutes, statewide planning goals, or administrative rules.

215.296 Standards for approval of certain uses in exclusive farm use zones; violation of standards; complaint; penalties; exceptions to standards.

(1) A use allowed under ORS 215.213 (2) or 215.283 (2) may be approved only where the local governing body or its designee finds that the use will not:

(a) Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or

(b) Significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

(2) An applicant for a use allowed under ORS 215.213 (2) or 215.283 (2) may demonstrate that the standards for approval set forth in subsection (1) of this section will be satisfied through the imposition of conditions. Any conditions so imposed shall be clear and objective.

(3) A person engaged in farm or forest practices on lands devoted to farm or forest use may file a complaint with the local governing body or its designee alleging:

(a) That a condition imposed pursuant to subsection (2) of this section has been violated;

(b) That the violation has:

(A) Forced a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or

(B) Significantly increased the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use; and

(c) That the complainant is adversely affected by the violation.

(4) Upon receipt of a complaint filed under this section or ORS 215.218, the local governing body or its designee shall:

(a) Forward the complaint to the operator of the use;

(b) Review the complaint in the manner set forth in ORS 215.402 to 215.438; and

(c) Determine whether the allegations made in a complaint filed under this section or ORS 215.218 are true.

(5) Upon a determination that the allegations made in a complaint are true, the local governing body or its designee at a minimum shall notify the violator that a violation has occurred, direct the violator to correct the

conditions that led to the violation within a specified time period and warn the violator against the commission of further violations.
(6) If the conditions that led to a violation are not corrected within the time period specified pursuant to subsection (5) of this section, or if there is a determination pursuant to subsection (4) of this section following the receipt of a second complaint that a further violation has occurred, the local governing body or its designee at a minimum shall assess a fine against the violator.
(7) If the conditions that led to a violation are not corrected within 30 days after the imposition of a fine pursuant to subsection (6) of this section, or if there is a determination pursuant to subsection (4) of this section following the receipt of a third or subsequent complaint that a further violation has occurred, the local governing body or its designee shall at a minimum order the suspension of the use until the violator corrects the conditions that led to the violation.
(8) If a use allowed under ORS 215.213 (2) or 215.283 (2) is initiated without prior approval pursuant to subsection (1) of this section, the local governing body or its designee at a minimum shall notify the user that prior approval is required, direct the user to apply for approval within 21 days and warn the user against the commission of further violations. If the user does not apply for approval within 21 days, the local governing body or its designee shall order the suspension of the use until the user applies for and receives approval. If there is a determination pursuant to subsection (4) of this section following the receipt of a complaint that a further violation occurred after approval was granted, the violation shall be deemed a second violation and the local governing body or its designee at a minimum shall assess a fine against the violator.
(9)

(a) The standards set forth in subsection (1) of this section do not apply to farm or forest uses conducted within:

(A) Lots or parcels with a single-family residential dwelling approved under ORS 215.213 (3), 215.284 (1), (2), (3), (4) or (7) or 215.705;
(B) An exception area approved under ORS 197.732; or
(C) An acknowledged urban growth boundary.

(b) A person residing in a single-family residential dwelling which was approved under ORS 215.213 (3), 215.284 (1), (2), (3), (4) or (7) or 215.705, which is within an exception area approved under ORS 197.732 or which is within an acknowledged urban growth boundary may not file a complaint under subsection (3) of this section.
(10) Nothing in this section shall prevent a local governing body approving a use allowed under ORS 215.213 (2) or 215.283 (2) from establishing standards in addition to those set forth in subsection (1) of this section or from imposing conditions to insure conformance with such additional standards. [1989 c.861 §6; 1993 c.792 §15; 2001 c.704 §8; 2003 c.616 §3]

Response: ORS 215.296 identifies the approval process for certain uses within an EFU zone, including those identified in ORS 215.213, and provides a path if a complaint or violation is filed regarding the proposed use within the EFU zone. As described above, the Facility is consistent with ORS 215.213 and its standards, and the Applicant has elected to seek a Council determination for the Facility, including any conditions imposed by the Council, as determined through the EFSC application process. If a complaint or violation were filed, it would be addressed through the EFSC siting process.

K.8 FEDERAL LAND MANAGEMENT PLANS

OAR 345-021-0010(1)(k)(D) *If the proposed facility will be located on federal land:*

i. Identify the applicable land management plan adopted by the federal agency with jurisdiction over the federal land;
ii. Explain any differences between state or local land use requirements and federal land management requirements;
iii. Describe how the proposed facility complies with the applicable federal land management plan;
iv. Describe any federal land use approvals required for the proposed facility and the status of application for each required federal land use approval;
v. Provide an estimate of time for issuance of federal land use approvals; and
vi. If federal law or the land management plan conflicts with any applicable state or local land use requirements, explain the differences in the conflicting requirements, state whether the applicant requests Council waiver of the land use standard described under paragraph (B) or (C) of this subsection and explain the basis for the waiver.

Response: These provisions are not applicable to the Facility. No portion of the Facility will be located on federal land.

K.10 REFERENCES

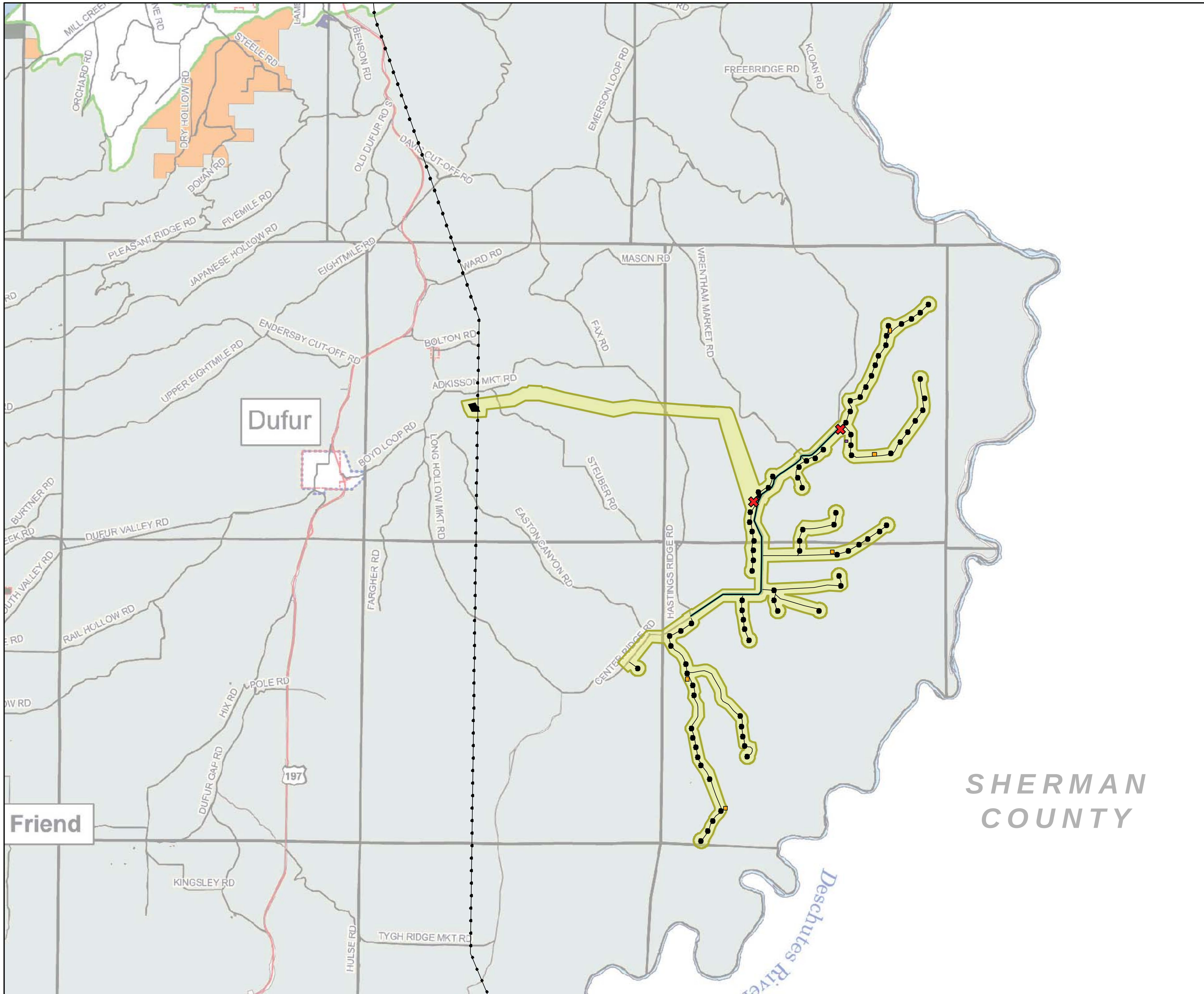
National Resource Conservation Service. Web Soil Survey, Wasco County Oregon. Available online: http://www.or.nrcs.usda.gov/pnw_soil/or_data.html. Accessed: July 2009.

Nychyk Gary, Senior Planner, Wasco County Planning Department. Telephone conversations, September 8, 2009 and September 21, 2009.

USDA National Agricultural Statistics Service . 2007. Census of Agriculture. http://www.agcensus.usda.gov/Publications/2007/Full_Report/index.asp

FIGURE K-1

Zoning



LotusWorks - Summit Ridge I, LLC

Figure K-1
Wasco County Zoning

Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation and O&M Building Locations
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Proposed Turbines

Wasco County Zoning

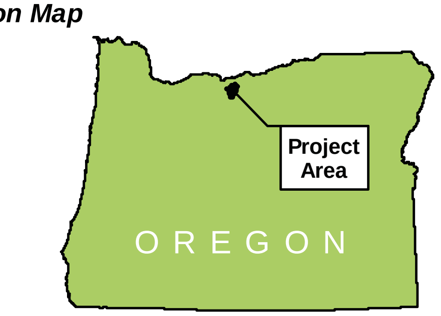
- A-1 (160)

N

0 2 4 6

Miles

Location Map



Data Sources:

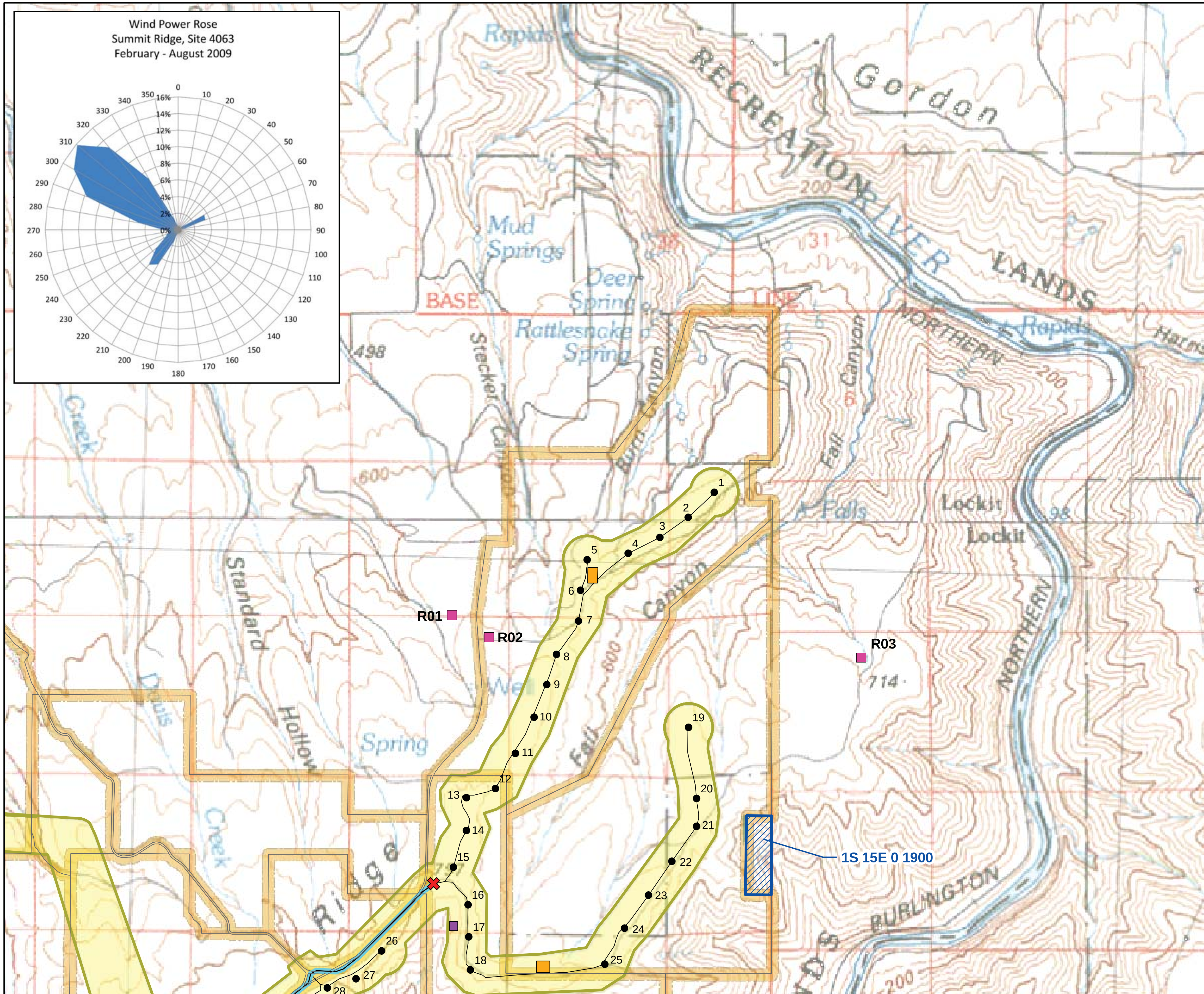
LotusWorks, 2009
Wasco County, Oregon, January 2006

LotusWorks
Summit Ridge I

File: P:\L\LOTW00000001\0600INFO\GS\arcmap\REVISED_NOV2009\Fig_K-1_Zoning_REV_113009.mxd
Printing Date: Wednesday, December 23, 2009 2:14 PM

FIGURE K-2

Property Setbacks



LotusWorks - Summit Ridge I, LLC

Figure K-2
Property Setbacks
Sheet 1

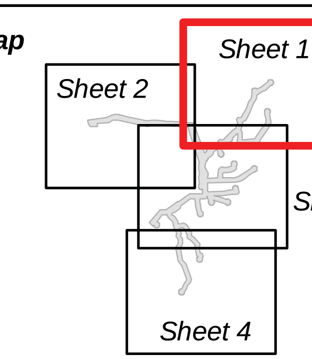
Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Residence/Noise Receptor
- Property Line Setbacks (200-ft)
- Wind Turbine Setbacks (1655-Feet)
- Setbacks outside of Lease Property

N

0 0.75 1.5
Miles

Location Map



Data Sources:

LotusWorks, 2009

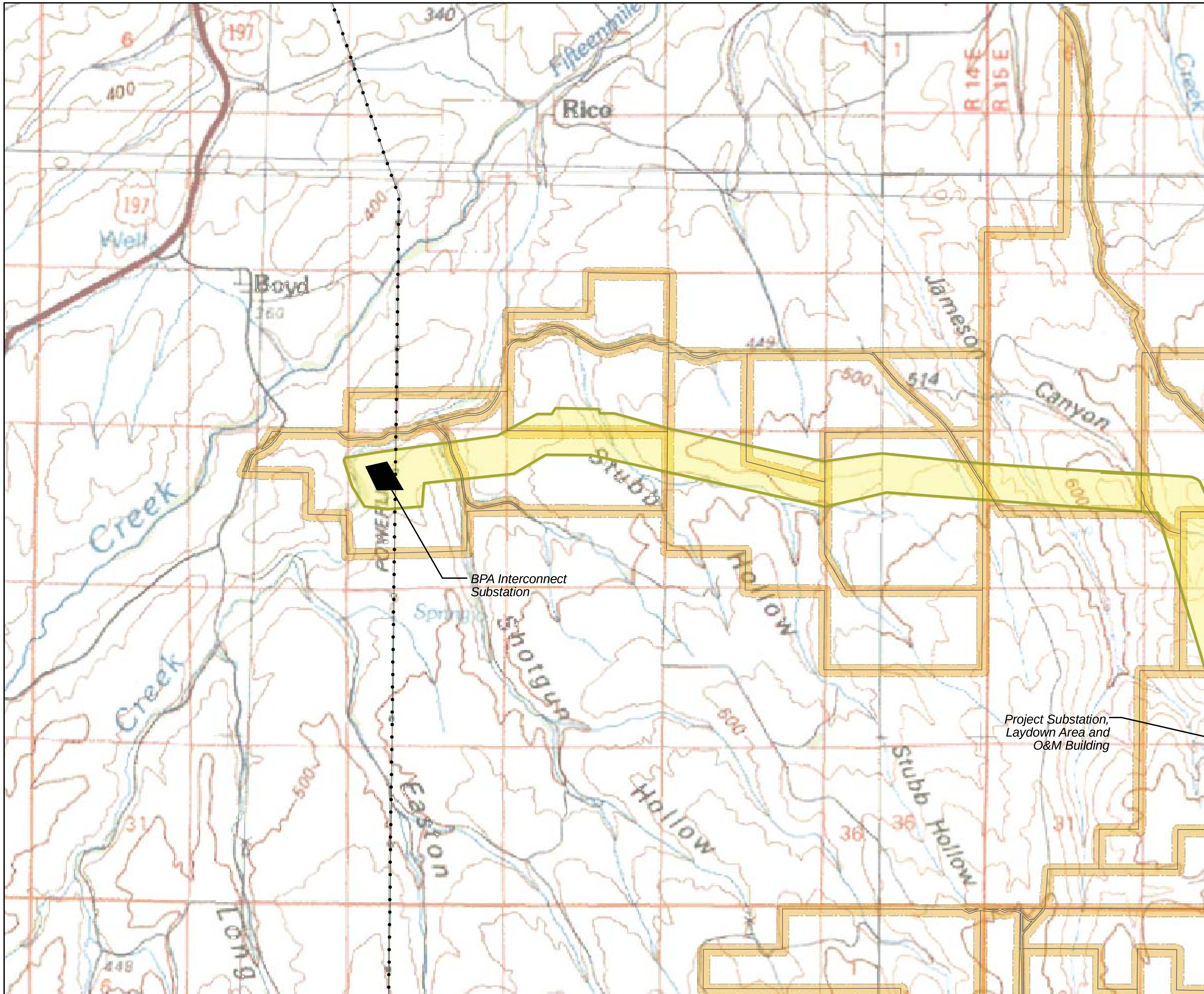
Wasco County, Oregon, January 2006

USGS Quadrangles: (Oregon) Condon, Goldendale, Hermiston, Hood River, Mt. Adams, and Mt. Hood

LotusWorks Summit Ridge I

LotusWorks - Summit Ridge I, LLC

Figure K-2
Property Setbacks
Sheet 2



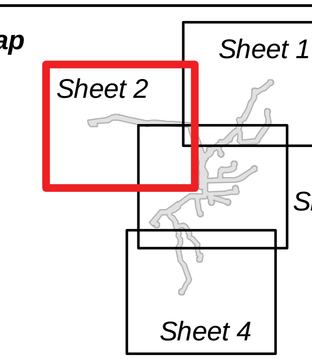
Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Residence/Noise Receptor
- Property Line Setbacks (200-ft)
- Wind Turbine Setbacks (1655-Feet)
- Setbacks outside of Lease Property

N

0 0.75 1.5
Miles

Location Map



Data Sources:

LotusWorks, 2009

Wasco County, Oregon, January 2006

USGS Quadrangles: (Oregon) Condon, Goldendale, Hermiston, Hood River, Mt. Adams, and Mt. Hood

LotusWorks Summit Ridge I

Printing Date: Monday, March 29, 2010
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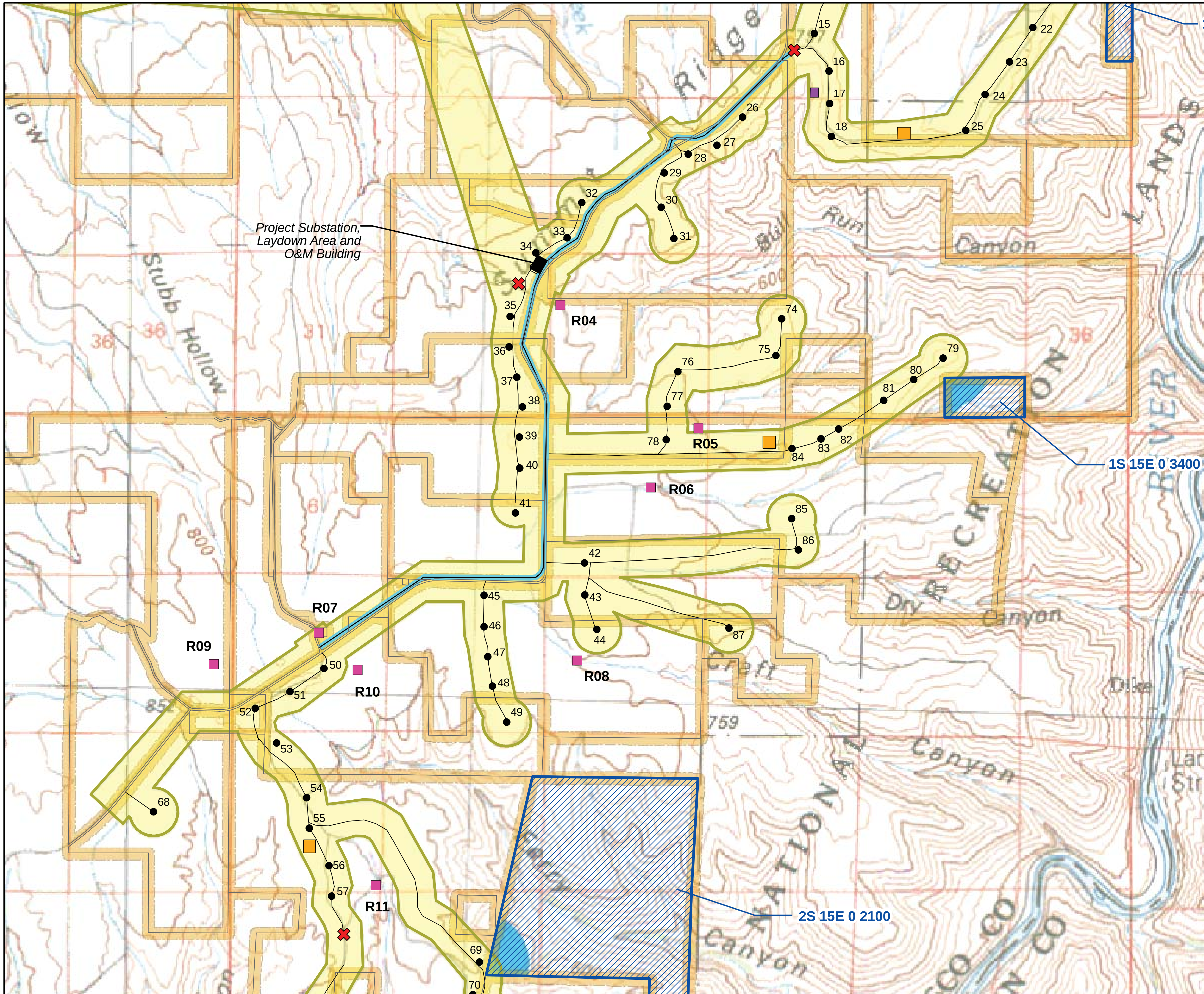


LotusWorks - Summit Ridge I, LLC

Figure K-2
Property Setbacks
Sheet 3

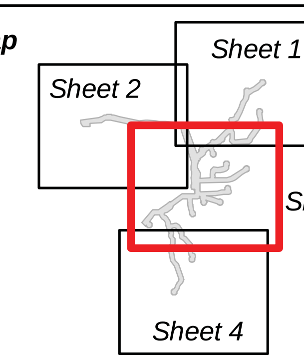
Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Residence/Noise Receptor
- Property Line Setbacks (200-ft)
- Wind Turbine Setbacks (1655-Feet)
- Setbacks outside of Lease Property

N

0 0.75 1.5
Miles

Location Map



Data Sources:

LotusWorks, 2009

Wasco County, Oregon, January 2006

USGS Quadrangles: (Oregon) Condon, Goldendale, Hermiston, Hood River, Mt. Adams, and Mt. Hood

LotusWorks Summit Ridge I

Printing Date: Monday, March 29, 2010
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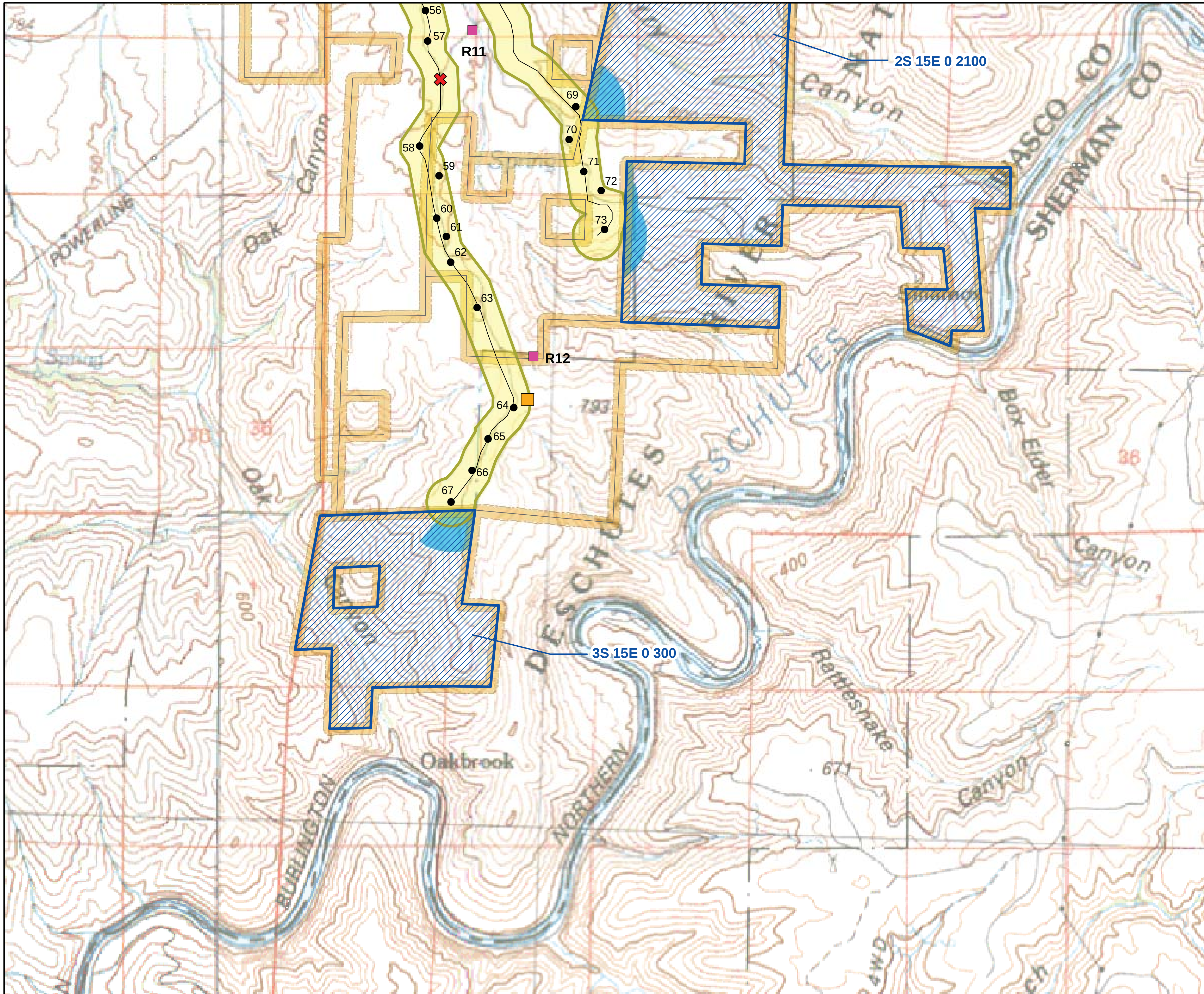
LotusWorks - Summit Ridge I, LLC

Figure K-2
Property Setbacks
Sheet 4



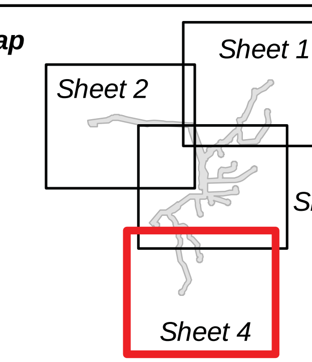
Legend

- Site Boundary
- Existing Roads to be Improved
- Proposed Access Roads
- Bonneville 230 KV Line
- Proposed Substation
- Proposed Batch Plant Location
- Proposed Laydown Areas
- Proposed Met Tower Locations
- Residence/Noise Receptor
- Property Line Setbacks (200-ft)
- Wind Turbine Setbacks (1655-Feet)
- Setbacks outside of Lease Property

N

0 0.75 1.5
Miles

Location Map



Data Sources:

LotusWorks, 2009

Wasco County, Oregon, January 2006

USGS Quadrangles: (Oregon) Condon, Goldendale, Hermiston, Hood River, Mt. Adams, and Mt. Hood

LotusWorks
Summit Ridge I

Printing Date: Monday, March 29, 2010
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ATTACHMENT K-1

Farm Survey Memorandum

DAVID EVANS AND ASSOCIATES INC.

MEMORANDUM

DATE: September 21, 2009

TO: File

FROM: Anneke Van der Mast, Alex Dupey

SUBJECT: **Farm Impacts Analysis**

PROJECT: Summit Ridge Wind Farm

PROJECT NO: LOTW00000001

COPIES:

This memorandum addresses the existing conditions in the vicinity of the proposed Summit Ridge Wind Farm, potential impacts and costs to farming practices from the Facility, and available mitigation. This memo is intended to support findings in Exhibit K of the Application for Site Certificate.

State law under Chapter 215.200 (Agricultural Land Use, Exclusive Farm Use Zones) of the Oregon Revised Statutes requires an analysis of a proposed project's impacts on agricultural lands when they are proposed to be impacted by non-agricultural uses. ORS 215.203(1) states that zoning ordinances may designate areas as exclusive farm use zones, within which land shall be used exclusively for farm use except as otherwise provided in ORS 215.213, 215.283 or 215.284. ORS 215.203(2)(a) defines "farm use," in part as "the current employment of land for the primary purpose of obtaining a profit in money by raising, harvesting and selling crops or the feeding, breeding, management and sale of, or the produce of, livestock…"

Methodology

Information on farm crops and farm and grazing practices in the area came from interviews with farm owners and/or farm operators located within the Facility lease boundary and an interview with Brian Tuck of the Wasco County Oregon State University Extension office. A blank copy of the survey is attached. The anticipated impact to landowners/farm operators is based on lost revenue from farmland permanently converted to utility use, while revenue generated for property owners and farm operators is based on the anticipated lease payment from the Applicant. Revenue per bushel of wheat was estimated based on the current value of wheat based on the most recent market conditions reported by the Oregon Wheat Grower League (February 2009).

Existing Conditions and Facility Impacts

The Facility lease boundary is approximately 25,000 acres of land located south of The Dalles in central Wasco County. Land in the Facility lease boundary is zoned A-1 (Exclusive Farm Use) and is non-irrigated land used mostly for dry-land wheat or cattle grazing, which is typical for all of Wasco County where wheat is the dominant crop, which in 2007, the most recent agricultural census data available, had approximately 56,091 acres of wheat harvested and only 1,211 acres of barley harvested. High-value soils account for approximately 5% (1,477 acres) of the total land within the Facility lease boundary and transmission line corridors.[1]

Farm Practices

"Accepted farming practices" is defined at ORS 215.203(2)(c) as "a mode of operation that is common to farms of a similar nature, necessary for the operation of such farms to obtain a profit in money, and customarily utilized in conjunction with farm use." Typical farm practices for dryland wheat farming consist of land preparation in the spring, such as fertilizing, sowing, followed by mechanical weeding with rod weeders and hand removal of weeds where rod weeders cannot reach, and harvesting. Soil preparations for winter wheat can involve burning stubble, spreading straw or crop residue, and reducing tall stubble by discing or harrowing. Most respondents said they practiced "no till farming" as an erosion control measure, which is a method to plant seeds directly into the soil without turning over the soil first. Farming in this area according to survey respondents occurs between March and October. Respondents stated that they typically fertilize with both aerial and on the ground sprayers.

Some respondents have cattle grazing in areas where crops aren't suitable either because of steep terrain, soils are too rocky or where fields were left to fallow in a rotation cycle. All respondents had fewer than 200 head of cattle.

Access to the parcels is important for moving farming vehicles or equipment that is not stored on-site. All of the survey respondents said they use local roads to transport equipment. Some equipment is large, with 28-foot-wide combines and up to 50-foot-wide rod weeders that require dismantling or "folding up" before they can be moved. Because the vehicles move slowly compared to regular traffic, transportation along well-traveled roads can be a challenge. The time needed to fold up and move the vehicles can affect profitability as well, particularly at critical times such as harvesting if there are large areas to cover when the crops are at their peak. Most respondents said they move equipment early in the mornings to avoid traffic, but if needed they will move it at any time during the day.

Potential Farm Impacts

The Facility lease boundary encompasses approximately 25,000 acres, of which the Facility will permanently remove approximately 68 acres of land from farm use, primarily for turbine and new access road construction, while 93 acres of farmland will be affected temporarily (by construction laydown sites and temporary road widening). The amount removed from production is about 0.3 percent of the total Facility lease boundary.

Within the Facility lease boundary, the micrositing corridors are generally not located on high value soils, with the exception of portions of the southern and central corridor where there is some overlap between the two. Impacts to high-value farmland are also expected to account for less than 0.8 percent of high-value farmland within the lease boundary.

---

[1] High-value farmland (as defined in ORS 215.710) are soils that are: (a) Irrigated and classified prime, unique, Class I or Class II; or (b) Not irrigated and classified prime, unique, Class I or Class II. Impacts to high value soils are described Exhibit I and K.

Permanent impacts consist of replacing farmed or grazing land with a utility use (including roads to access the turbine strings) and forced changes in harvesting patterns to avoid the turbine strings. If the turbine strings are long and bisect a parcel, they effectively convert the site into two parcels for farming purposes, primarily from the aspect of difficulty in moving and manipulating equipment and vehicles to, across, and around the property. Rod weeders, for example, can be 50 feet wide. Another potential permanent impact is the chance for new weeds to become established as a result of construction. Equipment brought from other parts of the state can carry weed seeds that opportunistically establish themselves and threaten crop yields and quality. Weed control is a major concern of farmers.

The Facility will require approximately 68 acres of land to be permanently removed from farm use while 93 acres of farmland will be temporarily affected. Assuming conservatively that 90 of this land percent is actively farmed; the amount removed from production is about 34 acres, or less than 0.4 percent of the land in the Facility lease boundary vicinity of the proposed Facility. If comparing the loss of production to all of Wasco County where there was approximately 57,302 acres harvest in wheat and barley in 2007, the total amount of land removed from production would amount to approximately 0.05 percent of the land devoted to wheat and barley production in Wasco County.

Temporary impacts consist of delays in access to roads or property by construction traffic, and temporary displacement of crops by construction activities. Several of the roads listed by farm owners or operators are slated for improvements, which will cause temporary delays but when completed will improve the functionality of the roads for transporting farm equipment and vehicles. There would be little to no effect from permanent changes in traffic volumes due to the small number of permanent employees of the Facility.

To the extent that disruptions cause delays in harvesting, more time spent moving equipment, and interruptions to harvesting patterns, farm revenues can be adversely affected. This depends on the timing of construction (a temporary impact) and on the general configuration of each parcel (a permanent impact). Of the five survey respondents asked if they anticipated the Facility would force a significant change in their farming or grazing practices, one stated that it would, however, he did not elaborate. One respondent stated that the Facility would “take out some little plots of land” and another mentioned the fields may be bisected but didn’t think this would essentially change how the land was farmed.

Brian Tuck with the OSU Extension stressed that a major concern as a result of the Facility is the threat of weeds. He suggested a system of controls or a plan be set in place to prepare for and prevent the spread of weeds as a result of the Facility. Mr. Tuck also mentioned aesthetics as a consideration but did not see it as a major concern.

Although most of the land in site boundary is used for growing crops, some of the land is used for grazing. There will be little impact to grazing practices as a result of the project. However, some available forage may be replaced with utility uses including the turbine pads, and access roads. However, the percentage of forage area lost from construction of the Facility will not have a significant impact on grazing patters and will not affect the number of livestock the land can support. Livestock will be able to move freely around the turbines which may provide a benefit by providing an element of shelter and shade.

Additional Analysis
The potential impacts on individual farms depends on the size of the farm and the number of turbines proposed, which in turn determines the length of the turbine string and access road, the amount of land converted to utility use, and the relative difficulty of farming around the strings. It is also important to recognize that the proposed project offers offsetting benefits that will positively affect farm owners' incomes and access to their properties.

As noted above, part of the local road network will be improved substantially beyond county road standards (because of the need to support the weight and size of the turbine components). The improvements would help to ease the movement of equipment and farm vehicles by providing better access for farmers to their parcels. The roads will be maintained by the Applicant, which will lower maintenance costs for farmers who no longer need to maintain the roads. In addition, the Facility will provide annual leasing fees to farmers that exceed the historical yields from the same amount of land. Assuming that an average of 41 bushels of wheat per acre is harvested in this area that sells for an average of $5.70 per bushel (as of February 2009), approximately $233 per acre would be generated from growing wheat. The Facility will permanently remove approximately 68 acres of land from farm production. Revenue from 68 acres of wheat sold at $233 per acre would be $15,844 annually. Royalty payments to landowners and operators vary, but typically range from $2,000 to $4,000 per turbine, per year. If the Facility consists of 87 turbines, the total in annual lease payments that would be paid would be between $174,000 and $348,000, which will more than offset the annual losses in revenue from growing wheat.

Summary of Impacts and Potential Mitigation
The majority of survey respondents did not identify any concerns about the construction or operation of the Facility, although one survey respondent voiced some concern about the disruption to farming practices in terms of equipment movement to and around properties to avoid the turbine strings. Another respondent identified the spread of invasive weeds as issue.

No mitigation other than the annual lease revenue is proposed for loss of revenue from cropland converted to utility use. Wherever possible, turbines and transmission interconnection lines will be placed along the margins of cultivated areas to reduce the potential for conflict with farm operations. There is little other mitigation available for offsetting difficulties of maneuvering equipment around the turbine strings if the strings are close to property lines or fences so efforts will be made to allow sufficient room. The Applicant will coordinate with each property owner/farm operator to strike a balance between the Facility's location needs, and the farmer's need for maneuverability around the turbines and the roads.

A weed control plan will be developed in partnership with the Wasco County Weed Department, as described in Exhibit P. It will consist of preventive measures such as cleaning vehicles that arrive from off-site and revegetating disturbed areas. Monitoring to look for weed invasions should be done regularly throughout the year. Chemical control can be used as needed, provided they are applied by licensed users.

Farmed areas that are disturbed by temporary construction activities will be restored following the proposed restoration plan identified in Exhibit P. Ongoing coordination with farmers and operators will also occur during construction and road improvements to ensure timely and adequate access to the crops for sowing, fertilizing, pest management and harvesting. Other mitigation measures as identified in Exhibits I, J, and P and Q will also reduce impacts to farmland.

ATTACHMENT K-2

Farming Practices Information (Survey Responses)

LotusWorks
Summit Ridge I

LotusWorks - Summit Ridge I, LLC
9611 NE 117th Avenue
Suite 2840
Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   _X___ Yes   _____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

   WHEAT

3. Do you irrigate any of these crops?

   _____ Yes   _X___ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   _X___ Yes   _____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   _X___ Yes   _____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.

   The changes would be insignificant.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   _X___ Yes   _____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): J & K Farms The Dalles. LLC (KC Kortge & Julie Testa)

Mailing Address: 1820 Liberty Way
The Dalles, OR 97058

Home Telephone: 541-296-9895 Cell No. 541-980-1484

Email Address: kckortge@charter.net

LotusWorks – Summit Ridge I, LLC
9611 NE 117th Avenue
Suite 2840
Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   __x__ Yes   _____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)
   Wheat

3. Do you irrigate any of these crops?

   _____ Yes   __x__ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   __x__ Yes   _____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   __x__ Yes   _____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property. Aerial spraying will not be possible in and around the turbine areas; therefore, spraying will need to be done with a ground applicator. All farming applications will be slightly more costly due to the fact that farming around turbines will lead to more overlap, leading to greater fuel consumption, seed, herbicide, labor and fertilizer costs.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   __x__ Yes   _____ No

Please complete the following to make sure our records are accurate:

Owner Name(s):	Kortge Brothers, LLC		
Mailing Address:	5663 Mill Creek Road		
	The Dalles, OR 97058		
Home Telephone:	541-296-9885	Cell No.	541-980-7857
Email Address:	mkortge@charter.net		

LotusWorks Summit Ridge I

LotusWorks – Summit Ridge I, LLC
9611 NE 117th Avenue
Suite 2840
Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   ✓ Yes ______ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

3. Do you irrigate any of these crops?

   ______ Yes ✓ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   ✓ Yes ______ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   ✓ Yes ______ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property. Would farm around Towers + Roads. Minimal problem.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   ✓ Yes ______ No

Please complete the following to make sure our records are accurate:

Owner Name(s): John & Patricia Clausen

Mailing Address: 83417 Dufur Valley Rd Dufur, Ore 97021

Home Telephone: 541-467-2434 Cell No. 541-993-0151

Email Address: JCFarms@OrTelco.neT

LotusWorks – Summit Ridge I, LLC

LotusWorks
Summit Ridge I

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   X Yes ____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

   Wheat.

3. Do you irrigate any of these crops?

   ____ Yes X No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   X Yes ____ No

   99% ground spraying

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   X Yes ____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.

   Would Have To use the ground sprayer in Those area - of which is Not a real change.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   X Yes ____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): Bill + Barbara Hammel

Mailing Address: 7075 Fifteen Mile Rd.
The Dalles, Oregon 97058

Home Telephone: 541-296-9895 Cell No. 993-3625

Email Address: bhammel@hughes.Net

LotusWorks – Summit Ridge I, LLC
9611 NE 117th Avenue
Suite 2840
Vancouver, WA 98662-2403

LotusWorks
Summit Ridge I

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   _X_ Yes _____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

   Wheat

3. Do you irrigate any of these crops?

   _____ Yes _X_ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   _____ Yes _X_ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   _X_ Yes _____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.

   We will have to work around the roads + turbines

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   _X_ Yes _____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): RN Ranched LLC David Zarewski + Karolyn Christy

Mailing Address: 1888 Oak Knol Ct.
Lake Oswego, Or 97034

Home Telephone: ________ Cell No. (503) 329-2239

Email Address: zared@comcast.net

LotusWorks
Summit Ridge I

LotusWorks – Summit Ridge I, LLC
9611 NE 117th Avenue
Suite 2840
Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   _X_ Yes ____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

   Wheat

3. Do you irrigate any of these crops?

   ____ Yes _X_ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   ____ Yes _X_ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   _X_ Yes ____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.

   Placement of roads could make us to change some practices.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   _X_ Yes ____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): Bob + Nancy Hammel

Mailing Address: 62250 Tygh Ridge Rd.
Dufur, Or 97021

Home Telephone: (541) 467-2780 Cell No. (541) 993-1197

Email Address: bnhammel@gmail.com

LotusWorks Summit Ridge I

LotusWorks – Summit Ridge I, LLC
9611 NE 117th Avenue
Suite 2840
Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   X Yes ____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)
   Wheat

3. Do you irrigate any of these crops?

   ____ Yes X No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   X Yes ____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   X Yes ____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.
   ground spraying would be substituted for aerial around and near towers. Some efficiency of field operations (spraying harvesting, seeding) by ground would be impacted. We have a BPA LINE ALREADY AND HAVE LEARNED TO LIVE WITH THE NUISANCES.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   X Yes ____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): CARLETON + PAM CLAUSEN

Mailing Address: 85691 Adkisson Rd
Dufur, OR 97021

Home Telephone: 541-296-4973 Cell No. 993-7655

Email Address: clausenpr @ gmail.com

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9611 NE 117th Avenue
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Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   __X__ Yes _____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)
   Wheat
   Barley
   Livestock

3. Do you irrigate any of these crops?

   _____ Yes __X__ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.
   N/A

5. Do you use aerial application of any agricultural chemicals on your land?

   __X__ Yes _____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   _____ Yes __X__ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.
   N/A

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   __X__ Yes _____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): **Ruth Limmeroth Alexander Estate Trustee/Owner**
Edward F. Limmeroth Owner
Paul M. Limmeroth Owner

Mailing Address: **63439 Dufur Gap Road,**
Dufur, Oregon 97021-3226

Home Telephone: ***(541) 467-2306*** Cell No. ***(541) 965-0788***

Email Address: ***{ HYPERLINK "mailto:canyoncreek@hughes.net" }***

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9611 NE 117th Avenue
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Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   _X__ Yes   ____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

   WHEAT

3. Do you irrigate any of these crops?

   ____ Yes   _X__ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   _X__ Yes   ____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   _X__ Yes   ____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.

   The changes would be insignificant.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   _X__ Yes   ____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): J & K Farms The Dalles. LLC (KC Kortge & Julie Testa)

Mailing Address: 1820 Liberty Way
The Dalles, OR 97058

Home Telephone: 541-296-9895 Cell No. 541-980-1484

Email Address: kckortge@charter.net

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9611 NE 117th Avenue
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Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   __x__ Yes   _____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)
   Wheat

3. Do you irrigate any of these crops?

   _____ Yes   __x__ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   __x__ Yes   _____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   __x__ Yes   _____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property. Aerial spraying will not be possible in and around the turbine areas; therefore, spraying will need to be done with a ground applicator. All farming applications will be slightly more costly due to the fact that farming around turbines will lead to more overlap, leading to greater fuel consumption, seed, herbicide, labor and fertilizer costs.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   __x__ Yes   _____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): Kortge Brothers, LLC

Mailing Address: 5663 Mill Creek Road
The Dalles, OR 97058

Home Telephone: 541-296-9885   Cell No. 541-980-7857

Email Address: mkortge@charter.net

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Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   ✓ Yes ____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

3. Do you irrigate any of these crops?

   ____ Yes ✓ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   ✓ Yes ____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   ✓ Yes ____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property. Would farm around Towers + Roads. Minimal problem.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   ✓ Yes ____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): John & Patricia Clausen

Mailing Address: 83417 Dufur Valley Rd Dufur, Ore 97021

Home Telephone: 541-467-2434 Cell No. 541-993-0151

Email Address: JC Farms @ Or[illegible]Telco, net

LotusWorks – Summit Ridge I, LLC

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Summit Ridge I

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   X Yes ____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

   Wheat.

3. Do you irrigate any of these crops?

   ____ Yes X No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   X Yes ____ No
   99% ground spraying

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   X Yes ____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.

   Would Have To use the ground sprayer in Those area - of which is Not a real change.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   X Yes ____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): Bill + Barbara Hammel
Mailing Address: 7095 Fifteen Mile Rd.
The Dalles, Oregon 97058
Home Telephone: 541-296-9893 Cell No. 993-3625
Email Address: bhammel@hughes.Net

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In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   X Yes ______ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)
   Wheat

3. Do you irrigate any of these crops?

   ______ Yes X No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   ______ Yes X No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   X Yes ______ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.
   We will have to work around the roads + turbines

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   X Yes ______ No

Please complete the following to make sure our records are accurate:

Owner Name(s): RN Ranched LLC David Zarewski + Karolyn Christy
Mailing Address: 1888 Oak Knol Ct.
Lake Oswego, Or 97034
Home Telephone: ______________ Cell No. (503) 329-2239
Email Address: zared@comcast.net

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1. Do you grow crops on your land?

   X Yes ______ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)

   Wheat

3. Do you irrigate any of these crops?

   ______ Yes X No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   ______ Yes X No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   X Yes ______ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.

   Placement of roads could make us to change some practices.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   X Yes ______ No

Please complete the following to make sure our records are accurate:

Owner Name(s): Bob + Nancy Hammel
Mailing Address: 62250 Tygh Ridge Rd.
Dufur, Or 97021
Home Telephone: (541) 467-2780 Cell No. (541) 993-1197
Email Address: bnhammel@gmail.com

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9611 NE 117th Avenue
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Vancouver, WA 98662-2403

360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   _X_ Yes _____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)
   WheAT

3. Do you irrigate any of these crops?

   _____ Yes _X_ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.

5. Do you use aerial application of any agricultural chemicals on your land?

   _X_ Yes _____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   _X_ Yes _____ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.
   ground spraying would be substituted for Aerial around and near towers. Some efficiency of field operations (spraying harvesting, seeding) by ground would be impacted. We have a BPA LINE ALREADY AND HAVE LEARNED TO LIVE WITH THE NUISANCES.

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   _X_ Yes _____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): CARLETON + PAM CLAUSEN

Mailing Address: 85691 Adkisson Rd
Dufur, OR 97021

Home Telephone: 541-296-4973 Cell No. 993-7655

Email Address: clausenpr@gmail.com

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360.737.9692

In preparation for our meeting, please complete the following questionnaire.

1. Do you grow crops on your land?

   __X__ Yes ____ No

2. If your answer to question no.1 is "Yes," what crops? (Please list.)
   Wheat
   Barley
   Livestock

3. Do you irrigate any of these crops?

   ____ Yes __X__ No

4. If your answer to question no. 3 is "Yes," please briefly describe the method by which you irrigate, and the amount of acreage irrigated, and crops irrigated.
   N/A

5. Do you use aerial application of any agricultural chemicals on your land?

   __X__ Yes ____ No

6. Would the presence of wind turbines on your property require any changes to irrigation, aerial spraying, weed control, harvesting or other farming practices on your property?

   ____ Yes __X__ No

7. If your answer to question no. 6 is "Yes," please describe the changes you expect to result from the presence of wind turbines on your property.
   N/A

8. Oregon Department of Environmental Quality rules regarding the noise standards for wind farms allow property owners to grant authorization for some increases in noise levels on their property. If requested, would you be willing to provide such a waiver to the project?

   __X__ Yes ____ No

Please complete the following to make sure our records are accurate:

Owner Name(s): **Ruth Limmeroth Alexander Estate Trustee/Owner**
Edward F. Limmeroth Owner
Paul M. Limmeroth Owner

Mailing Address: **63439 Dufur Gap Road,**
Dufur, Oregon 97021-3226

Home Telephone: ***(541) 467-2306*** Cell No. ***(541) 965-0788***

Email Address: ***{ HYPERLINK "mailto:canyoncreek@hughes.net" }***

Date : 8/11/09

Name : Mike Kortge

Address : ______

Telephone Number : Day ______ Evening ______

Farm and Soil Impact Survey for the Summit Ridge Wind Farm Project

1. Are you the property owner? Yes X No ___
one of them

2. What do you use the property for (check all that apply)?
   - [x] Grazing
   - [x] Raising crops
   - [x] Other (please describe) ______

Some of the turbines or other supporting facilities for the project may be constructed on the property you own and/or farm. The following questions will help us understand how both the construction of the project and the presence of the turbines and new maintenance roads are or are not compatible with the soils in the area.

3. How large is the parcel that you own and/or use?
   3,000 acres

4. How much of your parcel(s) is actively farmed or used for grazing at any given time?
   1,000 acres

5. If the entire parcel **not** farmed or used for grazing, what makes it unsuitable (such as poor soils, steep slopes, rocky, water features)?
   all

6. If you grow crop(s), what are they? *If you don't grow crops, skip to question #8.*
   Wheat mainly

7. How many crop(s) could you grow annually?
   average yield 60 bushels per acre

8. If you raise livestock, what types of livestock are they and how many head of each?
   no, but rent pasture out

9. Is the land that you own or use prone to erosion? If so, what are these areas currently used for and what measures do you use to minimize erosion (such as fencing streams, limiting tilling etc.)? some

wheat, direct seed practice eliminate erosion.

10. Based on your knowledge of the soil conditions on the property, do you anticipate any negative affect to the soils from the project, such as from erosion, compaction, or other impacts that would occur fromf wind turbines and the maintenance roads?

Why or why not? NO

11. Do you irrigate your property? If so, do you anticipate that the project will negatively affect your ability to irrigate your land?

Why or why not? No

13. How do you control invasive weeds? Do you anticipate that the project will negatively affect your ability to apply those materials on your land?

If so, why? herbicides, none

14. Do you use aerial applications of herbicides and/or insecticides? If so, you anticipate that the project will negatively affect your ability to apply those materials on your land?

Why or why not? yes, will make it impossible or difficult in some areas.

15. Do you anticipate that locating wind turbines on your land will force a significant change in your farming or grazing practices?

Why or why not? no.

Any other comments you may have: would improve haul roads. minimal impact on crop growth, Date : August 3rd

Name : Bob Alexander

Address : ______

Telephone Number : Day ______ Evening ______

Farm and Soil Impact Survey for the Summit Ridge Wind Farm Project

1. Are you the property owner? Yes X No ______

2. What do you use the property for (check all that apply)?
   - [x] Grazing
   - [x] Raising crops 7 wheat & barley grain crops
   - [ ] Other (please describe) hunting

Some of the turbines or other supporting facilities for the project may be constructed on the property you own and/or farm. The following questions will help us understand how both the construction of the project and the presence of the turbines and new maintenance roads are or are not compatible with the soils in the area.

3. How large is the parcel that you own and/or use?
   17,000 acres

4. How much of your parcel(s) is actively farmed or used for grazing at any given time?
   All

5. If the entire parcel **not** farmed or used for grazing, what makes it unsuitable (such as poor soils, steep slopes, rocky, water features)?
   no

6. If you grow crop(s), what are they? *If you don't grow crops, skip to question #8.*
   barley & wheat grain crops

7. How many crop(s) could you grow annually?
   one

8. If you raise livestock, what types of livestock are they and how many head of each?
   cattle, 100 pair

Conservation Reserve program → put areas into grass

9. Is the land that you own or use prone to erosion? If so, what are these areas currently used for and what measures do you use to minimize erosion (such as fencing streams, limiting tilling etc.)?

prone to erosion, CRP program, diversion ditches, grazing practices → move cattle to keep the spring ground

10. Based on your knowledge of the soil conditions on the property, do you anticipate any negative affect to the soils from the project, such as from erosion, compaction, or other impacts that would occur fromf wind turbines and the maintenance roads?

Why or why not? no

11. Do you irrigate your property? If so, do you anticipate that the project will negatively affect your ability to irrigate your land?

Why or why not? no

13. How do you control invasive weeds? Do you anticipate that the project will negatively affect your ability to apply those materials on your land?

If so, why? pesticides, spraying

no

14. Do you use aerial applications of herbicides and/or insecticides? If so, you anticipate that the project will negatively affect your ability to apply those materials on your land?

Why or why not? yes, no

15. Do you anticipate that locating wind turbines on your land will force a significant change in your farming or grazing practices?

Why or why not? no

Any other comments you may have: no.

* leases land to Clausen - can't answer most questions

Date : August 3rd

Name : Shawn Craft

Address : ______________________

Telephone Number : Day ____________ Evening ____________

Farm and Soil Impact Survey for the Summit Ridge Wind Farm Project

1. Are you the property owner? Yes X No ____ (daughter)

2. What do you use the property for (check all that apply)?
   - [x] Grazing
   - [x] Raising crops
   - [ ] Other (please describe) ______________________

Some of the turbines or other supporting facilities for the project may be constructed on the property you own and/or farm. The following questions will help us understand how both the construction of the project and the presence of the turbines and new maintenance roads are or are not compatible with the soils in the area.

3. How large is the parcel that you own and/or use?

   don't remember

4. How much of your parcel(s) is actively farmed or used for grazing at any given time?

   Wheat, cattle put on after cut

5. If the entire parcel **not** farmed or used for grazing, what makes it unsuitable (such as poor soils, steep slopes, rocky, water features)?

   some of the pastureland

6. If you grow crop(s), what are they? *If you don't grow crops, skip to question #8.*

   wheat

7. How many crop(s) could you grow annually?

8. If you raise livestock, what types of livestock are they and how many head of each?

   grazing land after times are. cattle,

9. Is the land that you own or use prone to erosion? If so, what are these areas currently used for and what measures do you use to minimize erosion (such as fencing streams, limiting tilling etc.)?

no,

10. Based on your knowledge of the soil conditions on the property, do you anticipate any negative affect to the soils from the project, such as from erosion, compaction, or other impacts that would occur fromf wind turbines and the maintenance roads?

Why or why not?

11. Do you irrigate your property? If so, do you anticipate that the project will negatively affect your ability to irrigate your land?

Why or why not? no

13. How do you control invasive weeds? Do you anticipate that the project will negatively affect your ability to apply those materials on your land?

If so, why? spray if it gets bad.

14. Do you use aerial applications of herbicides and/or insecticides? If so, you anticipate that the project will negatively affect your ability to apply those materials on your land?

Why or why not?

15. Do you anticipate that locating wind turbines on your land will force a significant change in your farming or grazing practices?

Why or why not?

Any other comments you may have:

Date : Agust 3rd

Name : Matthew Clausen

Address :

Telephone Number : Day ______ Evening ______

Farm and Soil Impact Survey for the Summit Ridge Wind Farm Project

1. Are you the property owner? my parents Yes ______ No ✓

2. What do you use the property for (check all that apply)?
   - ☒ Grazing
   - ☒ Raising crops
   - ☐ Other (please describe) ______

Some of the turbines or other supporting facilities for the project may be constructed on the property you own and/or farm. The following questions will help us understand how both the construction of the project and the presence of the turbines and new maintenance roads are or are not compatible with the soils in the area.

3. How large is the parcel that you own and/or use?

   ?

4. How much of your parcel(s) is actively farmed or used for grazing at any given time?

   about half

5. If the entire parcel **not** farmed or used for grazing, what makes it unsuitable (such as poor soils, steep slopes, rocky, water features)?

   yes, steep / rocky

6. If you grow crop(s), what are they? *If you don't grow crops, skip to question #8.*

   wheat, barley sometimes

7. How many crop(s) could you grow annually?

   2,000 acres of wheat

8. If you raise livestock, what types of livestock are they and how many head of each?

   Cattle, 200 head

9. Is the land that you own or use prone to erosion? If so, what are these areas currently used for and what measures do you use to minimize erosion (such as fencing streams, limiting tilling etc.)?

yes, NRCS classified, no till seeding, direct seeding.

10. Based on your knowledge of the soil conditions on the property, do you anticipate any negative affect to the soils from the project, such as from erosion, compaction, or other impacts that would occur fromf wind turbines and the maintenance roads?

Why or why not? No, except for road.

11. Do you irrigate your property? If so, do you anticipate that the project will negatively affect your ability to irrigate your land?

Why or why not? No

13. How do you control invasive weeds? Do you anticipate that the project will negatively affect your ability to apply those materials on your land?

If so, why? Manually, spot spray or no, negative

14. Do you use aerial applications of herbicides and/or insecticides? If so, you anticipate that the project will negatively affect your ability to apply those materials on your land?

Why or why not? sometimes, yes airplanes may not be able to fly certain areas

15. Do you anticipate that locating wind turbines on your land will force a significant change in your farming or grazing practices?

Why or why not? No

Any other comments you may have: No, only effect if field gets cut in half & might change way fields are farmed. But the way we farm would not change & and possibly aerial spray.

Date : 8/4/09

Name : Pat Clausen.

Address :

Telephone Number : Day ______ Evening ______

Farm and Soil Impact Survey for the Summit Ridge Wind Farm Project

1. Are you the property owner? Yes X No ___

2. What do you use the property for (check all that apply)?
   - [x] Grazing
   - [x] Raising crops
   - [x] Other (please describe) hunting,

Some of the turbines or other supporting facilities for the project may be constructed on the property you own and/or farm. The following questions will help us understand how both the construction of the project and the presence of the turbines and new maintenance roads are or are not compatible with the soils in the area.

3. How large is the parcel that you own and/or use?

   3 different farm

4. How much of your parcel(s) is actively farmed or used for grazing at any given time?

   both farming & grazing. rotate pasture rotate crop alternate year some in fallow not enough water

5. If the entire parcel not farmed or used for grazing, what makes it unsuitable (such as poor soils, steep slopes, rocky, water features)?

   Some very steep into the Deschutes. Canyon.

6. If you grow crop(s), what are they? *If you don't grow crops, skip to question #8.*

   wheat

7. How many crop(s) could you grow annually?

   just wheat

8. If you raise livestock, what types of livestock are they and how many head of each?

   Cattle, Same as brother

9. Is the land that you own or use prone to erosion? If so, what are these areas currently used for and what measures do you use to minimize erosion (such as fencing streams, limiting tilling etc.)?

Don't plow to prevent erosion. Have changed farming practices

10. Based on your knowledge of the soil conditions on the property, do you anticipate any negative affect to the soils from the project, such as from erosion, compaction, or other impacts that would occur fromf wind turbines and the maintenance roads?

Why or why not? no idea -

11. Do you irrigate your property? If so, do you anticipate that the project will negatively affect your ability to irrigate your land?

Why or why not? no

13. How do you control invasive weeds? Do you anticipate that the project will negatively affect your ability to apply those materials on your land?

If so, why? spray & pull, no affect

14. Do you use aerial applications of herbicides and/or insecticides? If so, you anticipate that the project will negatively affect your ability to apply those materials on your land?

Why or why not? yes, could be a possibility.

15. Do you anticipate that locating wind turbines on your land will force a significant change in your farming or grazing practices?

Why or why not? sure, somewhat -

Any other comments you may have: no, no

9. Is the land that you own or use prone to erosion? If so, what are these areas currently used for and what measures do you use to minimize erosion (such as fencing streams, limiting tilling etc.)? Some, yes → Some in CRP highly erodable ground. → no till farming → don't plow → terraces → during plowing

10. Based on your knowledge of the soil conditions on the property, do you anticipate any negative affect to the soils from the project, such as from erosion, compaction, or other impacts that would occur fromf wind turbines and the maintenance roads?

Why or why not? No idea, where they put the turbines if they ever had to take them out

11. Do you irrigate your property? If so, do you anticipate that the project will negatively affect your ability to irrigate your land?

Why or why not? No

13. How do you control invasive weeds? Do you anticipate that the project will negatively affect your ability to apply those materials on your land?

If so, why? Spray - program, chop thistles - no disruption, go around them.

14. Do you use aerial applications of herbicides and/or insecticides? If so, you anticipate that the project will negatively affect your ability to apply those materials on your land?

Why or why not? Some aerial mostly ground spraying. don't know, no?

15. Do you anticipate that locating wind turbines on your land will force a significant change in your farming or grazing practices?

Why or why not? don't think so, no. May take out little plots of land. Took out some turbine land on Deschutes → scenic area - matter

Any other comments you may have:

No → will put nice road in there will be win win situation. harvesting time.

Date : 8/4/09.

Name : Barbara Hammel

Address : ______

Telephone Number : Day ______ Evening ______

Farm and Soil Impact Survey for the Summit Ridge Wind Farm Project

1. Are you the property owner? Yes ✓ No ____

2. What do you use the property for (check all that apply)?
   - [x] Grazing cattle
   - [x] Raising crops wheat
   - [ ] Other (please describe) ______

Some of the turbines or other supporting facilities for the project may be constructed on the property you own and/or farm. The following questions will help us understand how both the construction of the project and the presence of the turbines and new maintenance roads are or are not compatible with the soils in the area.

3. How large is the parcel that you own and/or use?
   4,080 + acres 2,000 but also BLM 2,000 + (Ruth's place)

4. How much of your parcel(s) is actively farmed or used for grazing at any given time?
   graze both year round → wheat rotation → cattle goes on part not in wheat that year & fence.

5. If the entire parcel **not** farmed or used for grazing, what makes it unsuitable (such as poor soils, steep slopes, rocky, water features)?
   some areas too rocky.

6. If you grow crop(s), what are they? *If you don't grow crops, skip to question #8.*
   wheat, (barley → wheat main

7. How many crop(s) could you grow annually?
   no

8. If you raise livestock, what types of livestock are they and how many head of each?
   beef cattle; approx 140 large cows

grow barley to be in compliance

20TW-1 Summit Ridge

lotusworks

April 7, 2009

LAND OWNERS

Name	Address	Contact No.	Email
Bob & Ruth Alexander - Limmeroth Property	63439 Dufur Gap. Rd. Dufur, OR. 97021-3226	h: 541-467-2306 c: 541-965-0788	canyoncr@netcnct.net
Carleton & Pam Clausen	85681 Adkisson Rd. Dufur, OR. 97021-3032	h: 541-296-4973	cpclausen@agristar.net
John & Pat Clausen	83417 Dufur Valley Rd. Dufur, OR. 97021-3101	h: 541-467-2434	jcfarms@ortelco.net
Sharon Craft	~~63883 Center Ridge Rd~~ Dufur, OR. 97021-3222	~~h: 541-467-2367~~	leases land to Clausens
Bill & Barbara Hammel	7075 Fifteen Mile Rd ~~The Dalles, OR.~~ 97058-9673	h: 541-296-9897 ~~c: 541-993-3659~~	bhammel@hughes.net
Bob & Nancy Hammel	62250 Tygh Ridge Rd Dufur, OR. 97021-3219	h: 541-467-2780 c: 541-993-1197	nhammel@netcnct.net
~~Mike Kortge - Kortge Bros.~~	~~5663 Mill Creek Rd.~~ The Dalles, OR. 97058-8503	~~h: 541-296-9885~~	~~mkortge@charter.net~~
~~KC Kortge~~	~~1820 Liberty Way~~ The Dalles, OR. 97058	h: 541-296-9895 ~~c: 541-980-1484~~	~~kckortge@charter.net~~
David Zarewski - RN Ranches	1888 Oak Knoll Ct. Lake Oswego, OR. 97058	h: 503-697-3980	zared@comcast.net

1/m 1/m 1/m 1/m 1/m

new location

wrong #

9611 NE 117th Ave, Suite 2840
Vancouver, WA 98662
360.737.9692
360.737.9835 *fax*

106 Huntoon Memorial Hwy
Rochdale, MA 01542
508.892.3322
fax 508.892.3340

www.lotusworks.com

lotusworks

Brian TOCK Wasco OSU

8/3

- no till, seed, plant, spray, harvest common process

- impact watching Sherman Co. adjustment work around roads cognizant weeds and erosion for roads
- be sensitive → cognizant of potential damage be careful for wind & water
- controls for wind & water erosion
- depends on fee structure
- aesthetics → consideration but not
- everyone informed
- can work out well Sherman Co.
- numbers of livestock has gone down because of prices
- harvest end of August done, seeding Oct-Nov, spraying a bit spring spraying weed control
summer fallow to ensure moisture ground in crop & land fall absorbing moisture
harvest mid-july
- understanding of farm operations not much concerns, in
- public involvement important
- mostly wheat & barley

- keep residue, stubble something on ground, avoid bare ground, protect ground
- weeds big issue, game plan, anytime you disturb soil is big problem
- be careful w/ equipment
- little irrigation → dry land fallowed
storing moisture

ATTACHMENT K-3

Wasco County Planning Department Setback Interpretation Letter (November 14, 2009)

WASCO COUNTY PLANNING AND DEVELOPMENT
Todd R. Cornett, Director
2705 East Second Street
The Dalles, Oregon 97058

Phone: (541) 506-2560
Fax: (541) 506-2561
Web Address: co.wasco.or.us

14 November 2009

Sue Oliver
Oregon Department of Energy
245 East Main St. Ste. C
Hermiston, OR 97838

Re: Wasco County Applicable Substantive Criteria – Setback Interpretation

Dear Sue,

On 14 July 2009 Wasco County submitted all of the applicable substantive criteria associated with the proposed Summit Ridge Wind project in response of the Notice of Intent. Where possible the Oregon Department of Energy requests local jurisdictions to provide interpretation of criteria where there may be some ambiguity. Wasco County would like to take this opportunity to provide an interpretation for a specific criterion not previously interpreted.

Section 19.030(F)(1)(b)(1) Setbacks. WECS shall comply with subparts (a), (b) and (c) below.

b. A WECS tower or pedestal shall be setback as described in (1) and (2) below from the edge of a public arterial right-of-way and property lines of downwind lots. An easement that complies with ORS 105.900 through .915 may be substituted for required setbacks. The setback shall be measured from the center point of the tower or pedestal.

(1) A horizontal axis WECS shall be setback at least five rotor diameters or 100 feet, whichever is greater.

The intent of this setback language is to protect property owners on downwind lots from commercial wind development on upwind lots. Downwind lots are those located downwind of other properties based on prevailing wind. If commercial wind development is sited too close to the property boundary on upwind lots it may have the effect of reducing or eliminating the potential for commercial wind development on downwind lots because the wind towers create a break that prevents the wind from fully accessing the wind towers on the downwind lots. To prevent this, the setback cited above was created.

-Wasco County does not interpret this setback to apply to downwind lots that are part of the same commercial wind development project. Although these downwind lots may be separate legal properties and in separate ownership, they would not be negatively impacted by the siting of wind towers on upwind lots if they are all part of the same commercial wind development project.

-Wasco County also does not interpret this setback to apply to downwind lots that cannot practicably be developed for commercial wind energy. Downwind lots may be precluded from commercial wind development based on a variety of circumstances. This could be related to their size, isolation, topography, lack of wind regime or adopted management plan if in public ownership. If the applicant can provide conclusive proof that downwind lots cannot practicably be developed for commercial wind energy development Wasco County interprets the setback above to not be applicable.

-The option for the project developer to obtain a “wind easement” under ORS 105.900 through 105.915 is not feasible. It is not clear what was intended when that provision of the Wind Energy Development Ordinance was adopted. The wind easements authorized under ORS 105.900 through 105.915 appear to be easements that would be obtained by a downwind property owner to limit upwind development, not easements that would be obtained by an upwind property owner or developer to authorize wind energy development that might affect a downwind property. Thus, these easements appear to be of no utility for the project developer.

-The existing Wind Energy Development Ordinances were adopted in 1985 and have not been meaningfully updated since then. The size of wind turbines commonly used in commercial wind development, the rotor diameters, and the overall scale of contemporary Oregon wind farms, were not foreseen by the County in 1985. Wasco County recognizes these ordinances are antiquated and do not reflect current technologies. The Wasco County Planning Department has attempted to get funding to make updates to this chapter since 2005. Since this time the project has been listed as a High Priority by the Wasco County Commission but due to budget constraints no funding has been allocated until the current fiscal year, FY 09-10. This project will be initiated in January 2010 and is projected to be complete by July 2010.

The setback requirement above is 100 feet or five rotor diameters, whichever is greater. Based on this language the five rotor diameters are meant to be comparable to 100 feet, indicating the much smaller size of wind turbines to which the ordinance was expected to apply. However, for the Summit Ridge project the 2.3 MW towers will have rotor diameters of approximately 330 feet. Five rotor diameters is equal to over 1,600 feet which is clearly not comparable to 100 feet. Because the strict application of this setback may be difficult to achieve and still fulfill the requirements of the project, Wasco County will allow it to be reduced to whatever the Oregon Department of Energy determines appropriate as long as all applicable Oregon State Land Use Planning Goals are met.

Sincerely,

Todd R. Cornett
Planning Director

c: Wasco County Court

ATTACHMENT K-4

Residences and Landowner/Farm operator Surveys by Noise Receptor

Attachment K-4. Residences and Landowner/Farm Operator Surveys

Noise Receptor ID*	Property Owner	Landowner/Farm Operator Survey Response?	Is the Landowner the survey respondent
R01	Kortge/Van Orman	Yes	Yes
R02	Mike and Walt Kortge	Yes	Yes
R03	Bill Hammel	Yes	Yes
R04	John Clausen	Yes	Yes
R05	John Clausen	Yes	Yes
R06	Bob and Nancy Hammel	Yes	Yes
R07	Sharon Craft	No Response	
R08	Sharon Craft	No Response	
R09	John McManigal	No Response	
R10	Carleton and Pamela Clausen	Yes	Yes
R11	Bill Hammell	Yes	Yes
R12	Ruth Alexander	Yes	Yes

*See Exhibit X

EXHIBIT L

PROTECTED AREAS
OAR 345-021-0010(1)(L)

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L.1 INTRODUCTION

Exhibit L addresses impacts the Facility will have on Protected Areas in the facility analysis area. This Exhibit responds to the provisions of OAR 345-021-0010(1)(L), which requires the submission of:

OAR 345-021-0010(1)(L) *Information about the proposed facility's impact on Protected Areas, providing evidence to support a finding by the Council as required by OAR 345-022-0040, including:*

L.2 LIST OF PROTECTED AREAS

OAR 345-021-0010(1)(L)(A) *A list of the protected areas within the analysis area showing the distance and direction from the proposed facility and the basis for protection by reference to a specific subsection under OAR 345-022-0040(1).*

Response: The analysis area for impacts to Protected Areas includes the area within the site boundary and extends 20 miles beyond the site boundary in Oregon and Washington. Figure L-1 illustrates the analysis area and 24 identified Protected Areas within the analysis area. Table L-1 lists these Protected Areas, the state in which they are located, the approximate minimum distance from the proposed facility, and the applicable OAR 345-022-0040(1) subsection defining the basis for protection.

Table L-1. Protected Areas within Analysis Area and Their Approximate Minimum Distance from the Facility

Protected Area	State	Direction and Distance from Summit Ridge site (miles)	OAR 345-022-0040(1) Subsection
Badger Creek Wilderness Area	OR	18.7, W	c
John Day Wildlife Refuge	OR	17.4, E	d
Columbia River Gorge National Scenic Area	OR/WA	7.2, NW	g
Deschutes River State Recreation Area	OR	9.0, N	h
Heritage Landing (Deschutes)	OR	9.1, N	h
JS Burres State Recreation Site/BLM	OR	20.0, E	h
Columbia Hills (Horsethief Lake) State Park	WA	11.8, NW	h
White River Falls State Park	OR	9.1, SW	h
Mayer State Park	OR	18.1, NW	h
Memaloose State Park	WA	19.8, NW	h
Maryhill State Park	WA	12.4, NE	h

Protected Area	State	Direction and Distance from Summit Ridge site (miles)	OAR 345-022-0040(1) Subsection
Doug's Beach State Park	WA	14.8, NW	h
Columbia Hills Natural Area Preserve	WA	14.4, N	i
John Day Federal Wild and Scenic River	OR	18.4, E	k
John Day State Scenic Waterway	OR	18.4, E	k
Deschutes Federal Wild and Scenic River	OR	0.6, E	k
White River Federal Wild and Scenic River	OR	8.5, SW	k
Deschutes State Scenic Waterway	OR	0.8, E	k
Lower Klickitat Federal Wild and Scenic River	WA	18.3, NW	k
Columbia Basin Agriculture Research Center	OR	6.9, E	m
Tom McCall Preserve ACEC	OR	17.4, E	o
Botanical/Scenic Areas Within Columbia Gorge ACEC	OR	15.8, E	o
Lower Deschutes Wildlife Area	OR	2.0, E	p
White River State Wildlife Area	OR	11.0, W	p

L.3 MAP OF PROPOSED FACILITY IN RELATION TO PROTECTED AREAS

OAR 345-021-0010(1)(L)(B) *A map showing the location of the proposed facility in relation to the protected areas listed in OAR 345-022-0040 located within the analysis area.*

Response: A map showing the location of the Facility in relation to the Protected Areas identified within the analysis area is shown on Figure L-1.

L.4 POTENTIAL IMPACTS

OAR 345-021-0010(1)(L)(C) *A description of significant potential impacts of the proposed facility, if any, on the Protected Areas including, but not limited to, potential impacts such as:*

Response:

(i) Noise resulting from facility construction or operation;

Response: A detailed description of noise resulting from the Facility is included in Exhibit X. Noise analysis conducted for the Facility indicates that the Facility would be inaudible from all Protected Areas. Therefore, noise resulting from the construction or operation of the Facility would not adversely impact Protected Areas.

(ii) *Increased traffic resulting from facility construction or operation;*

Response: A detailed description of traffic resulting from construction and operation of the Facility is included in Exhibit U.

The primary route of construction-related traffic is to take I-84 to US 197 to various local roads providing access to the proposed facility between The Dalles and Dufur. Construction traffic may also approach the site from the south on US 197. From US 197, construction-related traffic will use a series of local Wasco County roads to access private land where the construction staging areas and turbine strings will be located. In areas where there are no existing roads to access wind turbine strings or facilities, new access roads will be constructed as described in Exhibit U.

Temporary impacts such as short term traffic delays on US 197 and local roads may affect access to Protected Areas related to the Deschutes River. However, the construction route is not a primary access route to the river, which is via I-84 or BLM roads along the river's east bank. Traffic demands on local roads and highways in the facility vicinity are currently low. Any effects during construction are expected to be temporary and negligible, and would not adversely impact Protected Areas. Long term impacts due to traffic would be negligible because the O&M facility is anticipated to employ approximately 26 staff.

Other Protected Areas are at a great enough distance as to be unaffected by increased traffic. Thus, increased traffic resulting from facility construction or operations would not adversely impact Protected Areas.

(iii) *Water use during facility construction or operation;*

Response: As stated in Exhibit O, water use during facility construction will primarily involve dust control and concrete-making. During construction, water will be trucked in from off-site. During operations, water use will include normal domestic use associated with the O&M buildings. Domestic water for the O&M facilities will be provided by an exempt well.

Water use during facility construction and operation will not adversely impact Protected Areas.

(iv) *Wastewater disposal resulting from facility construction or operation;*

Response: The use of water for construction practices is not anticipated to generate runoff. Water for dust control will evaporate naturally, and water used for concrete will remain in the turbine foundation. Wastewater would not be discharged into wetlands or other adjacent resources. Domestic water obtained from the exempt well would be discharged to the on-site system drainfield, and stormwater would infiltrate on site. Therefore, wastewater resulting from facility construction or operations would not adversely impact Protected Areas.

(v) *Visual impacts of facility structures or plumes.*

Response: A visibility analysis was conducted to determine areas within the analysis area from which any part of any turbine may potentially be visible. Details of the modeling method are described in Exhibit R. The results for the Protected Areas visibility analysis are included in Figure L-1.

Based on the computer modeling analysis and field investigation conducted August 30 and 31, 2009, the Facility would not be visible from the following Protected Areas:

- JS Burres State Recreation Site
- White River Falls State Park
- Columbia Hills (Horsethief Lake) State Park
- Mayer State Park
- Memaloose State Park
- Doug's Beach Sate Park
- Maryhill State Park
- John Day Federal Wild and Scenic River
- John Day State Scenic Waterway
- Lower Klickitat Federal Wild and Scenic River
- Tom McCall Preserve ACEC
- Botanical/Scenic Areas Within Columbia Gorge ACEC

Because the Facility would not be visible from these Protected Areas, there would be no visual impact to them.

The Facility would be potentially visible, in very limited areas, from the following protected areas:

- Badger Creek Wilderness Area
- Deschutes River State Recreation Area
- Heritage Landing
- John Day Wildlife Refuge
- White River Federal Wild and Scenic River

- White River State Wildlife Area

The Facility would be visible from very limited, isolated canyon rims within the White River Federal Wild and Scenic River corridor and the John Day Wildlife Refuge, but not from the rivers themselves. Minimum viewing distances from these resources to the proposed facility would be 8.5 and 17.4 miles, respectively. Although the visibility analysis described in Exhibit R and presented in Figure L-1 suggest the Facility would be visible from Badger Creek Wilderness Area (18.7 mile minimum viewing distance), Deschutes River State Recreation Area (9.0 mile minimum viewing distance), and Heritage Landing (9.1 mile minimum viewing distance), field investigation and aerial photo interpretation confirms that vegetation would substantially screen views of the Facility from these resources. Similarly, views of the Facility from the White River State Wildlife Area (11.0 mile minimum viewing distance) would be partially screened by vegetation. The wildlife area is not managed for visual quality. Viewing distances would also negate impacts to these resources. Therefore, impacts to these Protected Areas would be negligible.

The Facility would be visible from the following Protected Areas:

- Columbia Hills Natural Area Preserve
- Columbia River Gorge National Scenic Area
- Columbia Basin Agricultural Research Center
- Deschutes Federal Wild and Scenic River
- Deschutes State Scenic Waterway (Pelton Dam to Columbia River)
- Lower Deschutes Wildlife Area

The Columbia Hills Natural Area Preserve (NAP) is located within the Columbia River Gorge National Scenic Area (CRGNSA) and is managed for rare plant habitat (Gorge Commission and USDA 1992); the NAP itself is not managed for visual quality. The Facility would likely be visible from the NAP at a distance of over 14.4 miles, and would not adversely impact the NAP nor interfere with its management objectives.

The visibility analysis indicates some portion of the Facility would be visible from the eastern portion of the CRGNSA within the analysis area (see Figure L-1). Much of the visible area identified in the visibility analysis is not publicly accessible; there are limited roads and most land is held in private ownership. Modeling results and field investigation indicate that the Facility would not be visible from I-84, Historic Columbia River Highway, Rowena Plateau and Nature Conservancy Viewpoint, and the Columbia River. The most likely locations from which to view the Facility occur along Washington SR-14 in the vicinity of Wishram, Washington.

Where visible, the Facility would be subordinate to the landscape setting that typically includes significant man-made development such as interstate and rail transportation corridors, extensive wind turbine development, transmission corridors, radio and cellular towers, and urban and rural development in the foreground and middleground.

Given the relative amount of existing encroachment in the foreground and middleground views, that proposed turbines (or portions of turbines) would likely be visible in the background, and limited opportunities to view turbines, the Facility would result in minimal impacts, if any, to the CRGNSA.

The Facility would be visible from the Columbia Basin Agriculture Research Center in Moro, Oregon, at a distance of 6.9 miles. The center is not managed for visual quality. The Facility would not adversely affect operations at the center.

A detailed discussion of potential impacts to the Lower Deschutes River Canyon, which includes the Deschutes Federal Wild and Scenic River, Deschutes State Scenic Waterway, and the Lower Deschutes Wildlife Area is included in Exhibit R. Visual simulations confirm that portions of turbines will be intermittently visible from various locations along the Deschutes River. Visible portions of turbines may include turbine blades, nacelles, and in some cases, portions of the tower. It is possible that several turbines visible from the Deschutes River will require FAA lighting, thus increasing impacts to the night sky. Generally, views of turbines would be limited to views of blades at distances of two or more miles. While turbines will be visible from the river, they would not dominate views and would generally be subordinate to the surrounding landscape. Therefore, turbines would not result in significant adverse impacts to the Deschutes River Canyon.

In summary, visual impacts of project structures would not result in significant adverse impacts to Protected Areas.

(vi) *Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 Areas as described in OAR 340-204-0050.*

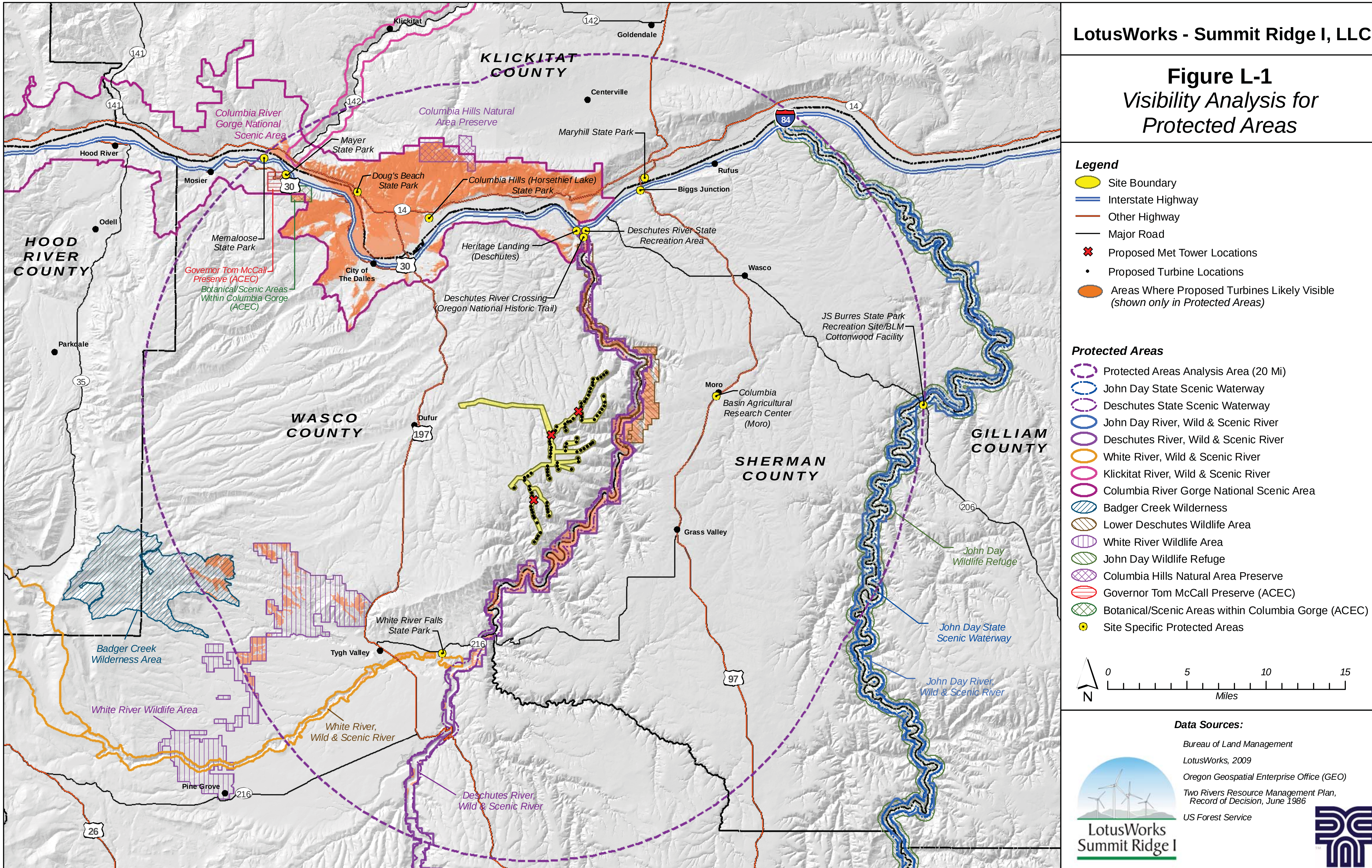
Response: The Facility would not create air emissions, so no impacts would occur. There are no Class 1 Areas within the analysis area.

L.5 REFERENCES

L.5.1 Website/Document

Columbia River Gorge Commission an USDA Forest Service, National Scenic Area, September, 1992. *Management for the Columbia River Gorge National Scenic Area.*

FIGURE



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