REQUEST TO AMEND

THE SITE CERTIFICATE FOR

SHEPHERDS FLAT CENTRAL

PREPARED FOR THE

OREGON ENERGY FACILITY SITING COUNCIL

PREPARED BY

SOUTH HURLBURT WIND, LLC

NOVEMBER 4, 2009

TABLE OF CONTENTS

REQUEST

South Hurlburt Wind, LLC, Certificate Holder for Shepherds Flat Central ("SFC"), requests expansion of the SFC site boundary to accommodate additional wind turbine generators and the option to use an alternative transmission route. Certficate Holder also requests a change in its site boundary in order to relocate a transmission route.

This Request is one of three companion Requests jointly submitted by North Hurlburt Wind, LLC, South Hurlburt Wind, LLC and Horseshoe Bend Wind, LLC (Amendments #1 of the Site Certificates for Shepherds Flat North ("SFN"), SFC and Shepherds Flat South ("SFS") respectively). The SFC site boundary expansion adds lands that are now within the SFS site boundary. The SFS companion Request, therefore, includes a revision to its site boundary to remove those lands save for a transmission corridor. Each companion Request also seeks the option to use the alternative transmission route, and, in limited and identified circumstances, requests exceptions to the "lease area" set-back condition.

Background

In September 2009, the Energy Facility Siting Council ("the Council") approved Amendment #1 of the Shepherds Flat Wind Farm Site Certificate. The Amendment divided the facility into three separate facilities: SFN, SFC, and SFS. The new Certificate Holders anticipated some adjustment to lands within their site boundaries in order to take full advantage of their combined interconnect capacity of 846 MW. Certificate Holders have now selected a wind turbine generator ("WTG") for the facilities and are therefore able to request these adjustments.

SFN, SFC, and SFS, combined, are approved for the construction of 303 turbines, with a maximum nominal capacity of 909 MW (303 WTGs X 3.0 MW, the largest turbine previously under consideration).

The Certificate Holders have made a final turbine selection: a 2.5 MW nameplate WTG. With 846 MW of interconnect capacity, a total of 338 WTGs should be installed (846 MW/2.5 MW). These companion Requests seek to achieve that goal:

Facility	Original WTGs	Additional WTGs	Total WTGs	WTG Nameplate	Facility Capacity
SFN	106	0	106	2.5 MW	265 MW
SFC	77	39	116	2.5.MW	290 MW
SFS	120	(4)	116	2.5 MW	290 MW
Total	303	35	338		845 MW

These changes will result in a reduction of the combined allowed maximum generating capacity of the three facilities: from 909 MW to 845 MW.

Additional Wind Turbine Generators

By Condition, SFC is limited to the installation of 77 WTGs. Applicant requests amendment of its Site Certificate to allow for the installation of an additional 39 turbines, for a total of 116.

As discussed below and in Section III of this Request, the additional turbines will be sited on lands for which the Council has already approved wind facility development (the Shepherds Flat South lands) as well as on lands which have not yet undergone siting review (new lands).

Current Acreage	SFS Lands	New Lands	Amended Acreage
6,935	2,413	2,421	11,769

Shepherds Flat South Lands

In this and the companion SFS Request, the Certificate Holders jointly request adjustments to their site boundaries which will have the effect of adding lands to SFC which were previously approved for inclusion in SFS.

SFS lands affected by the adjustment (shown on Map 1) were selected because they were immediately adjacent to SFC, provided for a readily identifiable site boundary, and because their associated typical layout contained thirty nine turbines for which cohesive electrical and road systems could be incorporated within SFC.

The addition of thirty nine turbines to SFC, currently the smallest of the three facilities, provides for electrical and operating balance.

New Lands

Certificate Holder requests the addition of 2,421 acres of lands not previously considered for a Site Certificate. The new lands surround a previously approved transmission and transportation corridor (SFC and SFS), and the primary purpose for including these new lands is to allow for the relocation of the transmission corridor to the western edge of the cultivated field. While Certificate Holder's current site plan does not show turbines on these new lands, Certificate Holder seeks the option to place turbines thereon.

Alternative Transmission Corridor

The SFC point-of-interconnect to the regional transmission grid is within a Bonneville Power Administration ("BPA") substation to be located adjacent to the BPA's Slatt Switching Station. BPA has commenced construction of this substation.

In the facility's current configuration, the electricity generated by SFC reaches the point-of-interconnect via a shared 230kV transmission system originating at the SFC substation thence to the Shepherds Flat North substation, and thence to the BPA substation.

Certificate Holder requests the option to reach its interconnect via a new transmission corridor. The new corridor, described in Section III of this Request, and shown on the maps in Section VIII of this Request, runs from the SFC substation directly to the BPA substation.

Use of the alternative corridor would result in shorter overall transmission line runs and eliminate one crossing of an existing high-voltage power line and county road.

The apparent benefits of the alternative corridor may be outweighed by other technical and timing considerations, however. Therefore, Certificate Holder requests approval of this corridor *in the alternative*—Certificate Holder proposes to construct its transmission line within its original corridor or its alternative corridor, but not both.

The option to use one or the other corridor is addressed in each of the three companion Amendment Requests. All three facilities intend to use the same corridor.

Relocated Transmission Route

The SFC site boundary includes a 250 foot wide transmission corridor crossing Eightmile Canyon. Certificate Holder has identified another transmission corridor which use will result in shorter transmission line runs and the elimination of two ninety degree line turns. Because transmission poles are guyed at line turns, the proposed change will also result in fewer guy lines and their associated hazards.

Lease Area Set-Back Exception

As discussed in Section V of this Request, Certificate Holder must maintain a minimum distance of 110-percent of maximum blade tip height from the "nearest boundary of the certificate holder's lease area."[1]

The SFC site boundary includes a cultural resource area which, for liability reasons, will be excised from the SFC lease area (please see Area A on Map 5). The excised area and the surrounding lands are under the same ownership, and, after applying the appropriate cultural resources set-back, the borders of the excised area are not incompatible with adjacent turbine placement. Certificate Holder therefore requests a specific exception to Condition 40(d) for this area. The landowner is aware of, and in agreement with, this treatment.

The SFC site boundary includes a drill-rig and landowner storage area which, for liability reasons, will be excised from the SFC lease area (please see Area B on Map 5). The excised area and the surrounding lands are under the same ownership, and landowner uses of the excised area are not incompatible with adjacent turbine placement. Certificate Holder therefore requests a

[1] Condition 40(d).

specific exception to Condition 40(d) for this area. The landowner is aware of, and in agreement with, this treatment.

SFC borders lands also under development for wind power facilities. Certificate Holder submits that a 110-percent of maximum blade tip height set-back requirement, when applied to adjoining lands developed for wind facilities, may result in the elimination of otherwise valuable turbine sites.

Certificate Holder therefore proposes an exception to Condition 40(d) when adjacent wind facility leaseholders submit a setback agreement acceptable to the Oregon Department of Energy.

CERTIFICATE HOLDER INFORMATION

Name and address of certificate holder:	South Hurlburt Wind, LLC c/o Caithness Corporation 565 Fifth Avenue, 29th Floor New York, NY 10017
Contact person for amendment request:	Patricia Pilz 656 San Miguel Way Sacramento, CA 95819 (916) 456-7651

CURRENT INFORMATION

Owner Name	Mailing Address
United States of America Bureau of Land Management	PO Box 550 Prineville, OR 97754
J. R. Krebs	PO Box 8 Arlington, OR 97812
Skye H. & Penny M. Krebs	PO Box 413 Ione, OR 97843
Vic Jansen	406 W Broadway S Moses Lake, WA 98837
Crum Ranches, LLC Monty Crum Ranches, LLC	PO Box 121 Ione, OR 97843
USA-Bonneville Power Administration	P.O. Box 3621 Portland, OR 97208-3621
Woodrow Ice, et al.	68809 Four Mile Canyon Ione, OR 97843
Clinton H. & Maureen C. Krebs	69956 Hwy. 74 Ione, OR 97843
Keven & Linda Haguewood et al.	PO Box 195 Ione, OR 97843
Dana & Tonya Heideman Loren A. & Della Heideman	68809 Four Mile Canyon Rd. Ione, OR 97843
Willow Farms, LLC	415 E Mill Plain Blvd. Vancouver, WA 98660

DESCRIPTION OF THE FACILITY

On September 11, 2009, Shepherds Flat Central ("SFC") was issued a Site Certificate for a wind energy facility to include up to 77 wind turbine generators and their associated infrastructure. Please see the Request to Amend the Site Certificate for the Shepherds Flat Wind Farm for a complete description of the facility and its components.

Changes

Installation of Additional Wind Turbine Generators

Certificate Holder requests approval to install an addition 39 wind turbine generators for a total of 116 turbines. Certificate Holder therefore requests an increase in the maximum generating capacity to 290 MW. The additional turbines will require additional infrastructure, resulting in the following changes in the typical layout (capacity MWs have been adjusted to account for the selection of a 2.5 MW nameplate turbine):

Component	Approved	Additional	Total
Turbines (#)	77	39	116
Capacity (MW)	231	59	290
Roads (miles)	25	9	34

Alternate Transmission Corridor

Certificate Holder requests the option to use an alternate transmission corridor. Option A, the existing corridor, supports a shared 230kV transmission system connecting the SFC substation to the facility interconnect.

The corridor is shared by Shepherds Flat North ("SFN"), SFC and Shepherds Flat South ("SFS"). Use of Option B, the alternate corridor, would change the typical layout miles of 230kV transmission line as follows:

Facility	*Option A miles*	*Option B miles*
SFN	4.0	5.7
SFC	5.9	3.7
SFS	17.4	14.5
Total	27.3	23.9

LOCATION OF THE FACILITY

The facility is located south of the Columbia River between State Highways 19 and 74. Please see the Request to Amend the Site Certificate for the Shepherds Flat Wind Farm for a complete description of the location of the facility.

Changes

Certificate Holder requests an expansion of the SFC site boundary in order increase the number of wind turbine generators A change in the site boundary to accommodate the Option B transmission corridor and a relocated transmission route is also requested.

Expansion of the Site

The approved SFC site contains 6,935 acres. Certificate Holder requests a 4,834 acre expansion. In this and the companion SFS Request, Certificate Holders request the addition of 2,413 acres of land to SFC in conjunction with the removal of those lands from SFS. The addition of new lands is also requested. Please see Map 1.

The typical layout associated with this change is depicted on Map 2. Footprint calculations are as follows:

Permanent facilities footprint, typical layout

Component	Area of Footprint Each	Number of Units	Total Footprint (acres)
Turbine pads, tubular foundation	1,510.21 sq ft	116 WTGs	4.022
Turbine turnouts, tubular foundation	285.00 sq ft	89 WTGs[1]	0.582
Substation	3.15 acres	1 each	3.150
Medium-voltage power poles	7.0 sq ft	294 poles	0.047
High-voltage single power poles	20.0 sq ft	34 poles	0.016
Field workshop	70,000 sq ft	1 each	1.607
Meteorological towers	1,225.0 sq ft	2 each	0.056
Expansion of existing roads[2]	31,680.0 sq ft/mile	5.66 miles	4.117
New roads[2]	84,480.0 sq ft/mile	28.43 miles	55.138
Total			**68.735**

1. Turbines at end of roads have no turnout
2. 16 foot final width

Permanent facilities footprint, worst-case layout

Component	Area of Footprint Each	Number of Units	Total Footprint (acres)
Turbine pads, slab foundation	1,510.21 sq ft	116 WTGs	4.022
Turbine turnouts, slab foundation	465.00 sq ft	87 WTGs	0.929
Substation	3.15 acres	1 each	3.150
Medium-voltage power poles	7.0 sq ft	318 poles	0.051
High-voltage single power poles	20.0 sq ft	50 poles	0.023
Field workshop	70,000 sq ft	1 each	1.607
Meteorological towers	1,225.0 sq ft	2 each	0.056
Expansion of existing roads	31,680.0 sq ft/mile	5.66 miles	4.116
New roads	84,480.0 sq ft/mile	29.08 miles	56.394
Total			**70.348**

Temporary project construction footprint, typical layout

Component	Area of Footprint Each	Number of Units	Total Footprint (acres)
Turbine pads, tubular foundation	7,643.94 sq ft	116 WTGs	20.356
Substations	1.83 acres	1 each	1.830
Medium-voltage power poles	200.0 sq ft	294 poles	1.350
High-voltage single power poles	400.0 sq ft	34 poles	0.312
Off-road trenching[1]	158,400.0 sq ft/mile	6.28 miles	22.827
Meteorological towers	4,775.0 sq ft	2 each	0.219
Temporary expansion of existing roads[2]	184,800.0 sq ft/mile	5.66 miles	24.013
Temporary width of new roads	184,800.0 sq ft/mile	28.43 miles	120.615
Turnarounds[3]	14,880.0 sq ft	27 each	9.223
Turning radii[4]	4,701.0 sq ft	37 each	3.993
Staging and storage	4.0 acres	2 each	8.000
Total			**212.738**

1. 30 ft disturbance width
2. 35 ft beyond finished width
3. Allows trucks to turn around at the end of strings
4. Allows long-load trucks to turn intersection corners

Temporary project construction footprint, worst-case layout

Component	Area of Footprint Each	Number of Units	Total Footprint (acres)
Turbine pads, slab foundation	8,384.79 sq ft	38 WTGs	7.315
Turbine pads, compacted slab foundation	28,131.79 sq ft	78 WTGs	50.374
Substations	1.83 acres	1 each	1.830
Medium-voltage power poles	200.0 sq ft	318 poles	1.460
High-voltage single power poles	400.0 sq ft	50 poles	0.459
Off-road trenching	158,400.0 sq ft/mile	6.360 miles	23.129
Meteorological towers	4,775.0 sq ft	2 each	0.219
Temporary expansion of existing roads[1]	264,000.0 sq ft/mile	5.66 miles	34.304
Temporary width of new roads[1]	264,000.0 sq ft/mile	29.08 miles	176.230
Turnarounds	14,880.0 sq ft	29 each	9.906
Turning radii	4,701.0 sq ft	38 each	4.101
Staging and storage	4.0 acres	2 each	8.000
Total			**317.327**

1. 50 ft beyond finished width

Change in Site Boundary

Certificate Holder requests a change in its site boundary in order to accommodate the Option B transmission corridor and a change in transmission route.

The Option A transmission corridor runs north to the SFN substation and thence to the point of interconnect. The Option B corridor runs west from the SFC substation to intersect with the Option A corridor. Please see Map 3.

8.8 acres of the Option B corridor are located on lands not previously included in any facility. These new lands measure 100 feet in width by 3,840 feet in length. Please see Map 4a.

As shown on Map 1, Certificate Holder requests the addition of a new transmission corridor crossing Eightmile Canyon. The new corridor is 300 feet wide by 2,350 feet long. Please see Map 4b.

APPLICABLE COUNCIL STANDARDS AND ANALYSIS

Certificate Holder requests the expansion of its site boundary in order to incorporate additional facility components. Approximately half of the lands added to the site have been approved for facility development (Site Certificate for Shepherds Flat South). This analysis focuses on new lands and differences in configuration.

Financial Assurance

Expansion of the facility will necessitate recalculation of site restoration estimates for SFC. The following table lists maximum components for inclusion in the new estimate:

Item	Type	Typical	Maximum
230 kV	Single pole segments holding one 230 kV 3-conductor line	3.7 miles	7.0 miles
	Total length 230 kV 3-conductor line	3.7 miles 34 poles 0.02 acres (perm) 0.31 acres (temp)	7.0 miles 58 poles 0.03 acres (perm) 0.53 acres (temp)
34.5 kV	Single pole segments holding two 34.5 kV 3-conductor lines	8.3 miles 294 poles 0.02 acres (perm) 1.35 acres (temp)	9.0 miles 318 poles 0.05 acres (perm) 1.46 acres (temp)
	Single pole segments holding 134.5 kV 3-conductor line	0 miles 0 poles 0 acres (perm) 0 acres (temp)	2.0 miles 72 poles 0.01 acres (perm) 0.33 acres (temp)
	Aboveground 3-conductor 34.5 kV line	16.6 miles	20.0 miles
	Buried 34.5 kV 3-conductor line	37.1 miles	60.0 miles
	Total length 34.5 kV 3-conductor line	53.7 miles	80.0 miles
SCADA	Total length	53.7 miles	80.0 miles
Roads	New	28.4 miles 55.1 acres (perm) 120.6 acres (temp)	35.0 miles 67.9 acres (perm) 148.5 acres (temp)
	Existing to be expanded	5.7 miles 4.1 acres (perm) 24.0 acres (temp)	7.00 miles 8.5acres (perm) 29.7 acres (temp)
	Total Maximum calculated for 6.00 miles existing and 34.00 miles new road	34.1 miles 59.2 acres (perm) 144.6 acres (temp)	40.0 miles[1] 70.3 acres (perm) 169.7 acres (temp)

1. Maximum total road length is smaller than the sum of the maximum new and existing road lengths. This allows flexibility in construction choices without exceeding a total of 40.0 miles.

Land Use

As discussed in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm, SFC requires exceptions to statewide planning goals. Justifications for those exceptions are provided in the Final Order and remain unchanged save for the underlying data which is presented below. Conclusions with respect to both soils and land capability are also unchanged. Please see Map 6 for soil types and Map 7 land capability classifications for the new lands.

Facility Footprint by County

Structure	**Gilliam County** (acres)	**Morrow County** (acres)	**Total Facility** (acres)
Principal use			
Turbine towers, including pad areas and road turnouts	3.318	1.286	4.604
Substation	3.150	0.000	3.150
Meteorological towers	0.056	0.000	0.056
Aboveground 34.5-kV collector line	0.044	0.003	0.047
Aboveground 230 kV transmission line	0.016	0.000	0.016
Field workshop	1.607	0.000	1.607
Subtotal	8.191	1.289	9.480
Access roads			
New roads	40.510	14.628	55.138
Expansion of existing roads	3.357	0.760	4.117
Subtotal	43.867	15.388	59.255
Total	**52.058**	**16.677**	**68.735**

Agricultural use by county

County	Use	Buffer (acres)	Site (acres)	Analysis Area (acres)	Footprint (acres)
Gilliam	Cultivated and supporting	444.8	2809.7	3254.5	5.550
	Grazed and supporting	9294.2	6107.4	15401.6	46.207
	Non-agricultural	170.9	193.9	364.8	0.324
	Potentially agricultural	718.0	667.8	1385.8	0.017
	Total	**10627.9**	**9778.8**	**20406.7**	**52.098**
Morrow					
	Cultivated and supporting	1076.0	1587.6	2663.6	14.613
	Grazed and supporting	1473.9	199.9	1673.8	1.106
	Non-agricultural	43.3	22.2	65.5	0.221
	Potentially agricultural	95.9	180.6	276.5	0.697
	Total	**2689.1**	**1990.3**	**4679.4**	**16.637**
Combined					
	Cultivated and supporting	1520.8	4397.3	5918.1	20.163
	Grazed and supporting	10768.1	6307.3	17075.4	47.313
	Non-agricultural	214.2	216.1	430.3	0.545
	Potentially agricultural	813.9	848.4	1662.3	0.714
	Total	**13317.0**	**11769.2**	**25086.2**	**68.735**

Protected Areas, Scenic Resources, and Recreation

New lands requested for SFC are privately owned and surround a previously approved transmission and transportation corridor. Areas north of the new lands are already within the SFC site boundary, areas to the west contain operating wind energy facilities or are approved for wind energy development (SFS), and areas to the south are approved for wind energy development (SFS). The western border of the new lands is public land not located within any Protected Area. The analysis contained in the Final Order on Amendment #1 to the Shepherds Flat Wind Farm is unchanged.

Wildlife

Please see Appendix 1.

Historic, Cultural and Archaeological Resources

Please see Appendix 2.

Noise

Condition 97 ensures that the facility as built would comply with noise control regulations.

Removal-Fill Law

No waters of the state or waters of the United States are within the new lands. Please see Appendix 3.

Site Certificate Changes

Requested changes to the Site Certificate for Shepherds Flat Central follow.

ENERGY FACILITY SITING COUNCIL

OF THE

STATE OF OREGON

First Amendment to the Site Certificate

for

Shepherds Flat Central

February~~September~~ xx~~11~~, 2010~~09~~

The Oregon Energy Facility Siting Council

SITE CERTIFICATE FOR SHEPHERDS FLAT CENTRAL

I. INTRODUCTION

The Oregon Energy Facility Siting Council (Council) issues this site certificate for the Shepherds Flat Central (the facility) in the manner authorized under ORS Chapter 469. This site certificate is a binding agreement between the State of Oregon (State), acting through the Council, and South Hurlburt Wind, LLC (certificate holder) authorizing the certificate holder to construct and operate the facility in Gilliam County and Morrow County, Oregon. [Amendment #1 for the Shepherds Flat Wind Farm (SFWF)]

The findings of fact, reasoning and conclusions of law underlying the terms and conditions of this site certificate are set forth in the following documents, incorporated herein by this reference: (a) the Council's Final Order on the Application for the Shepherds Flat Wind Farm issued on July 25, 2008, and (b) the Final Order on Amendment #1 for the Shepherds Flat Wind Farm. In interpreting this site certificate, any ambiguity will be clarified by reference to the following, in order of priority: (1) this Site Certificate, (2) the Final Order on Amendment #1 for the Shepherds Flat Wind Farm, (3) the Final Order on the Application for the Shepherds Flat Wind Farm and (4) the record of the proceedings that led to the Final Orders on the Application and Amendment #1 for the Shepherds Flat Wind Farm. [Amendment #1 (SFWF)]

This site certificate is issued concurrently with site certificates for Shepherds Flat North and Shepherds Flat South, as described in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm, each of the three relating to a physically and geographically discrete portion of the facility authorized by the Site Certificate for the Shepherds Flat Wind Farm (July 25, 2008). Effective upon execution of all three new site certificates, the new site certificates will supersede the Site Certificate for the Shepherds Flat Wind Farm, which will be of no further force and effect. [Amendment #1 (SFWF)].

The definitions in ORS 469.300 and OAR 345-001-0010 apply to terms used in this site certificate, except where otherwise stated or where the context clearly indicates otherwise.

II. SITE CERTIFICATION

1. To the extent authorized by state law and subject to the conditions set forth herein, the State authorizes the certificate holder to construct, operate and retire a wind energy facility, together with certain related or supporting facilities, at the site in Gilliam County and Morrow County, Oregon, as described in Section III of this site certificate. ORS 469.401(1).
2. This site certificate is effective until it is terminated under OAR 345-027-0110 or the rules in effect on the date that termination is sought or until the site certificate is revoked under ORS 469.440 and OAR 345-029-0100 or the statutes and rules in effect on the date that revocation is ordered. ORS 469.401(1).
3. This site certificate does not address, and is not binding with respect to, matters that were not addressed in the Council's Final Orders on the Application and Amendment #1 for the Shepherds Flat Wind Farm. Such matters include, but are not limited to: building code compliance, wage, hour and other labor regulations, local government fees and charges and other design or operational issues that do not relate to siting the facility (ORS 469.401(4))

and permits issued under statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council. 469.503(3). [Amendment #1 (SFWF)]

4. Both the State and the certificate holder shall abide by local ordinances, state law and the rules of the Council in effect on the date this site certificate is executed. ORS 469.401(2). In addition, upon a clear showing of a significant threat to public health, safety or the environment that requires application of later-adopted laws or rules, the Council may require compliance with such later-adopted laws or rules. ORS 469.401(2).

5. For a permit, license or other approval addressed in and governed by this site certificate, the certificate holder shall comply with applicable state and federal laws adopted in the future to the extent that such compliance is required under the respective state agency statutes and rules. ORS 469.401(2).

6. Subject to the conditions herein, this site certificate binds the State and all counties, cities and political subdivisions in Oregon as to the approval of the site and the construction, operation and retirement of the facility as to matters that are addressed in and governed by this site certificate. ORS 469.401(3).

7. Each affected state agency, county, city and political subdivision in Oregon with authority to issue a permit, license or other approval addressed in or governed by this site certificate shall, upon submission of the proper application and payment of the proper fees, but without hearings or other proceedings, issue such permit, license or other approval subject only to conditions set forth in this site certificate. ORS 469.401(3).

8. After issuance of this site certificate, each state agency or local government agency that issues a permit, license or other approval for the facility shall continue to exercise enforcement authority over such permit, license or other approval. ORS 469.401(3).

9. After issuance of this site certificate, the Council shall have continuing authority over the site and may inspect, or direct the Oregon Department of Energy (Department) to inspect, or request another state agency or local government to inspect, the site at any time in order to ensure that the facility is being operated consistently with the terms and conditions of this site certificate. ORS 469.430.

III. DESCRIPTION

1. The Facility

(a) The Energy Facility

The energy facility is an electric power generating facility with an average electric generating capacity of up to 8777 megawatts and a peak generating capacity of not more than 290231 megawatts that produces power from wind energy. The facility consists of not more than 11677 wind turbines. The energy facility is described further in the Final Order on the Application. [Amendment #1 (SFWF)]

(b) Related or Supporting Facilities

The facility includes the following related or supporting facilities described below and in greater detail in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm:

- Power Collection System
- Collector Substation
- Meteorological towers
- Field workshop
- Control system
- Access roads
- Additional construction areas

[Amendment #1 (SFWF)]

Power Collection System

A power collection system operating at 34.5 kilovolts (kV) transports power from each turbine to a collector substation. To the extent practicable, the collection system is installed underground at a depth of at least three feet. Segments of the collector system are aboveground. Aboveground segments are installed on single-pole, cross-arm structures or understrung on the 230-kV transmission line support structures (described below).

Collector Substations and Interconnection

The facility includes a collector substation. The facility includes a 230-kV transmission line between the substation and the interconnection site. The interconnection site is located at the Bonneville Power Administration Slatt Switching Station. [Amendment #1 (SFWF)]

Meteorological Towers

The facility includes two permanent meteorological (met) towers. [Amendment #1 (SFWF)]

Field Workshop

The facility includes a field workshop. Including fenced areas, the field workshop occupies about 1.6 acres. [Amendment #1 (SFWF)]

Control System

A fiber optic communications network links the control panels within each wind turbine to a host computer located in the field workshop. Supervisory, Control and Data Acquisition (SCADA) systems at the field workshop collect operating and performance data from the turbines and the facility's met towers. [Amendment #1 (SFWF)]

Access Roads

The facility includes up to 40~~25~~ miles of new roads that provide access to the turbine strings. The access roads connect to graveled turbine turnouts at the base of each turbine. [Amendment #1 (SFWF)]

Temporary Construction Areas

During construction, the facility includes temporary laydown areas used to stage construction and store supplies and equipment. The facility includes construction crane paths to move construction cranes between turbine strings.

2. Location of the Facility

The facility is located in Morrow County and Gilliam County south of Interstate Highway 84 and east of Arlington, Oregon, between State Highways 19 and 74. The facility is located entirely on private land subject to long-term wind energy leases. [Amendment #1 (SFWF)]

IV. CONDITIONS REQUIRED BY COUNCIL RULES

This section lists conditions required by OAR 345-027-0020 (Mandatory Conditions in Site Certificates), OAR 345-027-0023 (Site Specific Conditions), OAR 345-027-0028 (Monitoring Conditions) and OAR Chapter 345, Division 26 (Construction and Operation Rules for Facilities). These conditions should be read together with the specific facility conditions listed in Section V to ensure compliance with the siting standards of OAR Chapter 345, Divisions 22 and 24, and to protect the public health and safety. In these conditions, the definitions in OAR 345-001-0010 apply.

The obligation of the certificate holder to report information to the Department or the Council under the conditions listed in this section and in Section V is subject to the provisions of ORS 192.502 *et seq*. and ORS 469.560. To the extent permitted by law, the Department and the Council will not publicly disclose information that may be exempt from public disclosure if the certificate holder has clearly labeled such information and stated the basis for the exemption at the time of submitting the information to the Department or the Council. If the Council or the Department receives a request for the disclosure of the information, the Council or the Department, as appropriate, will make a reasonable attempt to notify the certificate holder and will refer the matter to the Attorney General for a determination of whether the exemption is applicable, pursuant to ORS 192.450.

In addition to these conditions, the site certificate holder is subject to all conditions and requirements contained in the rules of the Council and in local ordinances and state law in effect on the date the certificate is executed. Under ORS 469.401(2), upon a clear showing of a significant threat to the public health, safety or the environment that requires application of later-adopted laws or rules, the Council may require compliance with such later-adopted laws or rules.

The Council recognizes that many specific tasks related to the design, construction, operation and retirement of the facility will be undertaken by the certificate holder's agents or contractors. Nevertheless, the certificate holder is responsible for ensuring compliance with all provisions of the site certificate.

1 OAR 345-027-0020(1): The Council shall not change the conditions of the site certificate except as provided for in OAR Chapter 345, Division 27.

2 OAR 345-027-0020(2): The certificate holder shall submit a legal description of the site to the Department of Energy within 90 days after beginning operation of the facility. The legal description required by this rule means a description of metes and bounds or a description of the site by reference to a map and geographic data that clearly and specifically identifies the outer boundaries that contain all parts of the facility.

3 OAR 345-027-0020(3): The certificate holder shall design, construct, operate and retire the facility:

(a) Substantially as described in the site certificate;

(b) In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the site certificate is issued; and

(c) In compliance with all applicable permit requirements of other state agencies.

4 OAR 345-027-0020(4): The certificate holder shall begin and complete construction of the facility by the dates specified in the site certificate. *(See Conditions 24 and 25.)*

5 OAR 345-027-0020(5): Except as necessary for the initial survey or as otherwise allowed for wind energy facilities, transmission lines or pipelines under this section, the certificate holder shall not begin construction, as defined in OAR 345-001-0010, or create a clearing on any part of the site until the certificate holder has construction rights on all parts of the site. For the purpose of this rule, "construction rights" means the legal right to engage in construction activities. For wind energy facilities, transmission lines or pipelines, if the certificate holder does not have construction rights on all parts of the site, the certificate holder may nevertheless begin construction, as defined in OAR 345-001-0010, or create a clearing on a part of the site if the certificate holder has construction rights on that part of the site and:

(a) The certificate holder would construct and operate part of the facility on that part of the site even if a change in the planned route of the transmission line or pipeline occurs during the certificate holder's negotiations to acquire construction rights on another part of the site; or

(b) The certificate holder would construct and operate part of a wind energy facility on that part of the site even if other parts of the facility were modified by amendment of the site certificate or were not built.

6 OAR 345-027-0020(6): If the Council requires mitigation based on an affirmative finding under any standards of Division 22 or Division 24 of this chapter, the certificate holder shall consult with affected state agencies and local governments designated by the Council and shall develop specific mitigation plans consistent with Council findings under the relevant standards. The certificate holder must submit the mitigation plans to the Office and receive Office approval before beginning construction or, as appropriate, operation of the facility.

7 OAR 345-027-0020(7): The certificate holder shall prevent the development of any conditions on the site that would preclude restoration of the site to a useful, non-hazardous condition to the extent that prevention of such site conditions is within the control of the certificate holder.

8 OAR 345-027-0020(8): Before beginning construction of the facility, the certificate holder shall submit to the State of Oregon, through the Council, a bond or letter of credit, in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition. The certificate holder shall maintain a bond or letter of credit in effect at all times until the facility has been retired. The Council may specify different amounts for the bond or letter of credit during construction and during operation of the facility. *(See Condition 30.)*

9 OAR 345-027-0020(9): The certificate holder shall retire the facility if the certificate holder permanently ceases construction or operation of the facility. The certificate holder shall retire the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110. The certificate holder shall pay the actual cost to restore the site to a useful, non-hazardous condition at the time of retirement, notwithstanding the Council's approval in the site certificate of an estimated amount required to restore the site.

10 OAR 345-027-0020(10): The Council shall include as conditions in the site certificate all representations in the site certificate application and supporting record the Council deems to be binding commitments made by the applicant.

11 OAR 345-027-0020(11): Upon completion of construction, the certificate holder shall restore vegetation to the extent practicable and shall landscape all areas disturbed by construction in a manner compatible with the surroundings and proposed use. Upon completion of construction, the certificate holder shall remove all temporary structures not required for facility operation and dispose of all timber, brush, refuse and flammable or combustible material resulting from clearing of land and construction of the facility.

12 OAR 345-027-0020(12): The certificate holder shall 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 all maximum probable seismic events. As used in this rule "seismic hazard" includes ground shaking, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement and subsidence.

13 OAR 345-027-0020(13): The certificate holder shall notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the application for a site certificate. After the Department receives the notice, the Council may require the certificate holder to consult with the Department of Geology and Mineral Industries and the Building Codes Division and to propose mitigation actions.

14 OAR 345-027-0020(14): The certificate holder shall notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site.

15 OAR 345-027-0020(15): Before any transfer of ownership of the facility or ownership of the site certificate holder, the certificate holder shall inform the Department of the proposed new owners. The requirements of OAR 345-027-0100 apply to any transfer of ownership that requires a transfer of the site certificate.

16 OAR 345-027-0020(16): If the Council finds that the certificate holder has permanently ceased construction or operation of the facility without retiring the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110, the Council shall notify the certificate holder and request that the certificate holder submit a proposed final retirement plan to the Office within a reasonable time not to exceed 90 days. If the certificate holder does not submit a proposed final retirement plan by the specified date, the Council may direct the Department to prepare a proposed final retirement plan for the Council's approval. Upon the Council's approval of the final retirement plan, the Council may draw on the bond or letter of credit described in OAR 345-027-0020(8) to restore the site to a useful, non-hazardous condition according to the final retirement plan, in addition to any penalties the Council may impose under OAR Chapter 345, Division 29. If the amount of the bond or letter of credit is insufficient to pay the actual cost of retirement, the certificate holder shall pay any additional cost necessary to restore the site to a useful, non-

hazardous condition. After completion of site restoration, the Council shall issue an order to terminate the site certificate if the Council finds that the facility has been retired according to the approved final retirement plan.

17 OAR 345-027-0023(4): If the facility includes any transmission line under Council jurisdiction:

(a) The certificate holder shall design, construct and operate the transmission line in accordance with the requirements of the National Electrical Safety Code (American National Standards Institute, Section C2, 1997 Edition); and

(b) The certificate holder shall develop and implement a program that provides reasonable assurance that all fences, gates, cattle guards, trailers, or other objects or structures of a permanent nature that could become inadvertently charged with electricity are grounded or bonded throughout the life of the line.

18 OAR 345-027-0023(5): If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a pipeline or transmission line, the Council shall specify an approved corridor in the site certificate and shall allow the certificate holder to construct the pipeline or transmission line anywhere within the corridor, subject to the conditions of the site certificate. If the applicant has analyzed more than one corridor in its application for a site certificate, the Council may, subject to the Council's standards, approve more than one corridor.

19 OAR 345-027-0028: The following general monitoring conditions apply:

(a) The certificate holder shall consult with affected state agencies, local governments and tribes and shall develop specific monitoring programs for impacts to resources protected by the standards of divisions 22 and 24 of OAR Chapter 345 and resources addressed by applicable statutes, administrative rules and local ordinances. The certificate holder must submit the monitoring programs to the Department of Energy and receive Department approval before beginning construction or, as appropriate, operation of the facility.

(b) The certificate holder shall implement the approved monitoring programs described in OAR 345-027-0028(1) and monitoring programs required by permitting agencies and local governments.

(c) For each monitoring program described in OAR 345-027-0028(1) and (2), the certificate holder shall have quality assurance measures approved by the Department before beginning construction or, as appropriate, before beginning commercial operation.

(d) If the certificate holder becomes aware of a significant environmental change or impact attributable to the facility, the certificate holder shall, as soon as possible, submit a written report to the Department describing the impact on the facility and any affected site certificate conditions.

20 OAR 345-026-0048: Following receipt of the site certificate or an amended site certificate, the certificate holder shall implement a plan that verifies compliance with all site certificate terms and conditions and applicable statutes and rules. As a part of the compliance plan, to verify compliance with the requirement to begin construction by the date specified in the site certificate, the certificate holder shall report promptly to the Department of Energy when construction begins. Construction is defined in OAR 345-001-0010. In reporting the beginning of construction, the certificate holder shall describe all work on the site performed before beginning construction, including

work performed before the Council issued the site certificate, and shall state the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor. The certificate holder shall document the compliance plan and maintain it for inspection by the Department or the Council.

21 OAR 345-026-0080: The certificate holder shall report according to the following requirements:

(a) General reporting obligation for energy facilities under construction or operating:

(i) Within six months after beginning construction, and every six months thereafter during construction of the energy facility and related or supporting facilities, the certificate holder shall submit a semiannual construction progress report to the Department of Energy. In each construction progress report, the certificate holder shall describe any significant changes to major milestones for construction. The certificate holder shall include such information related to construction as specified in the site certificate. When the reporting date coincides, the certificate holder may include the construction progress report within the annual report described in OAR 345-026-0080.

(ii) By April 30 of each year after beginning construction, the certificate holder shall submit an annual report to the Department addressing the subjects listed in OAR 345-026-0080. The Council Secretary and the certificate holder may, by mutual agreement, change the reporting date.

(iii) To the extent that information required by OAR 345-026-0080 is contained in reports the certificate holder submits to other state, federal or local agencies, the certificate holder may submit excerpts from such other reports to satisfy this rule. The Council reserves the right to request full copies of such excerpted reports.

(b) In the annual report, the certificate holder shall include the following information for the calendar year preceding the date of the report:

(i) Facility Status: An overview of site conditions, the status of facilities under construction, and a summary of the operating experience of facilities that are in operation. In this section of the annual report, the certificate holder shall describe any unusual events, such as earthquakes, extraordinary windstorms, major accidents or the like that occurred during the year and that had a significant adverse impact on the facility.

(ii) Reliability and Efficiency of Power Production: For electric power plants, the plant availability and capacity factors for the reporting year. The certificate holder shall describe any equipment failures or plant breakdowns that had a significant impact on those factors and shall describe any actions taken to prevent the recurrence of such problems.

(iii) Fuel Use: For thermal power plants:

(A) The efficiency with which the power plant converts fuel into electric energy. If the fuel chargeable to power heat rate was evaluated when the facility was sited, the certificate holder shall calculate efficiency using the same formula and assumptions, but using actual data; and

(B) The facility's annual hours of operation by fuel type and, every five years after beginning operation, a summary of the annual hours of operation by fuel type as described in OAR 345-024-0590(5).

(iv) Status of Surety Information: Documentation demonstrating that bonds or letters of credit as described in the site certificate are in full force and effect and will remain in full force and effect for the term of the next reporting period.

(v) Monitoring Report: A list and description of all significant monitoring and mitigation activities performed during the previous year in accordance with site certificate terms and conditions, a summary of the results of those activities and a discussion of any significant changes to any monitoring or mitigation program, including the reason for any such changes.

(vi) Compliance Report: A description of all instances of noncompliance with a site certificate condition. For ease of review, the certificate holder shall, in this section of the report, use numbered subparagraphs corresponding to the applicable sections of the site certificate.

(vii) Facility Modification Report: A summary of changes to the facility that the certificate holder has determined do not require a site certificate amendment in accordance with OAR 345-027-0050.

(viii) Nongenerating Facility Carbon Dioxide Emissions: For nongenerating facilities that emit carbon dioxide, a report of the annual fuel use by fuel type and annual hours of operation of the carbon dioxide emitting equipment as described in OAR 345-024-0630(4).

22 OAR 345-026-0105: The certificate holder and the Department of Energy shall exchange copies of all correspondence or summaries of correspondence related to compliance with statutes, rules and local ordinances on which the Council determined compliance, except for material withheld from public disclosure under state or federal law or under Council rules. The certificate holder may submit abstracts of reports in place of full reports; however, the certificate holder shall provide full copies of abstracted reports and any summarized correspondence at the request of the Department.

23 OAR 345-026-0170: The certificate holder shall notify the Department of Energy within 72 hours of any occurrence involving the facility if:

(a) There is an attempt by anyone to interfere with its safe operation;

(b) A natural event such as an earthquake, flood, tsunami or tornado, or a human-caused event such as a fire or explosion affects or threatens to affect the public health and safety or the environment; or

(c) There is any fatal injury at the facility.

V. SPECIFIC FACILITY CONDITIONS

The conditions listed in this section include conditions based on representations in the site certificate application and supporting record. These conditions are required under OAR 345-027-0020(10). The certificate holder must comply with these conditions in addition to the conditions listed in Section VI. This section includes other specific facility conditions the Council finds necessary to ensure compliance with the siting standards of OAR Chapter 345, Divisions 22 and 24, and to protect the public health and safety. For conditions that require subsequent review and approval of a future action, ORS 469.402 authorizes the Council to delegate the future review and approval to the Department if, in the Council's discretion, the delegation is warranted under the circumstances of the case.

1. Certificate Administration Conditions

24 The certificate holder shall begin construction of the facility by July 25, 2011. The Council may grant an extension of the deadline to begin construction in accordance

with OAR 345-027-0030 or any successor rule in effect at the time the request for extension is submitted. [Amendment #1 (SFWF)]

25 The certificate holder shall complete construction of the facility by July 25, 2014. Construction is complete when: 1) the facility is substantially complete as defined by the certificate holder's construction contract documents, 2) acceptance testing has been satisfactorily completed and 3) the energy facility is ready to begin continuous operation consistent with the site certificate. The certificate holder shall promptly notify the Department of the date of completion of construction. The Council may grant an extension of the deadline for completing construction in accordance with OAR 345-027-0030 or any successor rule in effect at the time the request for extension is submitted. [Amendment #1 (SFWF)]

26 The certificate holder shall construct a facility substantially as described in the site certificate and may select turbines of any type, subject to the following restrictions and compliance with all other site certificate conditions. Before beginning construction, the certificate holder shall provide to the Department a description of the turbine types selected for the facility demonstrating compliance with this condition.

(a) The total number of turbines at the facility must not exceed 116~~77~~ turbines.

(b) The combined peak generating capacity of the facility must not exceed 290~~231~~ megawatts.

(c) The turbine hub height must not exceed 105 meters and the maximum blade tip height must not exceed 150 meters.

(d) The minimum blade tip clearance must be 25 meters above ground.

(e) The maximum volume of concrete above three feet below grade in the turbine foundations must not exceed 66 cubic yards.

(f) The maximum combined weight of metals in the tower (including ladders and platforms) and nacelle must not exceed 393 U.S. tons per turbine.

(g) The certificate holder shall request an amendment of the site certificate to increase the combined peak generating capacity of the facility beyond ~~231~~ 290 megawatts, to increase the number of wind turbines to more than ~~77~~ 116 wind turbines or to install wind turbines with a hub height greater than 105 meters, a blade tip height greater than 150 meters or a blade tip clearance less than 25 meters above ground.

[Amendment #1 (SFWF)]

27 The certificate holder shall obtain all necessary federal, state and local permits or approvals required for construction, operation and retirement of the facility or ensure that its contractors obtain the necessary federal, state and local permits or approvals.

28 Before beginning construction, the certificate holder shall notify the Department in advance of any work on the site that does not meet the definition of "construction" in ORS 469.300, excluding surveying, exploration or other activities to define or characterize the site, and shall provide to the Department a description of the work and evidence that its value is less than $250,000.

29 Before beginning construction and after considering all micrositing factors, the certificate holder shall provide to the Department, to the Oregon Department of Fish and Wildlife (ODFW) and to the Planning Directors of Morrow County and Gilliam County detailed maps of the facility site, showing the final locations where the

certificate holder proposes to build facility components, and a table showing the acres of temporary and permanent habitat impact by habitat category and subtype, similar to Table 9 in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm. The detailed maps of the facility site shall indicate the habitat categories of all areas that would be affected during construction (similar to the maps labeled "ODFW-2" in the site certificate application for the Shepherds Flat Wind Farm). In classifying the affected habitat into habitat categories, the certificate holder shall consult with the ODFW. The certificate holder shall not begin ground disturbance in an affected area until the habitat assessment has been approved by the Department. The Department may employ a qualified contractor to confirm the habitat assessment by on-site inspection. [Amendment #1 (SFWF)]

30 Before beginning construction, the certificate holder shall submit to the State of Oregon through the Council a bond or letter of credit in the amount described herein naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The initial bond or letter of credit amount is either $xx~~6.131~~ million (3rd Quarter 2009 dollars), to be adjusted to the date of issuance as described in (b), or the amount determined as described in (a). The certificate holder shall adjust the amount of the bond or letter of credit on an annual basis thereafter as described in (b).

(a) The certificate holder may adjust the amount of the bond or letter of credit based on the final design configuration of the facility and turbine types selected by applying the unit costs and general costs illustrated in Table 2 in the Final Order on the Amendment #1 for the Shepherds Flat Wind Farm and calculating the financial assurance amount as described in that order, adjusted to the date of issuance as described in (b) and subject to approval by the Department.

(b) The certificate holder shall adjust the amount of the bond or letter of credit, using the following calculation and subject to approval by the Department:

(i) Adjust the Subtotal component of the bond or letter of credit amount (expressed in 3rd Quarter 2009 dollars) to present value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency (the "Index") and using the index value for 3rd Quarter 2009 dollars and the quarterly index value for the date of issuance of the new bond or letter of credit. If at any time the Index is no longer published, the Council shall select a comparable calculation to adjust 3rd Quarter 2009 dollars to present value.

(ii) Add 1 percent of the adjusted Subtotal (i) for the adjusted performance bond amount to determine the adjusted Gross Cost.

(iii) Add 10 percent of the adjusted Gross Cost (ii) for the adjusted administration and project management costs and 10 percent of the adjusted Gross Cost (ii) for the adjusted future developments contingency.

(iv) Add the adjusted Gross Cost (ii) to the sum of the percentages (iii) and round the resulting total to the nearest $1,000 to determine the adjusted financial assurance amount.

(c) The certificate holder shall use a form of bond or letter of credit approved by the Council.

(d) The certificate holder shall use an issuer of the bond or letter of credit approved by the Council.

(e) The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under Condition 21.

(f) The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility site.

[Amendment #1 (SFWF)]

31 If the certificate holder elects to use a bond to meet the requirements of Condition 30, the certificate holder shall ensure that the surety is obligated to comply with the requirements of applicable statutes, Council rules and this site certificate when the surety exercises any legal or contractual right it may have to assume construction, operation or retirement of the energy facility. The certificate holder shall also ensure that the surety is obligated to notify the Council that it is exercising such rights and to obtain any Council approvals required by applicable statutes, Council rules and this site certificate before the surety commences any activity to complete construction, operate or retire the energy facility.

32 Before beginning construction, the certificate holder shall notify the Department of the identity and qualifications of the major design, engineering and construction contractor(s) for the facility. The certificate holder shall select contractors that have substantial experience in the design, engineering and construction of similar facilities. The certificate holder shall report to the Department any change of major contractors.

33 The certificate holder shall contractually require all construction contractors and subcontractors involved in the construction of the facility to comply with all applicable laws and regulations and with the terms and conditions of the site certificate. Such contractual provisions shall not operate to relieve the certificate holder of responsibility under the site certificate.

34 During construction, the certificate holder shall have a full-time, on-site assistant construction manager who is qualified in environmental compliance to ensure compliance with all site certificate conditions. The certificate holder shall notify the Department of the name, telephone number and e-mail address of this person.

35 Within 72 hours after discovery of conditions or circumstances that may violate the terms or conditions of the site certificate, the certificate holder shall report the conditions or circumstances to the Department.

2. Land Use Conditions

36 The certificate holder shall consult with area landowners and lessees during construction and operation of the facility and shall implement measures to reduce or avoid any adverse impacts to farm practices on surrounding lands and to avoid any increase in farming costs.

37 The certificate holder shall design and construct the facility using the minimum land area necessary for safe construction and operation. The certificate holder shall locate access roads and temporary construction laydown and staging areas to minimize disturbance with farming practices and, wherever feasible, shall place turbines and transmission interconnection lines along the margins of cultivated areas to reduce the potential for conflict with farm operations.

38 During construction and operation of the facility, the certificate holder shall implement a plan to control the introduction and spread of noxious weeds. The certificate shall develop the weed control plan consistent with the Gilliam County and Morrow County Weed Control Programs.

39 Before beginning construction of the facility, the certificate holder shall record in the real property records of Gilliam County a Covenant Not to Sue with regard to generally accepted farming practices on adjacent farmland consistent with Gilliam County Zoning Ordinance 7.020(T)(4)(a)(5).

40 The certificate holder shall construct all facility components in compliance with the following setback requirements:

(a) All facility components must be at least 3,520 feet from the property line of properties zoned residential use or designated in the Gilliam County Comprehensive Plan as residential.

(b) Where (a) does not apply, the certificate holder shall maintain a minimum distance of 110-percent of maximum blade tip height, measured from the centerline of the turbine tower to the nearest edge of any public road right-of-way. The certificate holder shall assume a minimum right-of-way width of 60 feet.

(c) Where (a) does not apply, the certificate holder shall maintain a minimum distance of 1,320 feet, measured from the centerline of the turbine tower to the center of the nearest residence existing at the time of tower construction.

(d) Where (a) does not apply, the certificate holder shall maintain a minimum distance of 110-percent of maximum blade tip height, measured from the centerline of the turbine tower to the nearest boundary of the certificate holder's lease area, except those internal boundaries described as "Area A" and "Area B" depicted on Map 5 in Certificate Holder's Request for Amendment #1; and where adjacent wind facility leaseholders have submitted a setback agreement acceptable to the Department.

41 Within 90 days after beginning operation, the certificate holder shall provide to the Department and to the Planning Directors of Gilliam County and Morrow County the actual latitude and longitude location or Stateplane NAD 83(91) coordinates of each turbine tower, connecting lines and transmission lines. In addition, the certificate holder shall provide to the Department and to the Planning Directors of Gilliam County and Morrow County, a summary of as-built changes in the facility compared to the original plan, if any.

42 The certificate holder shall install gates on all private facility access roads in Gilliam County, in accordance with Gilliam County Zoning Ordinance Section 7.020(T)(4)(d)(6).

3. Cultural Resource Conditions

43 Before beginning construction, the certificate holder shall provide to the Department a map showing the final design locations of all components of the facility and areas that would be temporarily disturbed during construction. In addition, the certificate holder shall comply with the following requirements:

(a) The certificate holder shall avoid disturbance within a 30-meter buffer around the prehistoric archaeological sites and historic-period archaeological sites within the facility

boundary identified by AINW as "possibly eligible" for listing in the National Register of Historic Places (NRHP) as described in the Final Order on the Application for the Shepherds Flat Wind Farm.

(b) The certificate holder shall avoid disturbance of the stacked rock features within the facility boundary identified by AINW as "possibly eligible" for listing in the NRHP as described in the Final Order on the Application for the Shepherds Flat Wind Farm and shall, to the extent practicable, maintain a 30-meter no-construction buffer around these features. If a 30-meter buffer cannot be maintained, the certificate holder shall consult with the State Historic Preservation Office (SHPO) and the Department to determine appropriate action to preserve or document the feature.

(c) The certificate holder shall label "no entry" areas around all identified historic, cultural or archaeological resource sites on construction maps and drawings, and if construction activities will occur within 200 feet of an identified site, the certificate holder shall flag a 30-meter buffer around the site.

(d) The certificate holder shall hire qualified personnel to conduct pre-construction field investigation for historic, cultural or archaeological resources in any areas of potential construction disturbance that AINW did not previously survey.

(e) The certificate holder shall provide written reports of the field investigation required under (d) to the Department and to the SHPO. If any historic, cultural or archaeological resources are found that the SHPO determines to be significant, the certificate holder shall consult with the Department and the SHPO to develop plan to avoid disturbance of the resources during construction and operation of the facility. The certificate holder shall instruct all construction personnel to avoid areas where the resources were found and shall implement other appropriate measures to protect the resources.

[Amendment #1 (SFWF)]

44 The certificate holder shall ensure that a qualified archeologist, as defined in OAR 736-051-0070, instructs construction personnel in the identification of cultural materials and avoidance of accidental damage to identified resource sites.

45 The certificate holder shall ensure that construction personnel cease all ground-disturbing activities in the immediate area if any archaeological or cultural resources are found during construction of the facility until a qualified archeologist can evaluate the significance of the find. The certificate holder shall notify the Department and the State Historic Preservation Office (SHPO) of the find. If the SHPO determines that the resource is significant, the certificate holder shall make recommendations to the Council for mitigation, including avoidance, field documentation and data recovery, in consultation with the Department, SHPO, interested tribes and other appropriate parties. The certificate holder shall not restart work in the affected area until the certificate holder has demonstrated to the Department and the SHPO that it has complied with archaeological resource protection regulations.

46 In reference to the presumed alignments of the Oregon Trail described in the Final Order on the Application, the certificate holder shall comply with the following requirements:

(a) The certificate holder shall not locate facility components on visible remnants of the Oregon Trail and shall avoid any construction disturbance to those remnants.

(b) The certificate holder shall not locate facility components on undeveloped land where the trail alignment was marked by existing Oregon-California Trail Association markers as described in the October 2007 Archaeological Investigations Northwest, Inc. report (No. 2012) on the Oregon Trail.

(c) Before beginning construction, the certificate holder shall provide to the State Historic Preservation Office (SHPO) and to the Department photographic documentation of the presumed Oregon Trail alignments within the site boundary.

(d) The certificate holder shall ensure that construction personnel proceed carefully in the vicinity of the presumed alignments of the Oregon Trail. If any intact physical evidence of the trail is discovered, the certificate holder shall avoid any disturbance to the intact segments, by redesign, re-engineering or restricting the area of construction activity. The certificate holder shall promptly notify the SHPO and the Department of the discovery. The certificate holder shall consult with the SHPO and the Department to determine appropriate mitigation measures.

4. Geotechnical Conditions

47 Before beginning construction, the certificate holder shall conduct a site-specific geotechnical investigation and shall report its findings to the Oregon Department of Geology & Mineral Industries (DOGAMI) and the Department. The certificate holder shall conduct the geotechnical investigation after consultation with DOGAMI and in general accordance with DOGAMI open file report 00-04 "Guidelines for Engineering Geologic Reports and Site-Specific Seismic Hazard Reports."

48 The certificate holder shall design and construct the facility in accordance with requirements set forth by the State of Oregon's Building Code Division and any other applicable codes and design procedures. The certificate holder shall design facility structures to meet or exceed the minimum standards required by the 2003 International Building Code.

49 The certificate holder shall design, engineer and construct the facility to avoid dangers to human safety presented by non-seismic hazards. As used in this condition, "non-seismic hazards" include settlement, landslides, flooding and erosion.

5. Hazardous Materials, Fire Protection & Public Safety Conditions

50 The certificate holder shall handle hazardous materials used on the site in a manner that protects public health, safety and the environment and shall comply with all applicable local, state and federal environmental laws and regulations. The certificate holder shall not store diesel fuel or gasoline on the facility site.

51 If a spill or release of hazardous material occurs during construction or operation of the facility, the certificate holder shall notify the Department within 72 hours and shall clean up the spill or release and dispose of any contaminated soil or other materials according to applicable regulations. The certificate holder shall make sure that spill kits containing items such as absorbent pads are located on equipment and at the field workshop. The certificate holder shall instruct employees about proper handling, storage and cleanup of hazardous materials. [Amendment #1 (SFWF)]

52 During construction, the certificate holder shall ensure that construction personnel are trained in fire prevention and response, that construction vehicles and equipment are operated on graveled areas to the extent possible and that open flames, such as cutting torches, are kept away from dry grass areas.

53 During operation, the certificate holder shall ensure that all on-site employees receive annual fire prevention and response training, including tower rescue training, by qualified instructors or members of the local fire districts. The certificate holder shall ensure that all employees are instructed to keep vehicles on roads and off dry grassland, except when off-road operation is required for emergency purposes. The certificate holder shall encourage employees to become volunteer members of local fire departments and shall facilitate appropriate training.

54 During construction and operation of the facility, the certificate holder shall ensure that the field workshop and all service vehicles are equipped with shovels and portable fire extinguishers of a 4A5OBC or equivalent rating. [Amendment #1 (SFWF)]

55 During construction and operation of the facility, the certificate holder shall develop and implement fire safety plans in consultation with the local fire protection agencies (the North Gilliam County Rural Fire Protection District and the Ione Rural Fire Protection District) to minimize the risk of fire and to respond appropriately to any fires that occur on the facility site. In developing the fire safety plans, the certificate holder shall take into account the dry nature of the region and shall address risks on a seasonal basis. The certificate holder shall meet annually with local fire protection agency personnel to discuss emergency planning and shall invite local fire protection agency personnel to observe any emergency drill or tower rescue training conducted at the facility.

56 Upon the beginning of operation of the facility, the certificate holder shall provide a site plan to the local fire protection agencies (the North Gilliam County Rural Fire Protection District and the Ione Rural Fire Protection District). The certificate holder shall indicate on the site plan the identification number assigned to each turbine and the location of all facility structures and shall provide an updated site plan if additional turbines or other structures are later added to the facility. During operation, the certificate holder shall ensure that appropriate fire protection agency personnel have an up-to-date list of the names and telephone numbers of facility personnel available to respond on a 24-hour basis in case of an emergency on the facility site.

57 Before beginning construction, the certificate holder shall submit a Notice of Proposed Construction or Alteration to the Federal Aviation Administration (FAA) and the Oregon Department of Aviation identifying the proposed final locations of turbine towers and meteorological towers. The certificate holder shall promptly notify the Department of the responses from the FAA and the Oregon Department of Aviation. [Amendment #1 (SFWF)]

58 The certificate holder shall construct turbines on concrete foundations and shall surround the base of each tower with a ten-foot pad area of washed crushed rock on all sides. The certificate holder shall cover turbine pad areas with non-erosive, non-flammable material as soon as possible following exposure during construction and shall maintain the pad area covering during operation of the facility.

59 The certificate holder shall follow manufacturers' recommended handling instructions and procedures to prevent damage to turbine or turbine tower components that could lead to failure.

60 The certificate holder shall install and maintain self-monitoring devices on each turbine, connected to a fault annunciation panel or supervisory control and data acquisition (SCADA) system at the field workshop to alert operators to potentially dangerous conditions. The certificate holder shall maintain automatic equipment protection features in each turbine that would shut down the turbine and reduce the chance of a mechanical problem causing a fire. [Amendment #1 (SFWF)]

61 The certificate holder shall construct turbine towers with no exterior ladders or access to the turbine blades and shall install locked tower access doors. The certificate holder shall keep tower access doors locked at all times except when authorized personnel are present.

62 The certificate holder shall have an operational safety-monitoring program and shall inspect all turbine and turbine tower components on a regular basis. The certificate holder shall maintain or repair turbine and turbine tower components as necessary to protect public safety.

63 For turbine types having pad-mounted step-up transformers, the certificate holder shall install the transformers at the base of each tower in locked cabinets designed to protect the public from electrical hazards and to avoid creation of artificial habitat for raptor prey.

64 To protect the public from electrical hazards, the certificate holder shall enclose the facility substation with appropriate fencing and locked gates. [Amendment #1 (SFWF)]

65 The certificate holder shall construct access roads with a finished width of approximately 16 feet, a compacted base of native soil and a gravel surface to a depth of four to six inches. [Amendment #1 (SFWF)]

66 During construction, the certificate holder shall implement measures to reduce traffic impacts, including:

(a) Providing notice to the City of Arlington Road Department, the Gilliam County Road Department and the Gilliam County Sheriff's Office in advance of deliveries that could cause traffic disruption in Arlington.

(b) Providing notice to the residents of Arlington in advance of deliveries that could cause traffic disruption.

(c) Requiring flaggers to be at appropriate locations at appropriate times during construction to direct traffic.

67 The certificate holder shall cooperate with the Gilliam County Road Department and the Morrow County Public Works Department to ensure that any unusual damage or wear to county roads that is caused by construction of the facility is repaired by the certificate holder. Upon completion of construction, the certificate holder shall restore county roads to pre-construction condition or better, to the satisfaction of the applicable county departments. If required by Morrow County or Gilliam County, the certificate holder shall post bonds to ensure funds are available to repair and maintain roads affected by the proposed facility.

68 During construction, the certificate holder shall require that all on-site construction contractors develop and implement a site health and safety plan that informs workers and others on-site what to do in case of an emergency and that includes the locations of fire extinguishers and nearby hospitals, important telephone numbers and first aid techniques. The certificate holder shall ensure that construction contractors have personnel on-site who are trained and equipped for tower rescue and who are first aid and CPR certified.

69 During operation, the certificate holder shall develop and implement a site health and safety plan that informs employees and others on-site what to do in case of an emergency and that includes the locations of fire extinguishers and nearby hospitals, important telephone numbers and first aid techniques.

70 During construction and operation of the facility, the certificate holder shall provide for on-site security and shall establish good communications between on-site security personnel and local law enforcement agencies (Gilliam County Sheriff and Morrow County Sheriff). During operation, the certificate holder shall ensure that appropriate law enforcement agency personnel have an up-to-date list of the names and telephone numbers of facility personnel available to respond on a 24-hour basis in case of an emergency on the facility site.

71 The certificate holder shall notify the Department and the Planning Directors of Gilliam County and Morrow County within 72 hours of any accidents including mechanical failures on the site associated with construction or operation of the facility that may result in public health and safety concerns.

6. Water, Soils, Streams & Wetlands Conditions

72 The certificate holder shall not build any roads or construct transmission line support poles within Eightmile Creek or within a 10-foot buffer from the ordinary high water line of the creek.

73 The certificate holder shall conduct all construction work in compliance with an Erosion and Sediment Control Plan (ESCP) satisfactory to the Oregon Department of Environmental Quality and as required under the National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge General Permit #1200-C. The certificate holder shall include in the ESCP any procedures necessary to meet local erosion and sediment control requirements or storm water management requirements.

74 During construction, the certificate holder shall limit truck traffic to designated existing and improved road surfaces to avoid soil compaction, to the extent practicable.

75 During construction, the certificate holder shall implement best management practices to control any dust generated by construction activities, such as applying water to roads and disturbed soil areas.

76 During construction, the certificate holder shall reduce temporary disturbance impacts by making use of previously disturbed areas, including roadways and tracks, and by preserving vegetation rootstalks by crushing, rather than scraping, vegetation in areas of temporary disturbance.

77 During facility operation, the certificate holder shall routinely inspect and maintain all roads, pads and trenched areas and, as necessary, maintain or repair erosion and sediment control measures. The certificate holder shall restore areas that are temporarily disturbed during facility maintenance or repair activities to pre-disturbance condition or better.

78 During facility operation, the certificate holder shall obtain water for on-site uses from a well at the field workshop, subject to compliance with applicable permit requirements. The certificate holder shall not use more than 5,000 gallons of water per day from the facility's on-site well. [Amendment #1 (SFWF)]

7. Transmission Line & EMF Conditions

79 The certificate holder shall install the 34.5-kV collector system underground to the extent practicable. The certificate holder shall install underground lines at a minimum depth of three feet. Based on geotechnical conditions or other engineering considerations, the certificate holder may install segments of the collector system aboveground on single-pole, cross-arm structures or understrung on the 230-kV transmission line support structures, but the total length of aboveground segments installed on single-pole structures must not exceed ~~7.1~~ 11 miles. [Amendment #1 (SFWF)]

80 The certificate holder shall ground appropriate sections of fencing that parallel transmission lines to reduce the risk of shock from induced voltage. In particular, the certificate holder shall ground appropriate sections of fencing located in the northern project area on the west side of Eightmile Canyon if the certificate holder builds a parallel transmission line in that location that could induce a voltage on the fence.

81 The certificate holder shall take reasonable steps to reduce or manage human exposure to electromagnetic fields, including but not limited to:

(a) Constructing all aboveground transmission lines at least 200 feet from any residence or other occupied structure, measured from the centerline of the transmission line.

(b) Constructing all aboveground 34.5-kV transmission lines with a minimum clearance of 20 feet from the ground.

(c) Constructing all aboveground 230-kV transmission lines with a minimum clearance of 24 feet from the ground.

(d) Fencing the areas near the facility substation to ensure that substation equipment is not accessible to the public.

(e) Providing to landowners a map of underground and overhead transmission lines on their property and advising landowners of possible health risks.

(f) Designing and maintaining all transmission lines so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public.

[Amendment #1 (SFWF)]

82 In advance of, and during, preparation of detailed design drawings and specifications for 230-kV and 34.5-kV transmission lines, the certificate holder shall consult with the Utility Safety and Reliability Section of the Oregon Public Utility Commission to ensure that the designs and specifications are consistent with applicable codes and standards.

8. Plants, Wildlife & Habitat Protection Conditions

83 The certificate holder shall conduct wildlife monitoring as described in the Wildlife Monitoring and Mitigation Plan that is incorporated in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm as Attachment SFC-A and as amended from time to time. [Amendment #1 (SFWF)]

84 The certificate holder shall restore areas disturbed by facility construction but not occupied by permanent facility structures according to the methods and monitoring procedures described in the Revegetation Plan that is incorporated in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm as Attachment SFC-B and as amended from time to time. [Amendment #1 (SFWF)]

85 The certificate holder shall acquire the legal right to create, enhance, maintain and protect a habitat mitigation area as long as the site certificate is in effect by means of an outright purchase, conservation easement or similar conveyance and shall provide a copy of the documentation to the Department. Within the habitat mitigation area, the certificate holder shall improve the habitat quality as described in the Habitat Mitigation Plan that is incorporated in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm as Attachment SFC-C and as amended from time to time. [Amendment #1 (SFWF)]

86 The certificate holder shall avoid permanent and temporary disturbance to the areas described in (a) through (g) and, during the times indicated, shall avoid construction disturbance in the areas described in (h) and (i). The certificate holder shall flag these areas for the duration of construction activities nearby and shall ensure that construction personnel avoid disturbance of the areas. The avoidance areas are:

(a) All Category 1 habitat and those areas of Category 2 habitat shown on the "ODFW-2" Figures 1 through 12 in the Shepherds Flat Wind Farm Application. [Amendment #1 (SFWF)]

(b) Areas of Category 3 shrub-steppe habitat as described in the Final Order on Amendment #1 for the Shepherds Flat Wind Farm, Section IV.4.(b)A, including three small areas of sage shrub-steppe habitat, one small area of purshia shrub-steppe habitat and one small area of shrub-steppe rabbitbrush habitat. [Amendment #1 (SFWF)]

(c) All seeps, riparian areas and vernal pools.

(d) All water sources for wildlife, including perennial and intermittent streams, stock ponds and watering stations.

(e) All faces of bluffs or rock outcroppings.

(f) All trees or other structures that contain active raptor nests.

(g) For the facility substation and field workshop, all Category 3 habitat. [Amendment #1 (SFWF)]

(h) The area within 1,000 feet of Category 2 Washington ground squirrel (WGS) habitat (as shown on "ODFW-2" Figure 8 in the Shepherds Flat Wind Farm Application) during the period in which the squirrels are active. To determine when the WGS are active, the certificate holder shall hire a qualified independent professional biologist to monitor the on-site colony within the Category 1 WGS habitat area described in the Final Order on the Application. The biologist shall begin monitoring the colony on January 15 if construction activity is occurring within 0.5 miles of the Category 2 WGS habitat at that time. Otherwise, the biologist shall begin monitoring upon the start of construction activity within 0.5 miles of the Category 2 WGS habitat at any time between January 15 and June

30. The biologist shall conduct weekly monitoring to detect signs of WGS activity. If signs of WGS activity are observed, the certificate holder shall halt construction activities within the avoidance area and shall notify the Department. The certificate holder shall flag the avoidance area and ensure that construction personnel avoid disturbance of the area until the biologist has determined that the WGS are no longer active. While the WGS are active, the biologist may suspend weekly monitoring until May 1. The certificate holder may resume construction activities within the avoidance area when the WGS are no longer active, as determined by the absence of WGS activity during three consecutive weeks of monitoring by the biologist. [Amendment #1]

~~(h)[text removed by Amendment #1 (SFWF)]~~

(i) The area within 0.5 miles of Category 3 curlew nesting habitat and the area within 0.5 miles the BLM Horn Butte Wildlife Area during the nesting season (March 8 through June 15). Before beginning construction, the certificate holder shall provide to the Department a map showing these avoidance areas relative to areas of potential construction disturbance. The certificate holder may engage in construction activities in these areas at times other than the nesting season.

87 The certificate holder shall microsite the facility in conformance with the industry's best practices. The certificate holder shall follow the recommendations of a qualified wildlife biologist to avoid building turbine towers in the following locations:

(a) Areas of increased risk to avian species due to constricted flight paths, such as narrow ridge saddles and gaps between hilltops.

(b) Areas on slopes greater than 20 percent.

(c) [text removed by Amendment #1 (SFWF)]

(d) [text removed by Amendment #1 (SFWF)]

88 During construction, the certificate holder shall avoid construction activities in areas around active nests of the following species during the sensitive period, as provided in this condition:

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

The certificate holder shall conduct pre-construction surveys, using a protocol approved by the Oregon Department of Fish and Wildlife (ODFW) to determine whether there are any active nests of these species within 0.5 miles of any areas that would be disturbed during construction. The certificate holder shall search the scheduled construction areas and all areas within 0.5 miles of the construction areas. If a nest is occupied by any of these species after the beginning of the sensitive period, the certificate holder will flag the boundaries of a 0.5-mile buffer area around the nest and shall instruct construction personnel to avoid disturbance of the area. The certificate holder shall hire a qualified independent professional biologist to observe the active nest sites during the sensitive period for signs of disturbance and to notify the Department of any non-compliance with this condition. If the biologist observes nest site abandonment or other adverse impact to nesting activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW and subject to the approval of the Department, unless the adverse impact is clearly shown to have a cause other than construction activity. The certificate holder may begin or resume

construction activities within a buffer area before the ending day of the sensitive period if any known nest site is not occupied by the early release date. If a nest site is occupied, then the certificate holder may begin or resume construction before the ending day of the sensitive period with the approval of ODFW, after the young are fledged. The certificate holder shall use a protocol approved by ODFW to determine when the young are fledged (the young are independent of the core nest site).

89 The certificate holder shall not remove any trees that are greater than three feet in height.

90 The certificate holder shall design all aboveground transmission line support structures following the most current suggested practices for avian protection on power lines published by the Avian Power Line Interaction Committee.

91 The certificate holder shall reduce the risk of injuries to avian species by:
(a) Installing turbine towers that are smooth steel structures that lack features that would allow avian perching.
(b) Installing meteorological towers that are non-guyed structures to eliminate the risk of avian collision with guy-wires.
(c) Avoiding installation of aboveground transmission lines across narrow saddles, ravines and similar features and, where such crossings cannot be avoided, installing line-markers to make the lines more visible to avian species.

92 The certificate holder shall impose and enforce construction and operation speed limits of 5 miles per hour on roads within 1,000 feet of Category 2 WGS habitat and 20 miles per hour on all other facility roads and shall ensure that all construction and operations personnel are instructed on the importance of cautious driving practices while on facility roads. [Amendment #1 (SFWF)]

9. Visual Effects Conditions

93 To reduce the visual impact of the facility, the certificate holder shall:
(a) Mount nacelles on smooth, steel structures, painted uniformly in a matte-finish, neutral white color.
(b) Paint substation structures in a neutral color to blend with the surrounding landscape.
(c) Not allow any advertising to be used on any part of the facility.
(d) Use only those signs required for facility safety, required by law or otherwise required by this site certificate, except that the certificate holder may erect a sign to identify the facility near the field workshop, may paint turbine numbers on each tower and may allow unobtrusive manufacturers' logos on turbine nacelles.
(e) Not locate any facility signs along Highway 74.
(f) Design signs in accordance with Gilliam County Zoning Ordinance Section 8.030 and Morrow County Zoning Ordinance Section 4.070, as applicable.
(g) Maintain any signs allowed under this condition in good repair.

[Amendment #1 (SFWF)]

94 The certificate holder shall design and construct the field workshop to be generally consistent with the character of similar buildings used by commercial farmers or ranchers in the area and shall paint the building in a neutral color to blend with the surrounding landscape. [Amendment #1 (SFWF)]

95 The certificate holder shall not use exterior nighttime lighting except:

(a) The minimum turbine tower lighting required or recommended by the Federal Aviation Administration.

(b) Security lighting at the field workshop and substation, provided that such lighting is shielded or downward-directed to reduce glare.

(c) Minimum lighting necessary for repairs or emergencies.

(d) Minimum lighting necessary for nighttime construction. The certificate holder may use lighting only at the work location and only directed downward to illuminate the work area at the turbine base or upward from the base to illuminate the turbine tower; construction lighting shall not be directed outward. The certificate holder shall use nighttime lighting only with the approval of the owner of the property on which the work is conducted and shall provide notice of nighttime construction to occupants of all residences within one-half mile of the construction site.

[Amendment #1 (SFWF)]

10. Noise Control Conditions

96 To reduce noise impacts at nearby residences, the certificate holder shall:

(a) Confine the noisiest operation of heavy construction equipment to the daylight hours.

(b) Require contractors to install and maintain exhaust mufflers on all combustion engine-powered equipment; and

(c) Establish a complaint response system at the construction manager's office to address noise complaints.

97 Before beginning construction, the certificate holder shall provide to the Department:

(a) Information that identifies the final design locations of all turbines to be built at the facility.

(b) The maximum sound power level for the substation transformers and the maximum sound power level and octave band data for the turbines selected for the facility based on manufacturers' warranties or confirmed by other means acceptable to the Department.

(c) The results of noise analysis of the facility to be built according to the final design performed in a manner consistent with the requirements of OAR 340-035-0035 (1)(b)(B)(iii)(IV) and (VI) demonstrating to the satisfaction of the Department that the total noise generated by the facility (including the noise from turbines and substation transformers) would meet the ambient degradation test and maximum allowable test at the appropriate measurement point for all potentially-affected noise sensitive properties.

(d) For each noise-sensitive property where the certificate holder relies on a noise waiver to demonstrate compliance in accordance with OAR 340-035-0035 (1)(b)(B)(iii)(III), a copy of the a legally effective easement or real covenant pursuant to which the owner of the property authorizes the certificate holder's operation of the facility to increase ambient statistical noise levels L_{10} and L_{50} by more than 10 dBA at the appropriate measurement point. The legally-effective easement or real covenant must: include a legal description of the burdened property (the noise sensitive property); be recorded in the real property records of the county; expressly benefit the certificate holder; expressly run with the land and bind all future owners, lessees or holders of any interest in the burdened property; and not be subject to revocation without the certificate holder's written approval.

98 During operation, the certificate holder shall maintain a complaint response system to address noise complaints. The certificate holder shall promptly notify the Department of any complaints received regarding facility noise and of any actions taken by the certificate holder to address those complaints. In response to a complaint from the owner of a noise sensitive property regarding noise levels during operation of the facility, the Council may require the certificate holder to monitor and record the statistical noise levels to verify that the certificate holder is operating the facility in compliance with the noise control regulations. [Amendment #1 (SFWF)]

11. Waste Management Conditions

99 The certificate holder shall provide portable toilets for on-site sewage handling during construction and shall ensure that they are pumped and cleaned regularly by a licensed contractor who is qualified to pump and clean portable toilet facilities.

100 During operation, the certificate holder shall discharge sanitary wastewater generated at the field workshop to a licensed on-site septic system in compliance with county permit requirements. The certificate holder shall design the septic system for a discharge capacity of less than 2,500 gallons per day. [Amendment #1 (SFWF)]

101 The certificate holder shall implement a waste management plan during construction that includes but is not limited to the following measures:

(a) Recycling steel and other metal scrap.
(b) Recycling wood waste.
(c) Recycling packaging wastes such as paper and cardboard.
(d) Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler or by using facility equipment and personnel to haul the waste.
(e) Segregating all hazardous wastes such as used oil, oily rags and oil-absorbent materials, mercury-containing lights and lead-acid and nickel-cadmium batteries for disposal by a licensed firm specializing in the proper recycling or disposal of hazardous wastes.
(f) Discharging all concrete truck rinse water into foundation holes and completing truck wash-down off-site.

102 The certificate holder shall implement a waste management plan during operation that includes but is not limited to the following measures:

(a) Training employees to minimize and recycle solid waste.
(b) Recycling paper products, metals, glass and plastics.
(c) Recycling used oil and hydraulic fluid.
(d) Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler or by using facility equipment and personnel to haul the waste.
(e) Segregating all hazardous, non-recyclable wastes such as used oil, oily rags and oil-absorbent materials, mercury-containing lights and lead-acid and nickel-cadmium batteries for disposal by a licensed firm specializing in the proper recycling or disposal of hazardous wastes.

VI. SUCCESSORS AND ASSIGNS

To transfer this site certificate or any portion thereof or to assign or dispose of it in any other manner, directly or indirectly, the certificate holder shall comply with OAR 345-027-0100.

VII. SEVERABILITY AND CONSTRUCTION

If any provision of this agreement and certificate is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and conditions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the agreement and certificate did not contain the particular provision held to be invalid.

VIII. GOVERNING LAW AND FORUM

This site certificate shall be governed by the laws of the State of Oregon. Any litigation or arbitration arising out of this agreement shall be conducted in an appropriate forum in Oregon.

IX. EXECUTION AND EFFECTIVE DATE

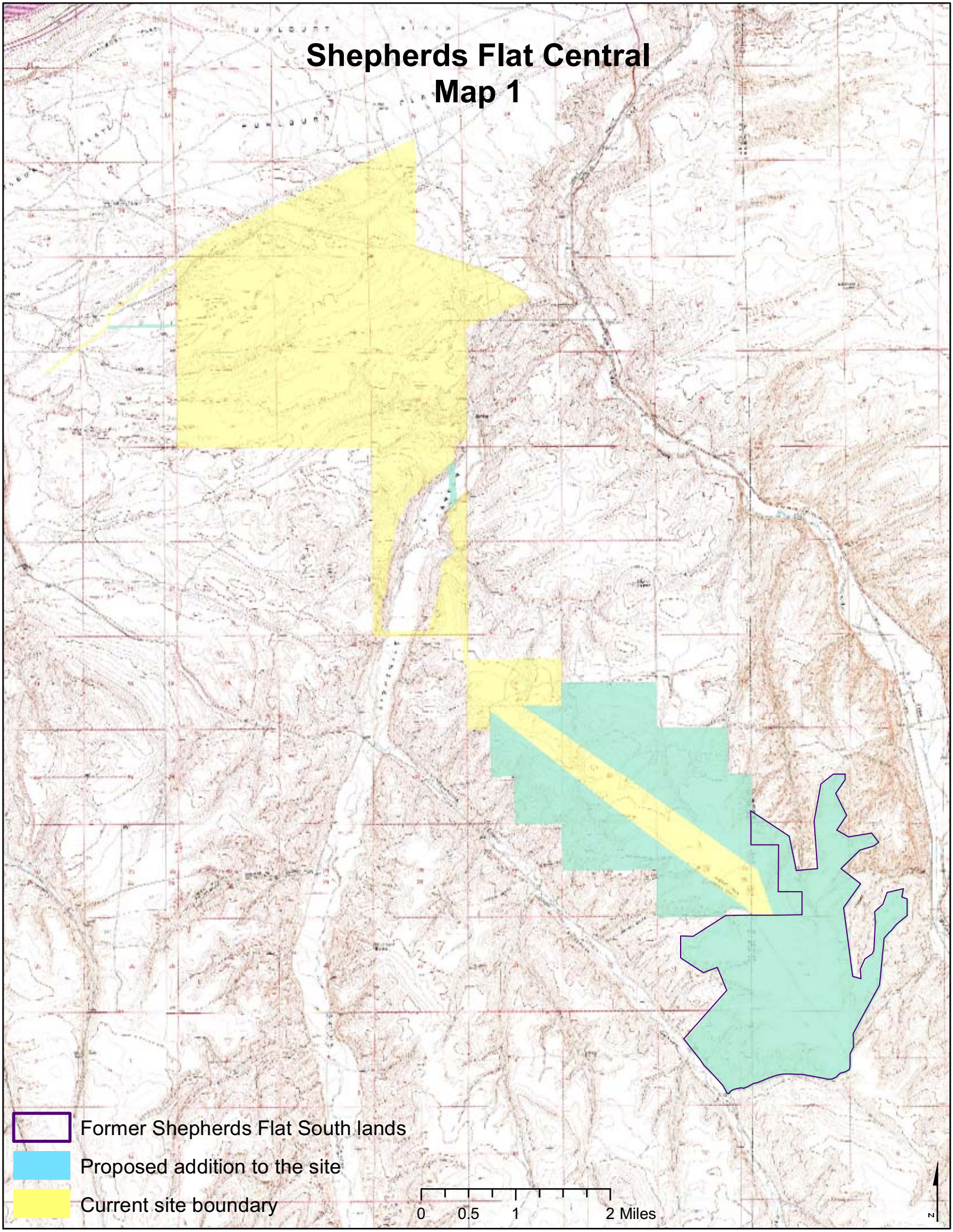
This site certificate may be executed in counterparts and will become effective upon signature by the Chair of the Energy Facility Siting Council and the authorized representative of the certificate holder and execution of the site certificates for Shepherds Flat North and Shepherds Flat South. The effective date of this site certificate is the date of the last signature required to complete full execution of all three site certificates. [Amendment #1 (SFWF)]

IN WITNESS WHEREOF, this site certificate has been executed by the State of Oregon, acting by and through its Energy Facility Siting Council, and by South Hurlburt Wind, LLC.

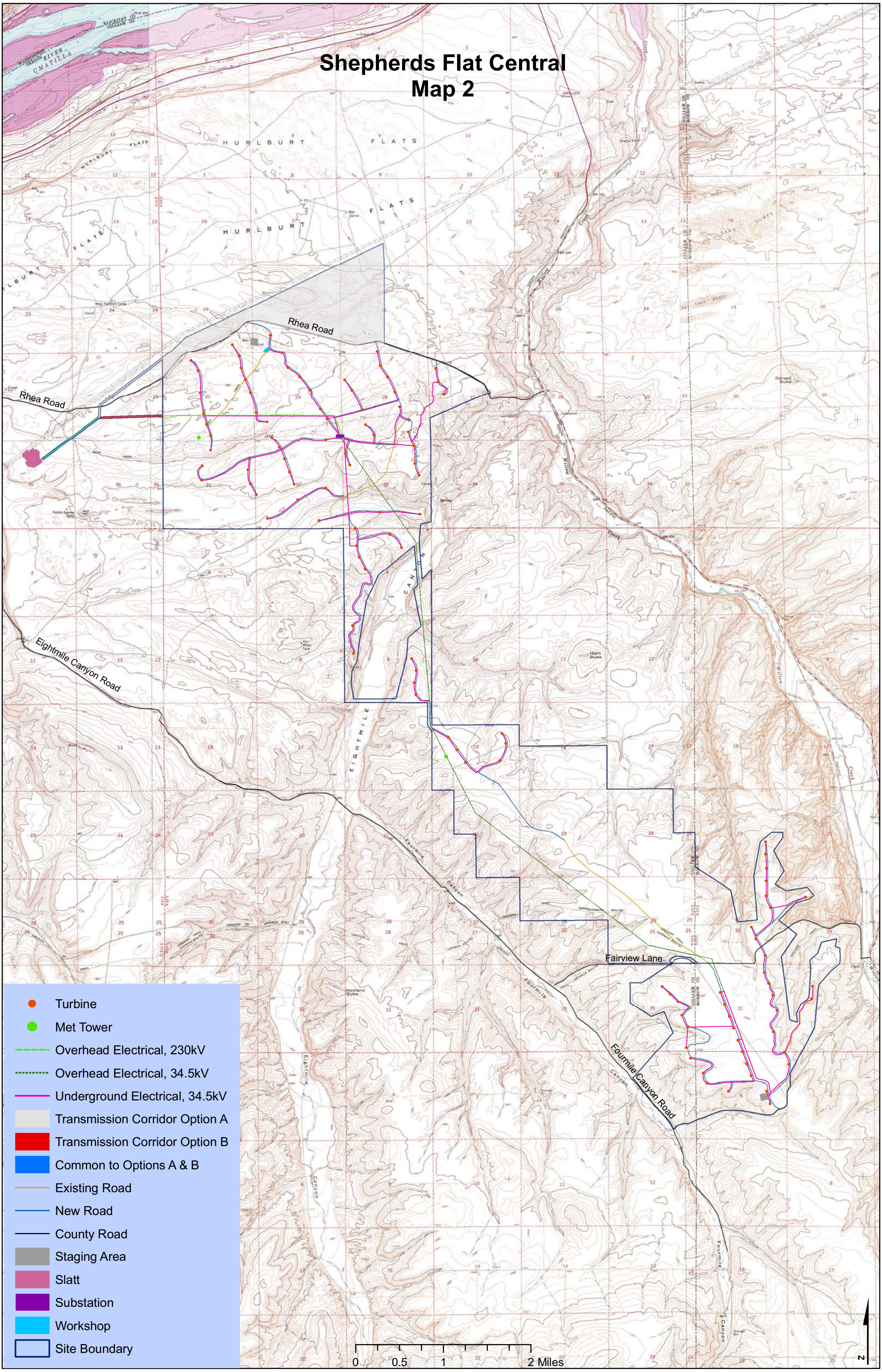
ENERGY FACILITY SITING COUNCIL	SOUTH HURLBURT WIND, LLC
By: _____	By: _____
Robert Shiprack, Chair Oregon Energy Facility Siting Council	Derrel A. Grant, Vice-President South Hurlburt Wind, LLC
Date: September 11, 2009	Date: September 11, 2009

SITE MAPS

Map 1	Expanded Site Boundaries
Map 2	Typical Layout
Map 3	Optional Transmission Corridors
Map 4a	New Lands in Option B Transmission Corridor
Map 4b	New Lands in Eightmile Transmission Crossing
Map 5	Excised Areas
Map 6	Soil Types
Map 7	Land Capability Classification

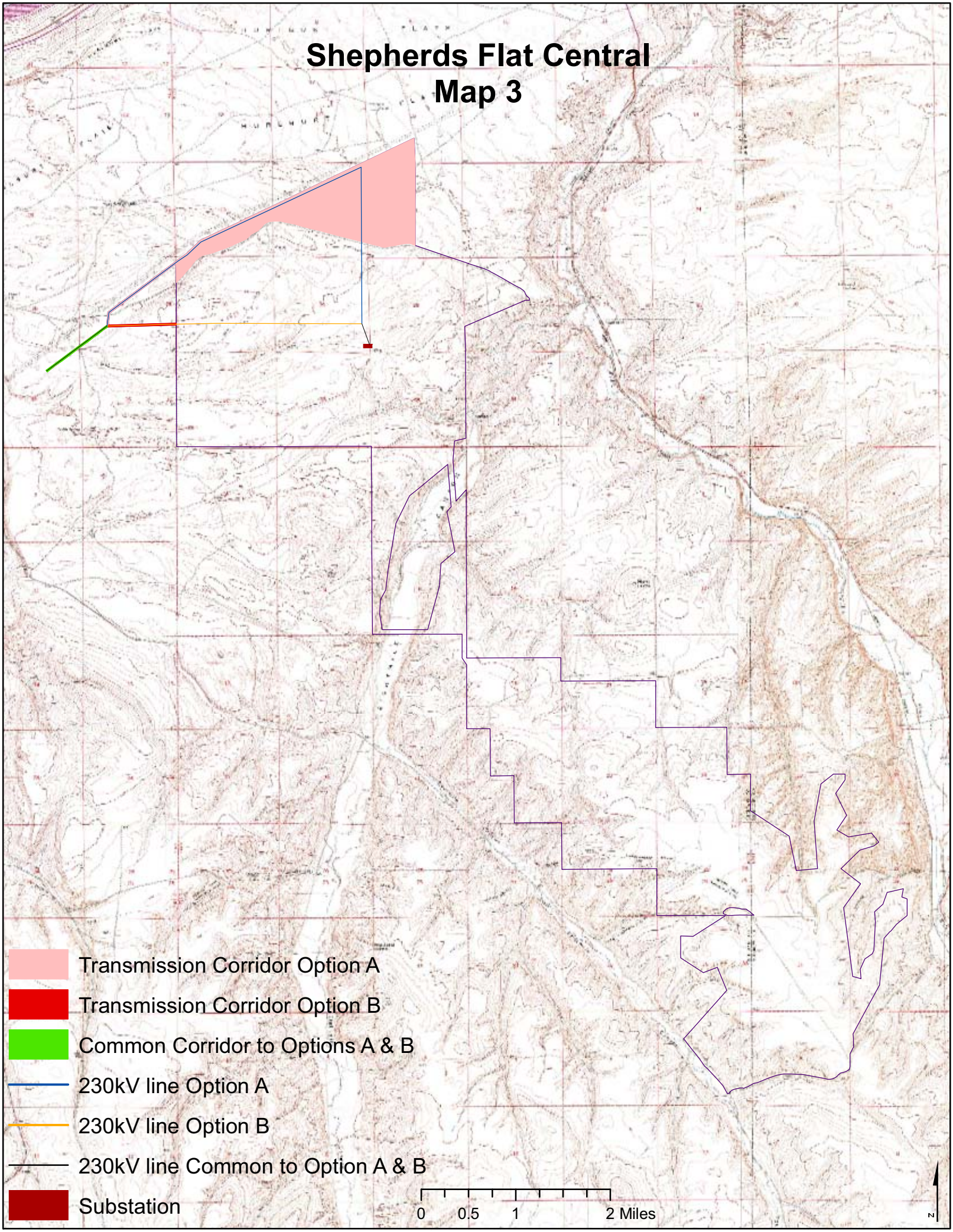

Shepherds Flat Central
Map 1
Former Shepherds Flat South lands
Proposed addition to the site
Current site boundary
0
0.5
1
2 Miles
N

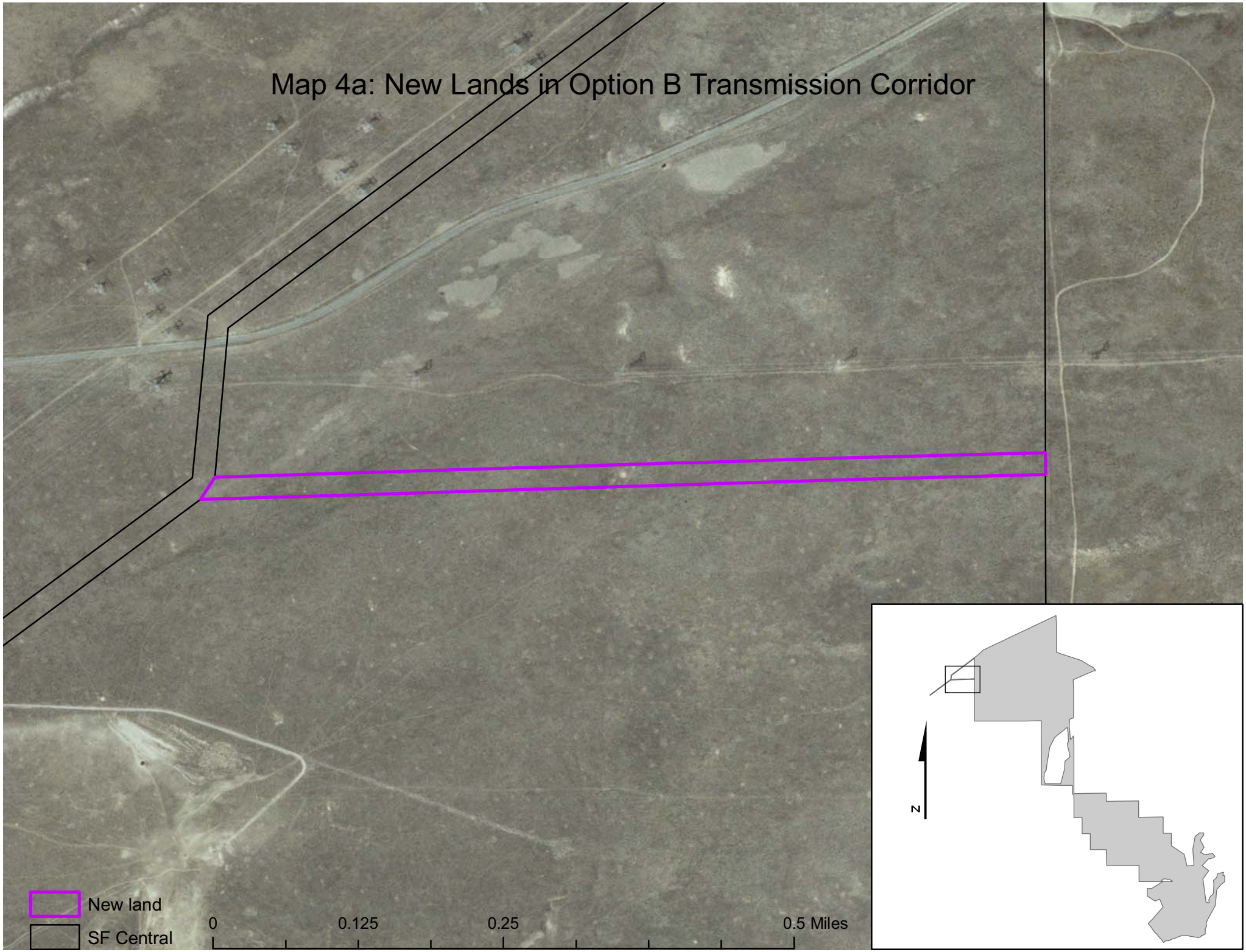
Shepherds Flat Central
Map 2

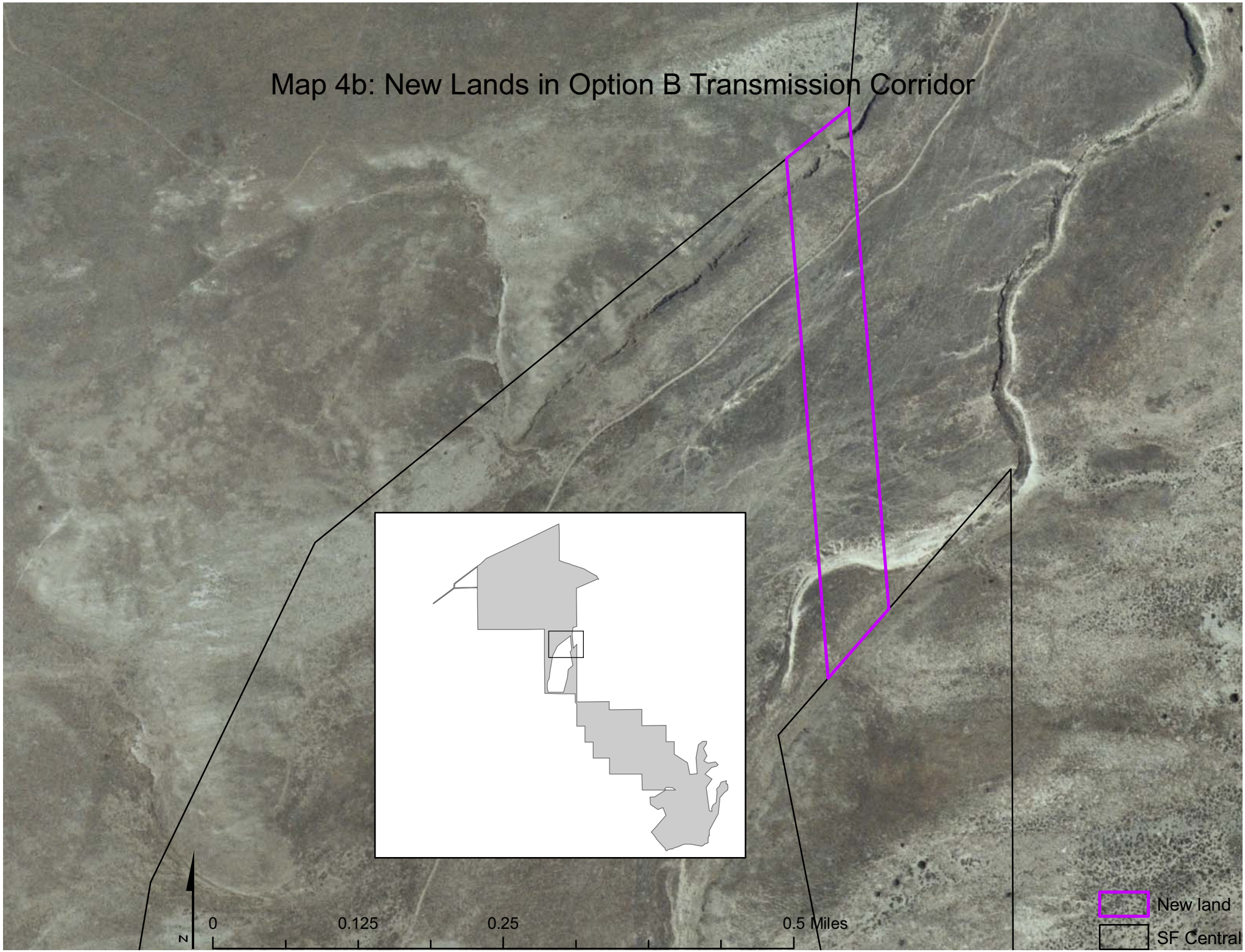


- Turbine
- Met Tower
- Overhead Electrical, 230kV
- Overhead Electrical, 34.5kV
- Underground Electrical, 34.5kV
- Transmission Corridor Option A
- Transmission Corridor Option B
- Common to Options A & B
- Existing Road
- New Road
- County Road
- Staging Area
- Slatt
- Substation
- Workshop
- Site Boundary

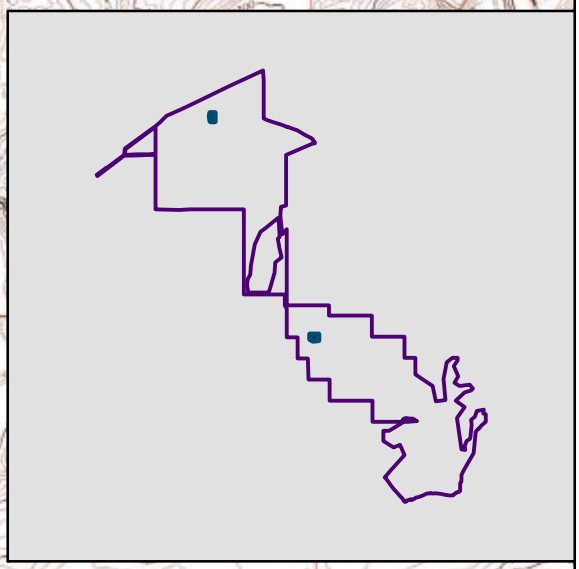
Shepherds Flat Central
Map 3




Map 4a: New Lands in Option B Transmission Corridor
New land
SF Central
0
0.125
0.25
0.5 Miles
N


Map 4b: New Lands in Option B Transmission Corridor
N
0
0.125
0.25
0.5 Miles
New land
SF Central

Shepherds Flat Central
Map 5



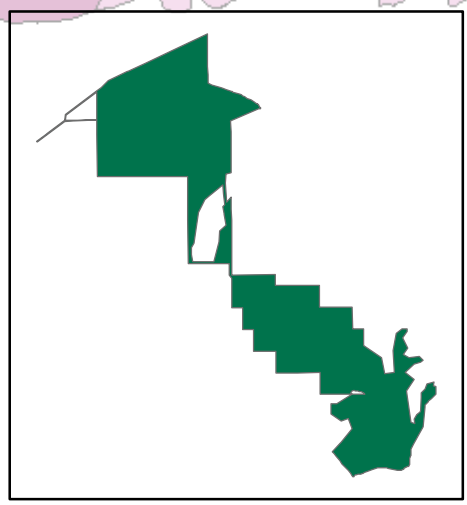
Area A

Area B

Site boundary

Data cited from
U.S. Department of Agricultural
Natural Resource Conservation Service
Web Soil Survey

Shepherds Flat Central
Soil Types
Map 6



Morrow County Soil Types

- 45B: Ritzville silt loam, 2 to 7 percent slopes
- 45C: Ritzville silt loam, 7 to 12 percent slopes
- 47E: Ritzville silt loam, 20 to 40 percent slopes
- 70D: Warden very fine sandy loam, 12 to 20 percent slopes
- 71C: Warden silt loam, 5 to 12 percent slopes
- 71E: Warden silt loam, 20 to 40 percent slopes

Gilliam County Soil Types

- 13: Kimberly fine sandy loam
- 14B: Krebs silt loam, 2 to 5 percent slopes
- 14D: Krebs silt loam, 5 to 20 percent slopes
- 32B: Ritzville silt loam, 2 to 7 percent slopes
- 32D: Ritzville silt loam, 12 to 20 percent slopes
- 40B: Sagehill fine sandy loam, 2 to 5 percent slopes
- 40C: Sagehill fine sandy loam, 5 to 12 percent slopes
- 40D: Sagehill fine sandy loam, 12 to 20 percent slopes
- 40E: Sagehill fine sandy loam, 20 to 40 percent slopes
- 4C: Blalock loam, 2 to 12 percent slopes
- 55B: Warden silt loam, 2 to 5 percent slopes
- 55C: Warden silt loam, 5 to 12 percent slopes
- 55D: Warden silt loam, 12 to 20 percent slopes
- 55E: Warden silt loam, 20 to 40 percent slopes
- 56B: Willis silt loam, 2 to 5 percent slopes
- Proposed addition to the site boundary
- County border

Morrow County

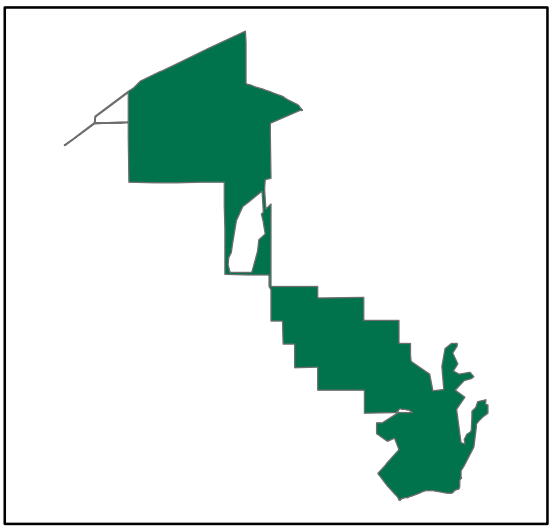
Gilliam County

0 0.5 1 2 Miles

N

Shepherds Flat Central
Land Capability Classification
Map 7

Data cited from
U.S. Department of Agricultural
Natural Resource Conservation Service
Web Soil Survey



Gilliam County

Morrow County

- Land capability classification 3
- Land capability classification 4
- Land capability classification 6
- Proposed addition to the site boundary
- County border

0 0.25 0.5 1 Miles

N

APPENDIX 1: ENVIRONMENTAL EVALUATION

The potential environmental impacts of facility construction on the new lands in the two small transmission corridors are identical to the impacts on the land in the transmission corridors they are intended to replace. Habitats and wildlife use are similar. All analyses of the current corridors are applicable to the proposed new corridors. The following discussion focuses primarily on the new lands that make up the majority of the total.

Special Status Wildlife Species Review

A list of current special status species for the new lands was developed using the July 2009 U.S. Fish and Wildlife Service (USFW) Threatened and Endangered Species System list of threatened and endangered species in Oregon,[1] the July 2009 Oregon Fish and Wildlife Office of the USFW list of threatened, endangered, proposed and candidate species and species of concern which may occur within Gilliam and Morrow Counties,[2] the current Oregon Department of Fish and Wildlife (ODFW) list of threatened, endangered and candidate fish and wildlife species[3] and the 2008 list of sensitive species,[4] the 2007 Oregon Natural Heritage Information Center (ORNHIC) Oregon rare, threatened and endangered plant and animal data[5] and the ORNHIC May 2009 data updates.[6] Shepherds Flat Central (SF Central) and the new lands are entirely within the Columbia Plateau ecoregion in Gilliam and Morrow Counties. The ORNHIC databases were used to eliminate species in the ODFW lists that have no records of occurrence in Gilliam or Morrow County. The databases were also used to eliminate species from the ODFW and USFW lists that had no record of occurrence within the Columbia Plateau ecoregion. The remaining species are shown in Table 1.

Special status mammals

Four of the 13 mammals in Table 1 do not currently occur on the new lands. The grizzly bear and desert bighorn sheep, although historically occurring in Gilliam and Morrow Counties, have been extirpated from the state. Records of sightings of the Canada lynx have been limited to the Blue Mountains and the John Day River canyon,[7] both at a considerable distance from the new lands. The gray wolf is known to occur adjacent to the Idaho border, and the species has been delisted in the eastern third of Oregon. Six of the mammals are bats, and the remaining three are the Washington ground squirrel and black- and white-tailed jackrabbits. The bats may occur on the new lands during migration but no suitable roosting habitats have been found. The new lands comprising the small transmission corridors and portions of the remaining new lands were included in the buffer areas of the Washington ground squirrel searches of the Shepherds Flat Wind Farm (SFWF).[8] Searches for the Washington ground squirrel and black- white-tailed jackrabbits on the remainder of the large portion of the new lands and within a 1000 ft buffer

[1] http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrenceIndividual.jsp?state=OR
[2] http://www.fws.gov/oregonfwo/Species/Lists/default.asp
[3] http://www.dfw.state.or.us/wildlife/diversity/species/threatened_endangered_candidate_list.asp
[4] http://www.dfw.state.or.us/wildlife/diversity/species/docs/SSL_by_category.pdf
[5] http://oregonstate.edu/ornhic/data_download.html
[6] http://oregonstate.edu/ornhic/publications.html
[7] http://www.fws.gov/oregonfwo/Species/Data/CanadaLynx/
[8] Application for a Site Certificate for the Shepherds Flat Wind Farm, Supplemental Information Attachment P-5a

took place in spring 2009. No active Washington ground squirrel colonies were found on the new lands or within the buffer, although one site on the new lands showed indication of possible previous occupation (Attachment 1). No jackrabbits were observed in the searches. Incidental to avian point counts, one black-tailed and one white-tailed jackrabbit was observed in the area.

Special status birds

Twenty-five bird species are included in Table 1. Many are expected or known to be permanent or seasonal residents in the area. Several, such as the bald eagle, Barrow's goldeneye, bufflehead, mountain quail, northern goshawk, and yellow-breasted chat may occasionally occur in the area but are expected to be rare visitors to the new lands. During spring 2009, searches for burrowing owls found none on the new lands or within a 1,000-foot buffer (Attachment 1), nor were any observed during avian point-counts.

Portions of the new lands were covered by avian point-count surveys for SFWF[9] and portions by point-counts for the proposed Saddle Butte Wind Park (Saddle Butte) performed in fall 2008 and in spring and fall 2009 (Map A). The final report covering the Saddle Butte data is not yet complete, but the Fall 2008 and Spring 2009 data have been tabulated (Table 2). Only six of the twenty-five significant birds in Table 1 were observed: the ferruginous hawk, loggerhead shrike, long-billed curlew, Merlin, Swainson's hawk and western meadowlark. The Merlin, considered by ORNHIC to have been extirpated in Oregon, was also observed during avian point counts on the SFWF site. Several loggerhead shrike and long-billed curlew were incidentally observed in the area. Neither of the two loggerhead shrike sightings during the Washington ground squirrel searches was on the new lands.

The data for the SFWF surveys were tabulated over the entire site. They were also tabulated separately for the northern (less disturbed) area of the site, and the southern (mostly agricultural) portion. Although SF Central as proposed is comprised of both native and agricultural areas, the new lands are predominantly agricultural and were compared to the southern data from SFWF. Use rates for the ferruginous hawk, long-billed curlew, Merlin, Swainson's hawk and western meadowlark in the Saddle Butte surveys are lower than those found for the agricultural portion of SFWF (Table 3). The loggerhead shrike use rate was slightly higher in the Saddle Butte surveys than for SFWF in the fall but much lower in the spring.

Avian group use rates (Table 4) show that Saddle Butte use by raptors, waterbirds and upland gamebirds is much lower than the groups' use of southern SFWF. Saddle Butte use by passerines is similar in the spring but higher in the fall, primarily because of the European starling. Fall starling use of Saddle Butte (Table 2) was nearly 10 times that of southern SFWF.[10] Use of Saddle Butte by waterfowl and doves is higher than their use of southern SFWF in fall and lower in spring. The Saddle Butte raptor use rate is identical to that of the total SFWF site in the fall but somewhat lower in spring (Table 5). The Saddle Butte raptor use rate is very close to the average use rate of seven regional wind facility sites for which data are available.

[9] Application for a Site Certificate for the Shepherds Flat Wind Farm, Attachment P-1
[10] Application for a Site Certificate for the Shepherds Flat Wind Farm, Attachment P-1 Table 7

Only one of the nests found during Saddle Butte surveys was near the new land, a Swainson's hawk nest (SWHA, Map A). The remaining located nests are more than a mile away from the new lands.

Significant reptiles and amphibians
The closest of the new lands to the Columbia River is about 3.5 miles distant. The major portion of the new lands is approximately 9 miles from the river and 2 miles from Willow Creek. The wetland and waters survey for Saddle Butte did not locate any wetland features on the new lands.[11]

Of the five reptiles and amphibians in Table 1, only the northern sagebrush lizard is likely to be found on the new lands; the remaining species require aquatic resources. The painted turtle, northern leopard frog, western toad and Woodhouse's toad may occur within and near Willow Creek. The painted turtle and northern leopard frog do not venture far from water and would not be found on the new lands. Both toads can travel through drier areas. However, due to the distance of the new lands from Willow Creek and the elevation difference, it is unlikely the toads would occur on the new lands even if they were present in the creek.

Significant fish
The inland Columbia redband trout, margined sculpin, Pacific lamprey, steelhead and western brook lamprey may occur in Willow Creek west of the new lands. None of these species will occur on the new lands due to the absence of appropriate aquatic habitat.

Significant insects
The three insects listed in Table 1 require aquatic habitat, and no resources adequate to support them are present on the new lands. The Columbia River tiger beetle has been extirpated from the state. Willow Creek may provide suitable habitat for Lynn's clubtail dragonfly and the three-banded juga. Only the dragonfly would be found at any distance from the creek. Due to the distance of the new lands from the creek and the elevation change, it is unlikely the dragonfly would occur on the new lands even if it were present in the creek.

Potential impacts to wildlife
Risks and appropriate mitigation of risks to wildlife that use or potentially use the new lands are the same risks and mitigations addressed in the Application for a Site Certificate for the Shepherds Flat Wind Farm. All species that are present or possibly present on the new lands were addressed in the Application. No new risks to these species are presented by facility development on the new lands.

Special Status Plant Species Review

The 76% of the new lands currently dedicated to farming and roads will not contain threatened, endangered or rare plants. It is unlikely that the 16% of the new lands previously cultivated currently contain threatened, endangered or rare plants, as they are generally dominated by the species initially seeded or by weed species. The remaining 8% of the new lands that has not been

[11] Appendix 3

disturbed has a wider variety of native plants. The resources identified in footnotes 1 – 6, as well as the current Oregon Department of Agriculture list of endangered, threatened and candidate plant species,[12] provided 16 special status vascular plant species and two mosses potentially occurring within Gilliam or Morrow County within the Columbia Plateau ecoregion (Table 1).

The only listed plant species is Laurence's milk-vetch (Oregon listing of threatened). The closest known occurrences of members of this species are more than 20 miles southeast of the new lands at higher elevation, in the vicinity of Heppner, OR. In Oregon, the species is found at altitudes above 1970 feet.[13] The highest elevation within the new lands is 1,000 feet. The new lands are unsuitable for Lawrence's milk-vetch and it is not expected to occur.

Of the remaining plant species in Table 1, gray cryptantha and Robinson's onion have been extirpated from Oregon. The seeps or wetlands required by disappearing monkeyflower, dotted smartweed, hepatic monkeyflower, porcupine sedge, salt heliotrope, and sessile mousetail do not occur on the new lands. The river canyon, vegetation and slopes associated with creamy stickseed are not present on the new lands. None of these species is expected to occur on the new lands.

Suitable habitat in which Columbia bladderpod, Columbia milk-vetch, dwarf evening primrose, stalk-podded milk-vetch, Watson's desert parsley and the two mosses occurs may be present on the undisturbed portion of the new lands. These plant species may occur on the new lands. Although Snake River goldenweed is included as a USFW species of concern that may occur in Morrow County, both ORNHIC and a research report from the Institute for Applied Ecology for the Bureau of Land Management[14] limit its Oregon occurrences to Baker and Malheur Counties. Thus, it is not expected to occur on the new lands. During the Saddle Butte wetland and waters survey, plants at 30 plots within and near the Saddle Butte site were identified, including seven plots on the new lands. None of the plants listed in Table 1 was found.

All plant species identified as possibly present on the new lands were identified in the Application. Risks and appropriate mitigation of risks to plants that may be present on the new lands are the same risks and mitigations addressed in the Application. No new risks to these plants are presented by facility development on the new lands.

Habitat and Habitat Impacts

Habitat types were identified using satellite imagery. Subtypes and categories were assigned based on field reconnaissance in spring 2007, 2008 and 2009. The small transmission corridors were classified consistent with the adjacent habitat of similar characteristics. Native (undisturbed) habitat on the larger portion of the new lands was classified as either Category 1 or 2. Previously cultivated areas were classified as Category 3. The remainder of the new lands is occupied by dryland wheat and by roads, classified as Category 6. Habitat maps (Maps B-E)

[12] http://www.oregon.gov/ODA/PLANT/CONSERVATION/statelist.shtml
[13] Croft, L.K., W.R. Owen and J.S. Shelly (1977). Interior Columbia Basin Ecosystem Management Project Analysis of Vascular Plants. Interior Columbia Basin Ecosystem Management Project, U.S. Forest Service.
[14] http://www.appliedeco.org/reports/haplopappus-radiatus-grazing-and-climate-study01final.pdf

show the new lands' identified habitat categories and subtypes, as well as the typical layout of facility components where they cross them.

During wetlands surveys, vegetation within 5-foot radius plots was identified as to species and percent of cover. Seven of these plots were on the new lands. Six were in habitat classified as 2 GL and one in 3 SS-R. The only native plant species found in the herb stratum providing 5% or higher coverage was yarrow (*Achillea millefolium*) in two plots – one 3 SS-R and the other 2 GL. On two 2 GL plots, no native species were found. Traces (< 5%) of the native species tarweed fiddleneck (*Amsinckia lycopsoides*), low pussytoes (*Antenneria dimorpha*), foxtail barley (*Hordeum jubatum*) and Sandburg's bluegrass (*Poa secunda*) were found on the other five. White-stemmed rabbitbrush (*Chrysothamnus nauseosus* ssp *albicaulis*) provided 40% of the shrub stratum cover in the 3 SS-R plot, and big sagebrush (*Artemisia tridentata*) provided 10% of the shrub cover in one 2 GL plot.

In the 3 SS-R plot, coverage by cheatgrass (*Bromus tectorum*) was 10%. Cheatgrass provided 80% or greater coverage on four 2 GL plots and was at least 30% on all 2 GL plots. Significant cover was also provided by other alien species: yellow starthistle (*Centaurea diffusa*, 1 plot), redstem storksbill (*Erodium cicutarium*, 2 plots), jagged chickweed (*Holosteum cicutarium*, 1 plot), bulbous bluegrass (*Poa bulbosa*, 1 plot), Russian thistle (*Salsola kali*, 4 plots), and cereal rye (*Secale cereale*, 1 plot).

The total proposed SF Central site is 11769 acres, of which 811 acres are restricted to use for transmission lines only. The typical layout permanent and temporary footprints affect 0.6% and 1.9%, respectively, of the total facility site. There is no permanent or temporary impact to Category 1 habitat from the typical layout. The typical layout permanent and temporary footprints affect 0.0001% and 0.001%, respectively, of the facility site's Category 2 habitat (Table 6).

Cumulative impacts

The avian and bat cumulative impacts analysis for SFWF[15] was based on siting a total of 303 turbines and 909 MW in what are now the Shepherds Flat North, Central and South facilities. The companion requests for amendment of these three facilities increases the total number of turbines to 338 but reduces the total MW to 845. Mortality risk to bats and birds has been correlated to total MW, not to total numbers of turbines; thus, the cumulative impacts analysis was based on regional potential new generation in MW. The Shepherds Flat North, Central and South Requests for Amendment will result in a decrease in installed MW and a proportional decrease in the cumulative risks to birds and bats presented by these facilities.

[15] Application for a Site Certificate for the Shepherds Flat Wind Farm, Supplemental Information Attachment P-6

Table 1: List of special status animals and plants

Common Name	Scientific Name	Federal Status[1]	State Status[1]	Heritage List[1]
Mammals				
Black-tailed jackrabbit	*Lepus californicus*			4
Canada lynx	*Lynx canadensis*	T		2
Desert bighorn sheep	*Ovis canadensis*			4
Gray wolf	*Canis lupis*	E	E	2
Grizzly bear	*Ursus arctos horribilis*	T		2-ex
Long-eared myotis bat	*Myotis evotis*	SoC		4
Pallid bat	*Antrozous pallidus pacificus*	SoC	S-V	2
Silver-haired bat	*Lasionycteris noctivagans*	SoC	S-V	4
Spotted bat	*Euderma maculatum*	SoC	S-V	2
Washington ground squirrel	*Spermophilus washungtoni*	C	E	1
Western small-footed myotis	*Myotis ciliolabrum*	SoC		4
White-tailed jackrabbit	*Lepus townsendii*		S-V	3
Yuma myotis bat	*Myotis yumanensis*	SoC		4
Birds				
American peregrine falcon	*Falco peregrinus anatum*		S-V	2
Arctic peregrin falcon	*Falco peregrinus tundris*		S-V	not listed
Bald eagle	*Haliaeetus leucocephalus*		T	4
Barrow's goldeneye	*Bucephala islandica*			4
Black-throated sparrow	*Amphispiza bilineata*			4
Bufflehead	*Bucephala albeola*			2
Columbian sharp-tailed grouse	*Tympanuchus phasianellus columbiamus*		S-C	2
Common nighthawk	*Chordeiles minor*			4
Ferruginous hawk	*Buteo regalis*	SoC	S-C	4
Forster's tern	*Sterna forsteri*			4
Grasshopper sparrow	*Ammodramus savannarum*		S-V	2
Greater sage grouse	*Centrocercus urophasianus*	SoC	S-V	2
Lewis' woodpecker	*Melanerpes lewis*	SoC	S-C	2

Table 1: List of special status animals and plants

Common Name	Scientific Name	Federal Status[1]	State Status[1]	Heritage List[1]
Loggerhead shrike	*Lanius ludovicianis*		S-V	4
Long-billed curlew	*Numenius americanus*		S-V	4
Merlin	*Falco columbarius*			2-ex
Mountain quail	*Oreortyx pictus*	SoC		4
Northern goshawk	*Accipiter gentilis*	SoC	S-V	4
Sage sparrow	*Amphispiza belli*		S-C	4
Swainson's hawk	*Buteo swainsoni*		S-V	4
Western bluebird	*Sialia mexicana*			4
Western burrowing owl	*Athene cunicularia hypugaea*	SoC	S-C	4
Western meadowlark	*Sturnella neglecta*			4
Willow flycatcher	*Empidonax traillii*	SoC	S-V	4
Yellow-breasted chat	*Icteria virens*	SoC		4
Reptiles / Amphibians				
Northern leopard frog	*Rana pipiens*		S-C	2
Northern sagebrush lizard	*Sceloporus graciosus graciosus*	SoC	S-V	4
Painted turtle	*Chrysemys picta*		S-C	2
Western toad	*Bufo boreas*		S-V	4
Woodhouse's toad	*Bufo woodhousii*			2
Fish				
Inland Columbia redband trout	*Oncorhynchus mykiss gairdneri*		S-V	4
Margined sculpin	*Cottus marginatus*	SoC		4
Pacific lamprey	*Lampetra tridentata*	SoC	S-V	4
Steelhead	*Oncorhynchus mykiss*	T	S-C	1
Western brook lamprey	*Lampetra richardsoni*		S-V	4
Insects				
Columbia River tiger beetle	*Ciindela columbica*			1-ex
Lynn's clubtail dragonfly	*Gomphus lynnae*	SoC		3
Three-banded juga	*Juga* sp. *7*			1

Table 1: List of special status animals and plants

Common Name	Scientific Name	Federal Status[1]	State Status[1]	Heritage List[1]
Plants				
Columbia bladderpod	*Lesquerella douglasii*			3
Columbia milk-vetch	*Astragalus succumbens*			4
Creamy stickseed	*Hackelia diffusa* var. *cottonii*			4
Disappearing monkeyflower	*Mimulus evanescens*	SoC	C	1
Dotted smartweed	*Plygonum punctatum*			3
Dwarf evening primrose	*Camissonia pygmaea*	SoC	C	1
Gray cryptantha	*Cryptantha leucophaea*			2-ex
Hepatic monkeyflower	*Mimulus jungermannoides*		C	4
Laurence's milk-vetch	*Astragalus collinus* var. *laurentii*	SoC	T	1
Porcupine sedge	*Carex hystericina*			4
Robinson's onion	*Allium robinsonii*	SoC		2-ex
Salt heliotrope	*Heliotropium curassavicum*			2
Sessile mousetail	*Myosurus sessilis*	SoC	C	1
Snake River goldenweed	*Pyrrocoma radiata*	SoC		1
Stalked-pod milk-vetch	*Astragalus sclerocarpus*			3
Watson's desert-parsley	*Lomatium watsonii*			2
Mosses				
Moss	*Aloina bifrons*			2
Moss	*Bryoerythrophyllum columbianum*			2

1. **E:** listed as endangered
   T: listed as threatened
   C: candidate for listing as threatened or endangered
   SoC: federal species of concern
   S-C: Oregon sensitive species – critical
   S-V: Oregon sensitive species – vulnerable
   1: ORNHIC listed as threatened with extinction or presumed to be extinct

Table 1: List of special status animals and plants

Common Name	Scientific Name	Federal Status[1]	State Status[1]	Heritage List[1]

2: ORNHIC listed as threatened with extirpation or presumed to be extirpated from Oregon
3: ORNHIC listed as species for which more information is needed, but may be threatened or endangered
4: ORNHIC listed as a species of conservation concern
-ex: ORNHIC assessed as extirpated in Oregon

Table 2: Avian use and observation frequency

Species/Group	Fall '08 (70 surveys)				Spring '09 (171 surveys)			
	Number of Observations	Use (mean number per survey)	Number of Surveys Observed	Frequency of Observations	Number of observations	Use (mean number per survey)	Number of Surveys Observed	Frequency of Observations
Passerines								
horned lark	299	4.271	46	65.7	393	2.298	143	83.6
western meadowlark	11	0.157	8	11.4	10	0.058	9	5.3
loggerhead shrike	1	0.014	1	1.4	1	0.006	1	0.6
black-billed magpie	1	0.014	1	1.4		0.000		0.0
common raven	157	2.243	34	48.6	112	0.655	54	31.6
barn swallow	5	0.071	2	2.9	5	0.029	3	1.8
tree swallow		0.000		0.0	3	0.018	1	0.6
bank swallow		0.000		0.0	1	0.006	1	0.6
cliff swallow		0.000		0.0	7	0.041	3	1.8
unidentified swallow		0.000		0.0	2	0.012	2	1.2
unidentified passerine	74	1.057	7	10.0	7	0.041	7	4.1
white-crowned sparrow	8	0.114	1	1.4	5	0.029	2	1.2
unidentified sparrow	1	0.014	1	1.4		0.000		0.0
house sparrow	1	0.014	1	1.4		0.000		0.0
western kingbird		0.000		0.0	1	0.006	1	0.6
Eurasian starling	247	3.529	4	5.7	7	0.041	3	1.8
Raptor								
ferruginous hawk		0.000		0.0	3	0.018	3	1.8
Swainson's hawk		0.000		0.0	28	0.164	23	13.5
red-tailed hawk	2	0.029	2	2.9	8	0.047	5	2.9
rough-legged hawk	3	0.043	2	2.9	16	0.094	14	8.2
golden eagle	2	0.029	2	2.9	2	0.012	1	0.6
American kestrel	5	0.071	4	5.7	2	0.012	1	0.6
northern harrier	14	0.200	12	17.1	12	0.070	12	7.0
unidentified buteo	2	0.029	2	2.9	4	0.023	4	2.3
Merlin		0.000		0.0	1	0.006	1	0.6
Waterbird								
long-billed curlew		0.000		0.0	16	0.094	10	5.8
Waterfowl								
Canada goose	16	0.229	2	2.9		0.000		0.0
Upland Gamebird								
Dove								
morning dove		0.000		0.0	2	0.012	1	0.6
rock dove	20	0.286	1	1.4	10	0.058	3	1.8
Total	**869**	**12.414**			**658**	**3.848**		

Table 3: Site use by sensitive avian species

	Fall				Spring			
	SBWP		SFS[1]		SBWP		SFS	
Species	Use[2]	FREQ[3]	Use	Freq	Use	Freq	Use	Freq
Ferruginous hawk	0.000	0.0%	0.000	0.0%	0.018	1.8%	0.042	4.2%
Loggerhead shrike	0.014	1.4%	0.013	0.6%	0.006	0.6%	0.042	4.2%
Long-billed curlew	0.000	0.0%	0.000	0.0%	0.094	5.8%	0.125	9.7%
Merlin	0.000	0.0%	0.019	1.3%	0.006	0.6%	0.014	1.4%
Swainson's hawk	0.000	0.0%	0.369	10.6%	0.164	13.5%	0.194	13.9%
Western meadowlark	0.157	11.4%	0.181	9.4%	0.058	5.3%	0.556	41.7%

1. SFS: The southern portion of the Shepherds Flat Wind Farm

2. Use: mean number of group members observed per survey

3. Freq: percent of surveys in which a member of the group was observed

Table 4: Site use by avian groups

Group	Fall Use[1]		Spring Use	
	SBWP[2]	SFS[3]	SBWP	SFS
Passerines	11.500	8.131	3.240	3.431
Raptor	0.400	0.800	0.444	0.736
Waterbird	0.000	0.000	0.094	1.083
Waterfowl	0.229	0.000	0.000	0.111
Upland Gamebird	0.000	0.013	0.000	0.194
Dove	0.286	0.144	0.070	0.097
Total	**12.414**	**9.088**	**3.848**	**5.653**

1. Use: mean number of birds observed per survey

2. SBWP: The Saddle Butte Wind Park

3. SFS: The southern portion of the Shepherds Flat Wind Farm

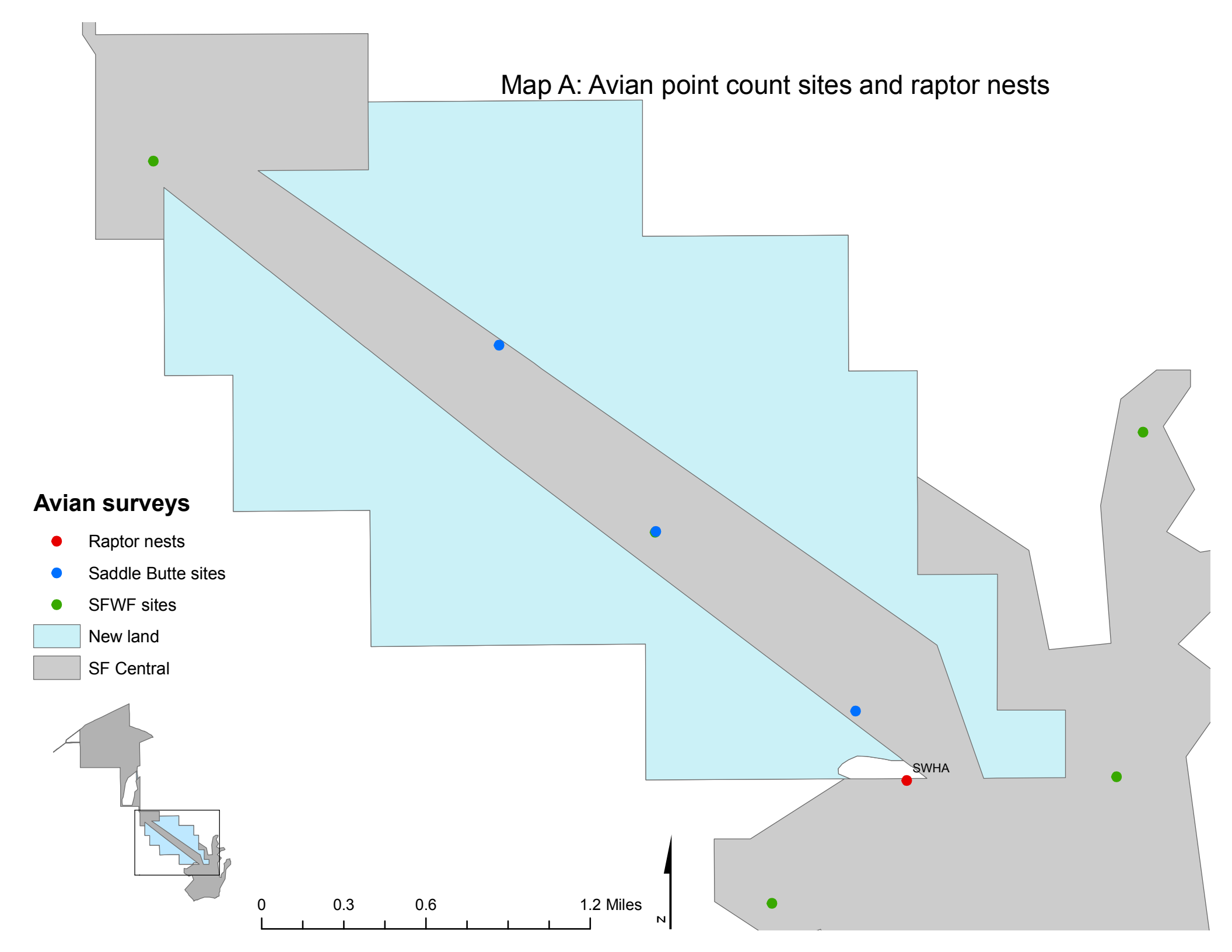
Table 5: Raptor use rates in regional wind facilities[1]

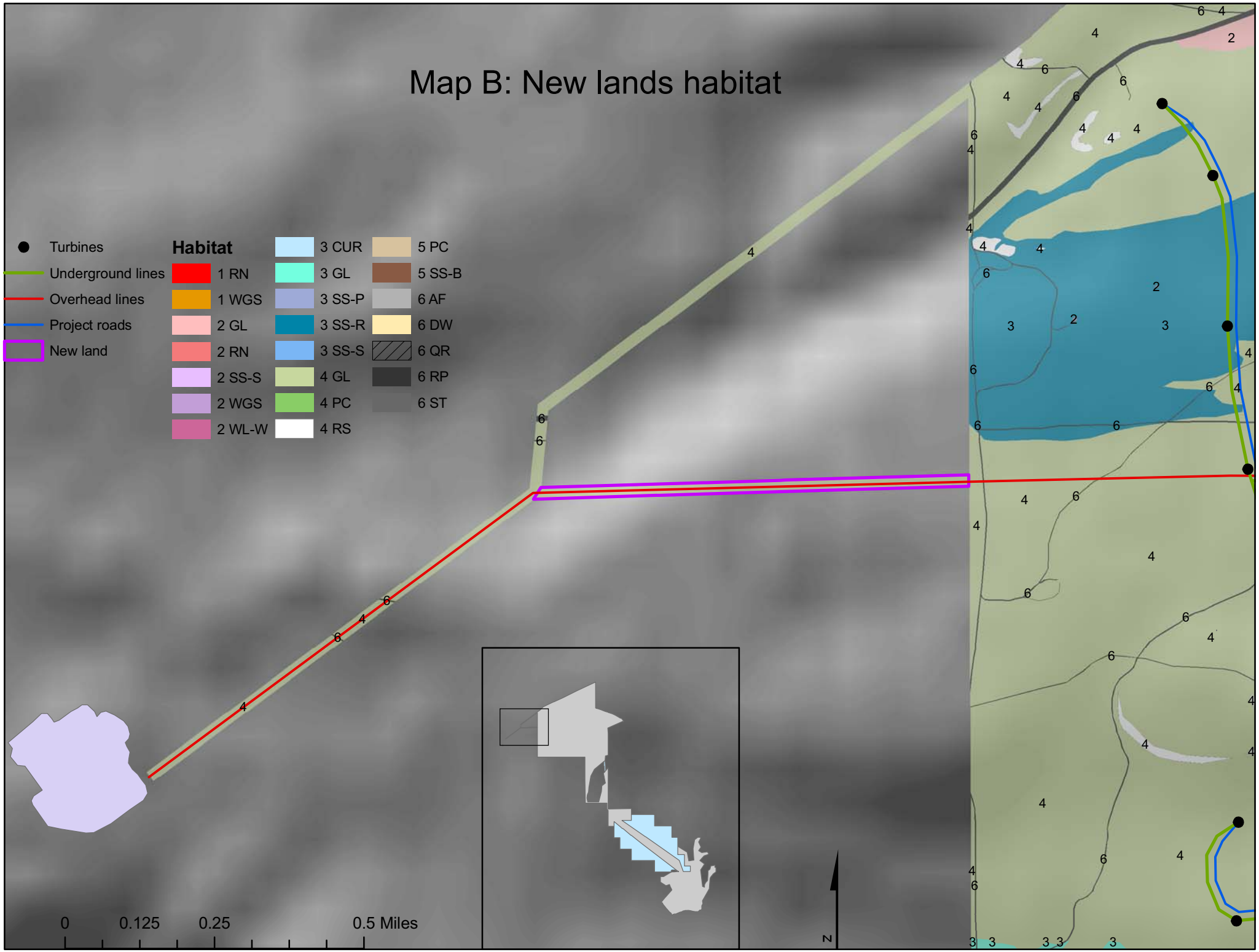
Project	Spring Use	Fall Use
Saddle Butte (OR)	0.444	0.400
Shepherds Flat (OR)	0.444	0.553
Nine Canyon (WA)	0.354	0.156
Zintel Canyon (WA)	0.194	0.700
Stateline/Vansycle (OR/WA)	0.524	0.260
Condon (OR)	0.528	0.293
Klondike I (OR)	0.468	0.386
Average	0.422	0.393

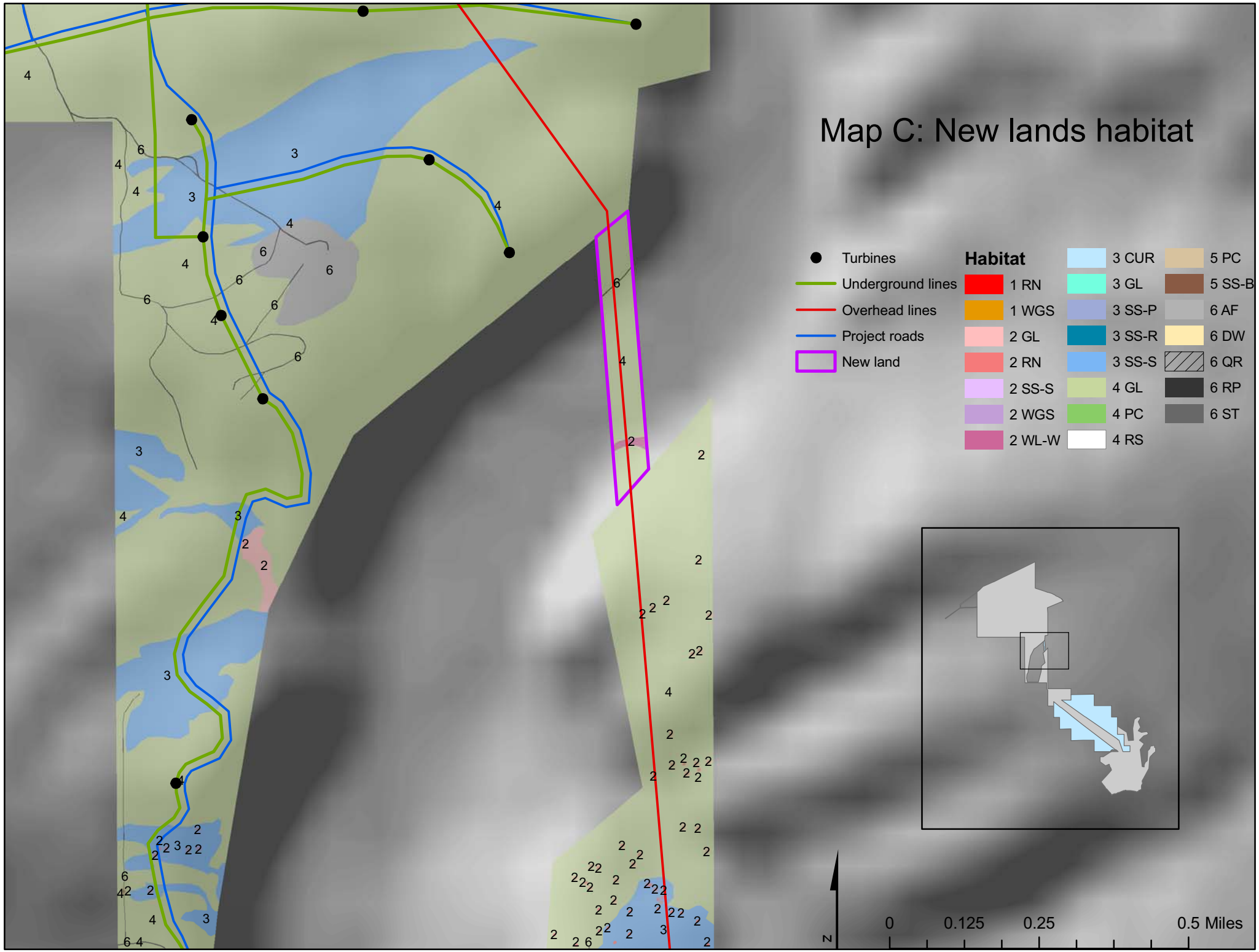
1. Data other than that for Saddle Butte and Shepherds Flat taken from Erickson W., G. Johnson, D. Young, D. Strickland, R. Good, M. Bourassa, K. Bay and K. Sternka (2002). *Synthesis and Comparison of Baseline Avian and Bat Use, Raptor Nesting and Mortality Information from Proposed and Existing Wind Developments, prepared for Bonneville Power Administration.*

Table 6: Disturbance impacts for individual habitat categories and subtypes

Category and subtype	Site total (acres)	Typical disturbance (acres)		Worst-case disturbance (acres)	
		Permanent	Temporary	Permanent	Temporary
1 Raptor nest	0.007	0.000	0.000	0.000	0.000
1 Washington ground squirrel	1.642	0.000	0.000	0.000	0.000
2 Grassland	190.486	0.009	0.102	0.009	0.125
2 Raptor nest	1.635	0.000	0.000	0.000	0.000
2 Shrub steppe – sage	13.003	0.000	0.000	0.000	0.000
2 Washington ground squirrel	19.162	0.000	0.000	0.000	0.000
2 Wetland-wash	0.928	0.000	0.000	0.000	0.000
3 Curlew	93.686	0.000	0.000	0.000	0.000
3 Grassland	621.811	2.533	8.718	2.731	13.643
3 Shrub steppe – purshia	6.115	0.000	0.000	0.000	0.000
3 Shrub steppe – rabbitbrush	519.323	0.550	1.408	0.629	2.937
3 Shrub steppe – sage	208.966	1.727	5.689	1.726	7.946
4 Grassland	5009.384	40.957	119.831	41.013	177.918
4 Previously cultivated	52.954	0.000	0.002	0.000	0.002
4 Rock and soil	110.098	0.067	0.306	0.067	0.269
5 Previously cultivated	324.501	1.888	7.699	2.349	13.720
5 Shrub steppe – broom snakeweed	44.240	0.366	1.067	0.370	1.772
6 Animal facility	50.556	0.000	2.619	0.000	0.000
6 Dryland wheat	4397.320	20.165	63.287	20.978	96.708
6 Quarry	2.650	0.000	0.000	0.000	0.000
6 Road and parking	88.649	0.473	2.010	0.476	2.287
6 Structures	12.070	0.000	0.000	0.000	0.000
Total	**11769.189**	**68.735**	**212.738**	**70.348**	**317.327**


Map A: Avian point count sites and raptor nests
Avian surveys
Raptor nests
Saddle Butte sites
SFWF sites
New land
SF Central
SWHA
0
0.3
0.6
1.2 Miles
N


Map B: New lands habitat
Turbines
Underground lines
Overhead lines
Project roads
New land
Habitat
1 RN
1 WGS
2 GL
2 RN
2 SS-S
2 WGS
2 WL-W
3 CUR
3 GL
3 SS-P
3 SS-R
3 SS-S
4 GL
4 PC
4 RS
5 PC
5 SS-B
6 AF
6 DW
6 QR
6 RP
6 ST
0
0.125
0.25
0.5 Miles
N


Map C: New lands habitat
Turbines
Underground lines
Overhead lines
Project roads
New land
Habitat
1 RN
1 WGS
2 GL
2 RN
2 SS-S
2 WGS
2 WL-W
3 CUR
3 GL
3 SS-P
3 SS-R
3 SS-S
4 GL
4 PC
4 RS
5 PC
5 SS-B
6 AF
6 DW
6 QR
6 RP
6 ST
N
0
0.125
0.25
0.5 Miles

Map D: New lands habitat

Turbines
Underground lines
Overhead lines
Project roads
New land

Habitat

1 RN
1 WGS
2 GL
2 RN
2 SS-S
2 WGS
2 WL-W
3 CUR
3 GL
3 SS-P
3 SS-R
3 SS-S
4 GL
4 PC
4 RS
5 PC
5 SS-B
6 AF
6 DW
6 QR
6 RP
6 ST

0 0.25 0.5 1 Miles

N

Map E: New lands habitat

Turbines
Underground lines
Overhead lines
Project roads
New land

Habitat

1 RN	2 WL-W	3 SS-S
1 WGS	3 CUR	4 GL
2 GL	3 GL	4 PC
2 RN	3 SS-P	4 RS
2 SS-S	3 SS-R	5 PC
2 WGS		5 SS-B
		6 AF
		6 DW
		6 QR
		6 RP
		6 ST

0 0.25 0.5 1 Miles

N

SADDLE BUTTE WIND PARK SURVEYS FOR SPECIAL STATUS SPECIES: WASHINGTON GROUND SQUIRRELS AND BURROWING OWLS

SPRING 2009

Carol Pilz Weisskopf
Pilz & Co LLC

Lana Schleder and Rick Welch
Energy Northwest Environmental Services

28-July-09

INTRODUCTION

The Washington ground squirrel (*Spermophilus washingtoni*) is listed as endangered in Oregon and is a candidate for federal listing. The Oregon Natural History Information Center (ORNHIC) places the squirrel on List 1 – threatened with extinction or presumed to be extinct. The squirrel is active only in the spring, and dormant in underground burrows the remaining seven to eight months of the year.[1] Observations of Washington ground squirrel colonies near the Saddle Butte Wind Park (SBWP) site by Energy Northwest (ENW) Environmental Services field biologists indicate the local squirrels become active approximately mid-March and remain active at least through May. Weather conditions can add several weeks to either side of this range. The colony occupying the site of the habitat replacement parcel proposed for the Shepherds Flat Wind Farm[2] was used as a reference site to determine dates of squirrel activity.

The western burrowing owl (*Athene cunicularia hypugaea*) is an Oregon state sensitive species in the category of critical. The owl is not federally listed in Oregon but is considered a species of concern by the Oregon U.S. Fish and Wildlife Office. ORNHIC places it on List 4 – a species of conservation concern. Burrowing owls using the SBWP site were expected to be present during the period ground squirrels were active.

Habitat suitable for three additional special status species generally corresponds with that suitable for burrowing owls and Washington ground squirrels. The loggerhead shrike and black- and white-tailed jackrabbit were included in the searches. The loggerhead shrike (*Lanius ludovicianis*) is an Oregon state sensitive species in the category of vulnerable, and is placed by ORNHIC on List 4. It is not federally listed or a federal species of concern in Oregon. The shrike is present in the area during the planned search period. The white-tailed jackrabbit (*Lepus townsendii*) is an Oregon state sensitive species in the category of vulnerable, and is placed by ORNHIC on List 4. The black-tailed jackrabbit (*Lepus californicus*) is not an Oregon state sensitive species. It is also placed by ORNHIC on List 4. Neither jackrabbit is federally listed or a federal species of concern in Oregon. The jackrabbits, when present, are permanent residents.

Searches for the two burrow-dwelling species involved looking and listening for signs of squirrel or owl activity (burrows, animals or warning noises) during transects of the site. Both subject species often stand at burrow openings watching searchers approach. Other than small birds hopping along the ground and an occasional coyote or deer, few other wildlife species in the SBWP area are active on the ground in the daytime. During transects of the site the area was also scanned for loggerhead shrike and jackrabbits The loggerhead shrike is most often located by sound but may be also be located by sight. Because the searches were performed during daylight hours, jackrabbits would only be identified when searcher movement flushed them from their hiding place, as both jackrabbits are primarily nocturnal.

[1] U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form (October 11, 2005)
[2] Application for a Site Certificate for the Shepherds Flat Wind Farm, Supplemental Information, "Description of the Habitat Alternate Parcel"

METHODS

Except for one alteration, the search protocol followed that approved by the Oregon Department of Fish and Wildlife (ODFW) for searches of the Shepherds Flat Wind Farm. The one alteration, approved by the Oregon Department of Energy, eliminated the requirement to search the offsite buffer if the adjoining onsite habitat was unsuitable for use by Washington ground squirrels. Washington ground squirrel surveys for the Shepherds Flat Wind Farm included a 1,000-foot buffer added outside of the site boundary. The majority of the SBWP site is either wheat fields or previously cultivated areas plowed up to the property line. The 1,000 buffer was not searched where wheat or cultivated land extended to the site boundary. Buffer searches were only slightly reduced since most of the adjacent land is also dryland wheat or was previously cultivated. The area searched included parcels that were later eliminated from the facility site.

Within the site and buffer, soil characteristics and use of the land were evaluated to develop the final survey area. Soil maps and descriptions of soil characteristics were obtained from the U.S. Department of Agriculture Natural Resources Conservation Service. Soils present within the site and buffer area were evaluated for suitability in Washington ground squirrel burrow construction, and the final list (Table 1) categorized soils identically to the list developed with ODFW concurrence for the Shepherds Flat Wind Farm searches.

To assist the search team, the areas requiring searches were mapped using ArcMap™ 9.2 (Figure 1). Appropriate areas on the site or within the buffer were searched for squirrel and owl burrows, as well as for the loggerhead shrike and the two jackrabbits. The majority of the property within the 1,000-foot buffer is leased by the applicant for the Saddle Butte Wind Park. For property in the buffer areas not leased by the applicant, permission for searches was received.

Searches began May 14 and ended June 11, 2009. Squirrels at the reference site were active during the entire search period. The search team was under the direction of ENW field biologists. During searches, teams traversed parallel transects approximately 200 feet apart. Slopes too steep to be scaled were carefully searched from above and/or below using binoculars. Remote portions of the site were accessed by road when it was possible, and by walking or by using all terrain vehicles when it was not. Although areas of unsuitable soil were not scheduled to be searched, accessing locations between and beyond these soils resulted in transects of nearly all unsuitable soils in the search area. ENW field biologists confirmed all identifications of sensitive wildlife species.

Areas that contained burrow openings that were of a size reasonably appropriate for squirrel or owl use, but with no sign of current squirrel or owl occupation, were examined and eliminated if tracks or scat indicated occupation by other species. Two potential Washington ground squirrel colony locations were marked on a GPS and revisited on a different day and at a different time of day. Potential colony locations and sighting of other species were mapped upon return from the field.

RESULTS

The project boundary, as it was constituted at the time of the searches, enclosed an area of approximately 32 square miles. The 1,000-foot buffer added an additional 12 square miles to the evaluated area. After removal of unsuitable soils, cultivated areas, buildings, farmyards and buffer areas adjacent to plowed land, the area searched on the site and buffer was 3.5 square miles.

Washington ground squirrels

No active Washington ground squirrel colonies were found within the facility site boundary. The reference colony, characterized in the "Description of the Habitat Alternate Parcel" for the Shepherds Flat Wind Farm, is within the search buffer (Figure 2). The majority of the search area was within ravines, uncultivated due to steepness or soil conditions. Although a substantial area of unsuitable soil was eliminated, many of the 'suitable' ravines contained basalt at the bottom and up the sides.

Four areas were found that contained burrow entrances of a size and arrangement common to Washington ground squirrel colonies. One is in a ravine between wheat fields in Warden silt loam (Figure 3). Three are in an uncultivated area (Figure 4 and Photos 1 & 2). The easternmost is in Warden silt loam and the other two are in Sagehill fine sandy loam. All four sites show no sign of current habitation – grasses were growing in many of the burrow entrances and many were starting to collapse. The two most likely areas were revisited three weeks later. No signs of activity were found.

Burrowing owls

No burrowing owl burrows were located. ENW researchers noted that many burrowing owl burrows they regularly encountered in Oregon and Washington in previous years were not occupied in 2009. No reason for the absence could be found in searches of the current literature.

Observations of jackrabbits and loggerhead shrike

No white- or black-tailed jackrabbits were observed during the searches. No jackrabbits were observed in the adjoining areas of the Shepherds Flat Wind Farm during 2007 searches; the closest sighting was approximately 3 miles north of the northernmost portion of the SBWP.[3] Two loggerhead shrike were observed (Figure 5), both within the site boundary, each sitting on a fence post adjacent to sage habitat.

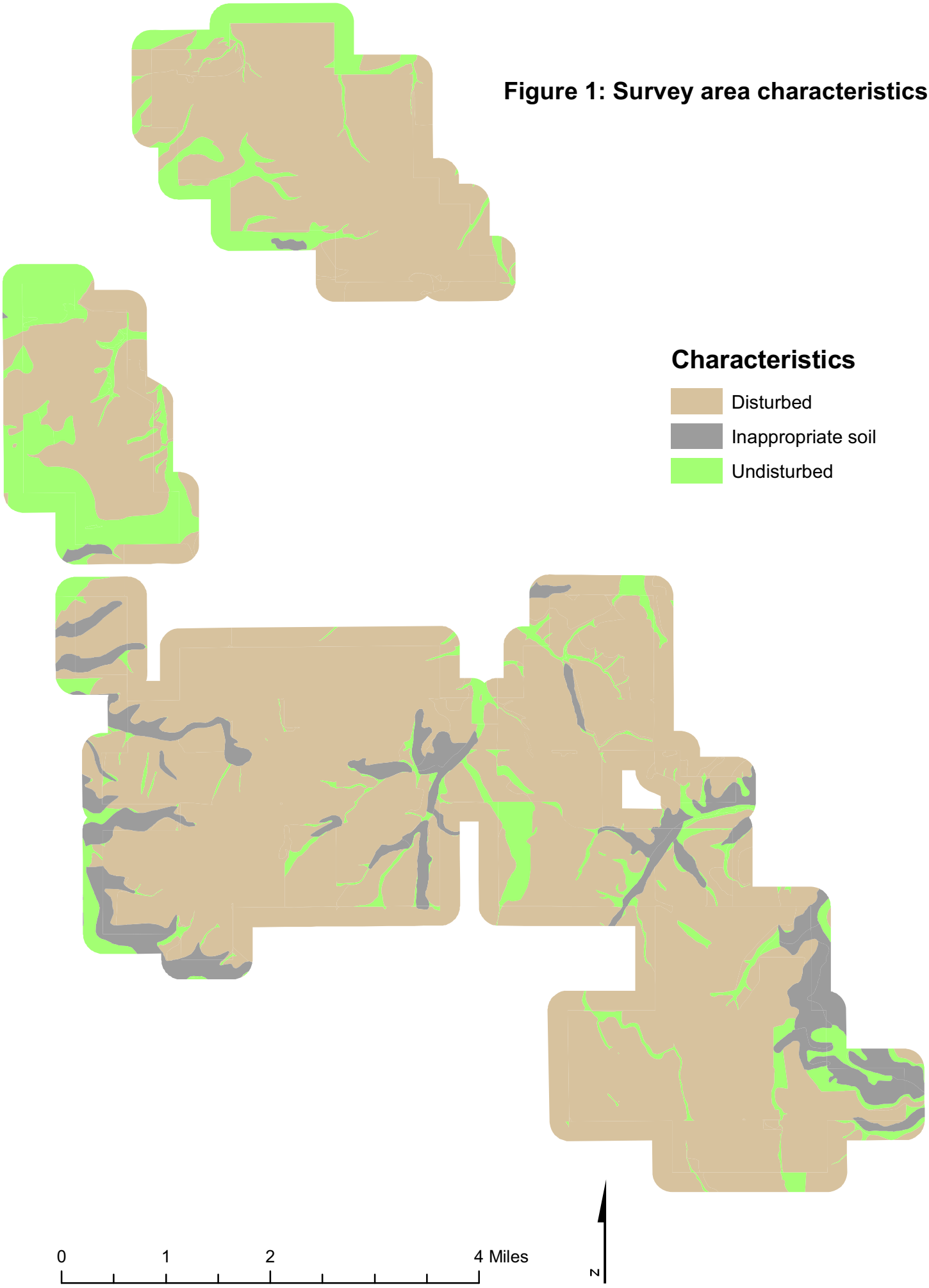
[3] Application for a Site Certificate for the Shepherds Flat Wind Farm, Supplemental Information, "Shepherds Flat Washington Ground Squirrel and Burrowing Owl Surveys, Spring 2007"

Table 1: Soils found within the SBWP site and buffer (From the USDA Natural Resources Conservation Service)

County Code					
Gilliam	**Morrow**	**Survey**	**Soil**	**Slope**	**Description**
	12	Yes	Esquatzel silt loam		The Esquatzel soil is over 60 inches deep to bedrock. It is silty, well drained and occurs on floodplains.
	13D	No	Gravden very gravely loam	5 - 20%	The Gravden soil is over 60 inches deep to bedrock, a cemented pan is at 10 to 20 inches. It is loamy, high in rock fragments, well drained and occurs on terraces.
	13E	No	Gravden very gravely loam	20 - 40%	
13	22	Yes	Kimberly fine sandy loam		The Kimberly soil is over 60 inches deep to bedrock. It is loamy, well drained and occurs on floodplains. This soil is subject to flooding.
15E	28E	No	Lickskillet very stony loam	7 - 40%	The Lickskillet soil, stony phase, is 12 to 20 inches deep to bedrock. It is loamy, high in rock fragments, well drained and occurs on plateaus
16F	29F	No	Lickskillet-Rock outcrop complex	40 - 70%	The Lickskillet soil is 12 to 20 inches deep to bedrock. It is loamy, high in rock fragments, well drained and occurs on mountains. Rock outcrop consists of exposures of bare, hard bedrock other than lava flows and rock-lined pits. It consists mainly of unweathered volcanic, metamorphic or sedimentary rock. Rock outcrop has little or no vegetation.
17B	30B	Yes	Mikkalo silt loam	2 - 7%	The Mikkalo soil is 20 to 40 inches deep to bedrock. It is silty, well drained and occurs on plateaus and mountains.
17C	30C	Yes	Mikkalo silt loam	7 - 12%	
	30D	Yes	Mikkalo silt loam	12 - 20%	
24E	91E	No	Olex gravely silt loam	20 - 40%	The Olex soil is over 60 inches deep to bedrock. It is loamy, high in rock fragments, well drained and occurs on plateaus and mountains.
24D		No	Olex gravely silt loam	5 - 20%	
32B	45B	Yes	Ritzville silt loam	2 - 7%	The Ritzville soil is over 60 inches deep to bedrock. It is silty, well drained and occurs plateaus and mountains.
32C	45C	Yes	Ritzville silt loam	7 - 12%	
32D	45D	Yes	Ritzville silt loam	12 - 20%	
33E	46E	Yes	Ritzville silt loam	20 - 40% north slopes	
	47E	Yes	Ritzville silt loam	20 - 40% south slopes	
35	48	No	Riverwash		Riverwash is unstabilized gravelly sediment that is flooded, washed and reworked frequently. It occurs mainly along main stream channels where stream velocity is rapid.

County Code					
Gilliam	**Morrow**	**Survey**	**Soil**	**Slope**	**Description**
40B		Yes	Sagehill fine sandy loam	2 - 5%	The Sagehill soil is over 60 inches deep to bedrock. It is loamy, well drained and occurs on terraces.
40C		Yes	Sagehill fine sandy loam	5 - 12%	
40D		Yes	Sagehill fine sandy loam	12 - 20%	
40E		Yes	Sagehill fine sandy loam	20 - 40%	
41B		Yes	Sagehill fine sandy loam, hummocky	2 - 5%	
41C		Yes	Sagehill fine sandy loam, hummocky	5 - 12%	
45B		Yes	Taunton loamy fine sand	2 - 5%	The Taunton soil is over 60 inches deep to bedrock, a cemented pan is at 20 to 40 inches, It is loamy, well drained and occurs on terraces and plateaus.
55B	71B	Yes	Warden silt loam	2 - 5%	The Warden soil is over 60 inches deep to bedrock. It is silty, well drained and occurs on terraces. The soil is alkaline.
55C	71C	Yes	Warden silt loam	5 - 12%	
55D	71D	Yes	Warden silt loam	12 - 20%	
55E	71E	Yes	Warden silt loam	20 - 40%	
	70D	Yes	Warden very fine sandy loam	12 - 20%	
	75B	Yes	Willis silt loam	2 - 5%	The Willis soil is 40 to over 60 inches deep to bedrock, a cemented pan is at 20 to 40 inches. It is silty, well drained and occurs on plateaus.
56C	75C	Yes	Willis silt loam	5 - 12%	
56D	75D	Yes	Willis silt loam	12 - 20%	
57F	77F	No	Wrentham-Rock outcrop complex	35 - 70%	The Wrentham soil is 20 to 40 inches deep to bedrock. It is loamy, high in rock fragments, well drained and occurs on mountains. Rock outcrop consists of exposures of bare, hard bedrock other than lava flows and rock-lined pits. They consist mainly of unweathered volcanic, metamorphic or sedimentary rock. Rock outcrop has little or no vegetation.
58	78	Yes	Xeric torrifluvents		Xeric Torrifluvents are over 60 inches deep to bedrock. They are loamy and sandy, somewhat excessively drained and occur on floodplains. Permeability is rapid. This soil is subject to flooding.

Figure 1: Survey area characteristics



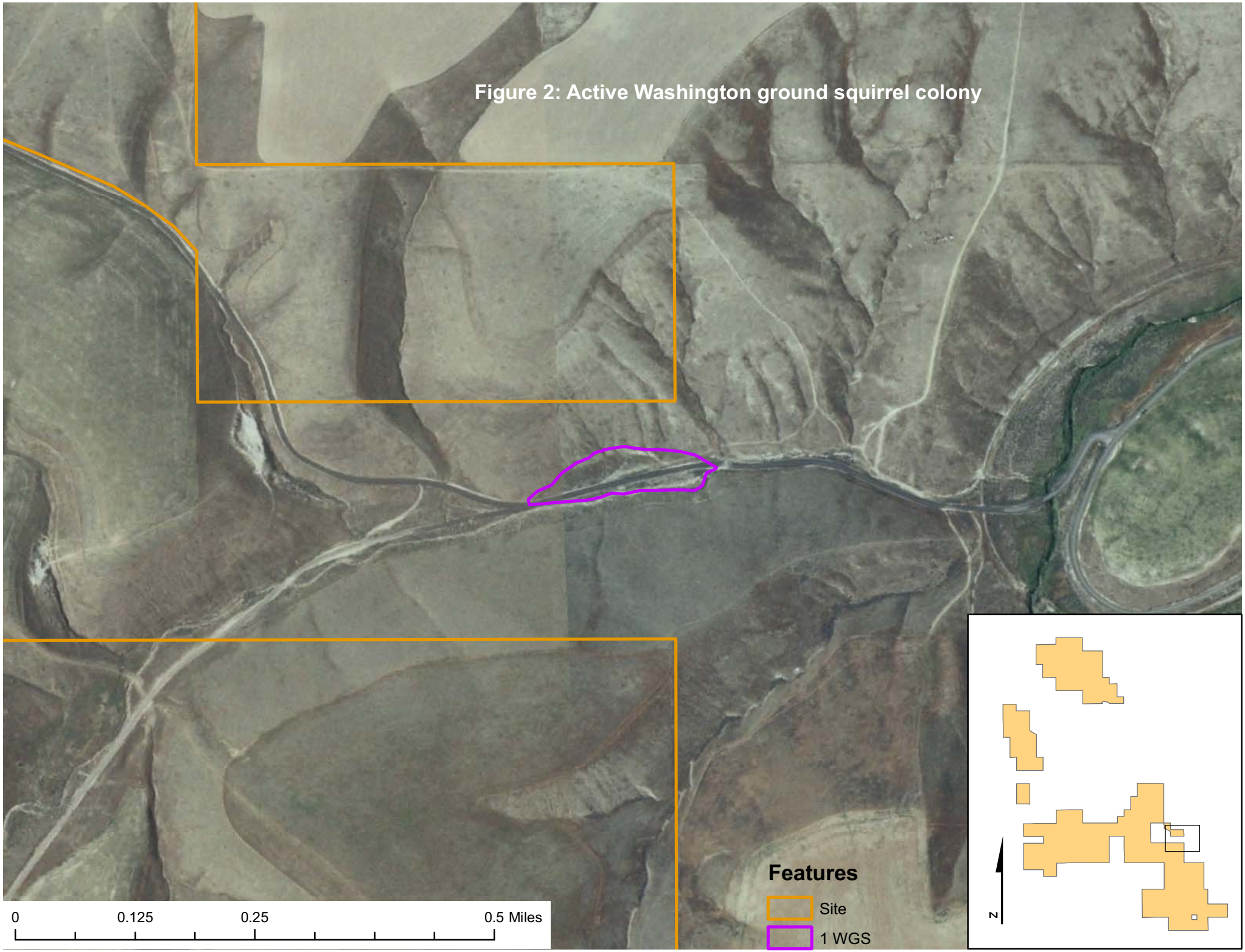


Figure 2: Active Washington ground squirrel colony
Features
Site
1 WGS
0
0.125
0.25
0.5 Miles
N

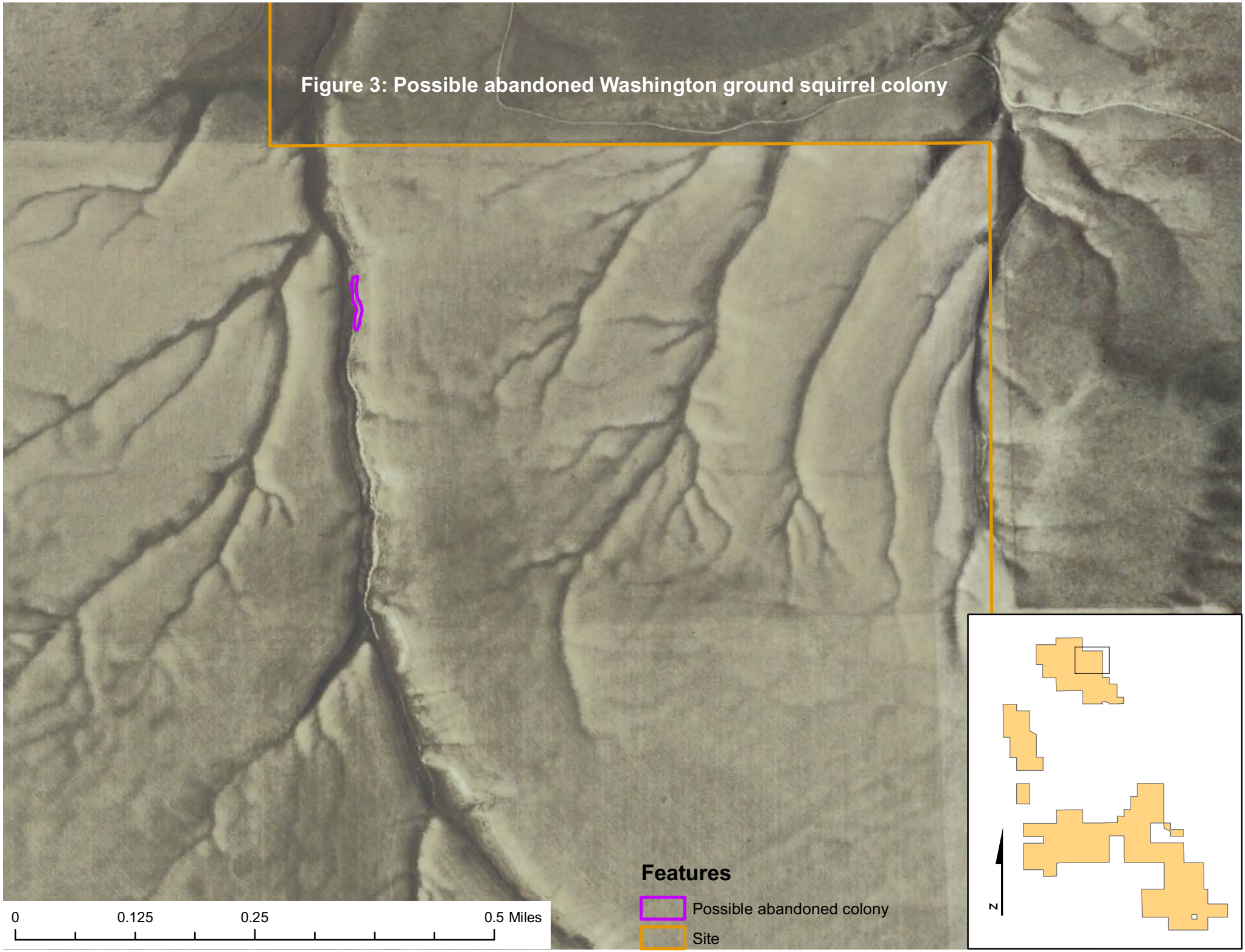


Figure 3: Possible abandoned Washington ground squirrel colony
0
0.125
0.25
0.5 Miles
Features
Possible abandoned colony
Site
N

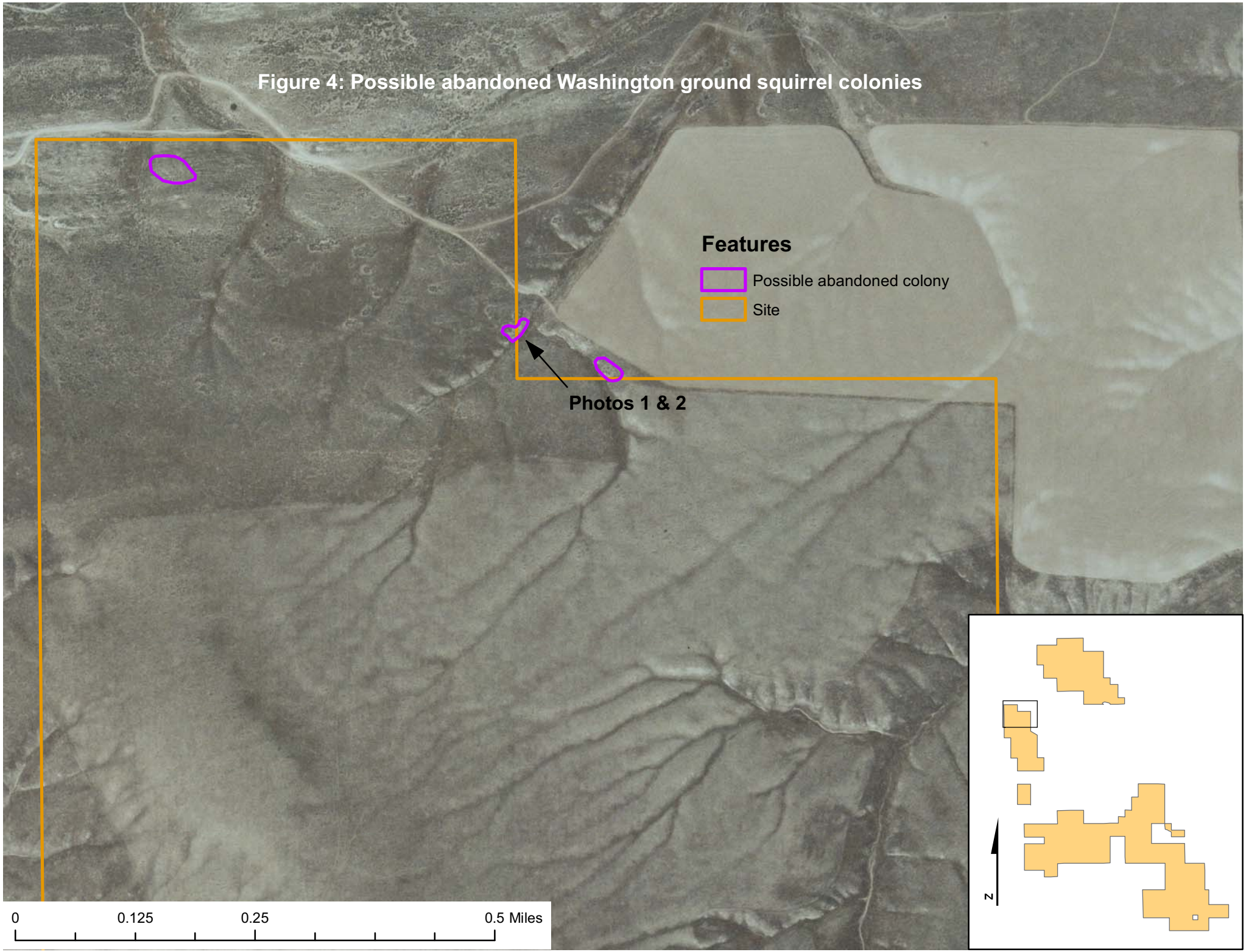


Figure 4: Possible abandoned Washington ground squirrel colonies
Features
Possible abandoned colony
Site
Photos 1 & 2
0
0.125
0.25
0.5 Miles
N

Figure 5: Loggerhead shrike sightings

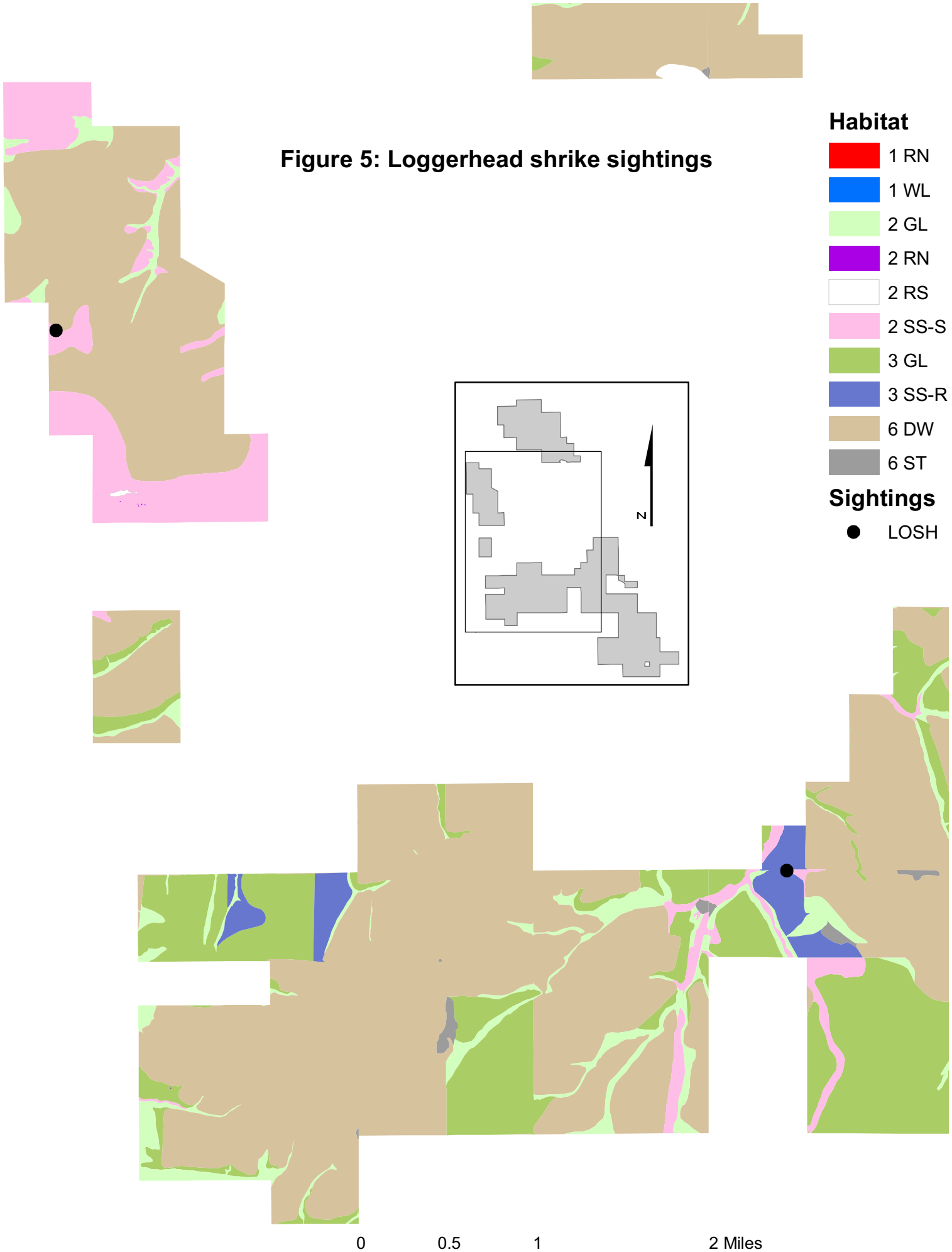


Photo 1: Area of potential abandoned Washington ground squirrel colony

Photo 2: Burrow entrances

CULTURAL RESOURCES

New lands proposed for addition to Shepherds Flat Central are the subject of a Cultural Resource Overview which is included in this Appendix 2. The Cultural Resource Overview was prepared in conjunction with the inclusion of these new lands in the proposed Saddle Butte Wind Park.

While these new lands have not yet been surveyed for Cultural Resources, Condition 43(d) assures the completion of these surveys before commencement of construction.

In addition, Certificate Holder has contracted for a Cultural Resource Reconnaissance Survey of these new lands. The scope of work for this reconnaissance survey includes:

- Consultation with the Oregon State Historic Preservation Office;
- Additional research file checks; and
- Focus on areas of high disturbance probability.

CONFIDENTIAL

Cultural Resource Overview of The Proposed Saddle Butte Wind Park Project Gilliam and Morrow Counties, Oregon

Report prepared for
Shannon & Wilson, Inc.
Geotechnical and Environmental Consultants
Job No. 22-1-02725-001

Prepared by
Jan M. Tomlinson, MAIS
Principal Investigator
2117 N. Road 60
Pasco, WA 99301

And
Debra J. Forgette, BA
Subcontractor

October 8, 2009

Jan Tomlinson ▪ Historical/Archaeological Consultant
2117 N Road 60 ▪ Pasco, WA ▪ 99301-2377 ▪ (509) 545-6738 ▪ JTHistorySearch@aol.com

WETLAND AND WATERS

New lands proposed for addition to Shepherds Flat Central were surveyed for wetland and waters in conjunction with their potential inclusion in the proposed Saddle Butte Wind Park. The resulting Wetland and Waters Delineation Report, prepared by Aquatic Contracting, Portland, Oregon, has been submitted to the Department of State Lands (09-0413).

The report, in its entirety, has been submitted to the Oregon Department of Energy, and is available, by request, on compact disk. The body of the report's text may be found in this Appendix 3.

New lands proposed for Shepherds Flat Central make up, and are located entirely within, the "North PSA."

WETLAND AND WATERS DELINEATION REPORT

SADDLE BUTTE WIND PARK
Gilliam and Morrow Counties, Oregon

Prepared for:

Fourmile Canyon Wind, LLC
565 Fifth Avenue, 29th Floor
New York, New York 10017

Prepared by:

AQUATIC CONTRACTING

8316 N. Lombard, #374
Portland, Oregon 97203
(503) 799-0934

August 30, 2009

TABLE OF CONTENTS

TABLES

APPENDICES

Site Data Summary	
Project Name:	Saddle Butte Wind Park
Location of Project:	45.56784° Latitude, 120.00000° Longitude (Approximate Centerpoint of overall Project Study Area [PSA])
Size of Study Area:	15,092 acres
City:	Southeast of Arlington; Northwest of Ione
County:	Gilliam and Morrow Counties
Project Staff:	Justin Isle (PWS); David Isle (Botanist)
Site Visits:	April 27, 28, 29, 30 and May 1 and 2, 2009. Follow-up visit on June 23 and 24, 2009.
Site Access Permission:	Requires coordination with landowners due to grazing and farming activities (Contact Patricia Pilz at [916] 456-7651)
Current Land Use(s):	Dryland wheat farming (cultivated), pasture, vacant land, and rural residences/outbuildings.
Waterways on Site:	26 highly ephemeral to relict and largely discontinuous drainage features including Fourmile Canyon & Ely Canyon Drainages.
Wetland Types (Cowardin Classification & Size):	One palustrine emergent (PEM) wetland seep (0.02-acre) within the Central PSA west of Ely Canyon Road.
Soil Surveys – **Gilliam Co. (Sheets 13, 17, 20, 23)** **Morrow Co. (Sheets 26, 31, 37, 43, 50)**	The only mapped hydric soils within the PSA are soil map unit 35 (Riverwash) in Gilliam County, and soil map unit 48 (Riverwash) in Morrow County.
Morrow County 13D - Gravden very gravelly loam, 5 to 20 percent slopes 13E - Gravden very gravelly loam, 20 to 40 percent slopes 22 - Kimberly Fine Sandy Loam 28E - Lickskillet very stony loam, 7 to 40 percent slopes 30B - Mikkalo silt loam, 2 to 7 percent slopes 30C - Mikkalo silt loam, 7 to 12 percent slopes 30D - Mikkalo silt loam, 12 to 20 percent slopes 45B - Ritzville silt loam, 2 to 7 percent slopes 45C - Ritzville silt loam, 7 to 12 percent slopes 45D - Ritzville silt loam, 12 to 20 percent slopes 46E - Ritzville silt loam, 20 to 40 percent north sloeps 47E - Ritzville silt loam, 20 to 40 percent south slopes 48 - Riverwash (Hydric) 70D - Warden very fine sandy loam, 12 to 20 percent slopes 71B - Warden silt loam, 2 to 5 percent slopes 75B - Willis silt loam, 2 to 5 percent slopes 75C - Willis silt loam, 5 to 12 percent slopes 75D - Willis silt loam, 12 to 20 percent slopes 77F - Wrentham-Rock outcrop complex, 35 to 70 percent slopes	Gilliam County 15E - Lickskillet very stony loam, 7 to 40 percent slopes 16F - Lickskillet-Rock outcrop complex, 40 to 70 percent slopes 17C - Mikkalo silt loam, 7 to 12 percent slopes 24D - Olex gravelly silt loam, 5 to 20 percent slopes 24E - Olex gravelly silt loam, 20 to 40 percent slopes 32B - Ritzville silt loam, 2 to 7 percent slopes 32C - Ritzville silt loam, 7 to 12 percent slopes 32D - Ritzville silt loam, 12 to 20 percent slopes 33E - Ritzville silt loam, 20 to 40 percent north slopes 35 - Riverwash (hydric) 40B - Sagehill fine sandy loam, 2 to 5 percent slopes 40C - Sagehill fine sandy loam, 5 to 12 percent slopes 40D - Sagehill fine sandy loam, 12 to 20 percent slopes 40E - Sagehill fine sandy loam, 20 to 40 percent slopes 41B - Sagehill fine sandy loam, hummocky, 2 to 5 percent slopes 41C - Sagehill fine sandy loam, hummocky, 5 to 12 percent slopes 55B - Warden silt loam, 2 to 5 percent slopes 55C - Warden silt loam, 5 to 12 percent slopes 55D - Warden silt loam, 12 to 20 percent slopes 55E - Warden silt loam, 20 to 40 percent slopes 56C - Willis silt loam, 5 to 12 percent slopes 56D - Willis silt loam, 12 to 20 percent slopes 58 - Xeric torrifluvents, nearly level

A. Landscape Setting and Land Use

The Project Study Area (PSA) for this report is located in the Columbia Plateau Ecoregion, south of the Columbia River, southeast of Arlington, southwest of Boardman and northwest of the small town of Ione. Highway 74 (Heppner Highway) is located east of the overall PSA, while Eightmile Canyon Road is to the west. The Gilliam/Morrow County line dissects the PSA north to south, with approximately one-half of the site acreage in Gilliam County and the other one-half in Morrow County (Figure 1). Elevations within the PSA range from approximately 750 to 1600 feet above mean sea level (MSL). Topography consists of gentle rolling hills, plateaus, and occasional high buttes, rocky outcrops, patches of sand, and shallow exposed bedrock. The rolling hills and plateaus are regularly dissected by largely relict drainages, steep gullies, ravines, and shallow vegetated swales, likely resulting from prior massive flood events given the existing arid climate, limited precipitation, and minimal runoff. Paved, graveled, and unimproved roads and trails dissect the PSA, providing primarily farm access. The overall PSA consists of 8 large parcels of land that are identified in this report based on their location relative to the overall PSA; North, Northwest, West, East-West Utility Corridor, Southwest, Central, Southeast, and Northeast. When combined, the total PSA acreage is 15,092.

- The North PSA is located north of Fairview Lane/Cecil Road, south of the existing Willow Creek wind farm, east of the 4-mile canyon drainage almost entirely on the Horn Butte 7.5 minute U.S. Geological Survey quadrangle map (herein quad map). This PSA totals approximately 3,069 acres. Land use within this PSA is predominantly farming for dryland wheat, with some fallow fields. Vacant land is dominated by the Grassland/Steppe and Shrub Steppe vegetative communities. Portions of this PSA also appear to be grazed (after harvest). Almost all of this PSA has been altered by decades of agricultural land use and occasional wildfire and/or prescribed burns.

- The Northwest PSA is located north and east of Eightmile Canyon Road, west of Fourmile Canyon Road and entirely on the Hickland Butte quad map. It totals approximately 1,666 acres. This PSA is predominantly farmed for wheat, with some vacant lands dominated by the Grassland/Steppe and Shrub Steppe vegetative communities.

- The West PSA is located south of the Northwest PSA, both north and east of Eightmile Canyon Road, and west of Fourmile Canyon Road. It totals approximately 254 acres and is located entirely on the Hickland Butte quad map. This small PSA is both farmed for dryland wheat and used as pasture for cattle.

- The narrow East-West Utility Corridor PSA parallels the east-west trending portion of Eightmile Canyon Road, is farmed for wheat, and is located on the Hickland Butte quad map. It totals approximately 72 acres.

- The large Southwest PSA (3,565 acres) is located south and east of the Eightmile Canyon Road, and east of Eightmile Canyon drainage. This PSA is located

primarily on the Hickland Butte quad map and is west of the Gilliam/Morrow County line. Almost all of this very large PSA has been or is currently cultivated, with small portions of Grassland/Steppe and Shrub Steppe vegetative communities in areas too steep for cultivation.

- The Northeast PSA is located east of Fourmile Canyon road, west of Willow Creek and Highway 74 and south of Fairview Lane/Cecil Road. The Northeast PSA is dissected by Palmateer Road, and His Idea Lane forms part of this PSA's southern boundary. This PSA is located entirely within the Cecil quad map and totals approximately 1,449 acres. Wheat farming is the dominant land use with small areas of vacant land including the Shrub Steppe and Grassland/steppe vegetative communities. One single family residence is located within this PSA.

- The Southeast PSA is located west of Highway 74, south of Palmateer Road, and is dissected by McNabb Lane. Most of this large approximately 3,507 acre PSA is located on the Cecil quad map. Except for steep slopes associated with Saddle Butte (elev. 1632) and other deep canyons along its eastern boundary that appear to be grazed, this PSA is primarily cultivated, with small areas dominated by the Grassland/Steppe and Shrub Steppe vegetative communities.

- The Central PSA is located well north of McNabb Lane, immediately south of His Idea Lane, east of the Morrow/Gilliam County line, and is dissected by Ely Canyon Road west of its intersection with Palmateer Road. This PSA is located entirely within the Cecil quadrangle map and totals approximately 1510 acres. Portions of this PSA immediately south of His Idea Lane are cultivated, while the southern one-half of the PSA has been fallow for some time. One single family residence sits atop the highest point within this PSA, with steep slopes in all directions from this butte. One shop/outbuilding is also located just south of His Idea Lane. Finally, the one wetland feature (seep) documented during the field investigation was located within this PSA, just west of Ely Canyon Road.

The PSA includes four dominant vegetation communities: Cultivated/Fallow Upland community; Grassland/Steppe Upland community; Shrub-Steppe Upland community, and a Seep Wetland community. Typical plant species within each community are summarized in Tables 1 through 4. These tables do not constitute a complete inventory of plant species within the PSA, but are presented to convey the differences in vegetation between the various vegetation communities identified during the field investigations. The dominant plant species within each wetland feature as documented during Aquatic Contracting's field investigation are listed in Appendix B (Data Forms). Additionally, a list of plants commonly observed during the field investigation is provided in Appendix D.

Table 1. Typical Vegetation within the Cultivated/Fallow Upland Community		
Common name	**Scientific name**	**Indicator status**
Crested wheatgrass	*Agropyron cristatum*	NL
Intermediate wheatgrass	*Agropyron intermedium* (*Thinopyrom intermedium*)	NL
Cheatgrass	*Bromus tectorum*	NL
Rye	*Secale cereale*	NL
Dryland wheat	*Triticum aestivum*	NL
Tarweed fiddleneck	*Amsinckia lycopsoides*	NL
Blue mustard	*Chorispora tenella*	NL
Spring-Whitlow grass	*Draba verna*	NL
Red-stemmed filaree	*Erodium cicutarium*	NL
Jagged-petal chickweed	*Holosteum umbellatum*	NL
Russian thistle	*Salsola kali*	UPL
Tumblemustard	*Sisymbrium altissimum*	FACU-

Table 2. Typical Vegetation within the Grassland/Steppe Upland Community		
Common name	**Scientific name**	**Indicator status**
Crested wheatgrass	*Agropyron cristatum*	NL
Cheatgrass	*Bromus tectorum*	NL
Sandberg's bluegrass	*Poa secunda (Poa sandbergii/ Poa scabrella)*	NL
Bluebunch wheatgrass	*Pseudoroegneria spicata* (*Agropyron spicatum*)	UPL
Tarweed fiddleneck	*Amsinckia lycopsoides*	NL
Spring-Whitlow grass	*Draba verna*	NL
Willowherb	*Epilobium sp.*	FACU (est.)
Redstem storksbill	*Erodium cicutarium*	NL
Longleaf phlox	*Phlox longifolia*	NL
Russian thistle	*Salsola kali*	UPL
Tumblemustard	*Sisymbrium altissimum*	FACU-
Needle-and-thread grass; needlegrass	*Stipa comata*	NL
Thurber's needlegrass	*Stipa thurberiana*	NL

Table 3. Typical Vegetation within the Shrub-Steppe Upland Community		
Common name	**Scientific name**	**Indicator status**
Big sagebrush	*Artemisia tridentata*	NL
Gray rabbitbrush	*Ericameria nauseosa* var. *albicaulis* (*Chrysothamnus nauseosus* var. *albicaulis*)	NL
Green rabbitbrush	*Ericameria vicidiflorus* var. *vicidiflorus* (*Chrysothamnus viscidiflorus* var. *vicidiflorus*)	NL
Matchbrush	*Gutierrezia sarothrae*	NL
Western juniper	*Juniperus occidentalis*	NL
Crested wheatgrass	*Agropyron cristatum*	NL
Cheatgrass	*Bromus tectorum*	NL
Bluebunch wheatgrass	*Pseudoroegneria spicata* (*Agropyron spicatum*)	UPL
Tarweed fiddleneck	*Amsinckia lycopsoides*	NL
Longleaf phlox	*Phlox longifolia*	NL
Needle-and-thread grass; needlegrass	*Stipa comata*	NL
Thurber's needlegrass	*Stipa thurberiana*	NL

Table 4. Typical Vegetation within the Emergent Seep Wetland Community		
Common name	**Scientific name**	**Indicator status**
Cocklebur	*Xanthium strumerium*	FAC
Kentucky bluegrass	*Poa Pratensis*	FAC
Cattail	*Typha latifolia*	OBL
Prickly lettuce	*Lactuca serriola*	FACU
Bedstraw (cleavers/goose-grass)	*Galium aparine*	FACU
Canada thistle	*Cirsium arvense*	FACU+
Tumblemustard	*Sisymbrium altissimum*	FACU-

B. Site Alterations

As mentioned, a majority of the overall PSA has been altered by decades of cultivation as well as disturbance and alteration associated with cattle grazing. Occasional prescribed burns as well as wildfires have also altered vegetation. Additional site alteration includes that associated with residences and farm outbuildings, abandoned homesteads and windmills, asphalt and gravel county roads, private access roads, and a number of farm access and four wheel drive trails. Given the arid conditions and little evidence of even sporadic ephemeral flows, drainage crossings are typically fords.

C. Precipitation Data and Analysis

On the Columbia Plateau, the majority of precipitation falls November through March. The winters are cool, but not severe, and the summer months consist of hot days with relatively cool nights. Precipitation averages 9 inches per year in Arlington and portions of Morrow County near the Columbia River (Hosler, 1983 & 1984). WETS tables indicate historical average annual precipitation of 9.05 inches in Arlington, and 12.23 inches slightly inland at Ione. Although Ione has the closest daily recordings available, interviews with long-time local residents indicate average annual precipitation within the PSA is between 9 and 10 inches (more similar to Arlington). Landowners also indicated that this area has been in a roughly ten year drought with average annual precipitation typically between 6 and 7 inches.

The following tables summarize the precipitation recorded in Ione prior to the April/May 2009 field investigation. Ione is the closest location with recent archived precipitation data available online. There was no rainfall the day before the April fieldwork or during two weeks preceding initial fieldwork; however, prior to the fieldwork during the month of April, 0.41-inch of precipitation was recorded. During the seven consecutive days of April/May fieldwork, there was 1.02 inches of precipitation. With respect to the follow-up site visit, there was no precipitation on July 22 the day before follow-up site visit (July 23 and 24). Additionally, during the 2 weeks prior to the second/follow-up site visit there was 0.03-inch of precipitation, while a total of 1.25 inches of precipitation were recorded between the first field investigation which ended on May 2 and the follow-up site visit on July 23 and 24.

Using the Ione WETS averages and Ione precipitation data, precipitation was 47% of normal for the rain year. Using Arlington WETS averages with available Ione precipitation data, precipitation for the water year was still only 64%. Given this information, Aquatic Contracting determined that the presence of wetland hydrology was not expected or considered necessary should other positive indicators in soils or vegetation be present within suspect features.

Please note that additional precipitation data is presented in Appendix D.

Table 5. Summary of Precipitation between January 2009 and April 2009 in Ione, Oregon					
Category	**January**	**February**	**March**	**April**	**2008-2009 Water Year Totals***
Recorded Precipitation (Ione)	1.24 in.	0.94 in.	1.25 in.	0.64 in.	5.78 in.
WETS Avg. (Ione)	1.45 in.	1.17 in.	1.11 in.	1.21 in.	12.23 in.
Percent Normal Recorded (Ione)	86%	80%	113%	53%	47%
WETS Avg. Arlington	1.41 in.	1.02 in.	0.76 in.	0.63 in.	9.05 in.
Percent Normal with Ione Daily Recordings & Arlington WETS data**	88%	92%	164%	102%	64%

Sources : Weather Underground Ione Station, http://www.wunderground.com/cgi-bin/findweather/getForecast?query=97843
WETS tables from: http://www.wcc.nrcs.usda.gov/cgibin/getwetco.pl?state=or Water year October 1–September 30.
***PSA is between Arlington and Ione. Daily information not available for Arlington. Ione daily and water year data compared with Ione and Arlington WETS data since PSA is located midway between Ione and Arlington.*

For an area to be classified as a wetland under the ACOE Manual, the soils must be continuously saturated near the surface for no less than 5% of the growing season and typically between 5 and 12.5% of the growing season. At 5% of the growing season, soils in the Arlington area must have at least **11.3 consecutive days** with continuous saturation within the major portion of the root zone between approximately **March 22 and November 3** (Arlington, WETS, 2002). At 12.5% of the growing season, soils in the Arlington area must have at least **28.25 consecutive days** with continuous saturation within the major portion of the root zone (Arlington, WETS, 2002). However, the Arid West Supplement reduces the duration requirement for saturation within the major portion of the root zone should hydric soils and hydrophytic vegetation be present and provides additional hydrology indicators (USACE, 2006). With this in mind, observation of wetland hydrology was not expected nor considered necessary should other positive indicators be present.

D. Methods

Based on the large size of the PSA, Aquatic Contracting's pre-field evaluation included GIS-based aerial photo interpretation using available NAIP aerial imagery from 2005 and 2006, digital soil survey data for Morrow and Gilliam Counties, and digital National Wetland Inventory (NWI) mapping data to identify potential wetlands and suspect/low areas prior to conducting the field investigation. Hard copy data was also obtained and reviewed including USGS topographic quadrangle maps (Utts Butte, 1968; Horn Butte, 1964; Cecil, 1968; Dalreed Butte, 1968; Hickland Butte, 19964), USFWS NWI Mapping

(Utts Butte, 1981; Horn Butte, 1981; Cecil, 1981; Dalreed Butte, 1981; Hickland Butte, 1981); and Gilliam and Morrow County Soil Surveys (Hosler 1983 and 1984).

Aquatic Contracting's botanist and wetland scientist conducted their field investigation on April 27, 28, 29, 30, and May 1 and 2, 2009. A follow-up site visit was conducted on July 23 and 24, 2009. Wetlands were delineated using the criteria outlined in the ACOE Manual, specifically the routine on-site determination methodology (Environmental Laboratory 1987), the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2006), and Oregon Administrative Rules (OARs) 141-090-0005 through 141-090-0055 for wetland delineation (DSL 2009a,b). Soil hue, value, and chroma were documented using the standardized Munsell Soil Color Charts (GretagMacbeth 2000). Each plant indicator status was obtained using the U.S. Fish and Wildlife Service national and regional supplements (Reed 1988 and Reed et al. 1993).

Wetland determination data forms from the Arid West Interim Regional Supplement were used to record soils, vegetation, and hydrology data at 29 representative sample plots located within and adjacent to the overall PSA (Appendix B). Hundreds of photographs were taken throughout the PSAs in low areas as well as at each Sample Plot. 150 photos have been included in Appendix C to accurately document and describe site conditions. Plots and photographs were taken in representative areas where the best data on soils, hydrology, and vegetation could be obtained within the PSA. Paired plots were taken at the one wetland seep documented during the site investigation, while additional solitary sample plots were taken to document general site conditions as well as non-wetland conditions in other low-lying areas. Based on the large size and similar conditions within each of the PSAs, numerous photos were also taken to document landscape conditions. To ensure an accurate photo log, photos were numbered and photo locations were documented using the GeoXH handheld GPS unit.

Soils at each sample point were typically inspected to a depth of 16 inches to determine the presence or absence of hydric soils and wetland hydrology. In several areas rock refusal was noted due to shallow bedrock or the presence of large rocks. Our botanist identified most vegetation to the species level, and a number of mosses were also collected and subsequently identified by an associate expert bryologist for future reference.

Due to the lower than average rainfall amounts for the water year as well as landowner information about an ongoing drought, Aquatic Contracting concluded that the water tables observed within the PSA during the field investigations would be below average. Therefore, the absence of wetland hydrology was not deemed sufficient to exclude an area as wetland given the presence of other positive indicators in the vegetation and soils parameters.

Evaluation of an Ordinary High Water Mark (OHWM) for water features was conducted in the field according to the DSL Administrative Rules [OAR 141-085-0510 (59) & 141-085-515(3) (DSL 2009a,b) by noting physical indications of seasonal scour, flooding, sediment deposition, ponding, and related active channel processes. USGS-mapped intermittent drainages within the Project Study Areas (PSA's) were examined in the field for indicators and potential for jurisdiction; however, it is apparent that almost all features visible on the aerial photographs are remnant/relict erosional features and the limited precipitation this

area receives typically infiltrates into the typically deep sandy loam soils. Drainage features visible on the aerial imagery were grouped into three general categories during the field investigation: **Vegetated Upland Swales**, **Gullies/Ravines**, and **Ephemeral Drainages**.

- For the purposes of this report, **Vegetated Upland Swales** are shallow swale features that lack an ordinary high water mark, any evidence of scour or recent water flow, and are often cultivated or entirely vegetated with upland shrubs and herbaceous species. Photos of vegetated upland swales are provided for reference.

- For this report, **Gullies/Ravines** are relict erosional features that lack an ordinary high water mark or any evidence of recent scour or flowing water. Gullies/Ravines would often be present for a short distance, giving way to an upland vegetated swale or disappearing entirely at a break in slope. The lowest part of these features was often vegetated with upland herbaceous and shrub species with no evidence of runoff or flow. They appear to be relict erosional features that do not meet the definition of Waters of the United States, and were not mapped as "waters". Photos of these features have been included for reference.

- For this report, **Ephemeral Drainages** are features containing one or more indicators of historic or recent flow. Due to the very low annual rainfall within the project area, and interviews with current residents regarding site hydrology, any flow is of very short duration, typically following a rain-on-snow event ("Chinook"). These features contain what typically appears to be a "remnant bed" that often includes discontinuous sections of exposed rock, bedrock, and/or areas of accumulated gravels/cobbles in a defined topographic depression. These features often displayed the historic channel features described above for a short duration with downslope segments often disappearing entirely or no evidence of recent flow activity [e.g., within many years]). Although these drainage features appear largely relict, and they typically lack feature continuity, they have been mapped on Figure 5 because they are the <u>most defined drainage features</u> within the PSA. This was based upon some evidence of prior scour or flowing water. However, the lack of regular water movement has allowed for the presence and recruitment of perennial upland grasses and even shrubs and elimination of channel characteristics with large segments of these discontinuous features. Documentation of these features has been provided to help the reviewer with interpretation of signature patterns visible on the aerial imagery and to explain the highly ephemeral and largely relict nature of these drainages.

E. Description of All Wetlands and Other Non-Wetland Waters

One wetland seep (Wetland 1), and 25 highly ephemeral water features including Fourmile Canyon Creek and Ely Canyon Creek were delineated within the PSA. The location, extent, and characteristics of delineated features are described below and/or visually presented in photos in Appendix C. Refer to Figures 5 and 6, Appendix A for the wetland/waters boundary map and associated aerial imagery.

E.1 Wetlands

One very small wetland seep was documented within the Central PSA, just west of the Ely Canyon Drainage. Aquatic Contracting flagged this feature with ribbon-type flagging in the field and mapped this feature's boundary using the GeoXH. This wetland seep is shown in Appendix A, Figures 5 and 6 with conditions documented by data sheets 25 and 26 in Appendix B. Photos of this feature include numbers 131, 133, and 134 found in Appendix C.

Wetland 1 is a very small (0.02 acre) perennial palustrine emergent (PEM) seep located within a shallow tributary to Ely Canyon Creek. Hydrology appears to be the result of shallow exposed bedrock which perches side-slope seepage, forming small areas of ponding within this wetland feature. Soils were clearly hydric (Photo 133), and this was the only location within the PSA that contained hydrophytic vegetation including cocklebur (*Xanthium strumarium*, FAC), Kentucky bluegrass (*Poa Pratensis*, FAC), and cattail (*Typha latifolia*, OBL) in addition to other ruderal upland species.

Wetland 1 was not mapped on the Cecil NWI quad map. However, it is interesting to note that hydric soil (riverwash) was mapped just east along the Ely Canyon drainage and this area contains 3 abandoned windmills that parallel the Ely Canyon drainage. Landowner information about this seep feature combined with our observation of small areas of shallow ponded water (perched over bedrock) in May indicate this is a persistent seep best described as a palustrine emergent wetland (PEM1Y).

E.2 Non-Wetland Waters

Very few erosional features apparent on the aerial imagery contained evidence of an observable OHWM, scour, or other active channel indicators required for qualification as a "waters" feature. Specifically, a total of 26 ephemeral "waters" features were identified within the PSA. However, given existing conditions and interviews with landowners and long-time residents, even the most defined features documented as ephemeral drainages rarely have one day of flow every several years, are largely discontinuous, and none provide spawning, rearing or food-producing areas for food and game fish (refer to photos).

Although the drainages mapped on Figure 5 are the most well-defined features within the PSA, it is apparent that runoff events are quite rare and that water rarely "flows" based on poorly defined channels, minimal indicators of scour, lack of continuity, and regular observations of well-established perennial upland plant species (including shrub species) in

the lowest parts of each feature. Some of the channels had incised and well-defined OHWM's for a short duration, while in downslope areas the channel would disappear, or lose all evidence of scour (presumably infiltrating or going subsurface due to varying soil textures/depth to bedrock, insufficient runoff, or loss of energy due to slope changes). In many cases, historic/relict channel erosion to exposed bedrock was the only indicator present, with downgradient channel portions fully "recovered" and dominated by well-established perennial herbaceous and shrub species with no evidence of recent flow or scour.

The Fourmile Canyon Drainage provides an example of this situation. Upgradient sections within the SW PSA included a well defined channel (Photo 109) and a well defined unnamed tributary (Photo 110), possibly due to shallow exposed bedrock, while the entire downgradient (northern) portion of the Fourmile Canyon Drainage lacked channel indicators or indicators of recent flow/scour (Photos 123, 124, 106, 132). Nonetheless, given the size of the drainage basin, and the several areas with a defined channel, this feature was mapped as an ephemeral drainage feature. Feature conditions also appear to confirm landowner comments indicating flows have not been observed in the Fourmile Canyon drainage since circa 1998 (Pers. Comm., Dana Heideman, April 29, 2009).

The Ely Canyon Drainage provides another relevant example. Landowner interview comments indicated the Ely Canyon Drainage has had roughly 2 to 3 days of flow in the past 5 to 10 years (Pers. Comm., Dana Heideman, May 2, 2009). The upper portion of the drainage (within the south part of the Central PSA and the SE PSA) was largely well-defined (Photos 97, 100). However, downgradient portions of this feature within the Central PSA (Photo 101, 128) lacked channel indicators and indicators of recent scour, with indicators becoming evident again farther downstream (Photo 137-offsite). Given this information, the Ely Canyon Drainage was mapped as an ephemeral drainage feature.

Representative photos and additional descriptions of typical conditions within the mapped ephemeral drainage features are located in Appendix C.

F. Mapping Method

Due to the size of the study area (15,092 acres) and largely homogeneous nature of the landscape, Aquatic Contracting scientists utilized a Trimble GeoXH handheld global positioning system (GPS) uploaded with PSA boundaries, quad maps, and hydric soil information. This method enabled Aquatic Contracting staff to track their exact location at all times in relation to PSA boundaries, drainage features, and suspect areas. Large scale hard copy maps showing the PSA overlaid on aerial imagery, quad maps, and NWI maps were also used during the field investigation. Features, photo points, sample plots, and other pertinent information were entered into the GeoXH handheld unit and manually onto the hard copy maps for redundancy. Data gathered with the Trimble GeoXH is sub-meter, and typically a minimum accuracy of <30 cm, as post processed.

The one wetland seep documented during the field investigation was flagged using ribbon-type flagging. The boundary was then recorded using the Trimble GeoXH handheld GPS

unit. Paired and solitary sample plots along with all numbered photo locations (and directions) were also entered into the GeoXH.

For ephemeral drainage features, the feature's beginning/end within the PSA was typically entered into the GeoXH and/or on the study area hard copy maps. The centerline of these features was then subsequently digitized in the office using NAIP 2005/6 aerial imagery and GeoXH entered point data. Estimated accuracy of the mapped ephemeral drainage features is estimated at +/- 10 feet.

G. Deviation from LWI or NWI

The PSA is located in rural Gilliam and Morrow Counties and there is no Local Wetland Inventory (LWI) mapping for this area. No wetland features are indicated on the NWI mapping within the PSA. The three water features noted on NWI within the PSA were confirmed, but are clearly highly ephemeral and discontinuous drainages (Fourmile Canyon, Ely Canyon, and one unnamed drainage near Saddle Butte).

The remaining drainages mapped as streams on the USGS quad maps lacked channel characteristics (e.g., bed and banks, scour, evidence of recent flows). These features typically qualified as upland vegetated swales or gullies/ravines as defined in this report, and were considered relict/remnant erosional features.

H. Additional Information

Anticipated jurisdictional status of wetland and water features is provided below.

H.1 Wetland 1

Wetland 1, a small palustrine emergent seep, is likely a jurisdictional feature for DSL based on the definition of a wetland provided OAR 141-085-0510(89, 95) and 141-085-0515(4).

As a wetland adjacent to a highly ephemeral drainage (a non-navigable tributary that is not a Relatively Permanent Water [RPW]), Corps of Engineers jurisdiction under the Clean Water Act (CWA) could only be asserted via significant nexus determination. This emergent wetland seep is located within a highly ephemeral (likely relict) channel, and both this feature and downgradient ephemeral features lack continuity and connectivity with the nearest RPW (Willow Creek - offsite). Given this information, it is uncertain whether functions performed by this wetland and the adjacent ephemeral drainages would significantly affect the chemical, physical and biological integrity of a downstream Traditional Navigable Water (TNW).

H.2 Ephemeral Drainages

The 26 highly ephemeral drainages documented by this investigation do not appear to be jurisdictional Waters of the State of Oregon. Waters of the State do not include ephemeral streams. None of these features have flow during a portion of every year, provide spawning, rearing or food-producing areas for food or game fish, or otherwise qualify as intermittent streams.

The 26 highly ephemeral drainages documented by this investigation are not RPWs. Specifically, they rarely have flow (e.g., possibly one runoff event every 3 to 5 years) and lack continuous channel indicators, and distinct Ordinary High Water Marks. As such, if jurisdiction under the CWA is to be asserted, it must be based on a Corps of Engineers significant nexus determination. A significant nexus is considered to exist when a tributary has more than a speculative or insubstantial effect on the chemical, physical and biological integrity of a downstream traditional navigable water (e.g., the Columbia River). Existing conditions, discontinuous channel characteristics, the extremely rare nature of ephemeral flow events, and the distance from a TNW all serve to reduce the likelihood of a positive significant nexus determination; however, the Corps would make this determination.

I. Results and Conclusions

Based upon the results of the field investigation conducted on April 27, 28. 29. 30 and May 1 and 2, 2009, Aquatic Contracting confirmed the presence of one small wetland seep totaling 0.02-acre and 26 highly ephemeral waters features, the most prominent of which are Fourmile Canyon Drainage and the Ely Canyon Drainage. These features are shown on Figures 5 and 6 in Appendix A, with representative photos provided in Appendix C.

J. Disclaimer

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