

Exhibit C

Project Location and Maps

**Nolin Hills Wind Power Project
February 2020**



d/b/a Nolin Hills Wind, LLC

Prepared by



Tetra Tech, Inc.

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Acronyms and Abbreviations

Applicant	Nolin Hills Wind, LLC
ASC	Application for Site Certificate
GE	General Electric
kV	Kilovolt
MW	Megawatt
OAR	Oregon Administrative Rules
O&M	Operations and maintenance building
Project	Nolin Hills Wind Power Project

1.0 Introduction

Nolin Hills Wind, LLC (the Applicant) proposes to construct the Nolin Hills Wind Power Project (Project), a wind energy project with a nominal generating capacity of approximately 350 megawatts (MW) and up to 117 average MW of energy located in Umatilla County, Oregon. The Project comprises up to 116 wind turbine generators, depending on the turbine model selected and the final layout determined during the micro-siting process. If larger turbines are selected, fewer turbines will be installed. The Project will interconnect to the regional grid via either a transmission line leading from the northern Project substation northwest to Cottonwood Substation in Hermiston, or a new 230-kilovolt transmission line to the proposed Bonneville Power Administration Stanfield Substation, north of the town of Nolin. Other Project components include electrical collection lines, substations, site access roads, one operations and maintenance building, meteorological data collection towers, and temporary construction yards. These facilities are all described in greater detail in Exhibit B. This exhibit contains information about the location of the Project under Oregon Administrative Rules (OAR) 345-021-0010(1)(c).

2.0 General Location – OAR 345-021-0010(1)(c)(A)

OAR 345-021-0010(1)(c) Information about the location of the proposed facility, including:

OAR 345-021-0010(1)(c)(A) A map or maps showing the proposed locations of the energy facility site, all related or supporting facility sites and all areas that might be temporarily disturbed during construction of the facility in relation to major roads, water bodies, cities and towns, important landmarks and topographic features, using a scale of 1 inch = 2000 feet or smaller when necessary to show detail;

The Project is entirely in northwestern Umatilla County, Oregon, as shown on the following maps:

- Figure C-1 is a vicinity map showing county and state boundaries, major roads, communities, and other recognizable features within approximately 40 miles of the Project.
- Figure C-2 is a facility location map depicting the proposed Site Boundary in relation to nearby major roads, water bodies, cities and towns, county boundaries, land ownership categories, and other geographic features.
- Figure C-3 shows other energy generation facilities that are known to be operating or proposed within 10 miles of the proposed Site Boundary.
- Figure C-4 provides site layout detail maps for Turbine Option 1, which consists of up to 58 Siemens-Gamesa 6.0-MW turbines. Figures include large-scale maps (Figures C-4.1 through C-4.38) showing the proposed micro-siting corridor and wind turbine configuration, including the locations of related or supporting facilities.

- Figure C-5 provides site layout detail maps for Turbine Option 2, which consists of up to 116 General Electric (GE) 3.03-MW turbines. Figures include large-scale maps (Figures C-5.1 through C-5.38) showing the proposed micrositing corridor and wind turbine configuration, including the locations of related or supporting facilities.

Although Figures C-4 and C-5 show turbine locations, the intent of this application is to permit the micrositing corridors within the Site Boundary. Therefore, the turbine locations as shown should be considered conceptual in nature and representative of a constructible design. These turbine locations are used for impact calculation purposes only, and are subject to change at the time of construction, with impacts less than or equal to the impacts presented in the Application for Site Certificate (ASC).

3.0 Location and Disturbance Areas – OAR 345-021-0010(1)(c)(B)

OAR 345-021-0010(1)(c)(B) A description of the location of the proposed energy facility site, the proposed site of each related or supporting facility and areas of temporary disturbance, including the total land area (in acres) within the proposed site boundary, the total area of permanent disturbance, and the total area of temporary disturbance. If a proposed pipeline or transmission line is to follow an existing road, pipeline or transmission line, the applicant must state to which side of the existing road, pipeline or transmission line the proposed facility will run, to the extent this is known;

The proposed Site Boundary encompasses a total of approximately 48,077 acres of privately-owned land. Table C-1 identifies the Public Land Survey System sections in which the Site Boundary is located.

Table C-1. Location of Site Boundary by Township, Range, and Section

Township	Range	Section
1N	29E	1, 2, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, 27, 34, 35, 36
1N	30E	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34
2N	28E	1, 12
2N	29E	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 26, 35, 36
2N	30E	2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36
3N	27E	1
3N	28E	5, 6, 8, 7, 17, 19, 20, 23, 24, 25, 26, 27, 28, 29, 30, 36
3N	29E	19, 25, 30, 31, 35, 36
4N	27E	25, 26
4N	28E	30, 31

As noted in Exhibit B, a micro-siting corridor is established within the Site Boundary. Project facilities will be constructed within the micro-siting corridor. This approach allows some flexibility with specific component locations and design in response to site-specific conditions and engineering requirements that will be determined prior to construction. The micro-siting corridor includes approximately 13,868 acres.

As described in Exhibit B, in order to allow flexibility in the choice of wind turbines available at the time of construction, this ASC analyzes impacts for two turbine models that represent a range of alternative turbine technologies. For each of the two turbine models, a sample layout, including related or supporting facilities, has been prepared to represent maximum potential impacts. Turbine Option 1 utilizes up to 58 Siemens-Gamesa 6.0-MW turbines, along with the related or supporting facilities needed to support energy generation and transmission. Turbine Option 2 utilizes up to 116 GE 3.03-MW turbines, along with their corresponding related or supporting facilities. The final layout will have 58 to 116 turbines, with any combination of turbines within the size and characteristics described herein. The total number of turbines will not exceed 116, and the total wind generation capacity will not exceed 350 MW. Analyzing impacts for two turbine types allows for the representation of a range of turbine technologies that are currently available.

Table C-2 presents assumptions regarding disturbance areas related to the Project. These assumptions were used to calculate areas of temporary and permanent disturbance for Turbine Option 1 and Turbine Option 2, as presented in Attachment C-1 and Attachment C-2, respectively.

Table C-2. Disturbance Assumptions

Disturbance Type	Temporary Disturbance	Permanent Disturbance
Wind Turbines	6.5 acres per turbine based on a 600-foot-diameter circle, subtracting the permanent disturbance area. Includes a temporary laydown area at each turbine location.	5,274 square feet per turbine, based on a 82-foot-diameter circle; includes graveled area of pad, transformer, foundation, and graveled area for each tower.
Overhead 34.5-kilovolt (kV) Collector Lines	35-foot corridor for vehicle traffic and laydown along the full extent of the overhead collector lines, subtracting the overlapping permanent road disturbance area.	3-foot-diameter footprint per pole; monopole structures spaced approximately 225 feet apart.
Underground 34.5-kV Collector Lines	35-foot corridor per collector line (with overlap merged for adjacent lines) for trench width, vehicle traffic, and laydown along the full extent of the underground collector line route, subtracting overlapping permanent road disturbance area.	No permanent disturbance.
230-kV Project Substation Connector Line	108-foot corridor for vehicle traffic and laydown along the full length of route, and 0.75 acres per pulling and tensioning area.	4-foot-diameter footprint per pole, two poles per structure (H-frame configuration) spaced approximately 600 feet apart.

Disturbance Type	Temporary Disturbance	Permanent Disturbance
230-kV Umatilla Electric Cooperative Cottonwood Transmission Line Route	12-foot corridor for vehicle traffic and laydown along the full length of route.	5-foot diameter footprint per pole with small percentage 10-foot diameter footprint (average 21 square feet per pole); monopole structures spaced approximately 600 feet apart.
230-kV Bonneville Power Administration Stanfield Transmission Line Route	108-foot corridor for vehicle traffic and laydown along the full length of route.	4-foot diameter footprint per pole, two poles per structure (H-frame configuration) spaced approximately 600 feet apart.
Meteorological Towers	154,750 square-feet per tower, subtracting the permanent tower disturbance area.	1,764 square-feet per tower, includes an approximately 24- by 24-foot foundation with surrounding graveled area extending approximately 18 feet beyond the edge of the foundation, for a total 42- by 42-foot permanent area.
Existing Access Roads to Be Improved	66-foot disturbance width, consisting of an 82-foot corridor, less the width of the existing road (assumed 16-foot width).	No permanent disturbance.
New Access Roads	66-foot disturbance width, consisting of an 82-foot corridor, less the 16-foot width of the permanent road disturbance.	16-foot corridor along the full length of all new access roads.
Crane Paths	75-foot corridor for crane paths not co-located with new or existing access roads; where adjacent to access roads, subtracted overlapping permanent road disturbance.	No permanent disturbance.
Substations	50-foot buffer width from edge of permanent impact area of each substation.	10.5 acres for the northern substation and 5.9 acres for the southern substation, as designed, for maximum potential permanent disturbance.
Construction Yards	1 central construction staging area (includes batch plant); 11 small distributed staging areas; all other temporary laydown areas adjacent to turbine locations or included in temporary impact corridors.	No permanent disturbance.
O&M (Operations and Maintenance) Building	50-foot buffer width from edge of permanent impact area of the O&M Building.	7.6-acre fenced enclosure.

The individual component impact areas (for roads, laydown areas, towers, etc.) were calculated using preliminary design data, and represent the Applicant's best estimate of preliminary impacts for each component. However, the individual component impacts do not sum to the totals shown at the bottom of each table in Attachment C-1 and Attachment C-2. This is because many of the individual component impact areas will overlap; simply summing the component impact areas would indicate greater impacts than would actually occur. Instead, the totals were calculated using consolidated data, with areas of overlap eliminated, to estimate total temporary and permanent impact areas. As a result, Turbine Option 1 will temporarily impact approximately 1,302 acres and permanently impact approximately 87 acres. Turbine Option 2 will temporarily impact approximately 1,821 acres and permanently impact approximately 123 acres (Attachments C-1 and C-2).

4.0 Relation to Other Energy Generation Facilities – OAR 345-021-0010(1)(c)(C)

OAR 345-021-0010(1)(c)(C) For energy generation facilities, a map showing the approximate locations of any other energy generation facilities that are known to the applicant to be permitted at the state or local level within the study area as defined in OAR 345-001-0010 for impacts to public services.

Figure C-3 shows the location of the Project in relation to other energy generation facilities that are known to the Applicant to be permitted or proposed at the state or local level within 10 miles of the Site Boundary. Based on the level of detail available in current data, Figure C-3 includes energy generation facilities currently operating and proposed; proposed facilities may include some that are already permitted, and others under state or local review. Within 10 miles of the Site Boundary, there are four operating wind farms: the Combine Hills, Echo, Stateline, and Vansycle Ridge wind energy facilities. In addition, the Wheatridge Wind Energy Facility is currently under construction in Morrow County. Other currently operating energy facilities in the study area include two hydropower plant and two natural gas plants, as well as several in-service transmission lines. Additional proposed facilities within the study area include two hydropower projects, four natural gas projects, eight solar projects, and three proposed transmission lines (Figure C-3). Figure C-3 also shows facilities identified outside of the 10-mile study area.

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Figures

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Nolin Hills Wind Power Project

Figure C-1 Vicinity Map

UMATILLA COUNTY, OREGON

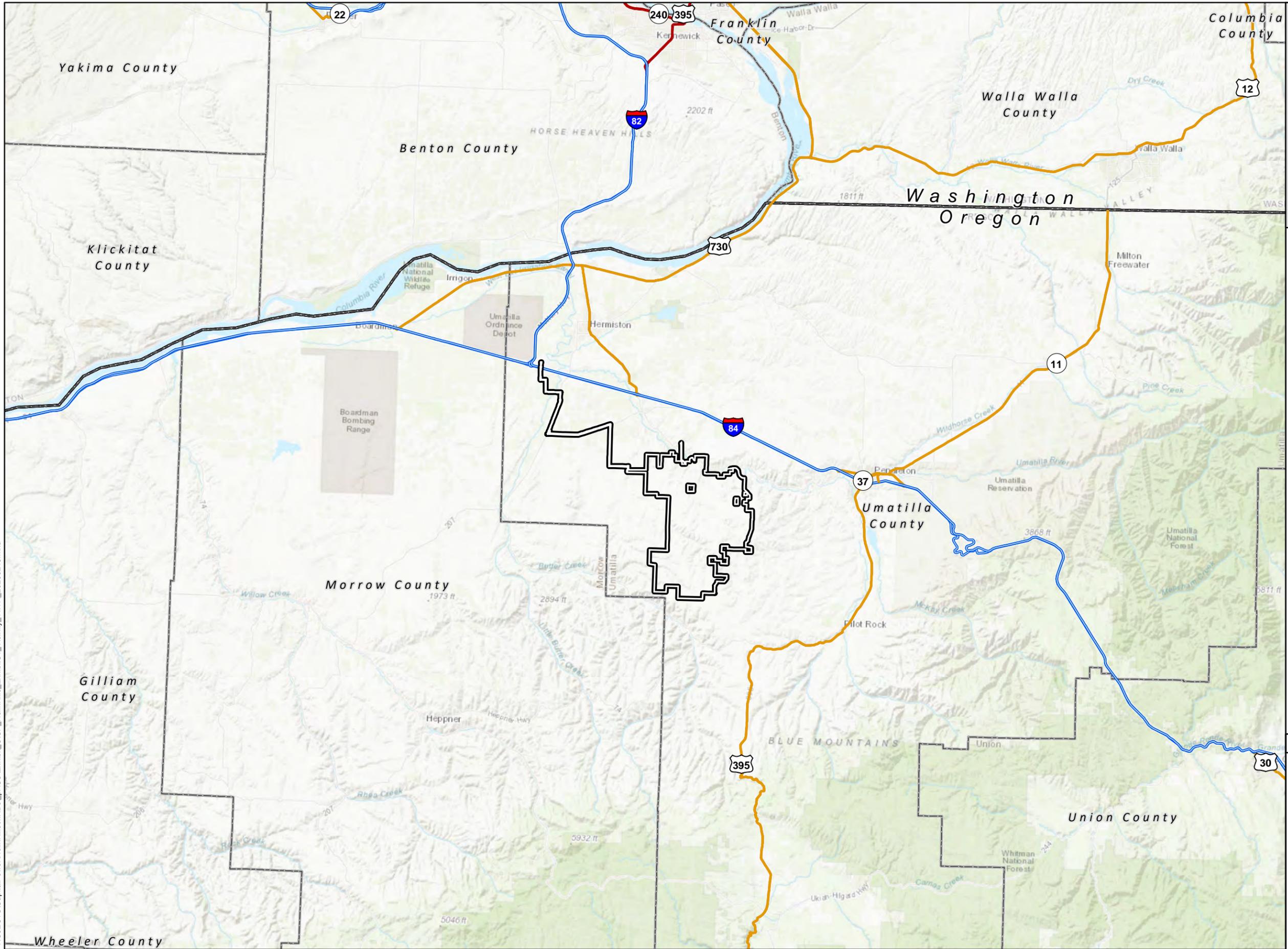
-  Proposed Site Boundary
-  Interstate Highway
-  Primary Highway
-  Secondary Highway
-  State Boundary
-  County Boundary



Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads,
State, County boundaries



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Nolin Hills Wind Power Project

Figure C-2 Facility Location

UMATILLA COUNTY, OREGON

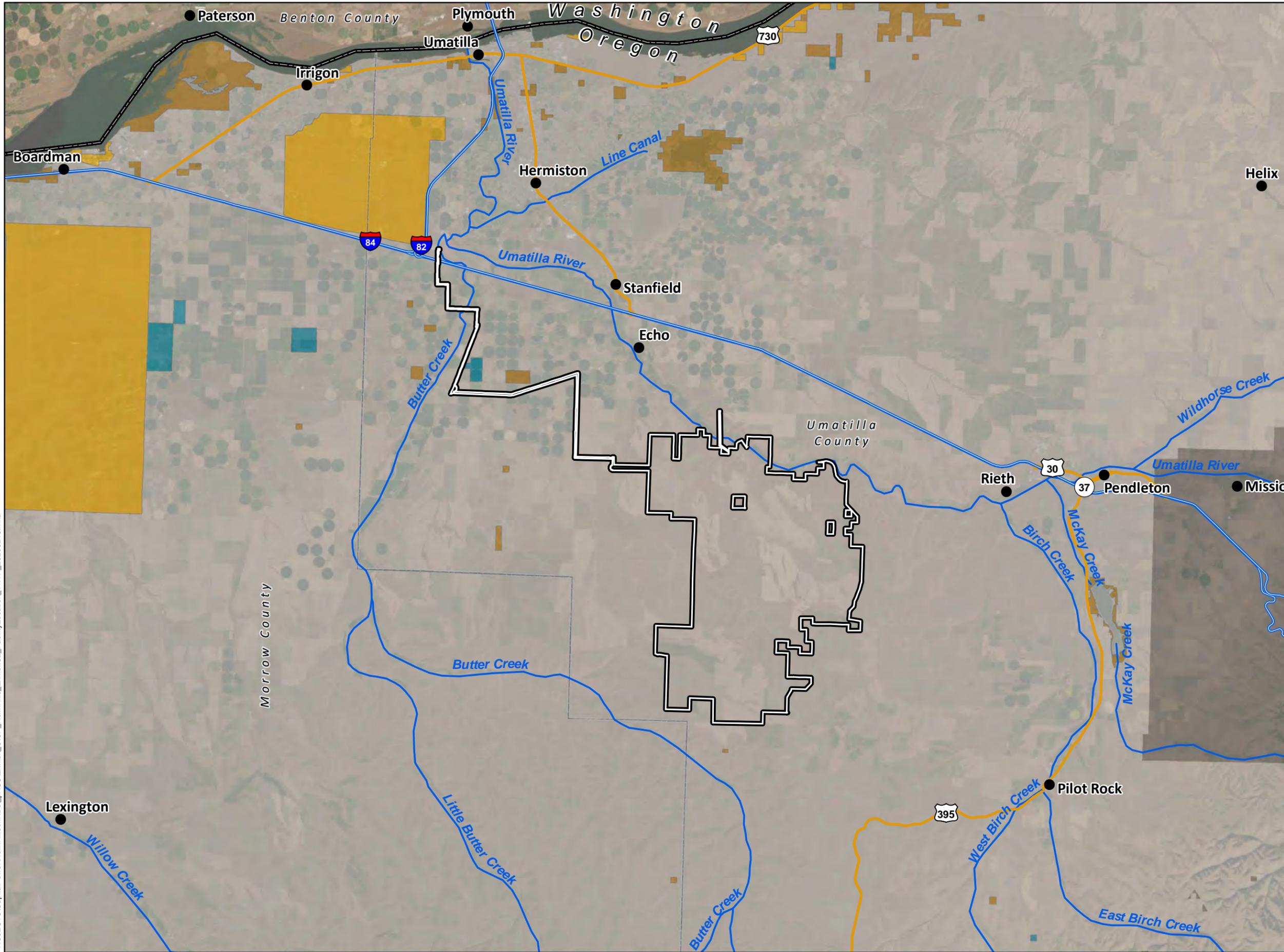
-  Proposed Site Boundary
-  River/Stream
-  City/Town
-  Interstate Highway
-  Secondary Highway
-  State Boundary
-  County Boundary
- Land Ownership
 -  Bureau of Indian Affairs
 -  Bureau of Land Management
 -  Department of Defense
 -  Private
 -  State



Data Sources

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

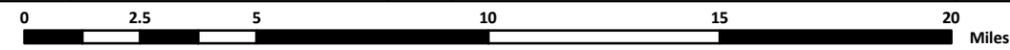
Reference Map



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NOT FOR CONSTRUCTION

Nolin Hills Wind Power Project

Figure C-3
Energy Facilities
within 10 Miles

UMATILLA COUNTY, OREGON

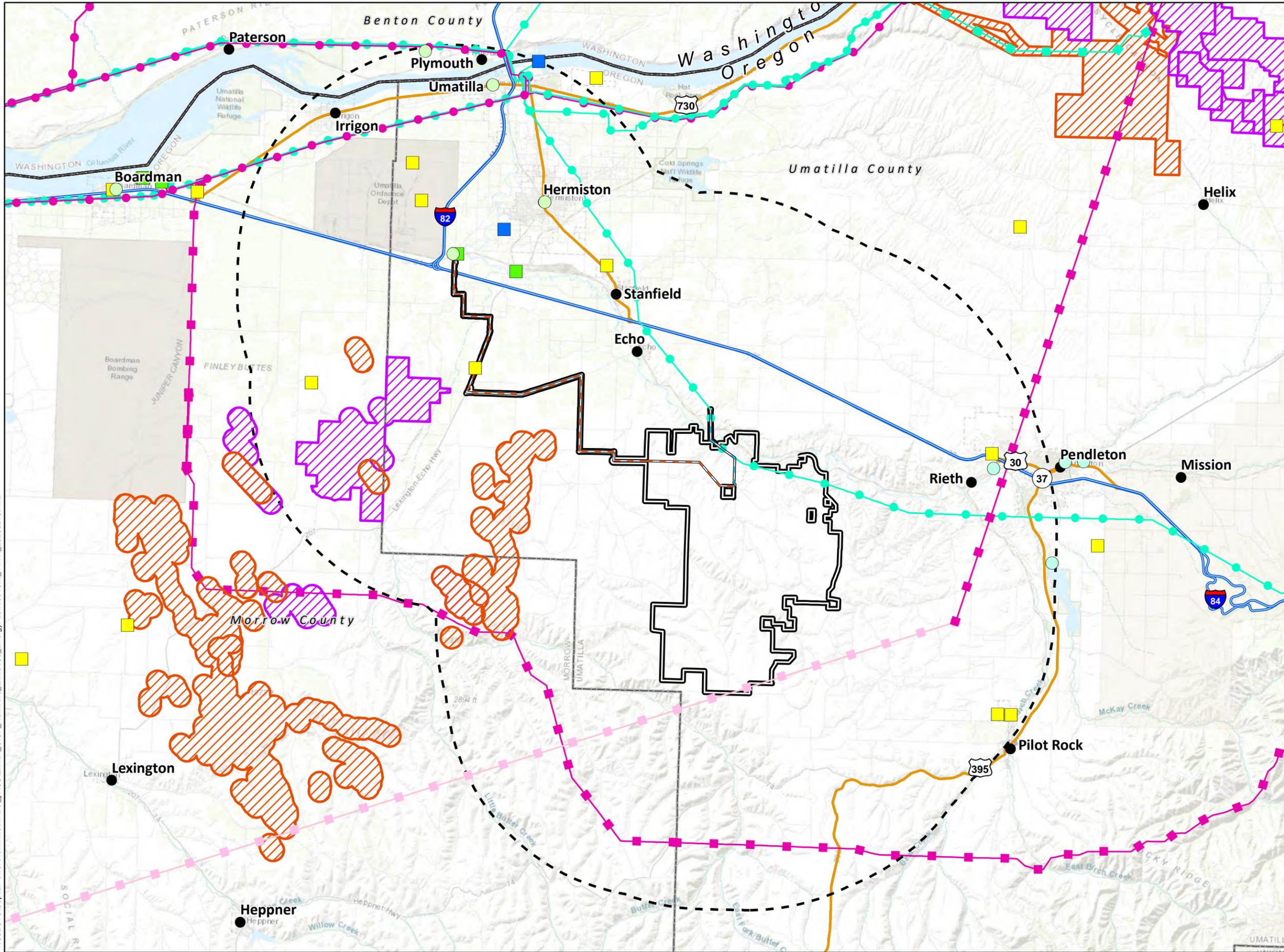
-  Proposed Site Boundary
-  Analysis Area (10-mile Buffer)
-  Proposed BPA Stanfield Transmission Line Route
-  Proposed UEC Transmission Line Route
-  Interstate Highway
-  Secondary Highway
-  State Boundary
-  County Boundary
- Transmission Line Status, kV Class**
-  In Service, 230-345
-  In Service, 500
-  Proposed, 230-345
-  Proposed, 500
-  Proposed, DC Line
- Electrical Generating Plant**
-  Hydro (Proposed)
-  Hydro (Operating)
-  Natural Gas (Proposed)
-  Natural Gas (Operating)
-  Solar (Proposed)
-  Wind (In Development)
-  Wind (Operating)



Data Sources

Capital Power-Project Infrastructure;
ESRI-Roads; Energy Info: Ventyx

Reference Map



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Nolin Hills Wind Power Project

Figure C-4
Turbine Option 1
Layout Overview

UMATILLA COUNTY, OREGON

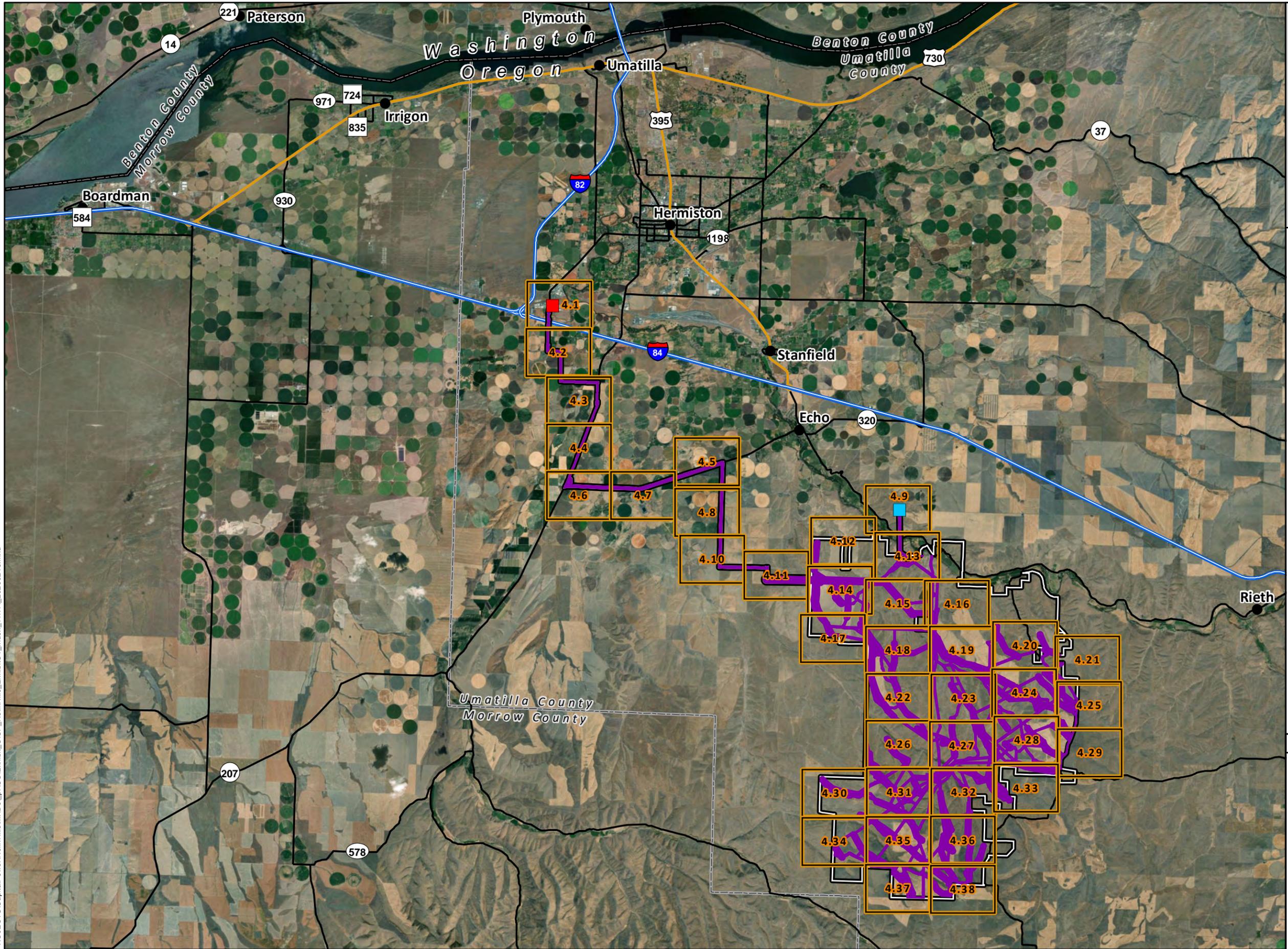
-  Map Grid
-  Proposed Site Boundary
-  Micrositing Corridor
-  Planned BPA Stanfield Substation
-  UEC Cottonwood Substation
-  City/Town
-  Interstate Highway
-  Secondary Highway
-  Secondary Road
-  State Boundary
-  County Boundary



Data Sources

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

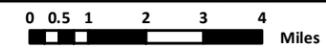
Reference Map



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Nolin Hills Wind Power Project

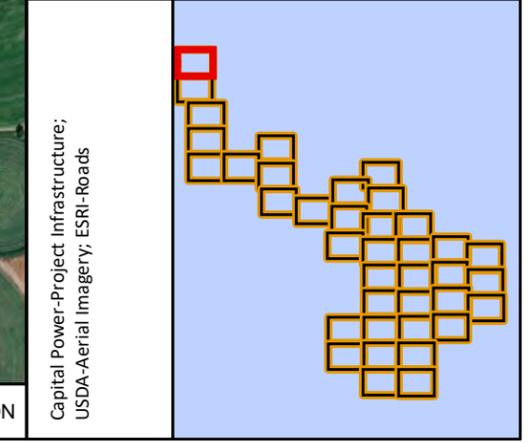
Figure C-4.1
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  UEC Cottonwood Substation
-  Interstate Highway
-  Secondary Road



Data Sources Reference Map

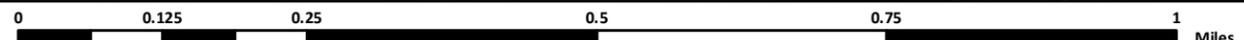


Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

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Nolin Hills Wind Power Project

Figure C-4.2
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

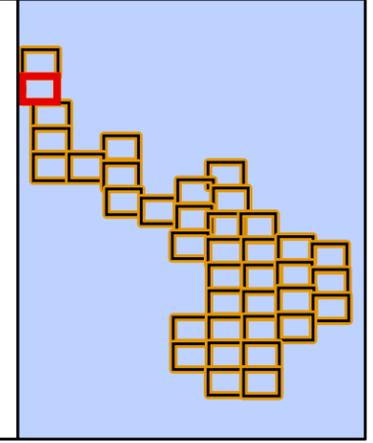
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Interstate Highway



Data Sources

Reference Map

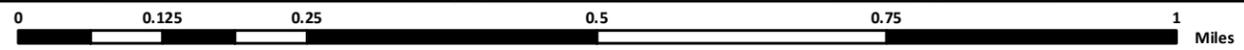
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.3
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

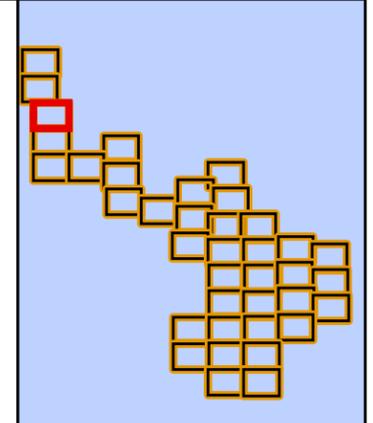
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

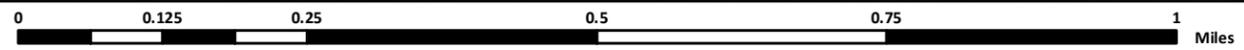
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.4
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

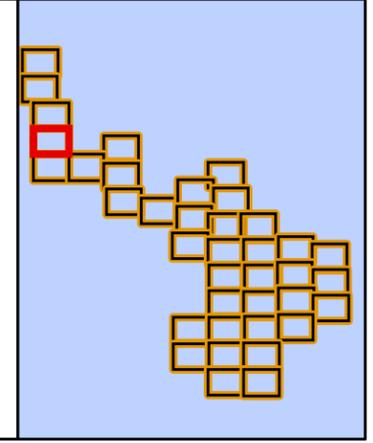
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

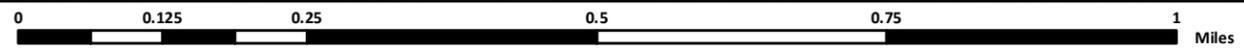
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.5
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

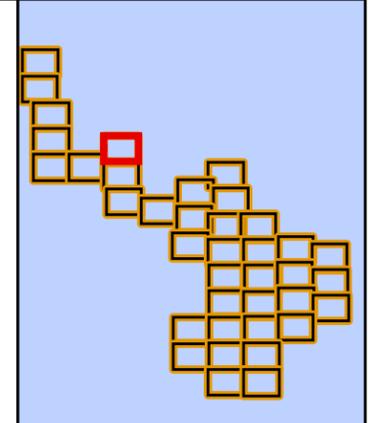
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

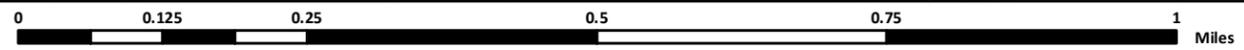
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

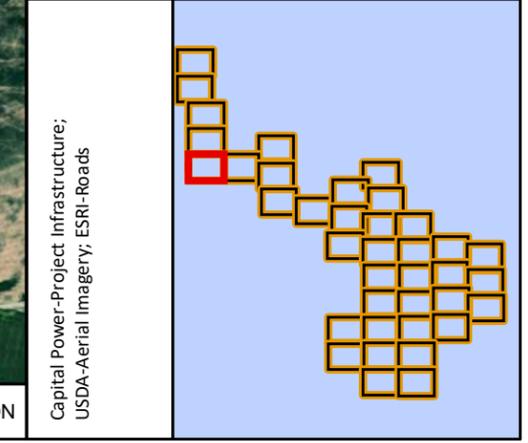
Figure C-4.6
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources Reference Map



Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

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Nolin Hills Wind Power Project

Figure C-4.7
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

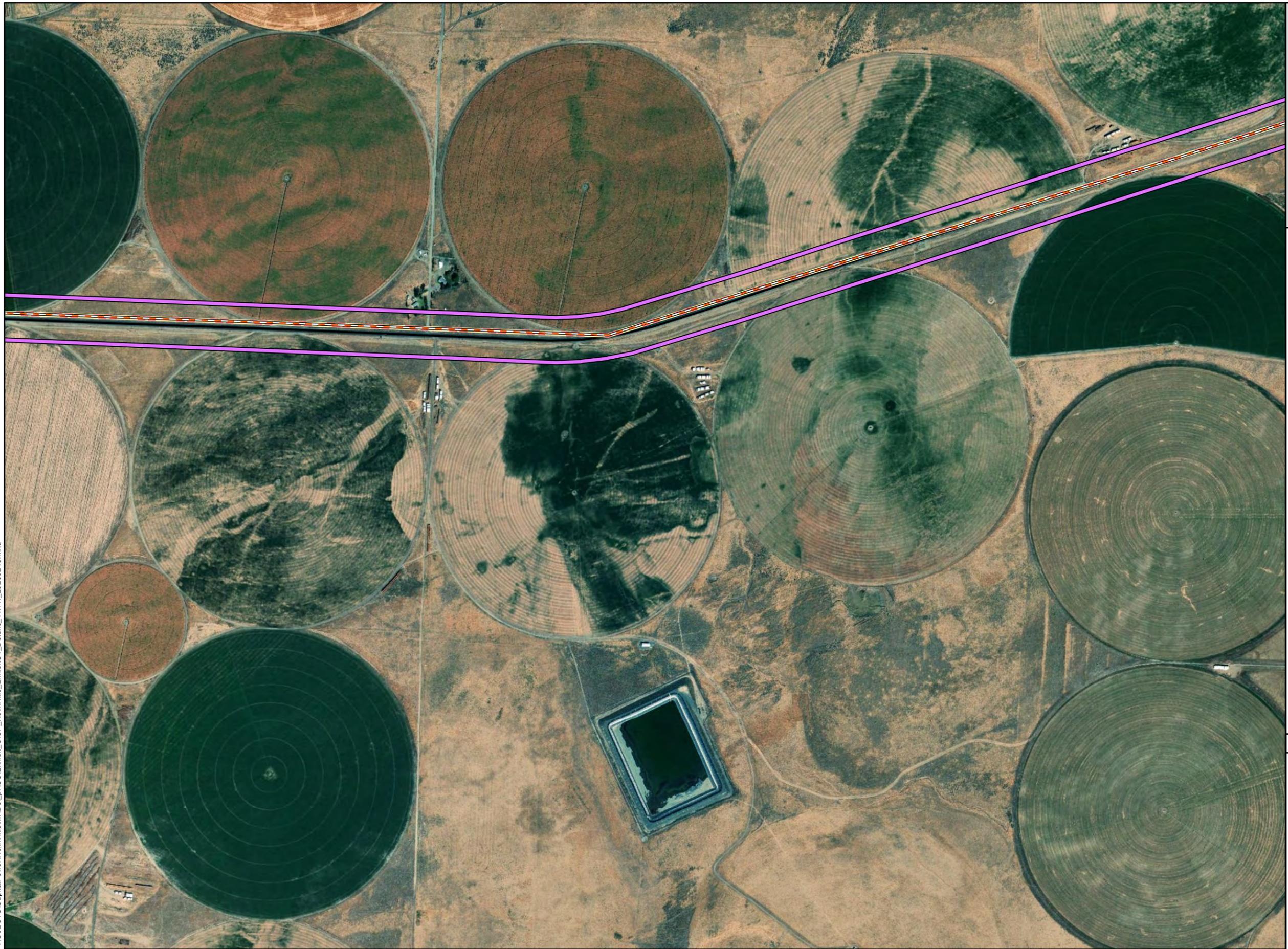
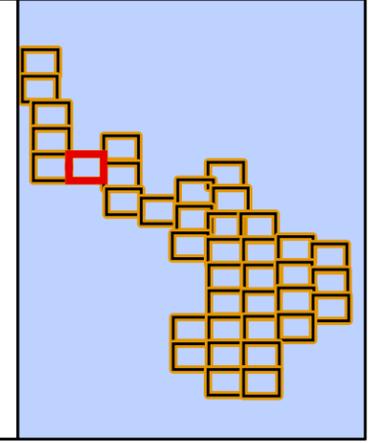
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



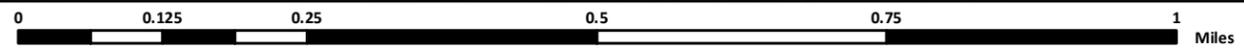
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

**Figure C-4.8
Turbine Option 1
Layout Detail Mapbook**

UMATILLA COUNTY, OREGON

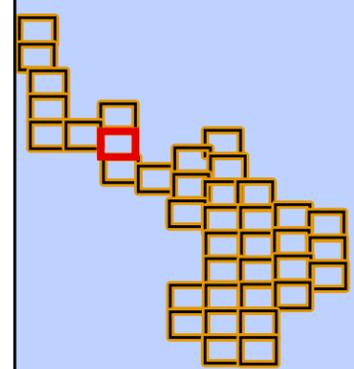
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-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



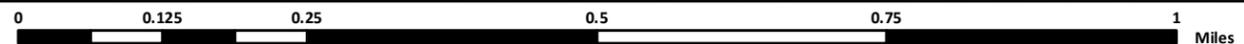
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

**Figure C-4.9
Turbine Option 1
Layout Detail Mapbook**

UMATILLA COUNTY, OREGON

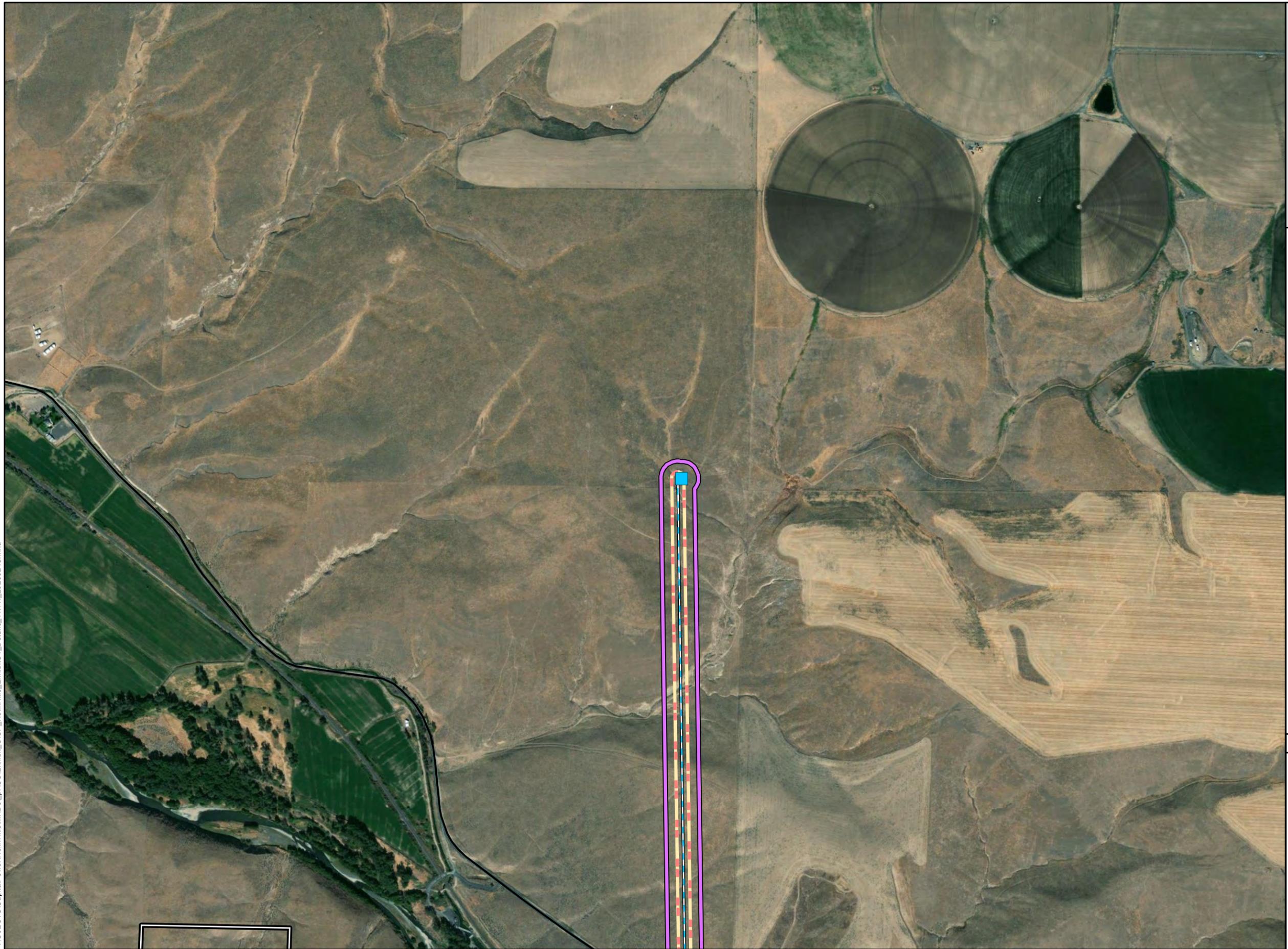
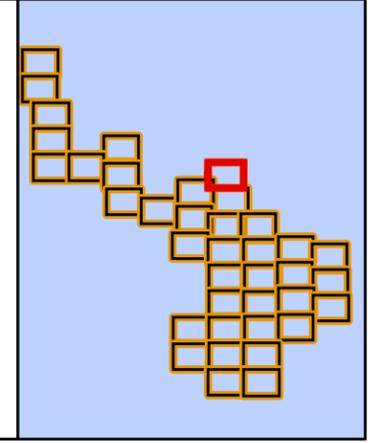
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed BPA Stanfield
Transmission Line Route, 230-kV
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Planned BPA Stanfield Substation
-  Secondary Road



Data Sources

Reference Map

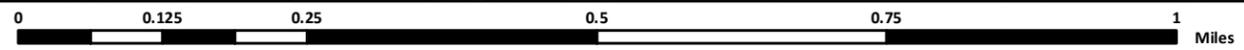
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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NOT FOR CONSTRUCTION

Nolin Hills Wind Power Project

Figure C-4.10 Turbine Option 1 Layout Detail Mapbook

UMATILLA COUNTY, OREGON

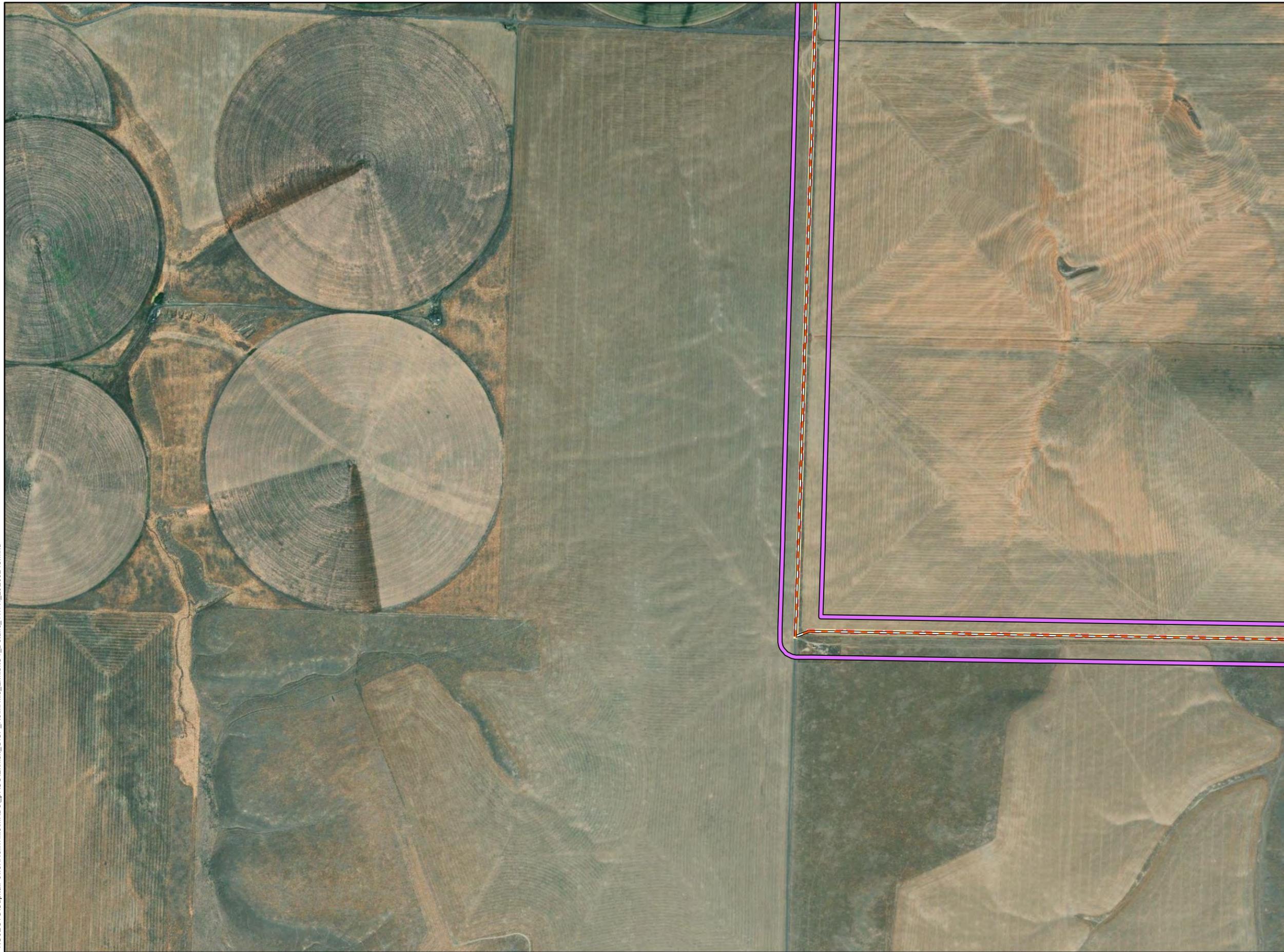
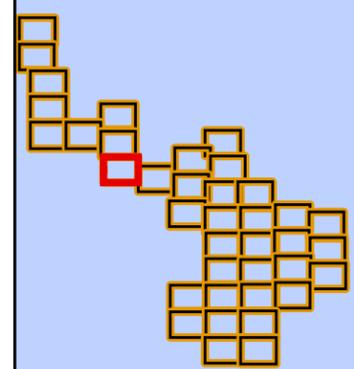
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



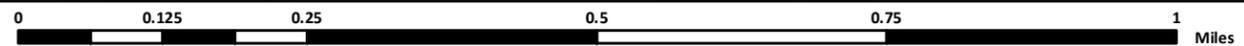
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.11
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

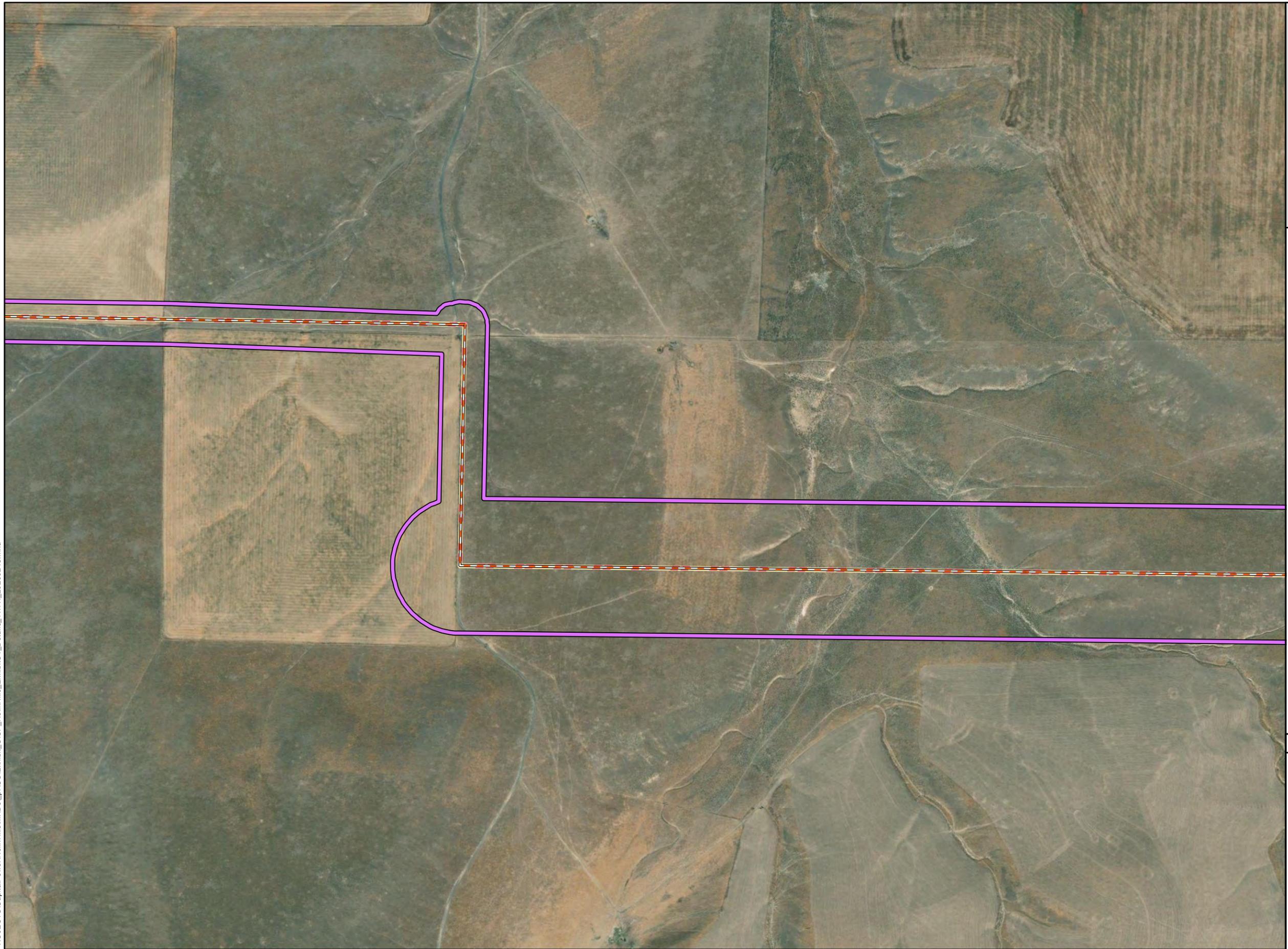
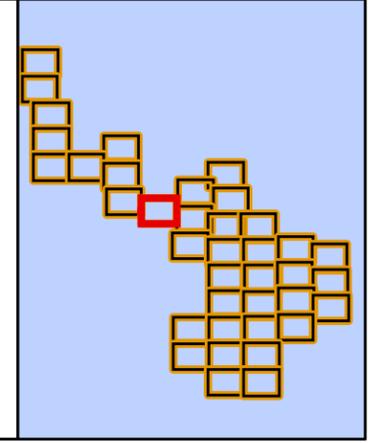
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
-  Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



Data Sources

Reference Map

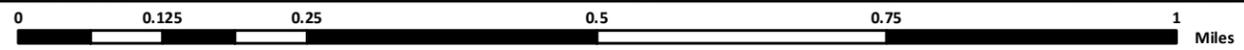
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.12 Turbine Option 1 Layout Detail Mapbook

UMATILLA COUNTY, OREGON

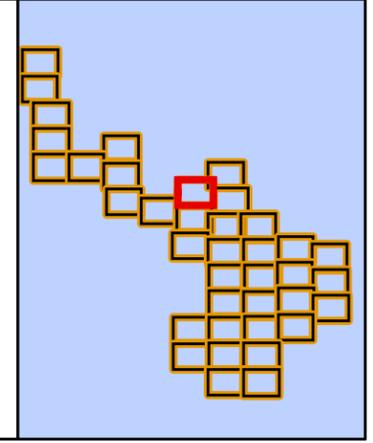
-  Proposed Site Boundary
-  Micrositing Corridor



Data Sources

Reference Map

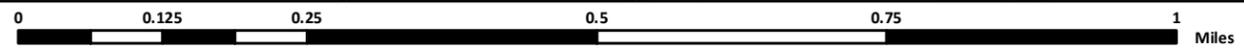
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.13
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

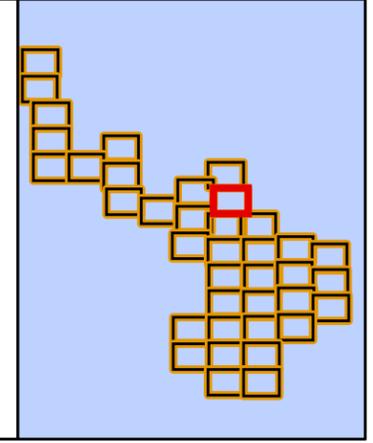
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed BPA Stanfield
Transmission Line Route, 230-kV
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

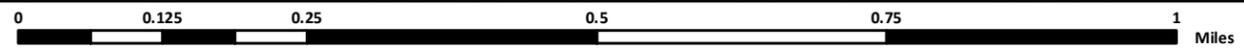
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.14 Turbine Option 1 Layout Detail Mapbook

UMATILLA COUNTY, OREGON

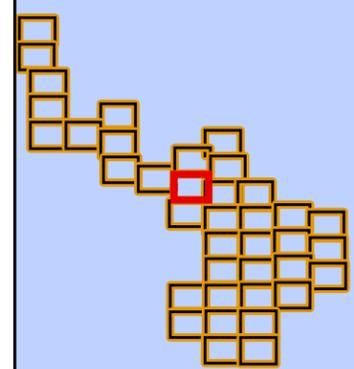
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



Data Sources

Reference Map

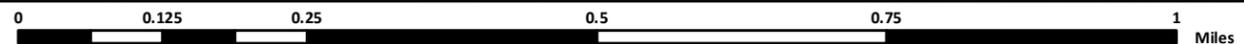
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.15
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

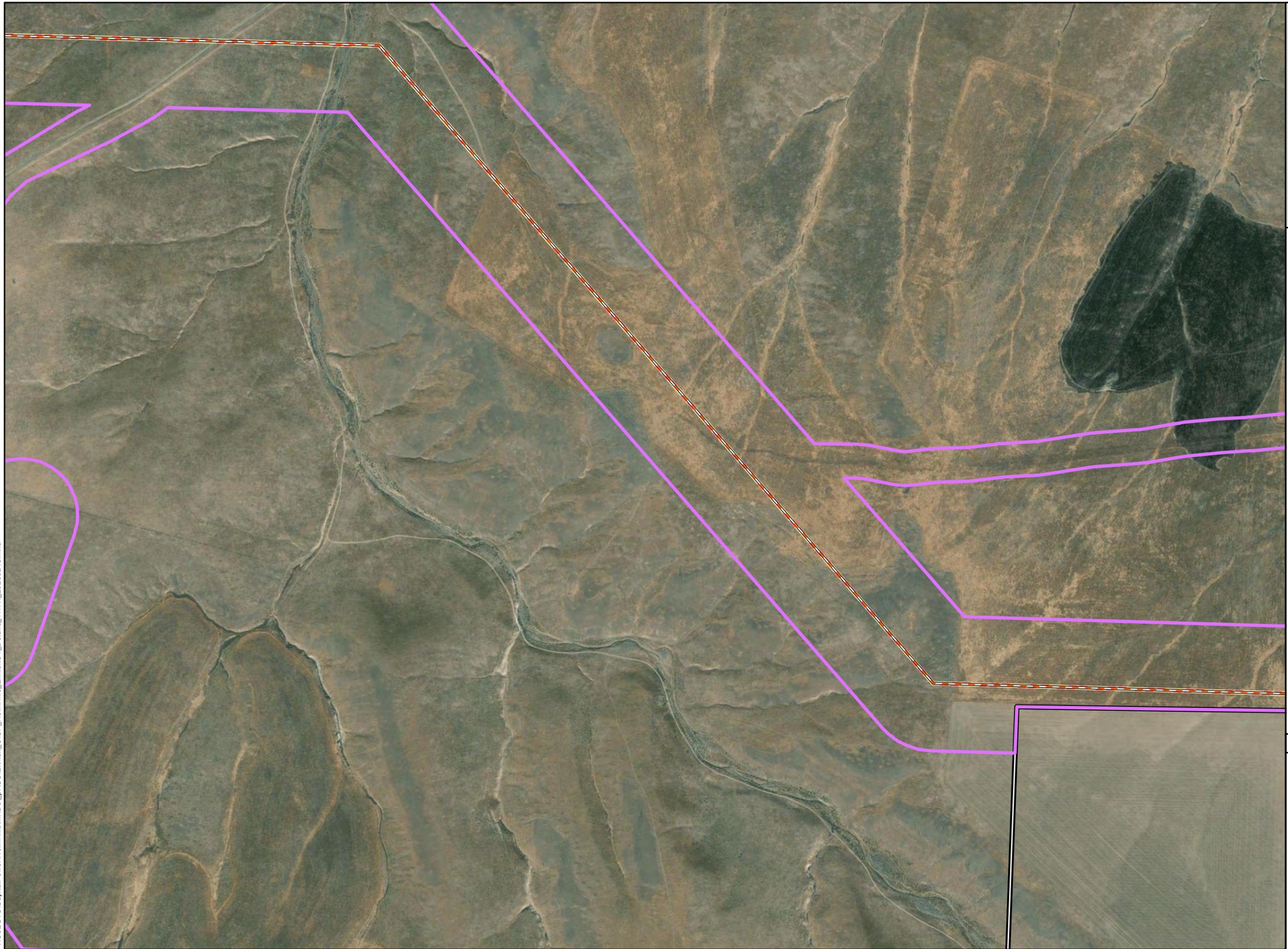
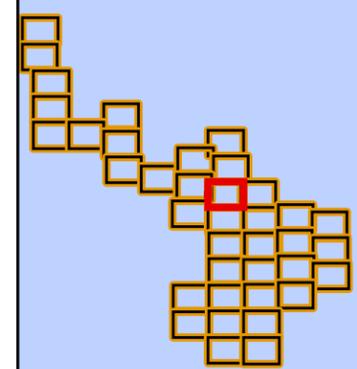
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



Data Sources

Reference Map

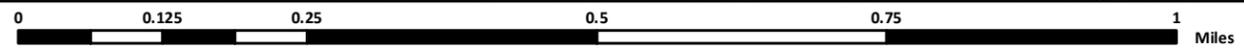
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.16
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

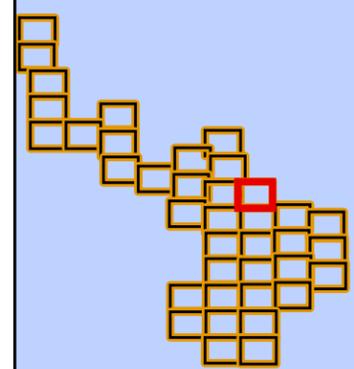
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed BPA Stanfield
Transmission Line Route, 230-kV
-  Proposed UEC
Transmission Line Route, 230-kV
-  Proposed Transportation Route
-  O&M Facility
-  Proposed Substation
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

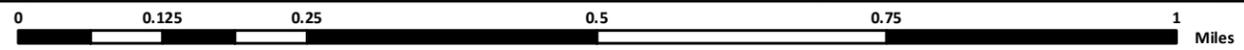
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Figure C-4.17
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

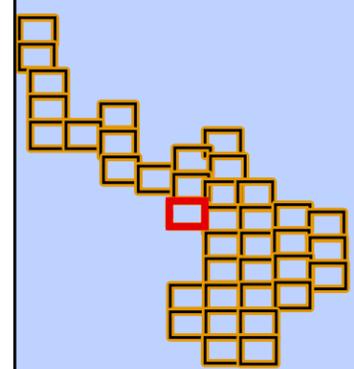
-  Proposed Site Boundary
-  Micrositing Corridor



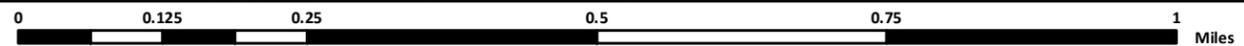
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.18 Turbine Option 1 Layout Detail Mapbook

UMATILLA COUNTY, OREGON

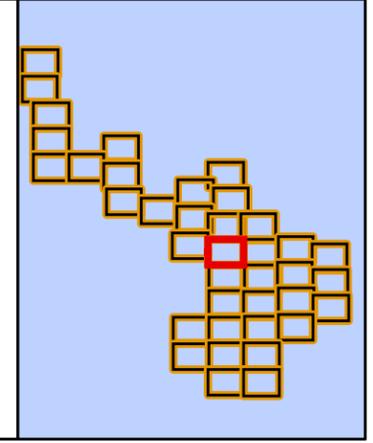
-  Proposed Site Boundary
-  Micrositing Corridor



Data Sources

Reference Map

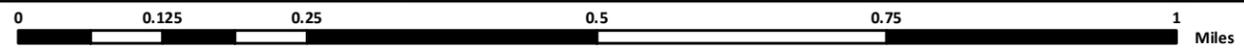
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.19
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

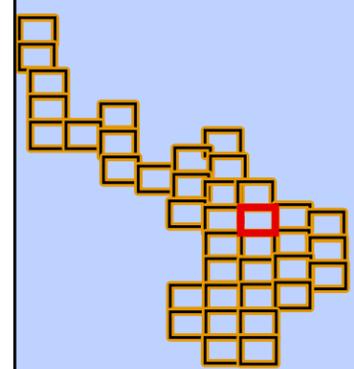
-  Proposed Site Boundary
-  Micrositing Corridor
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Proposed Project Substation Connector, 230-kV
-  Proposed Substation
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

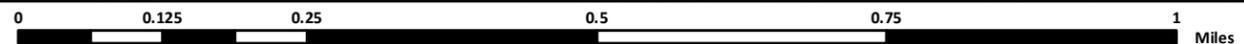
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.20
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

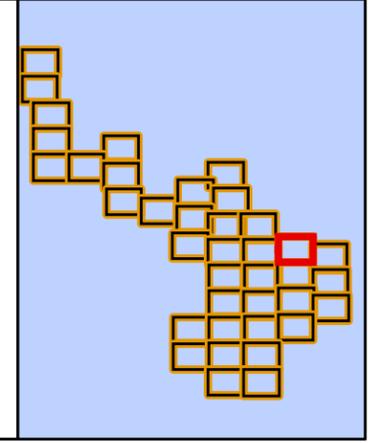
-  Proposed Site Boundary
-  Micrositing Corridor
-  Secondary Road



Data Sources

Reference Map

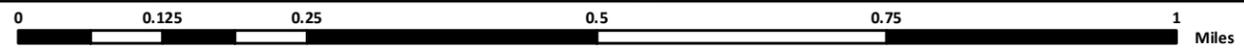
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.21 Turbine Option 1 Layout Detail Mapbook

UMATILLA COUNTY, OREGON

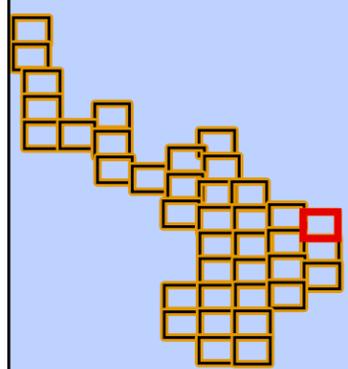
-  Proposed Site Boundary
-  Micrositing Corridor
-  Secondary Road



Data Sources

Reference Map

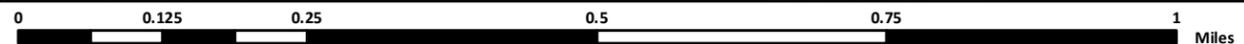
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.22
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

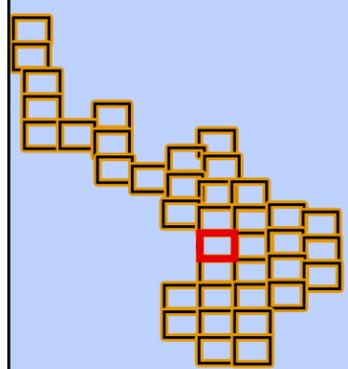
-  Proposed Site Boundary
-  Micrositing Corridor



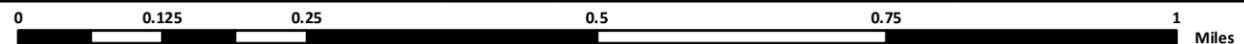
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.23
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

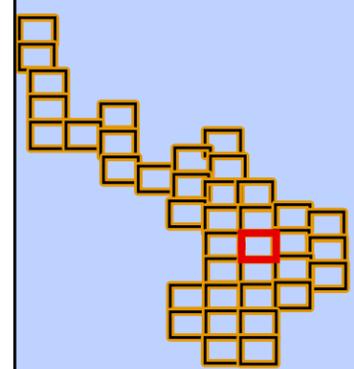
-  Proposed Site Boundary
-  Micrositing Corridor
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Proposed Project Substation Connector, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

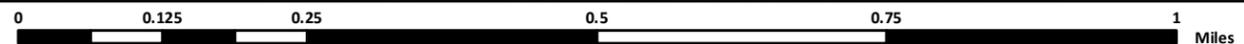
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

**Figure C-4.24
Turbine Option 1
Layout Detail Mapbook**

UMATILLA COUNTY, OREGON

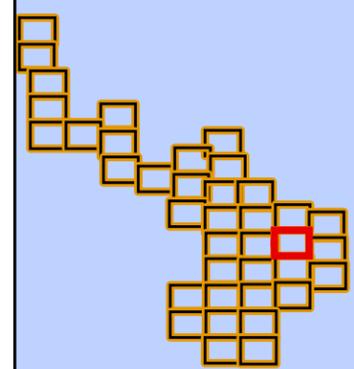
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

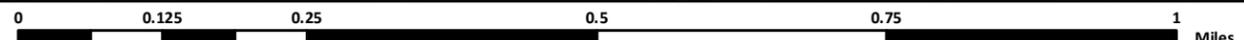
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



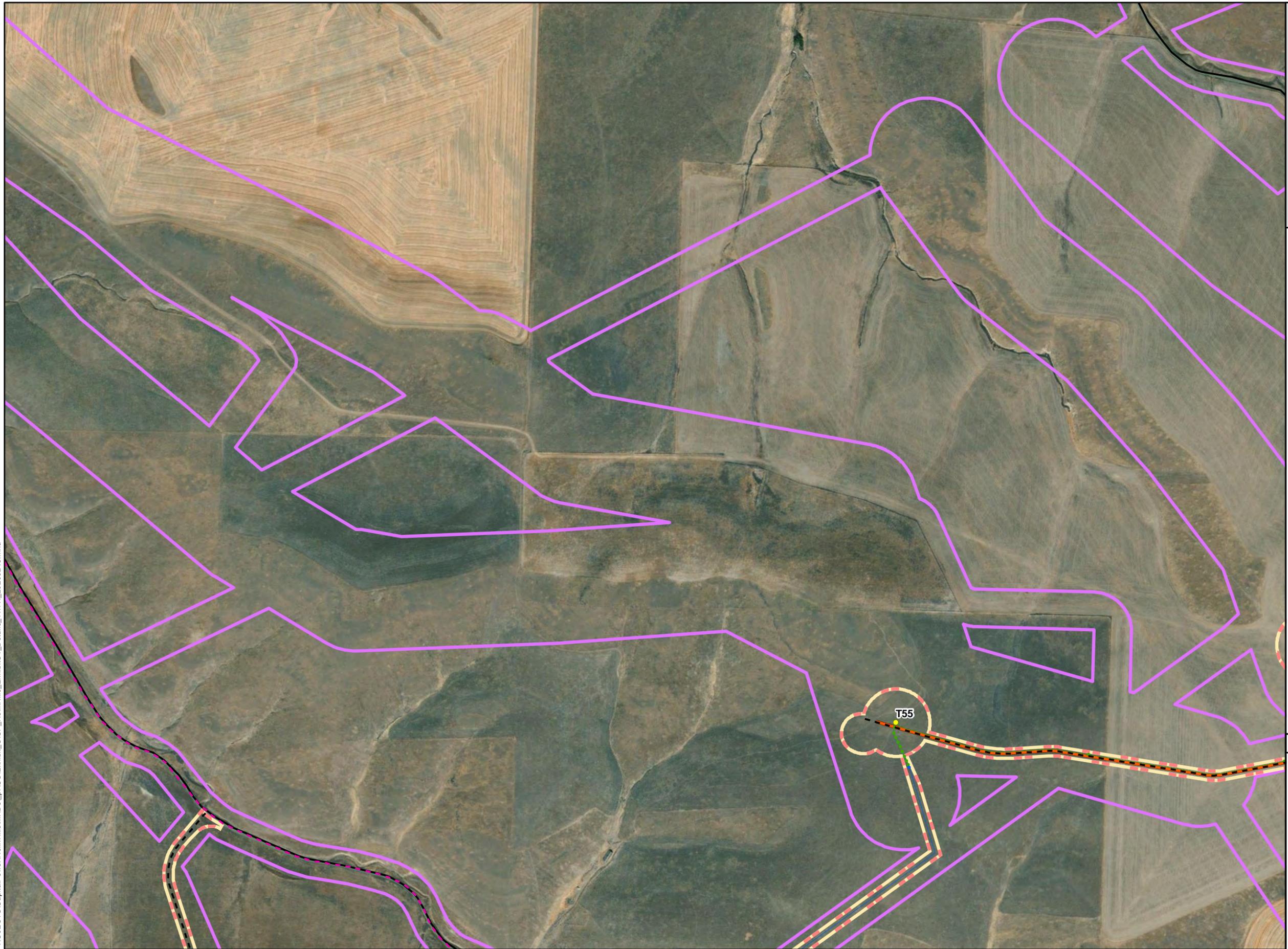
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Nolin Hills Wind Power Project

Figure C-4.25
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

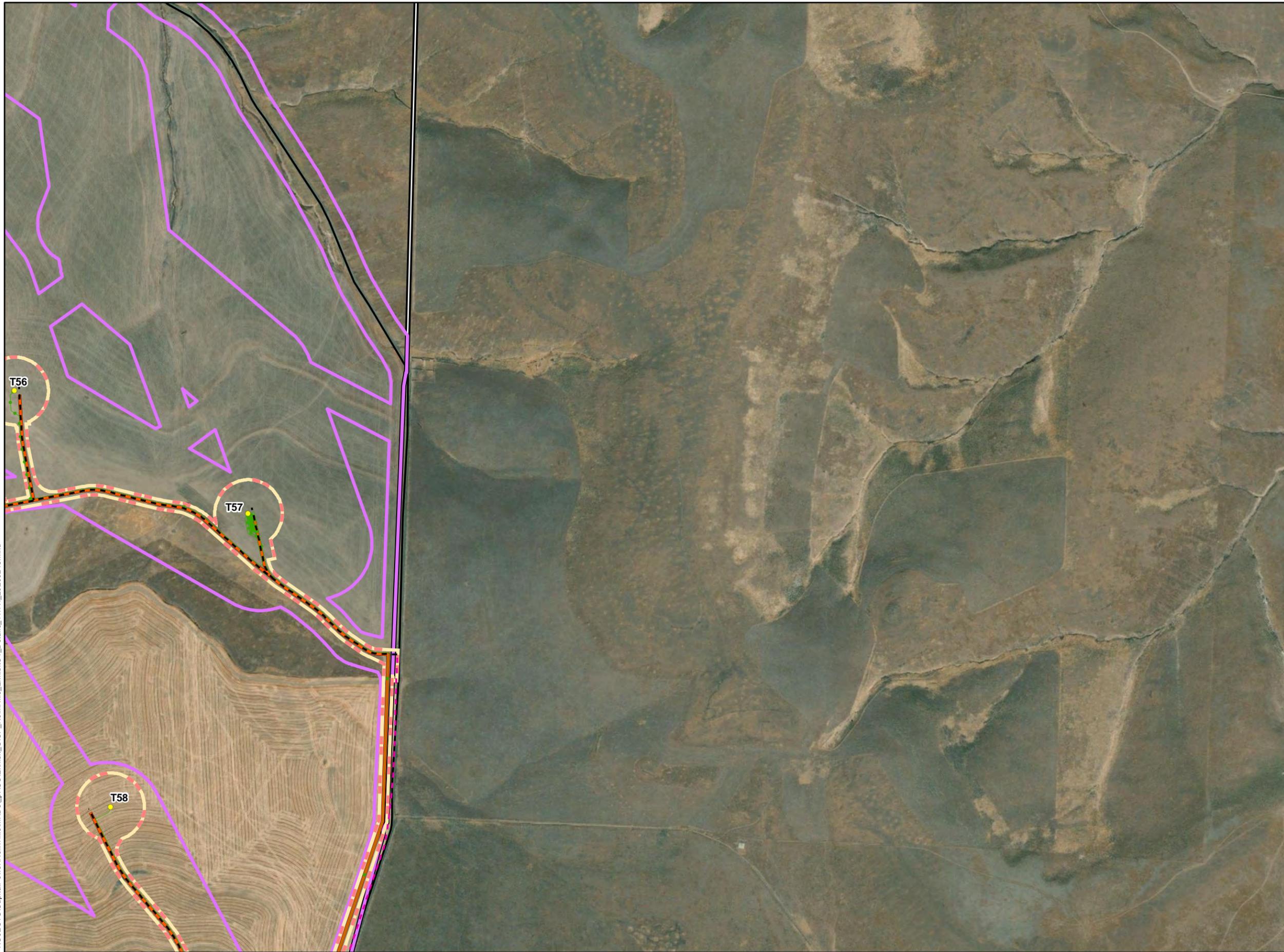
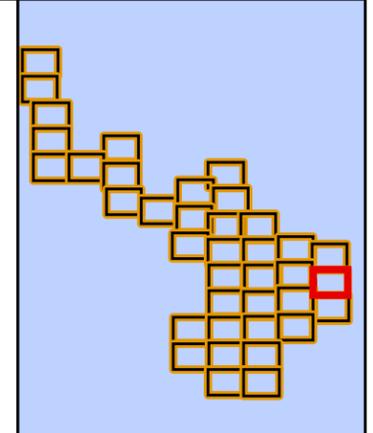
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

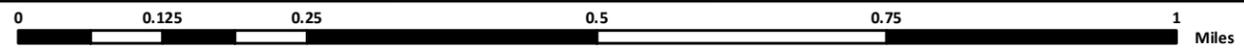
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.26
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

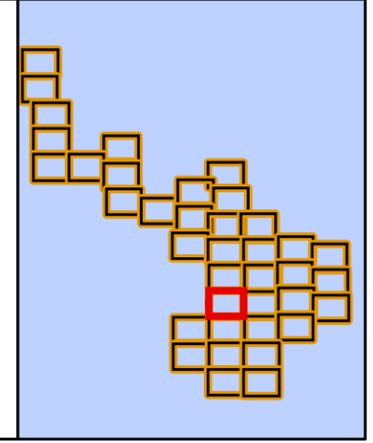
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



Data Sources

Reference Map

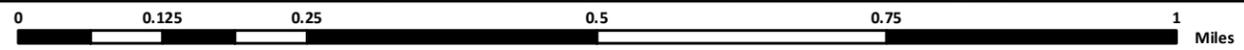
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.27
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

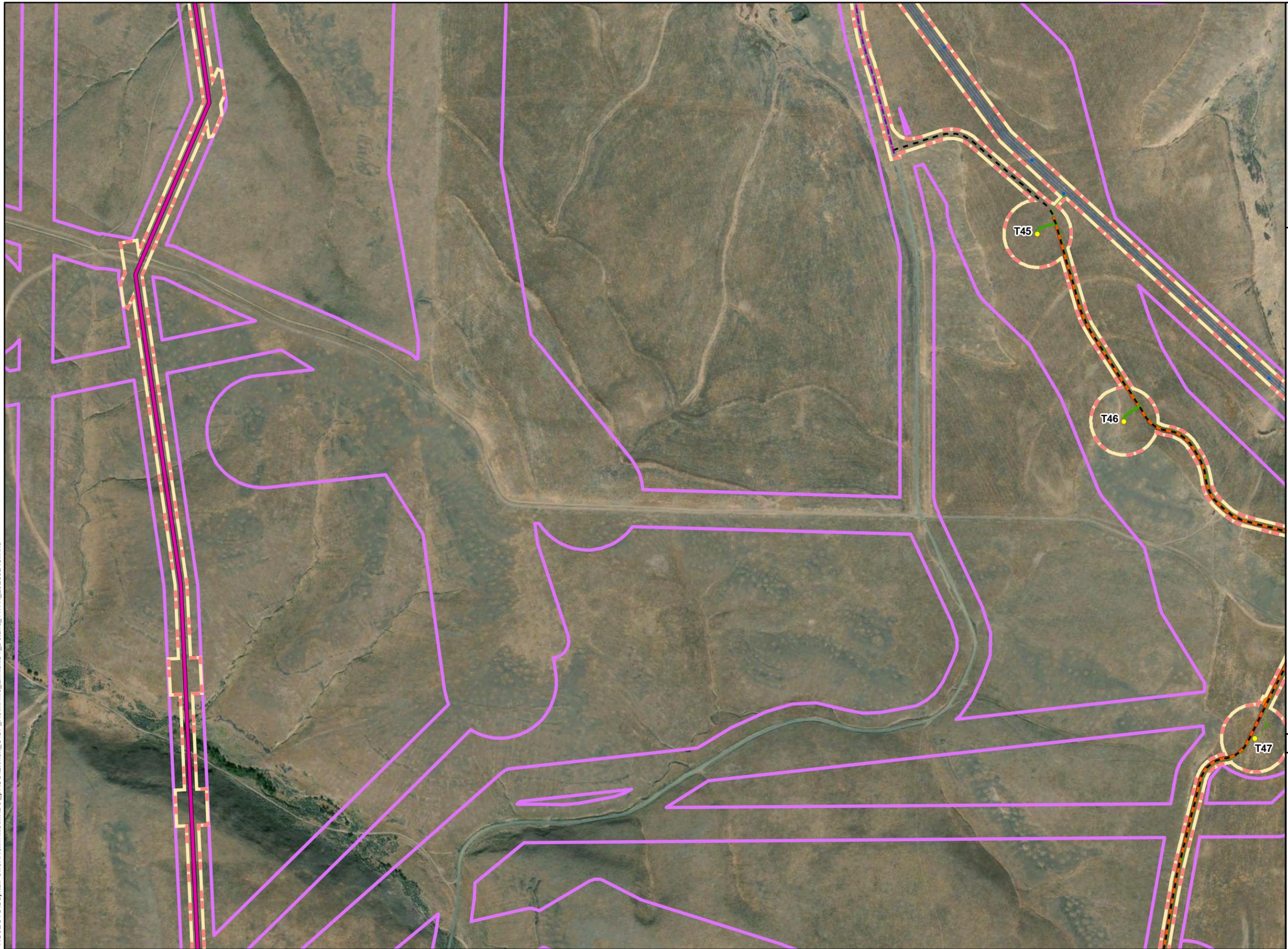
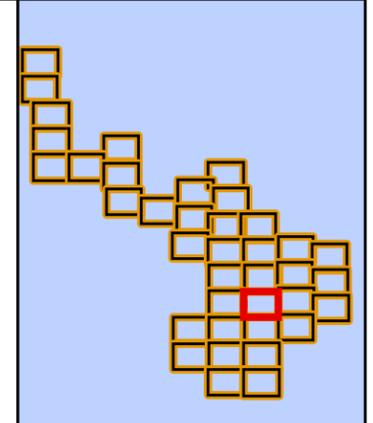
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Proposed Laydown Area
-  Limits of Temporary Disturbance



Data Sources

Reference Map

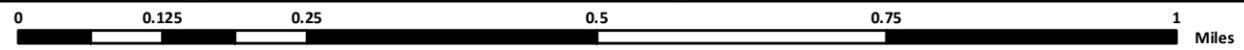
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.28
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

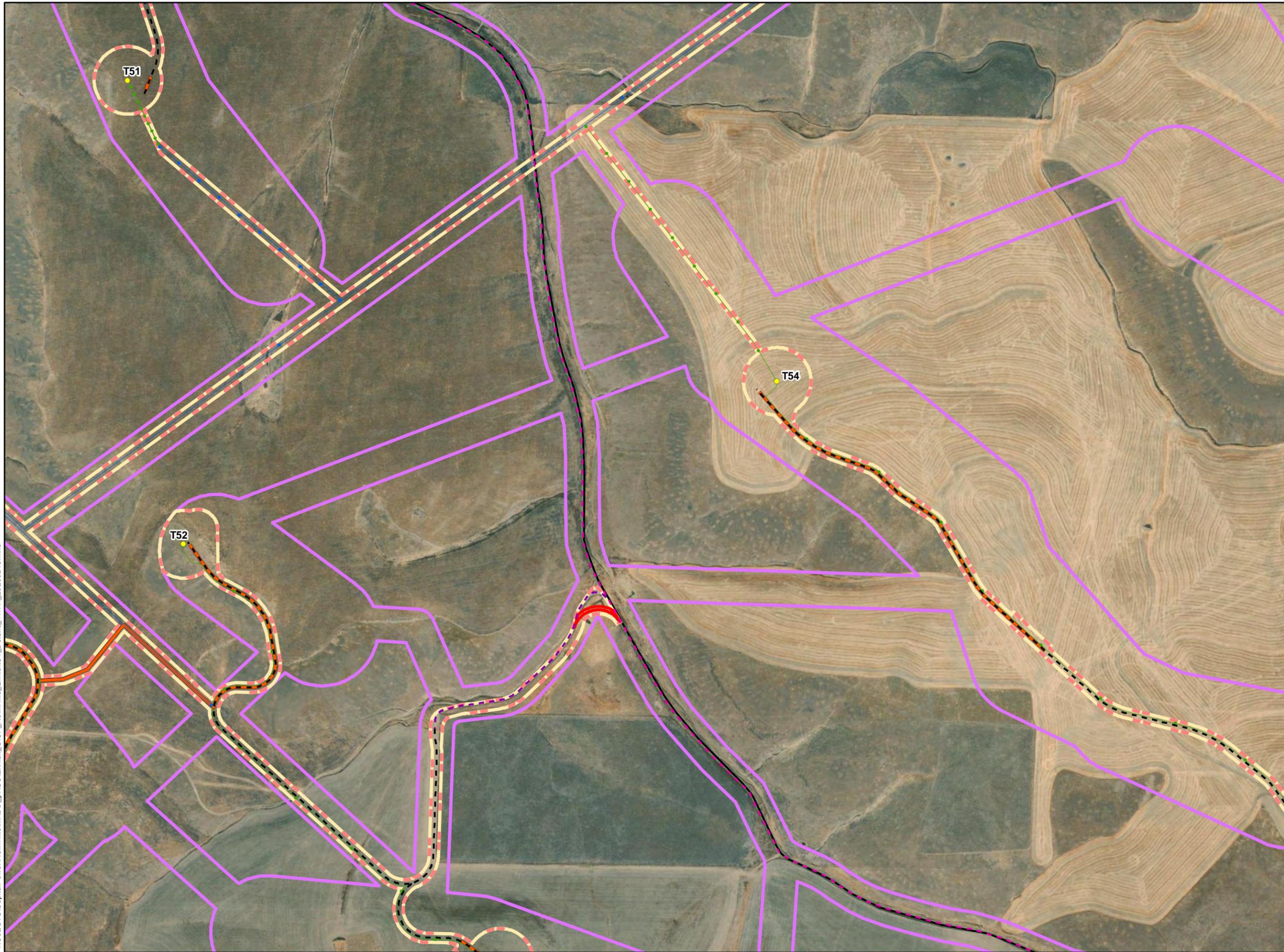
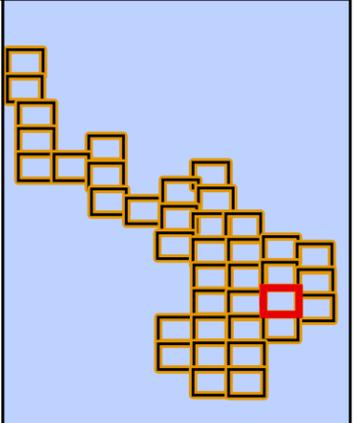
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Turning Radius Improvement
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

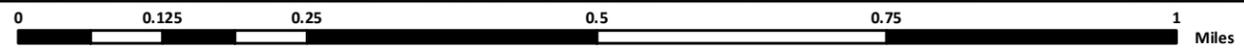
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

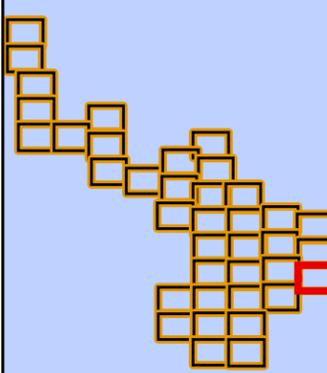
Figure C-4.29
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

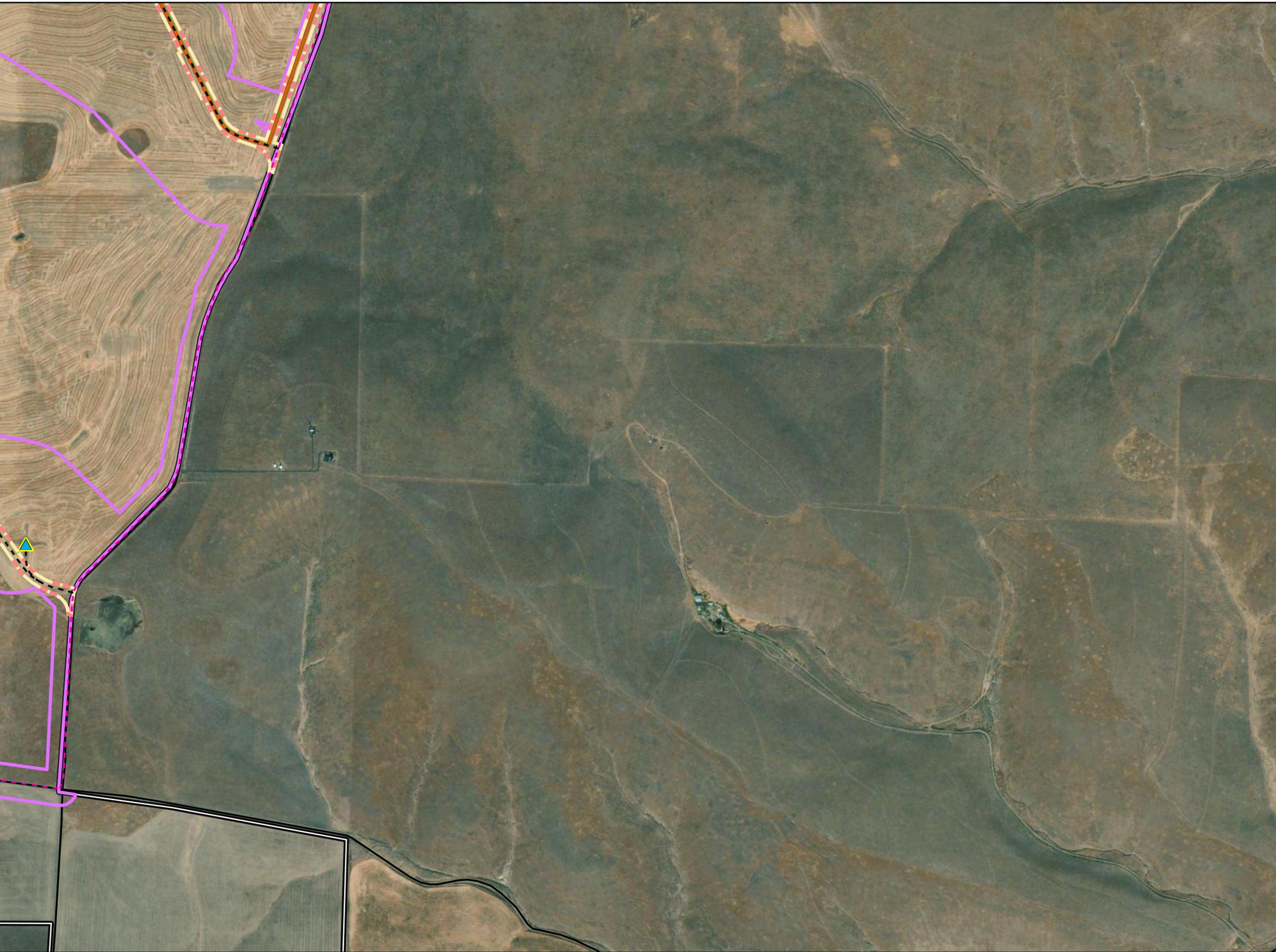
-  Proposed Site Boundary
-  Micrositing Corridor
-  Met Tower
-  Access Road (New)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources Reference Map

<p>Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads</p>	
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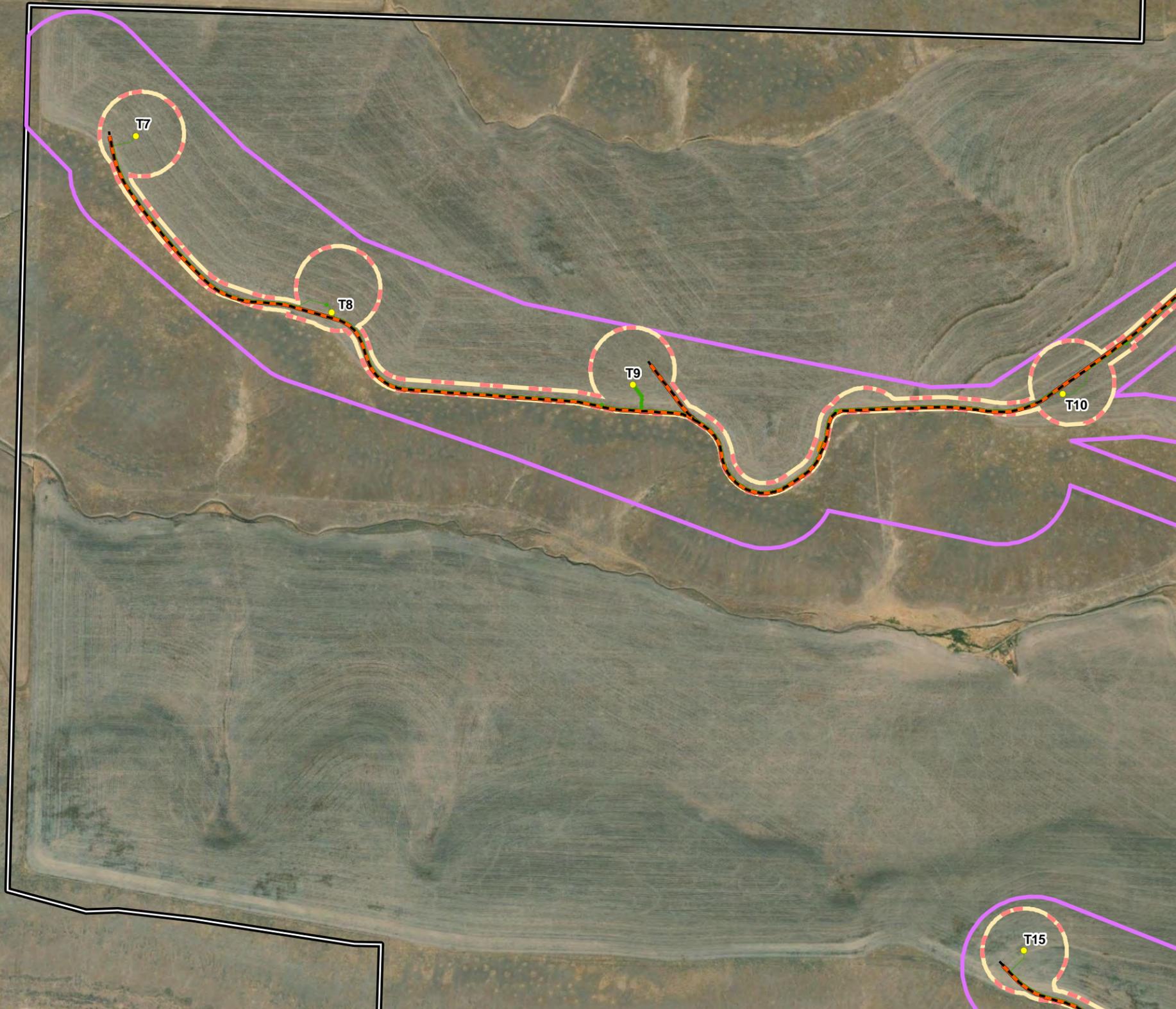


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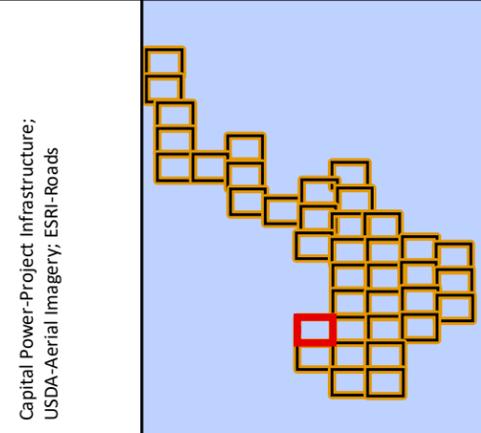
Figure C-4.30
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance



Data Sources Reference Map

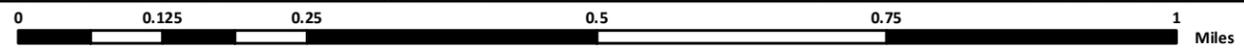


Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

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Nolin Hills Wind Power Project

Figure C-4.31
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

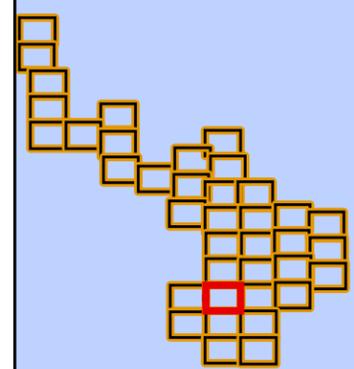
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Proposed Substation
-  Limits of Temporary Disturbance



Data Sources

Reference Map

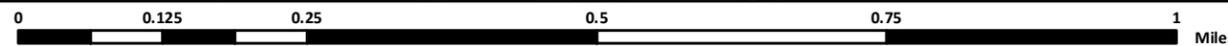
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.32
Turbine Option 1
Layout Detail Mapbook

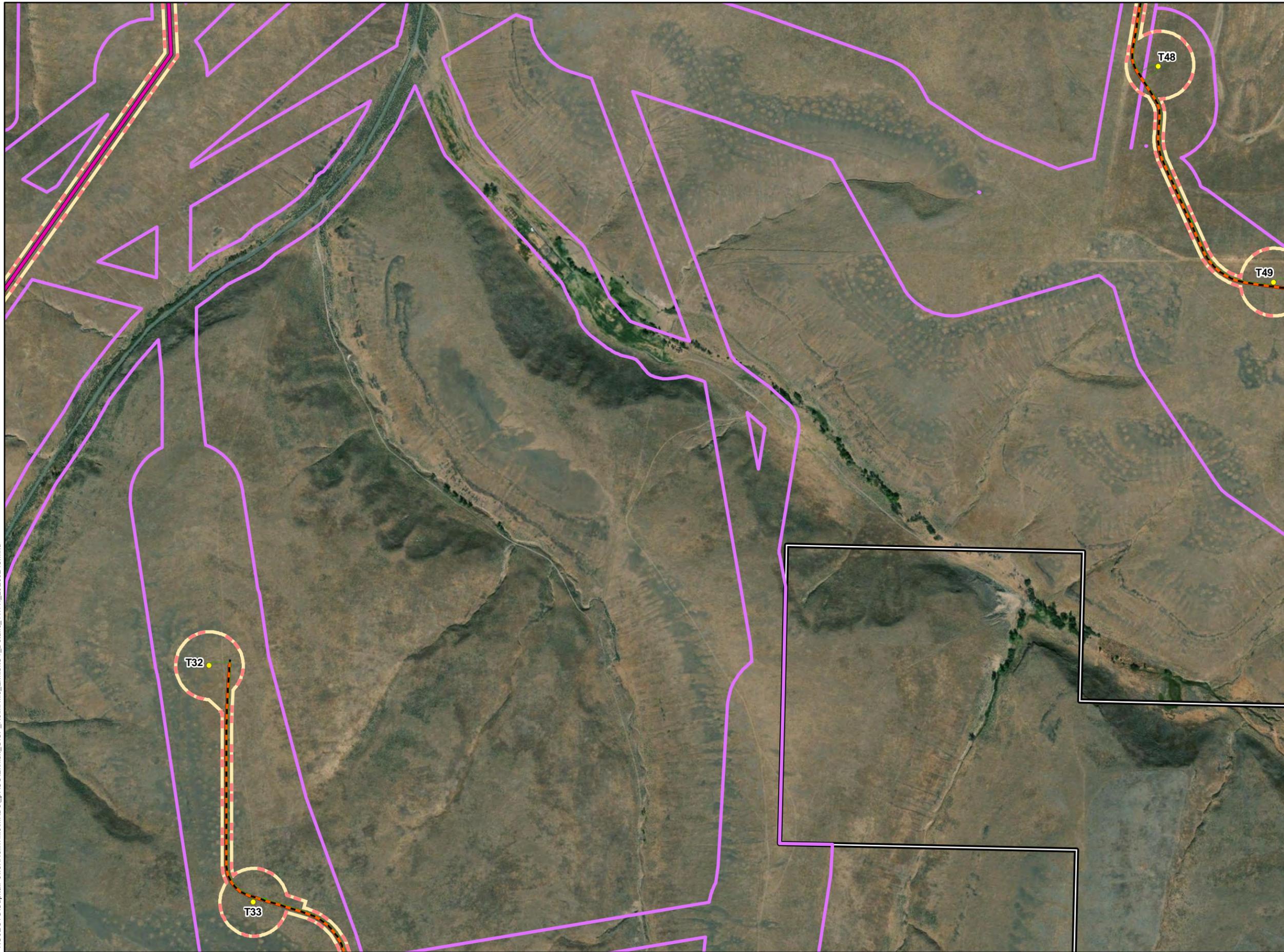
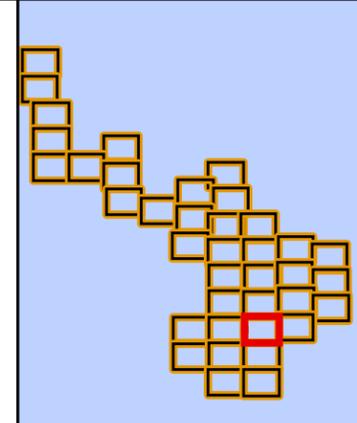
UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Limits of Temporary Disturbance

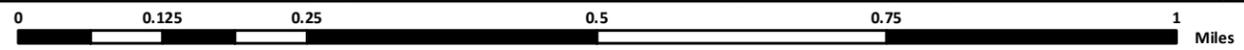


Data Sources Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.33
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

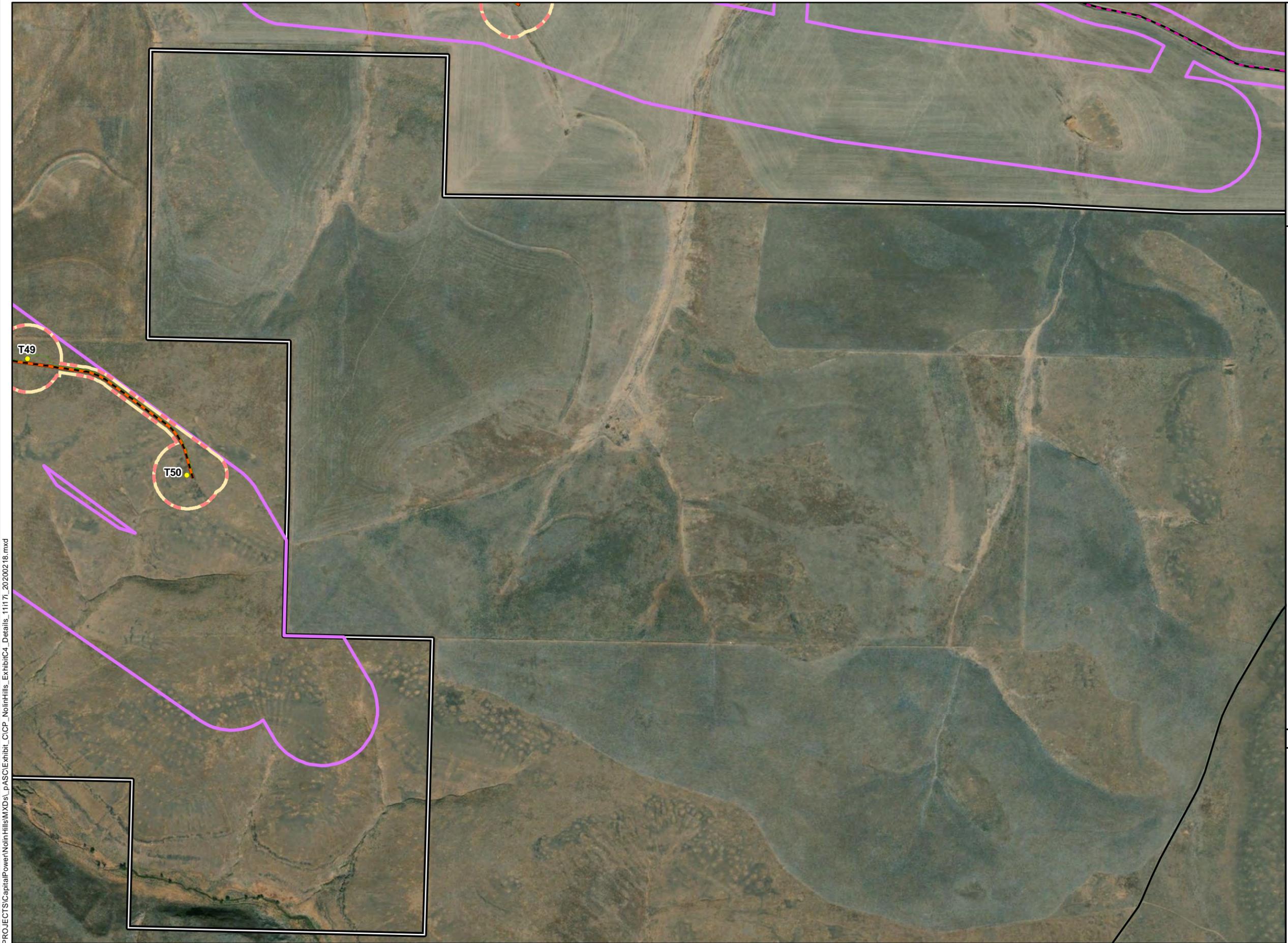
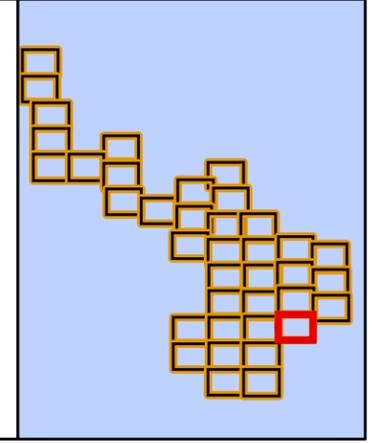
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

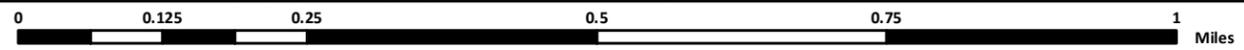
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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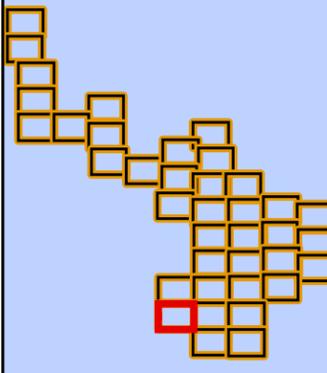
Nolin Hills Wind Power Project

Figure C-4.34
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure C-4.35
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

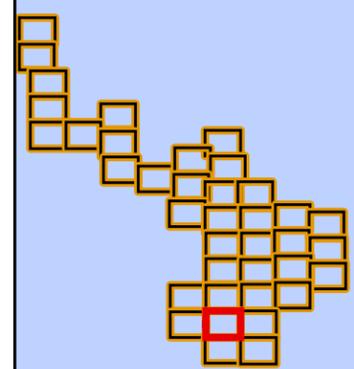
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Met Tower
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Substation
-  Proposed Turning Radius Improvement
-  Proposed Laydown Area
-  Limits of Temporary Disturbance



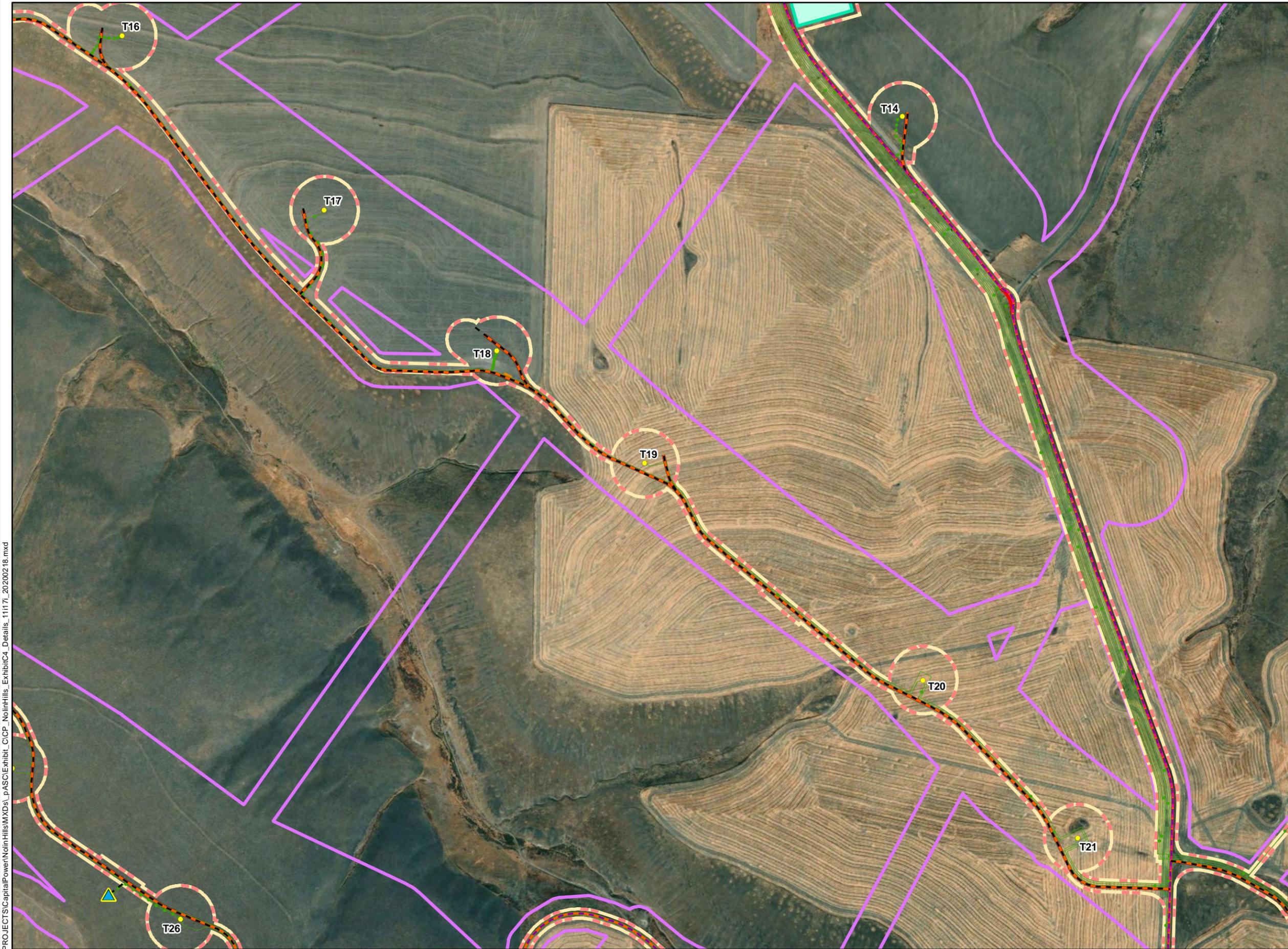
Data Sources

Reference Map

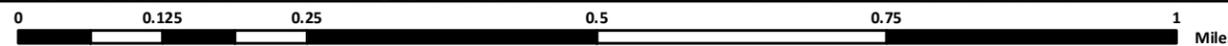
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-4.36
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

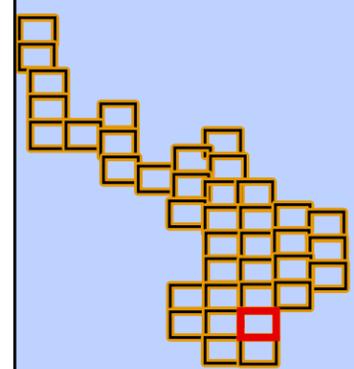
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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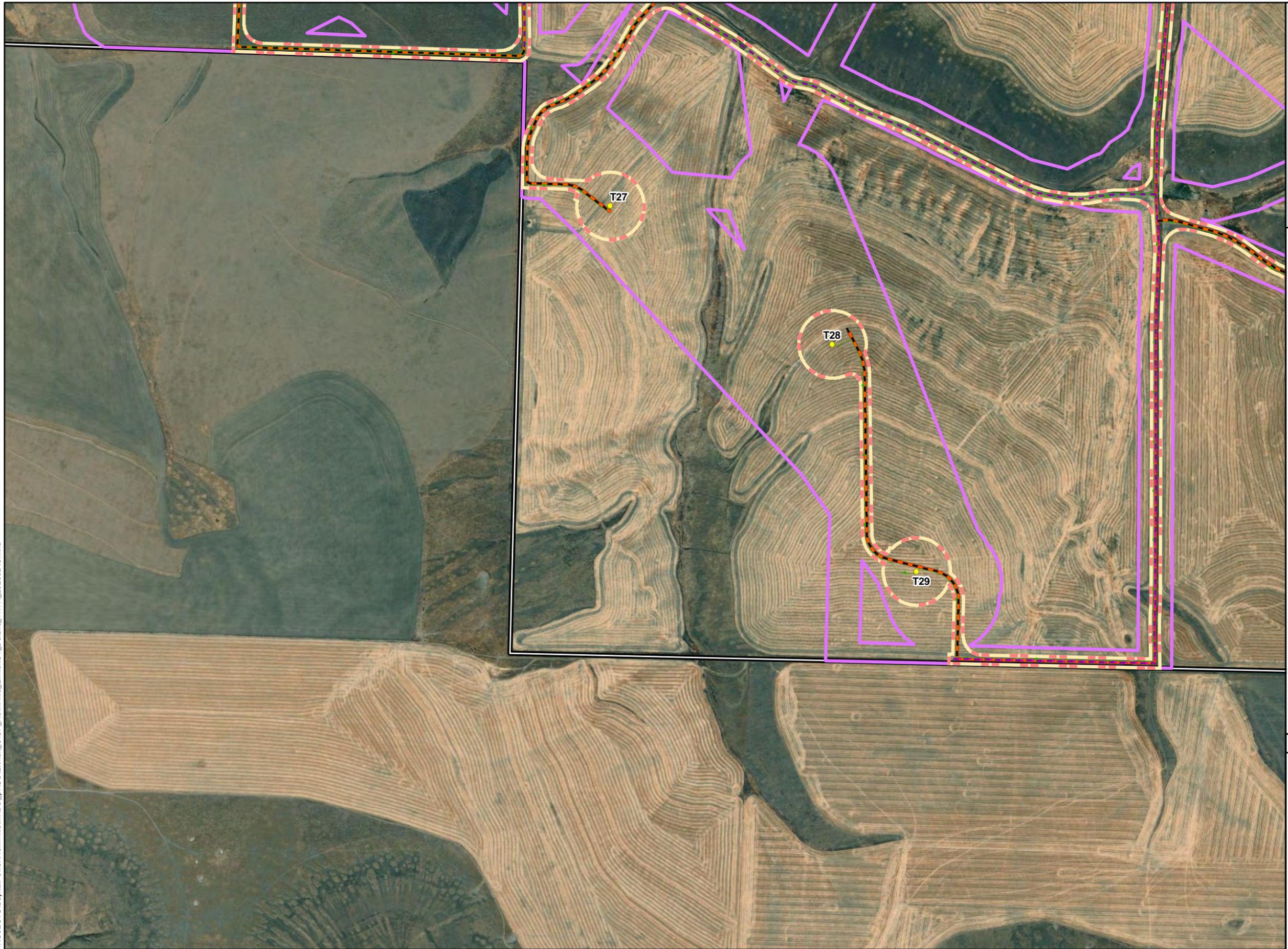


Nolin Hills Wind Power Project

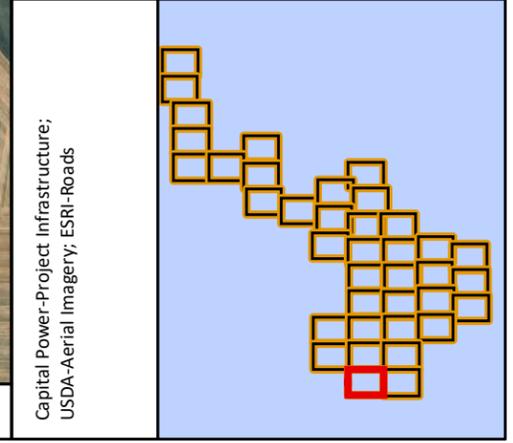
Figure C-4.37
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



Data Sources Reference Map

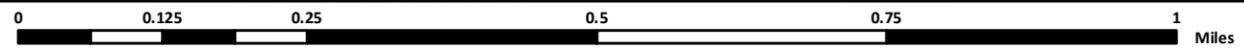


Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

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Nolin Hills Wind Power Project

Figure C-4.38
Turbine Option 1
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

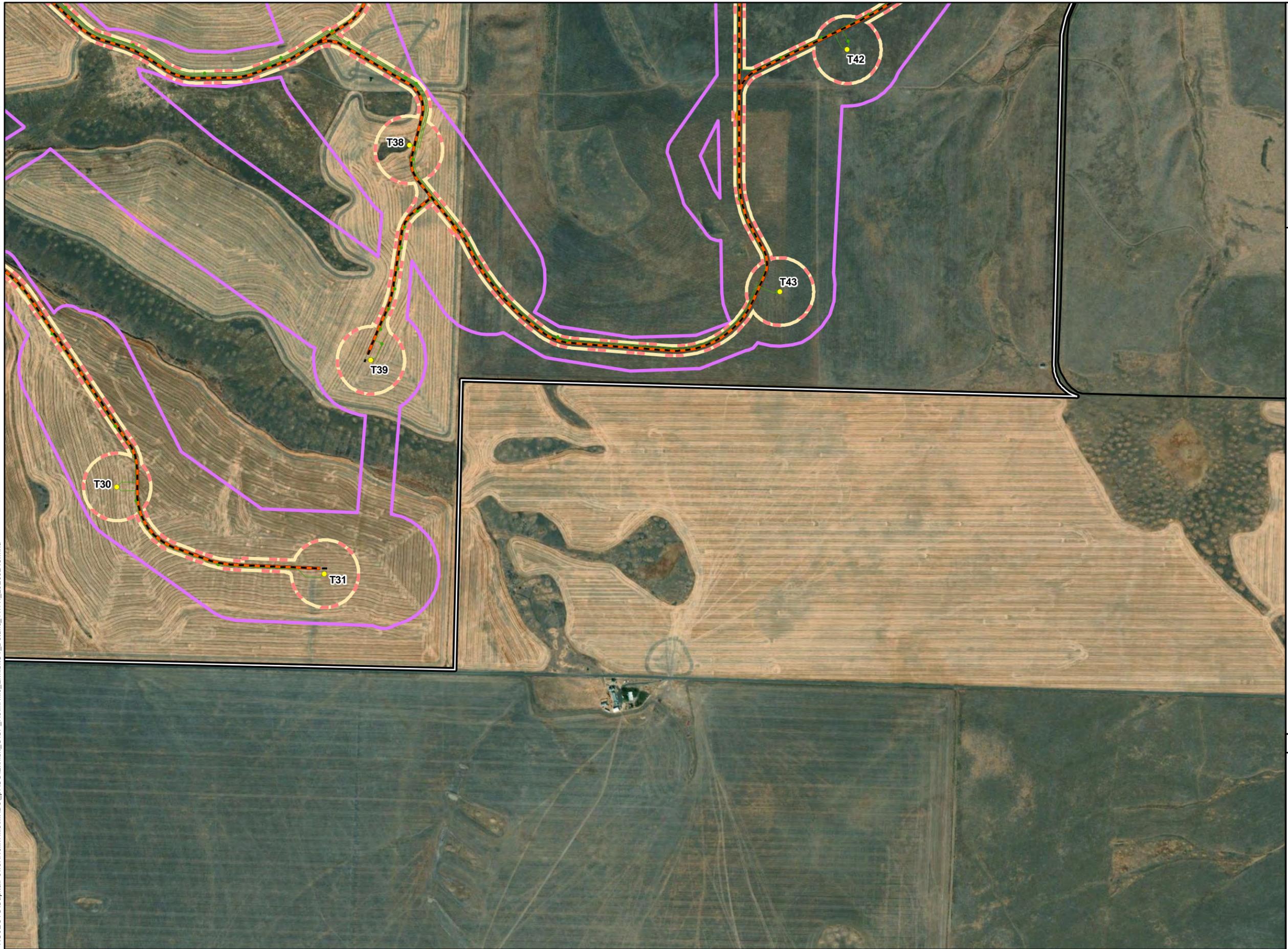
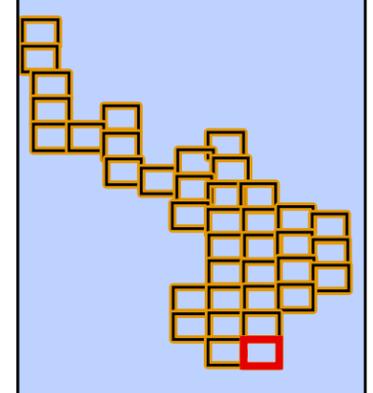
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

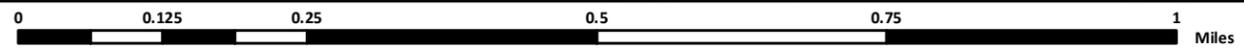
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5
Turbine Option 2
Layout Overview

UMATILLA COUNTY, OREGON

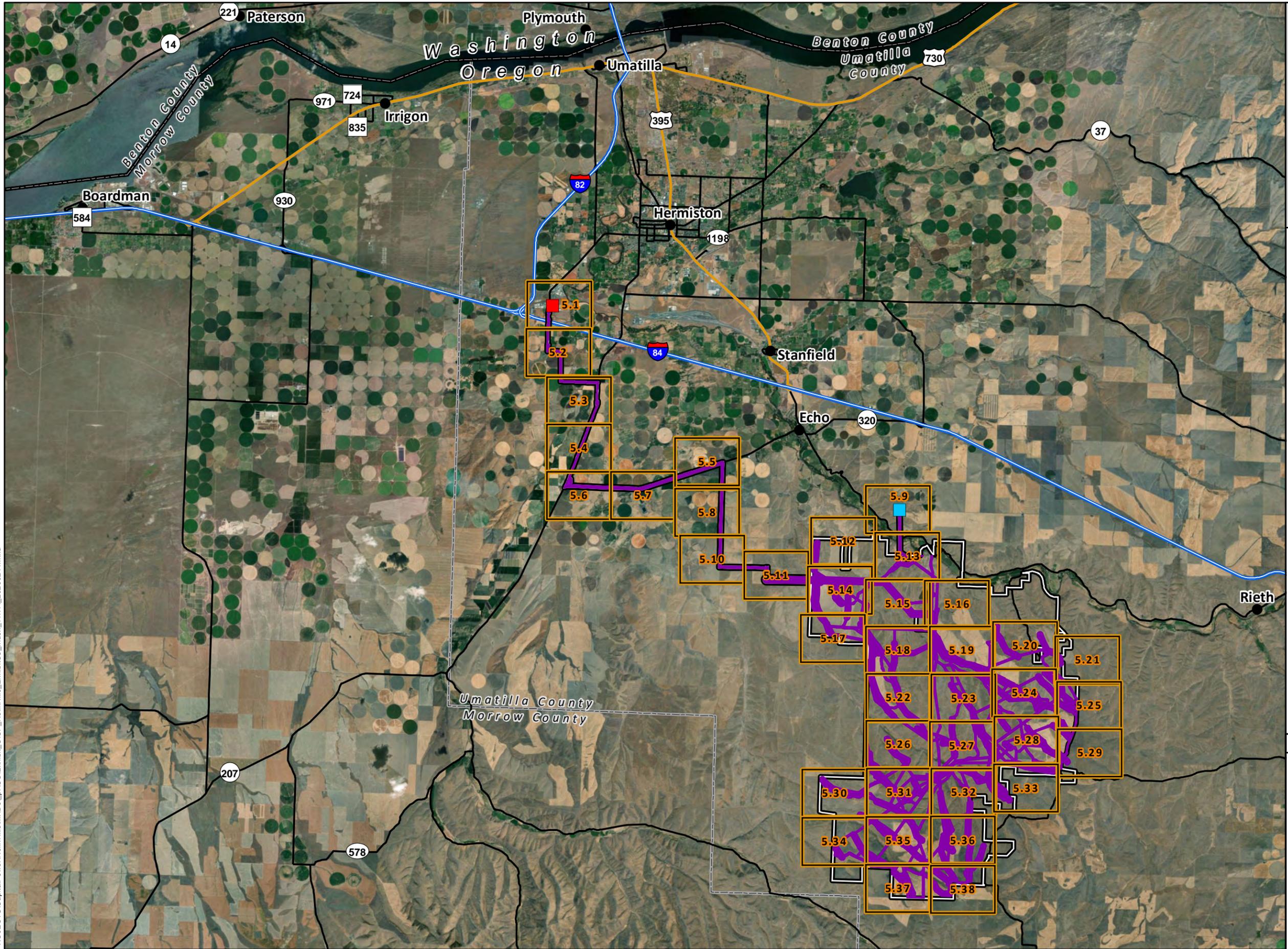
-  Map Grid
-  Proposed Site Boundary
-  Micrositing Corridor
-  Planned BPA Stanfield Substation
-  UEC Cottonwood Substation
-  City/Town
-  Interstate Highway
-  Secondary Highway
-  Secondary Road
-  State Boundary
-  County Boundary



Data Sources

Reference Map

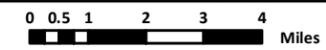
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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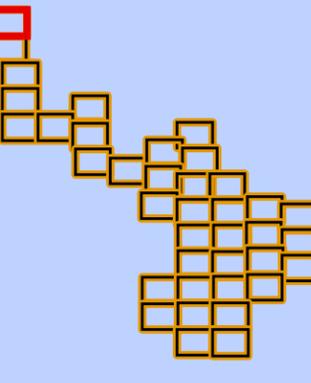
Nolin Hills Wind Power Project

Figure C-5.1
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  UEC Cottonwood Substation
-  Interstate Highway
-  Secondary Road



Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure C-5.2
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

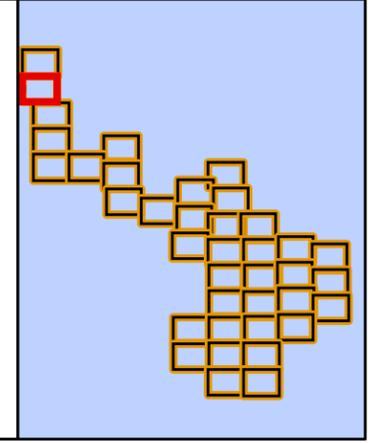
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Interstate Highway



Data Sources

Reference Map

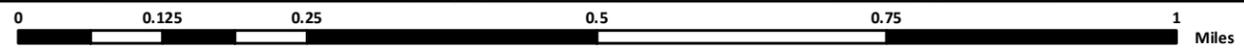
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.3
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

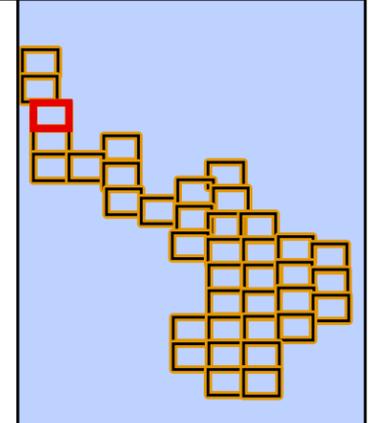
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

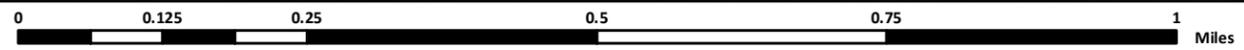
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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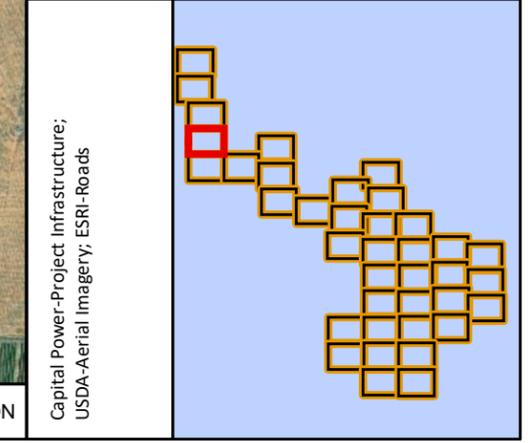
Figure C-5.4
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources Reference Map



Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

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Nolin Hills Wind Power Project

Figure C-5.5
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

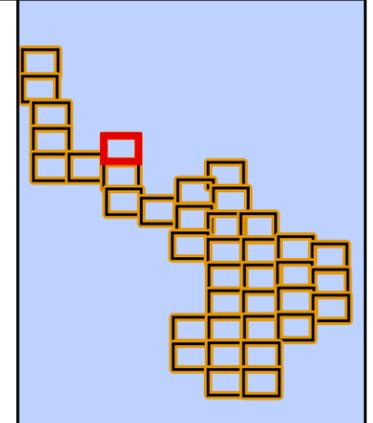
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

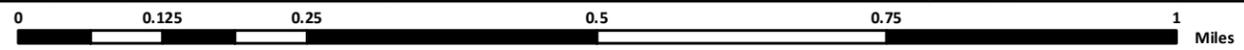
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.6
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

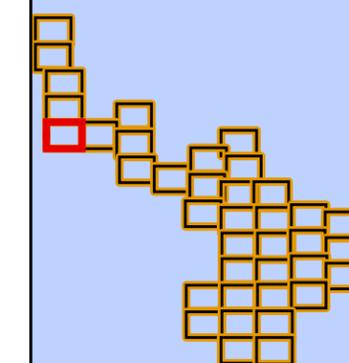
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.7
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

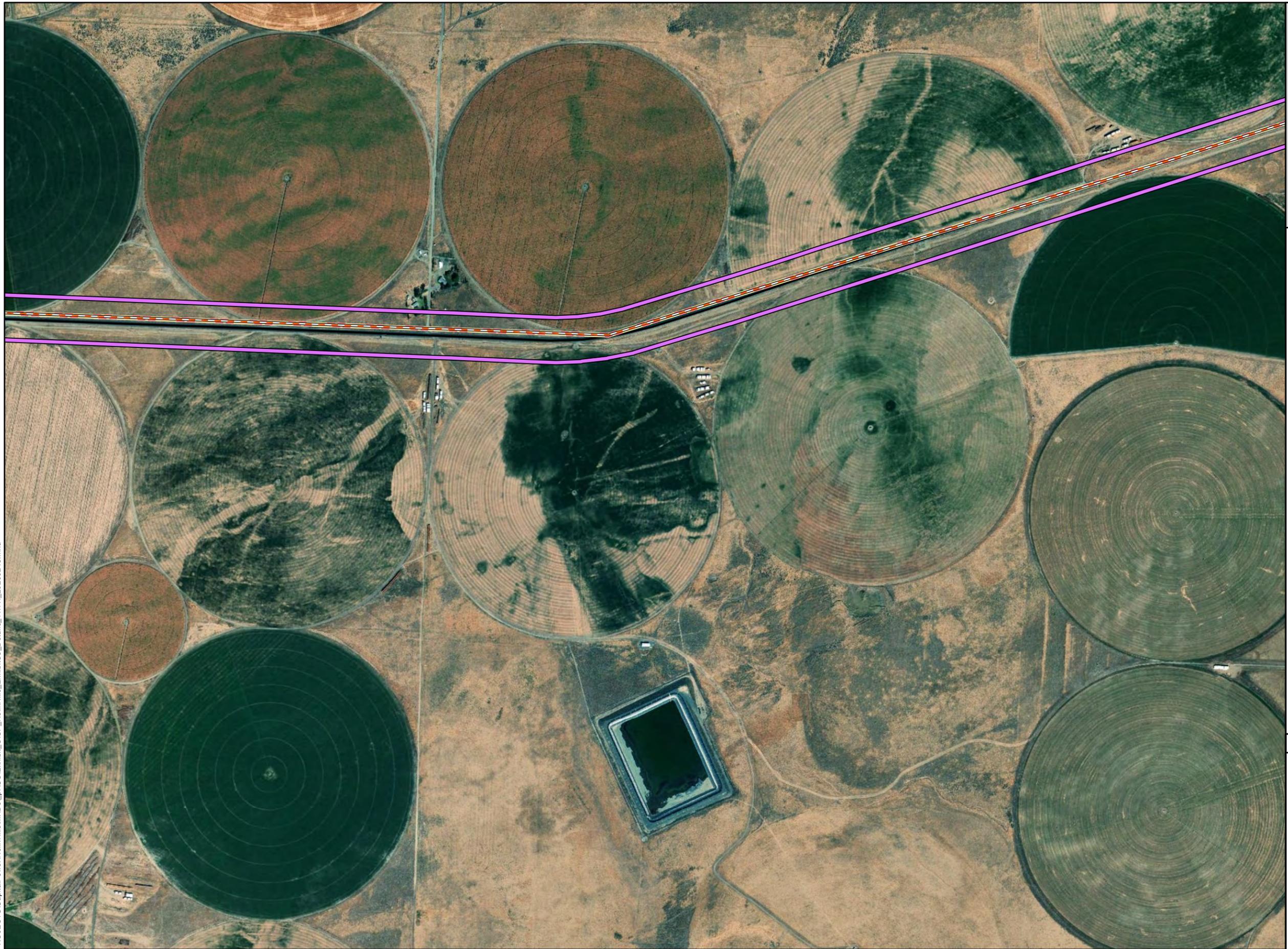
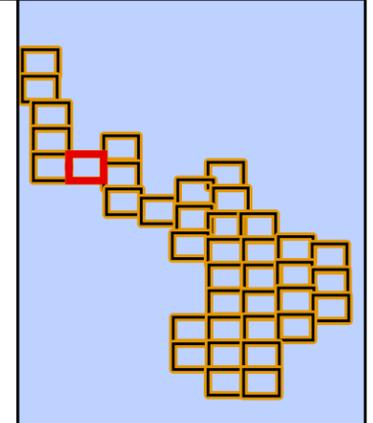
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

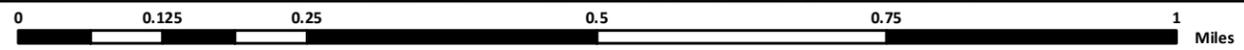
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

**Figure C-5.8
Turbine Option 2
Layout Detail Mapbook**

UMATILLA COUNTY, OREGON

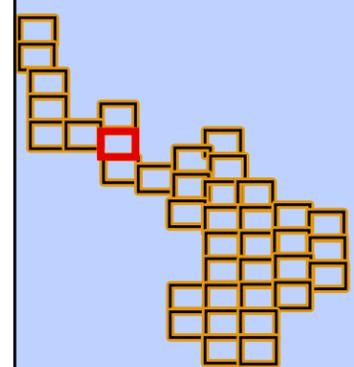
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



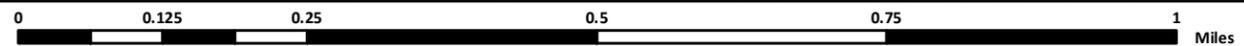
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.9
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

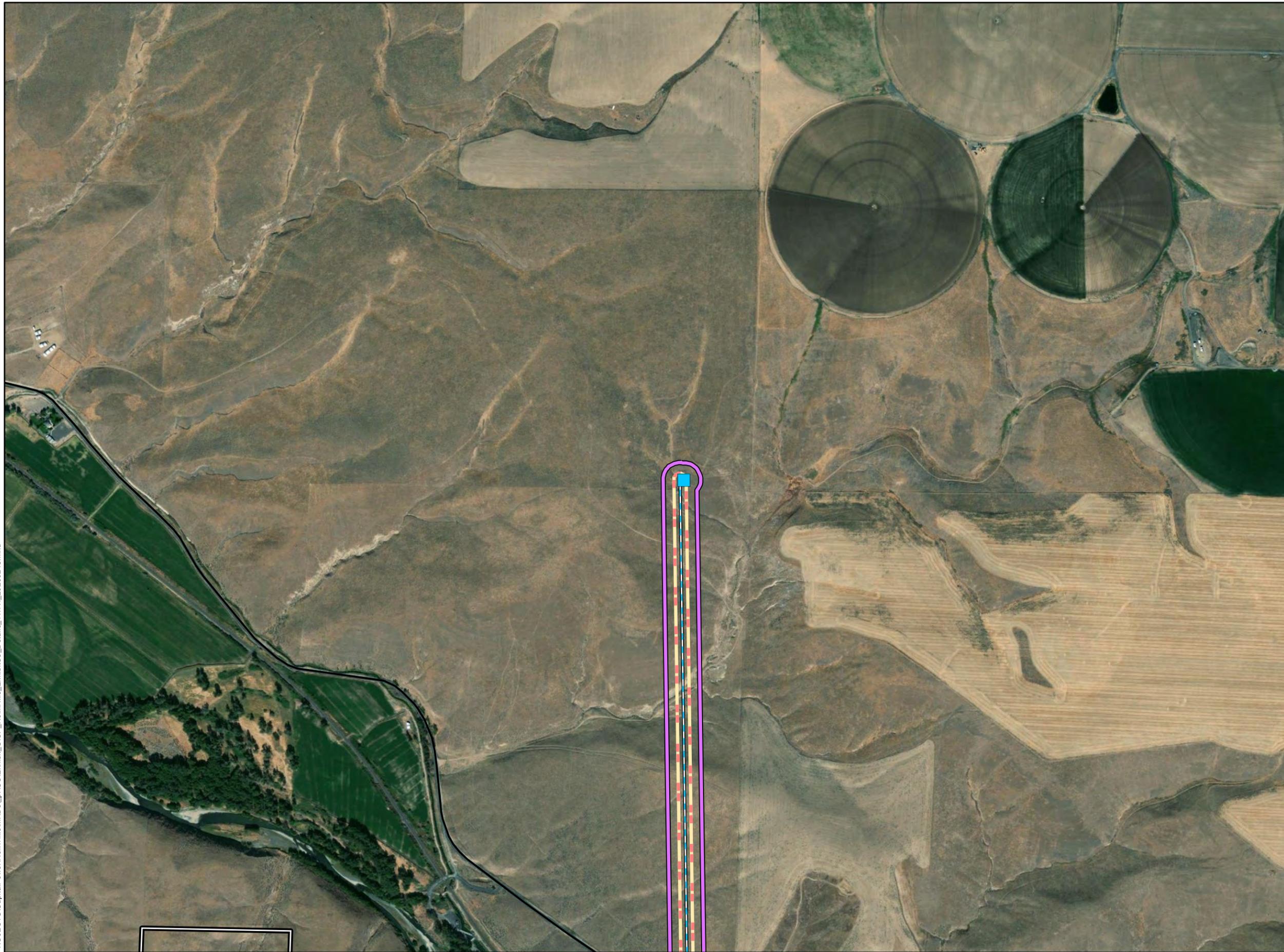
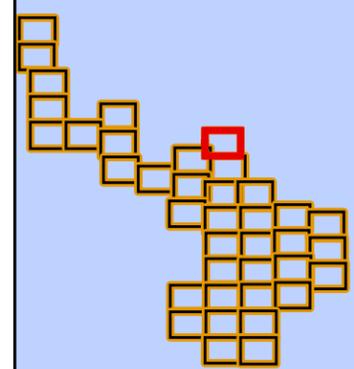
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed BPA Stanfield
Transmission Line Route, 230-kV
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance
-  Planned BPA Stanfield Substation
-  Secondary Road



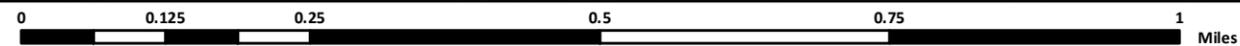
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.10 Turbine Option 2 Layout Detail Mapbook

UMATILLA COUNTY, OREGON

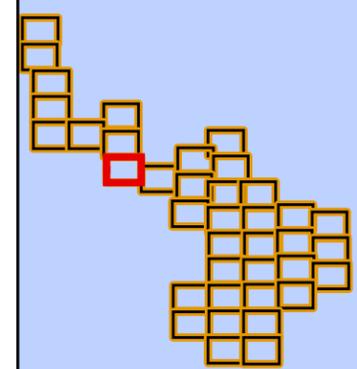
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



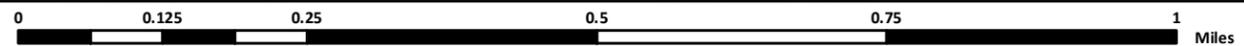
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.11 Turbine Option 2 Layout Detail Mapbook

UMATILLA COUNTY, OREGON

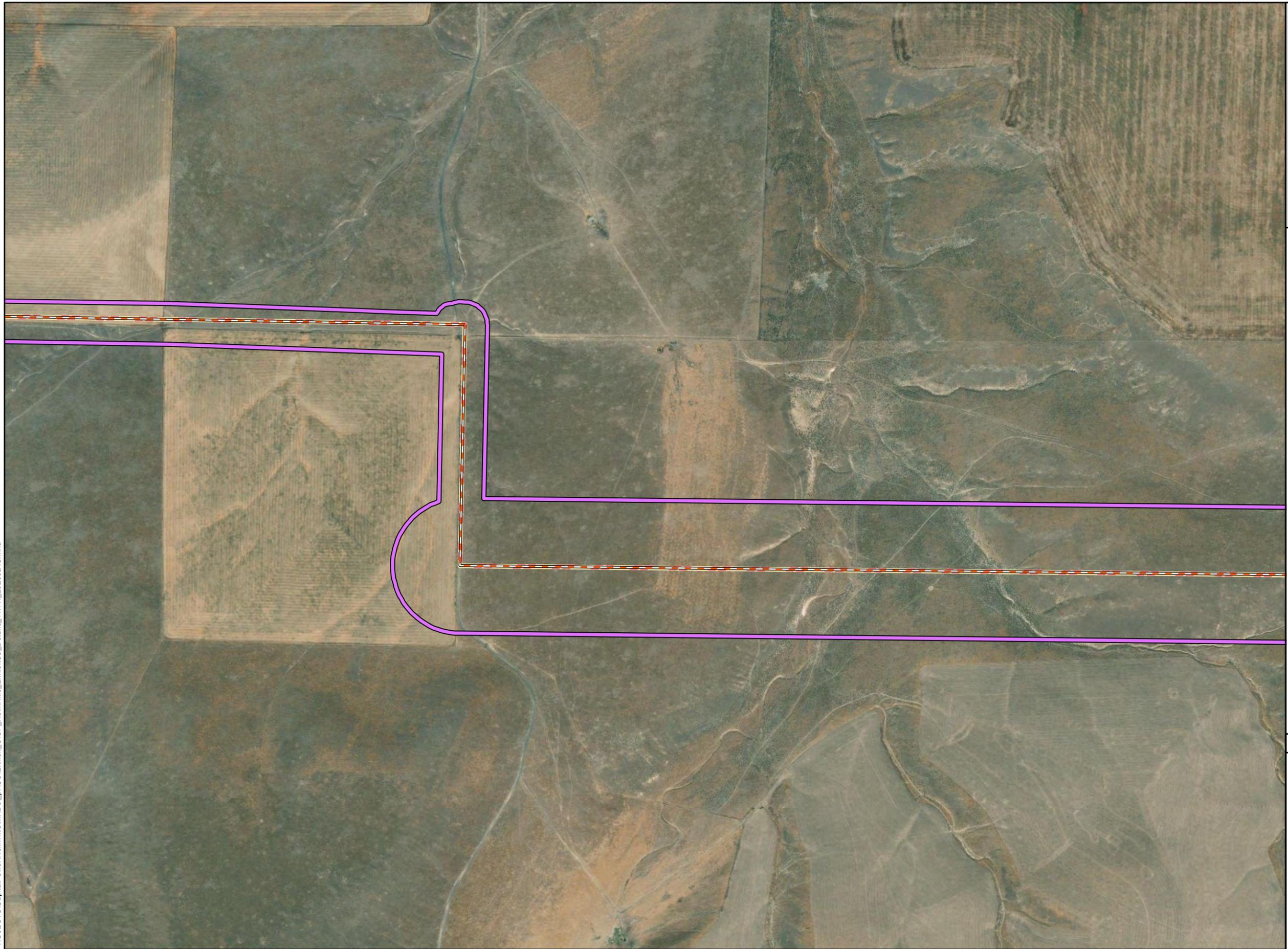
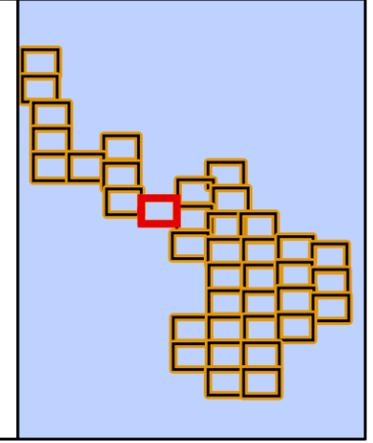
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Limits of Temporary Disturbance



Data Sources

Reference Map

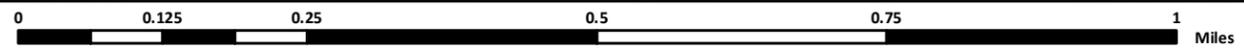
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.12
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

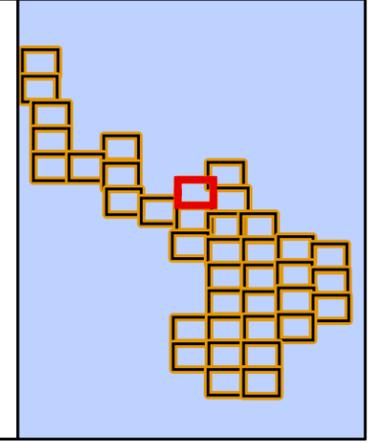
-  Proposed Site Boundary
-  Micrositing Corridor



Data Sources

Reference Map

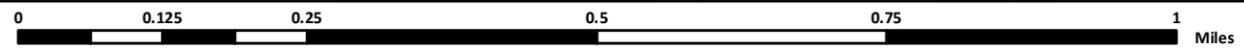
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.13
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

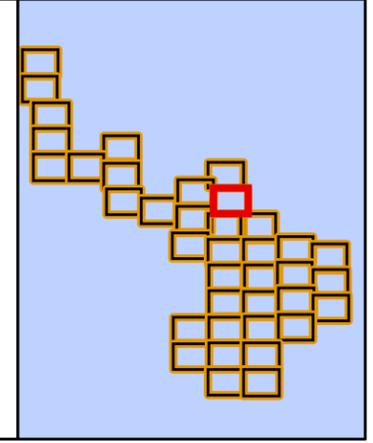
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed BPA Stanfield
Transmission Line Route, 230-kV
-  Proposed UEC
Transmission Line Route, 230-kV
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

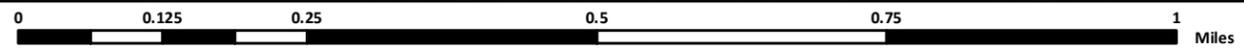
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.14
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

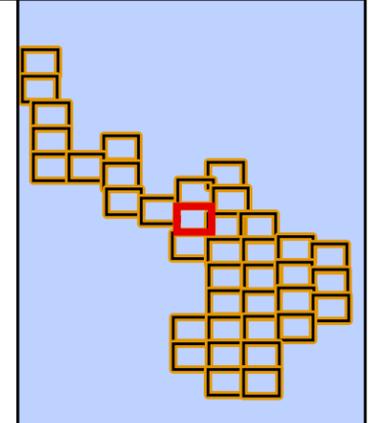
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC Transmission Line Route, 230-kV
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



Data Sources

Reference Map

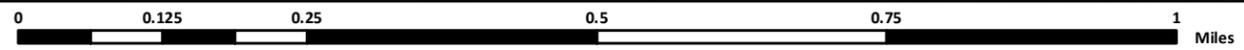
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.15
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

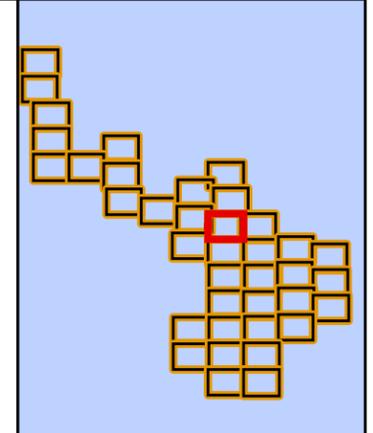
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed UEC
Transmission Line Route, 230-kV
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



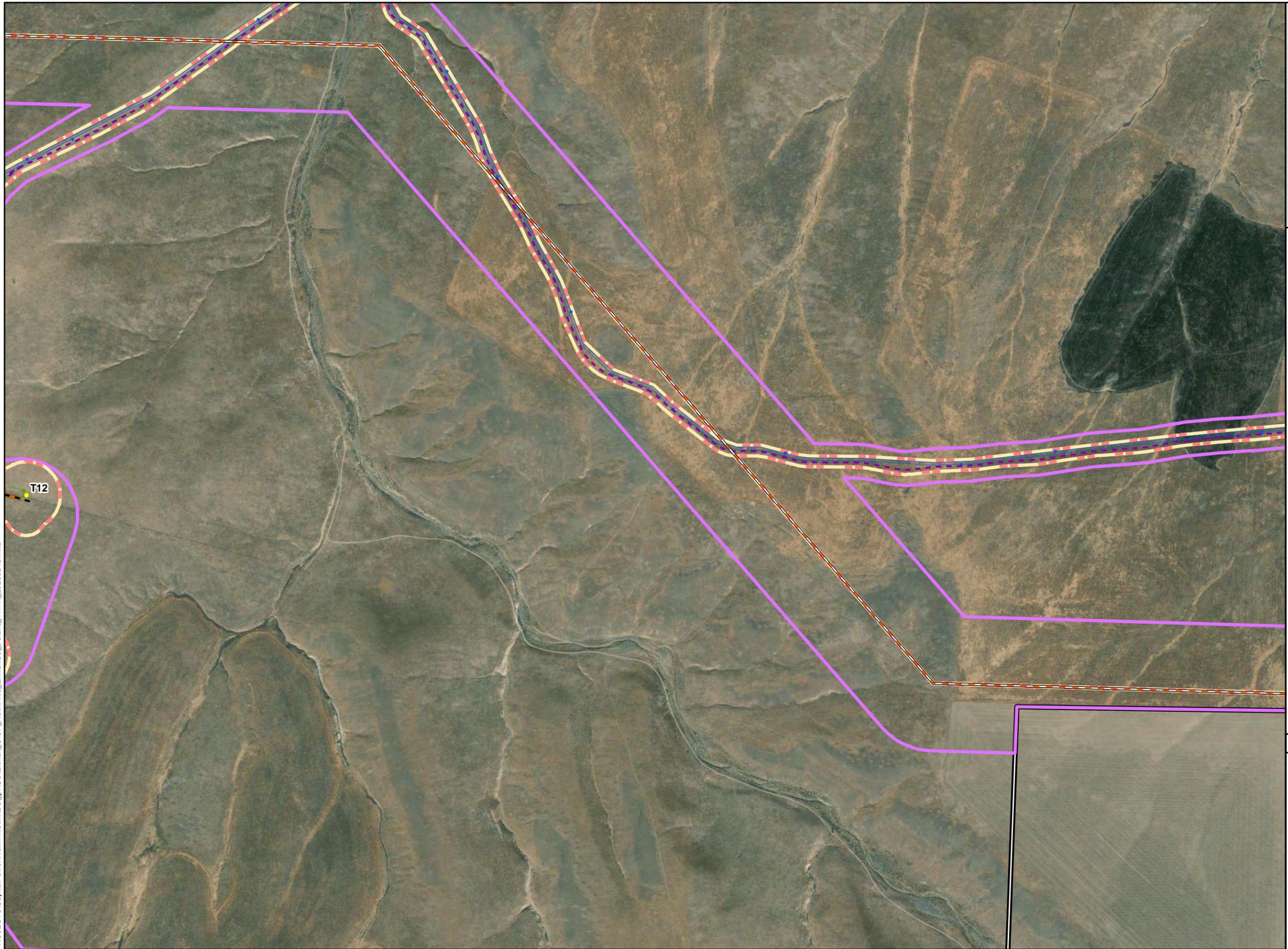
Data Sources

Reference Map

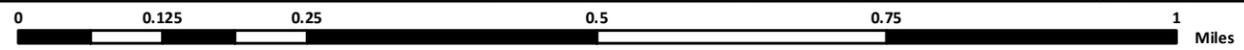
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.16
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

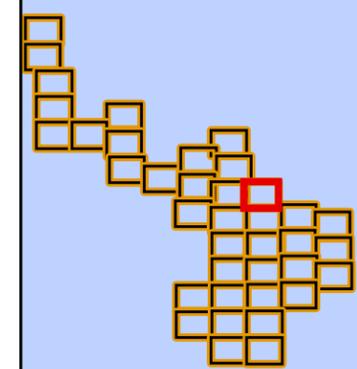
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed BPA Stanfield
Transmission Line Route, 230-kV
-  Proposed UEC
Transmission Line Route, 230-kV
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  O&M Facility
-  Proposed Substation
-  Proposed Turning Radius
Improvement
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

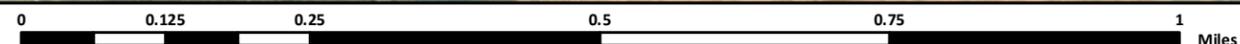
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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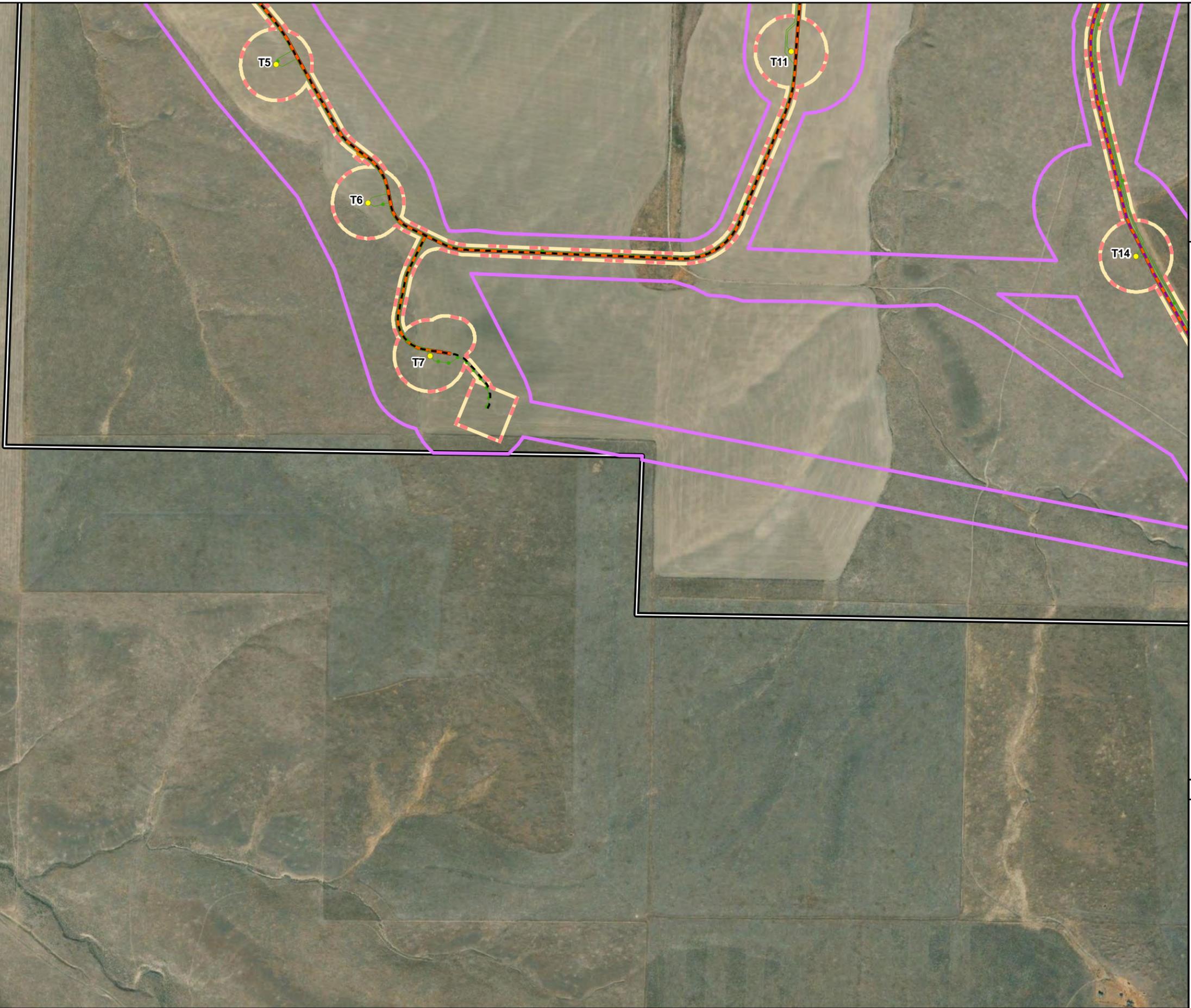


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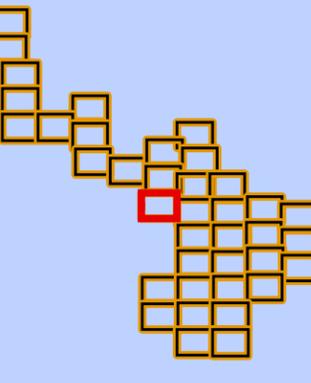
Figure C-5.17
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON



-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance

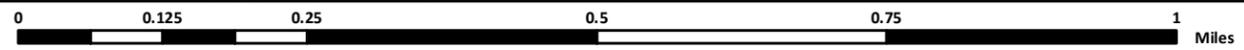


Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure C-5.18
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

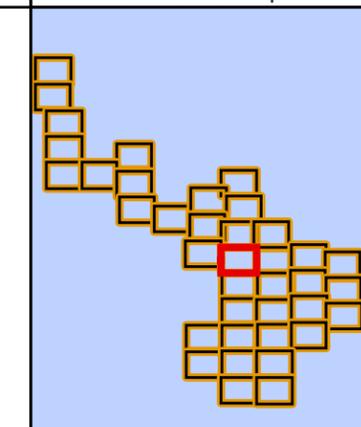
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



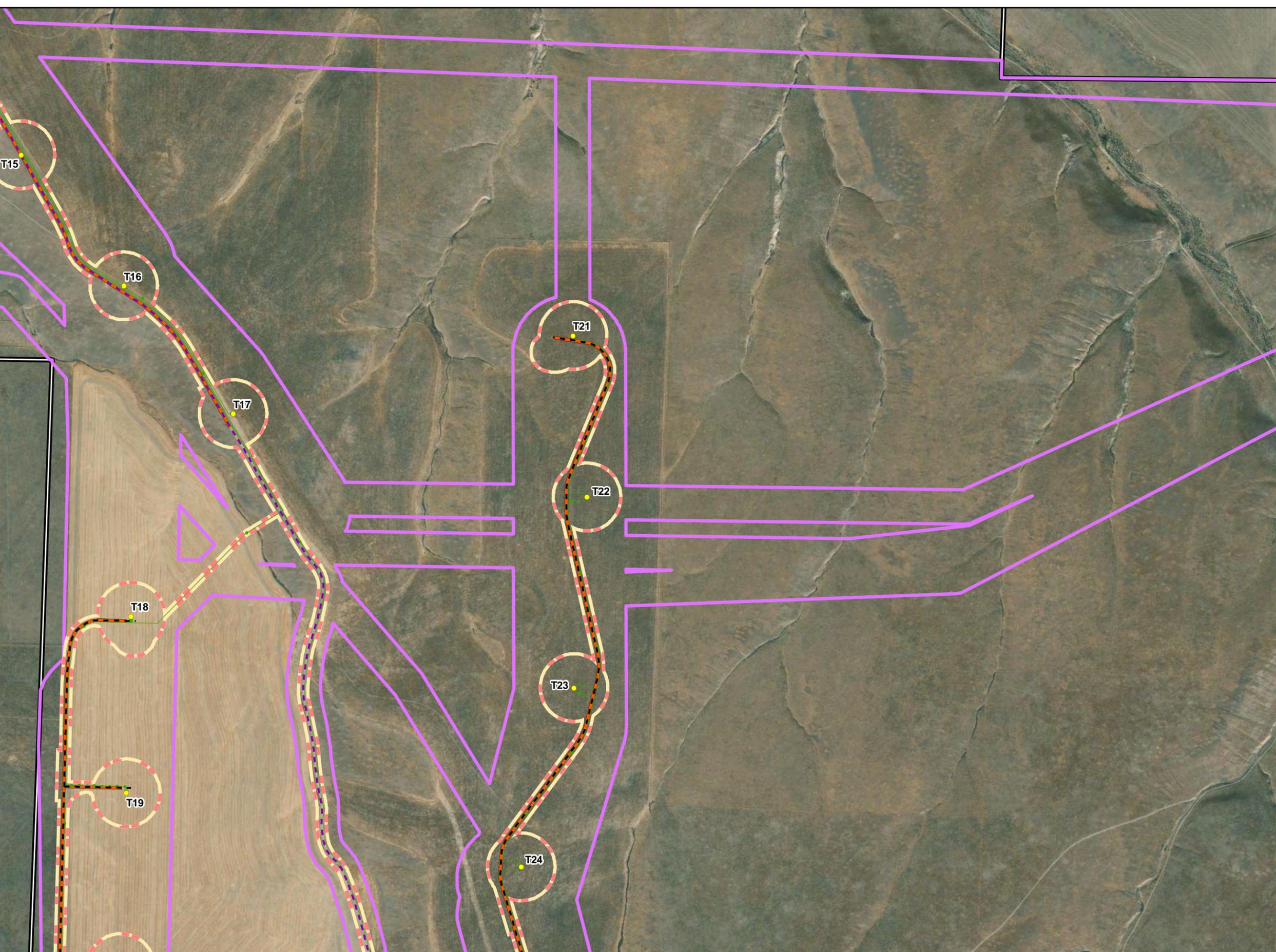
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.19
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

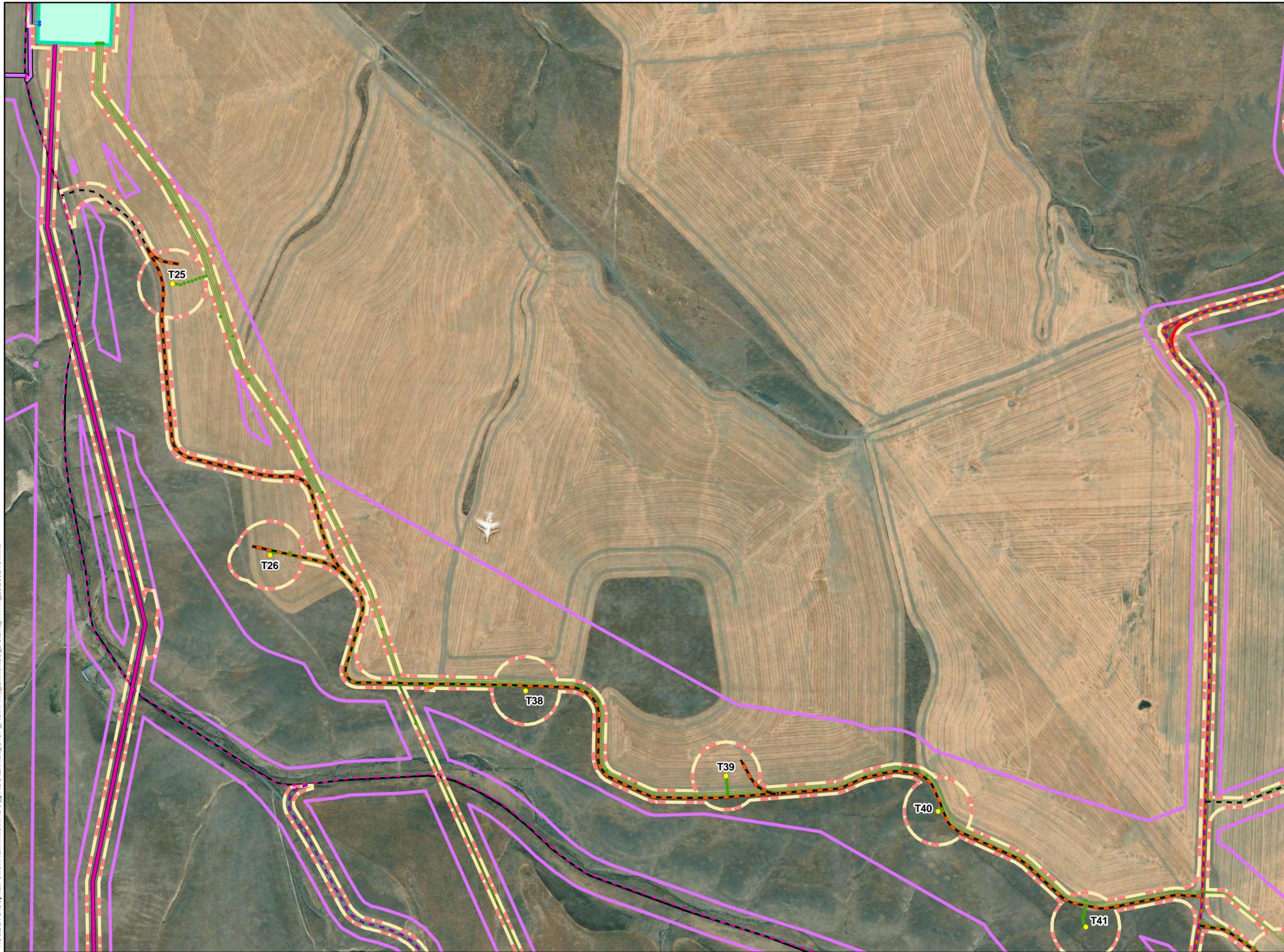
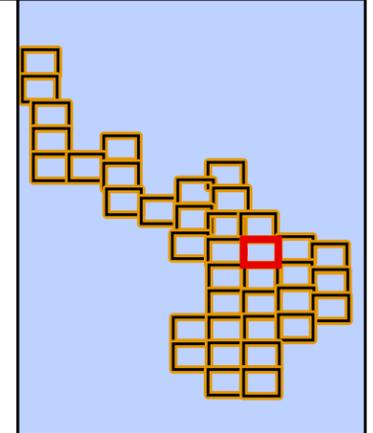
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Overhead Collector Line
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Proposed Substation
-  Proposed Turning Radius Improvement
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.20
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

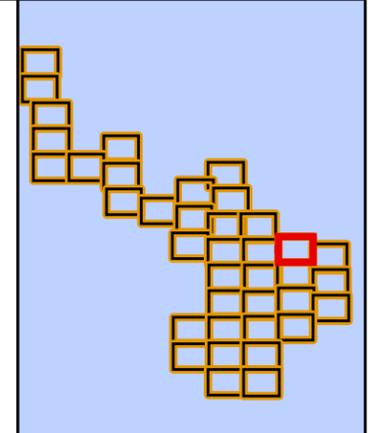
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance
-  Secondary Road



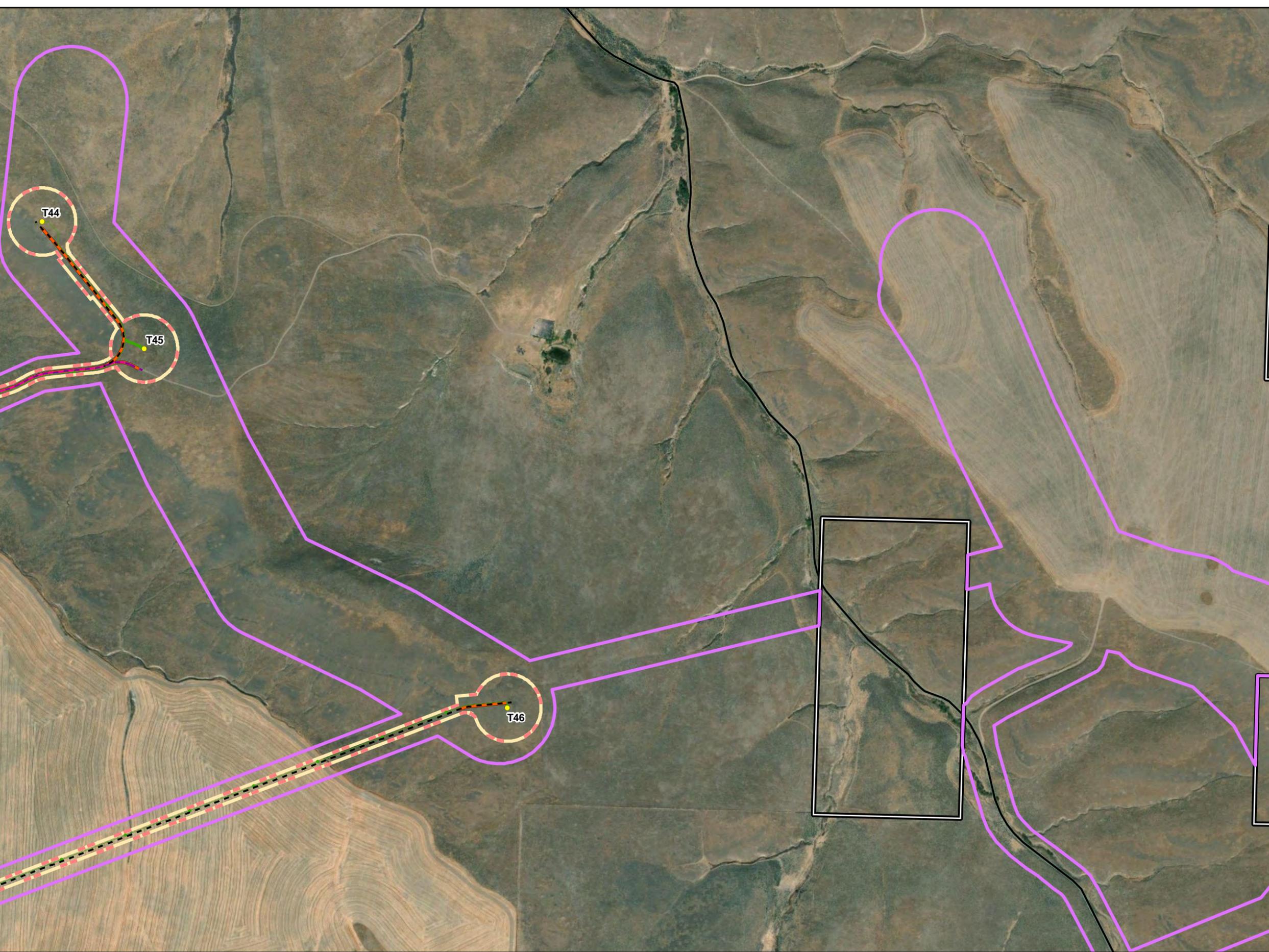
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

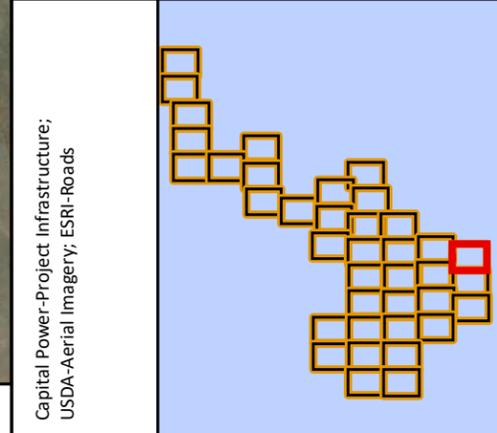
Figure C-5.21
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Transportation Route
-  Underground Collector Line
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources Reference Map



Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

**Figure C-5.22
Turbine Option 2
Layout Detail Mapbook**

UMATILLA COUNTY, OREGON

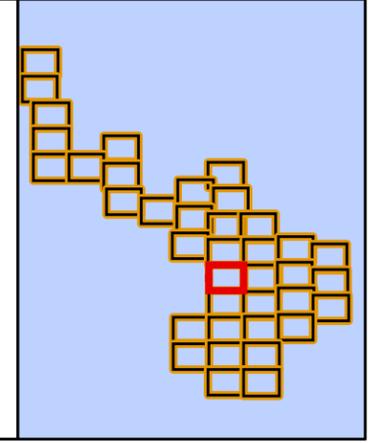
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance



Data Sources

Reference Map

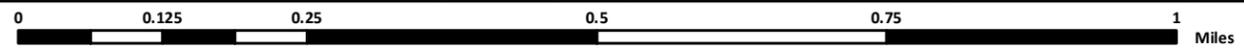
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



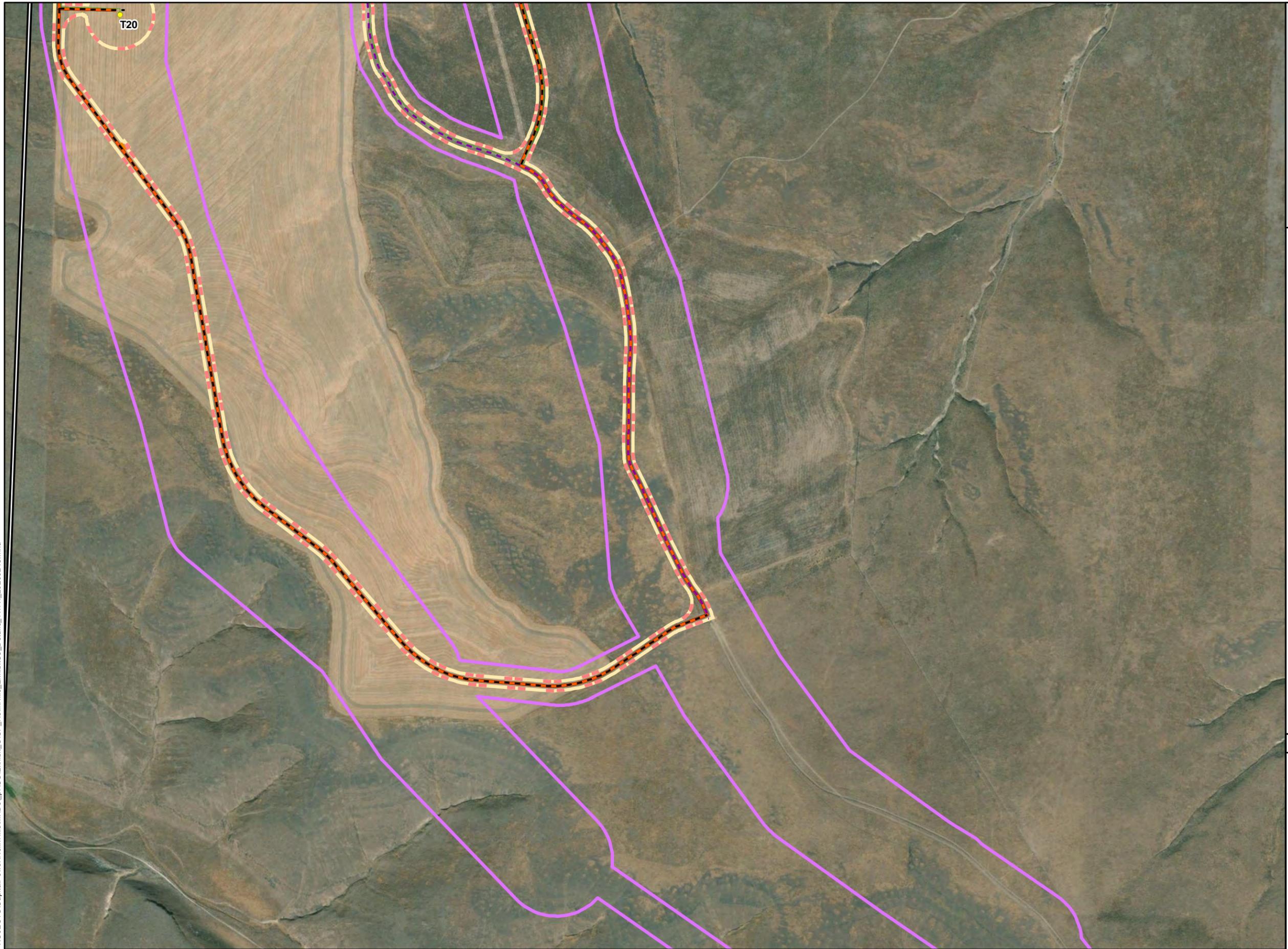
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Nolin Hills Wind Power Project

Figure C-5.23
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

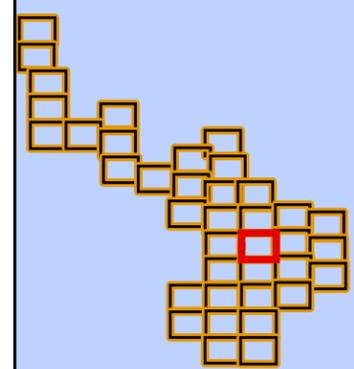
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

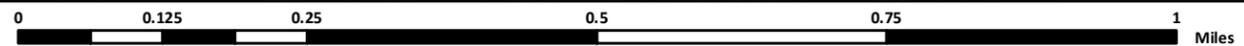
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.24
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

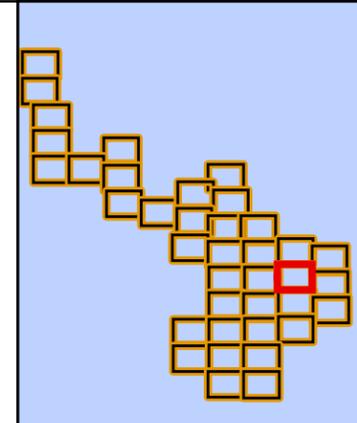
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

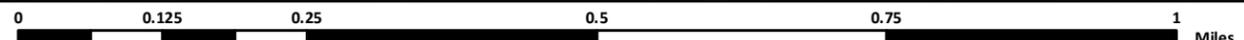
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



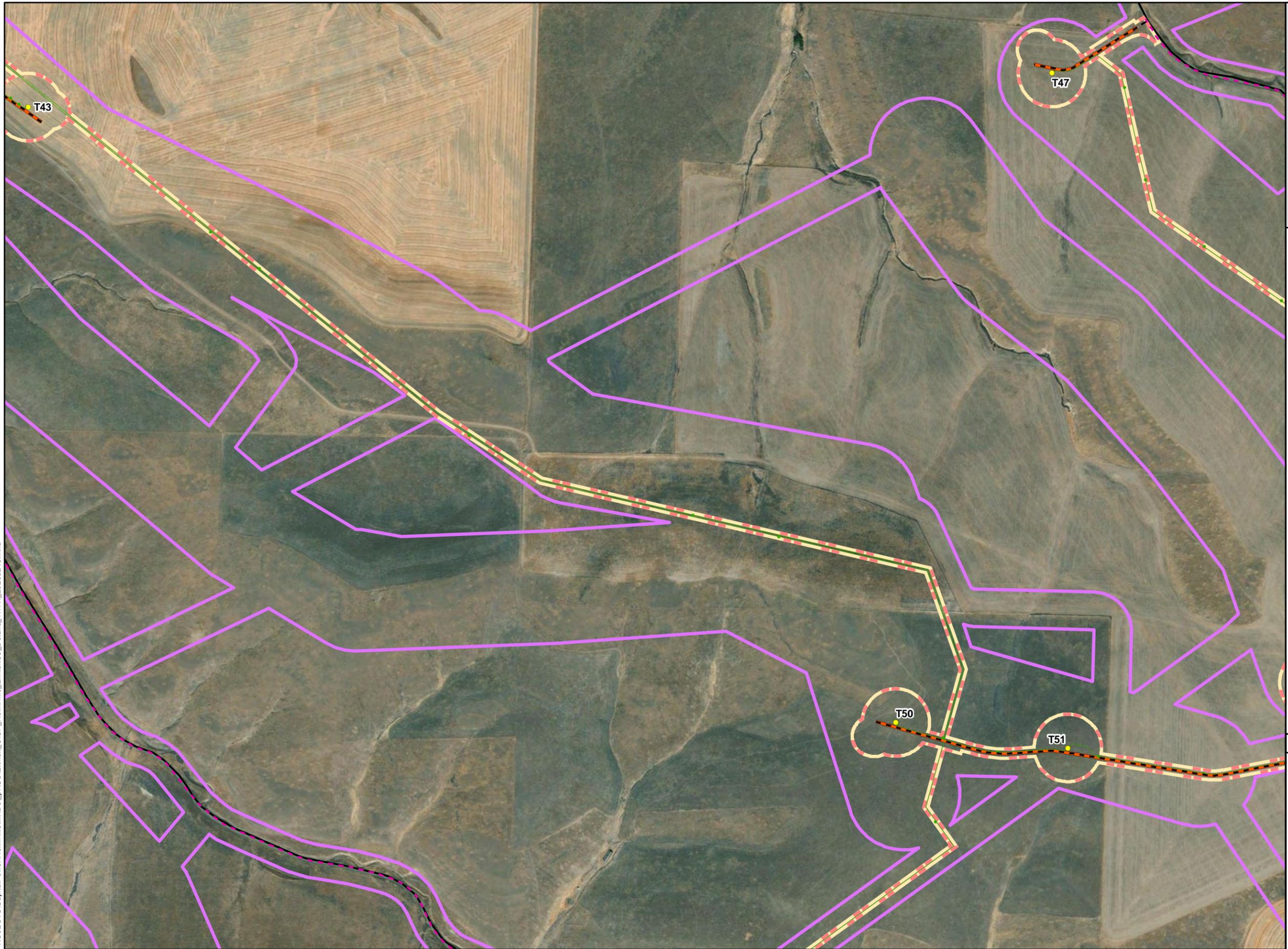
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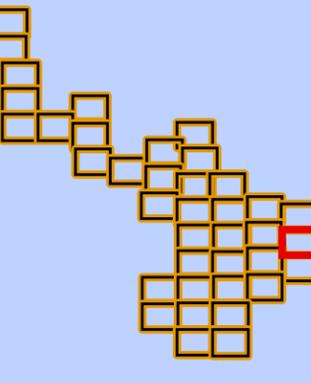
Nolin Hills Wind Power Project

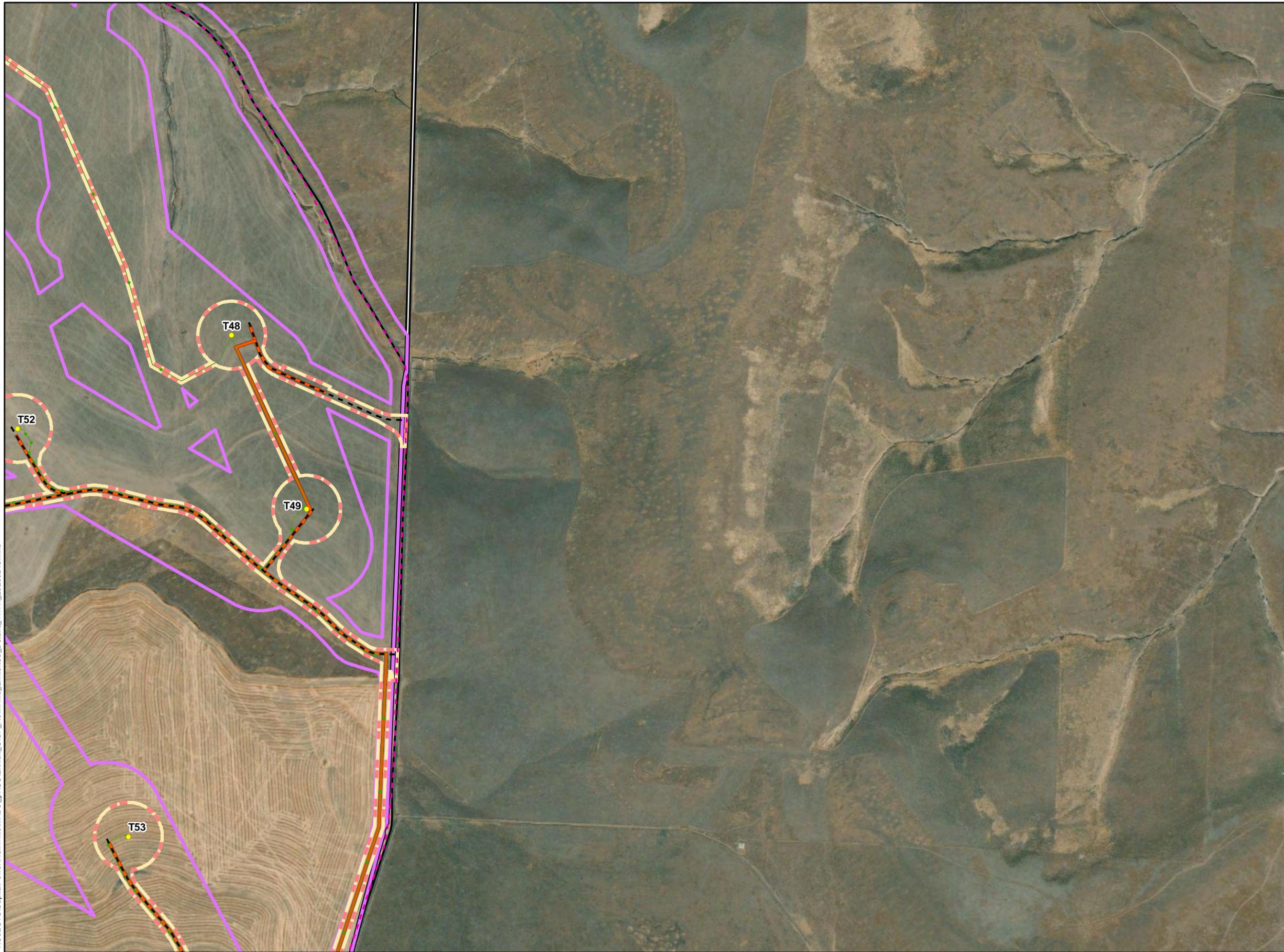
Figure C-5.25
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	



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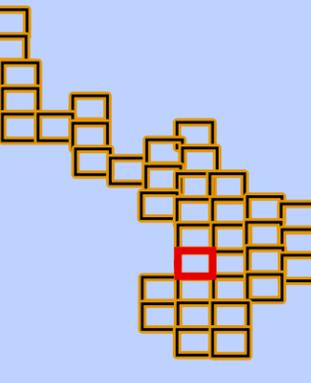
Nolin Hills Wind Power Project

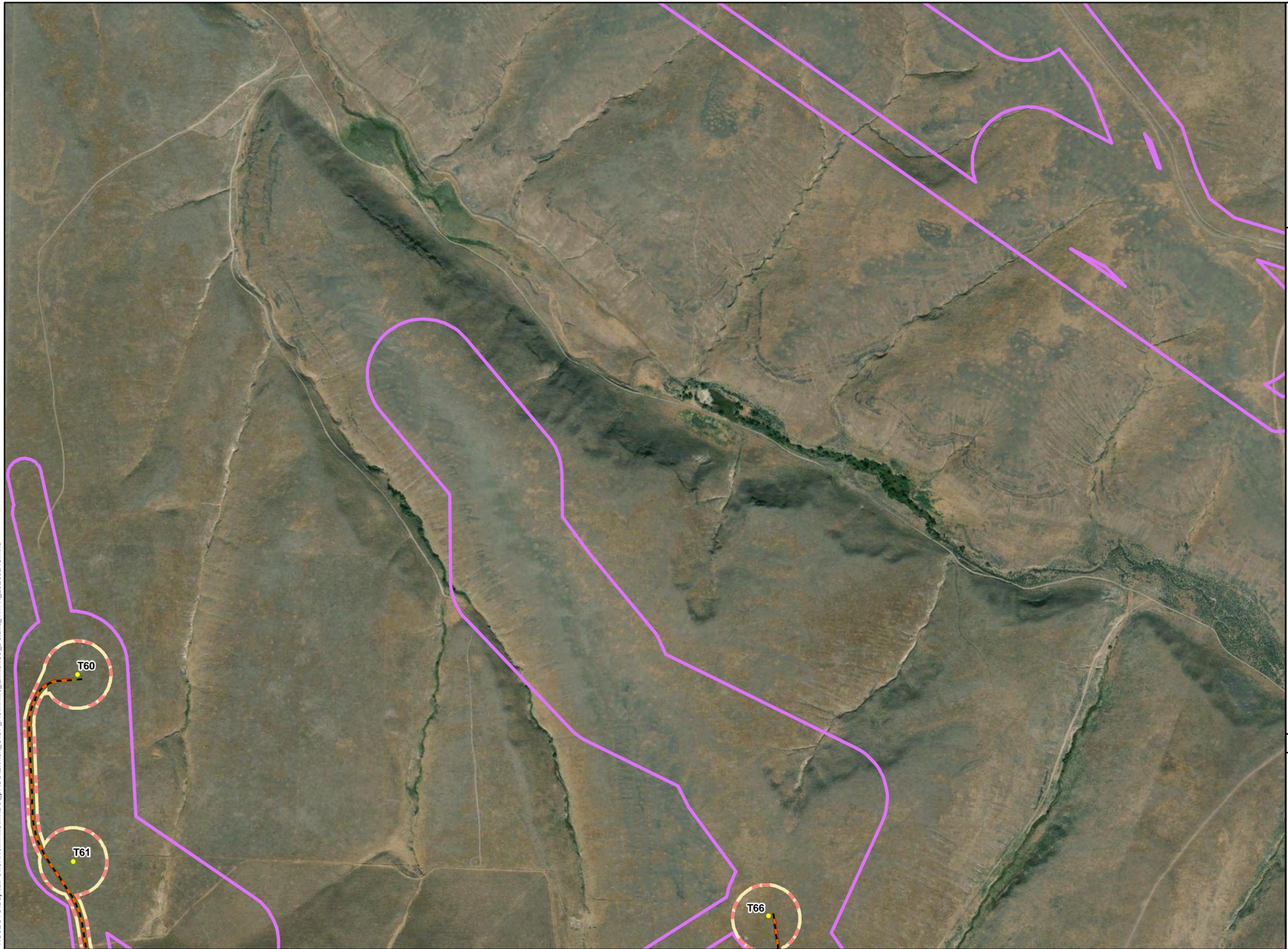
Figure C-5.26
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	



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Nolin Hills Wind Power Project

Figure C-5.27
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

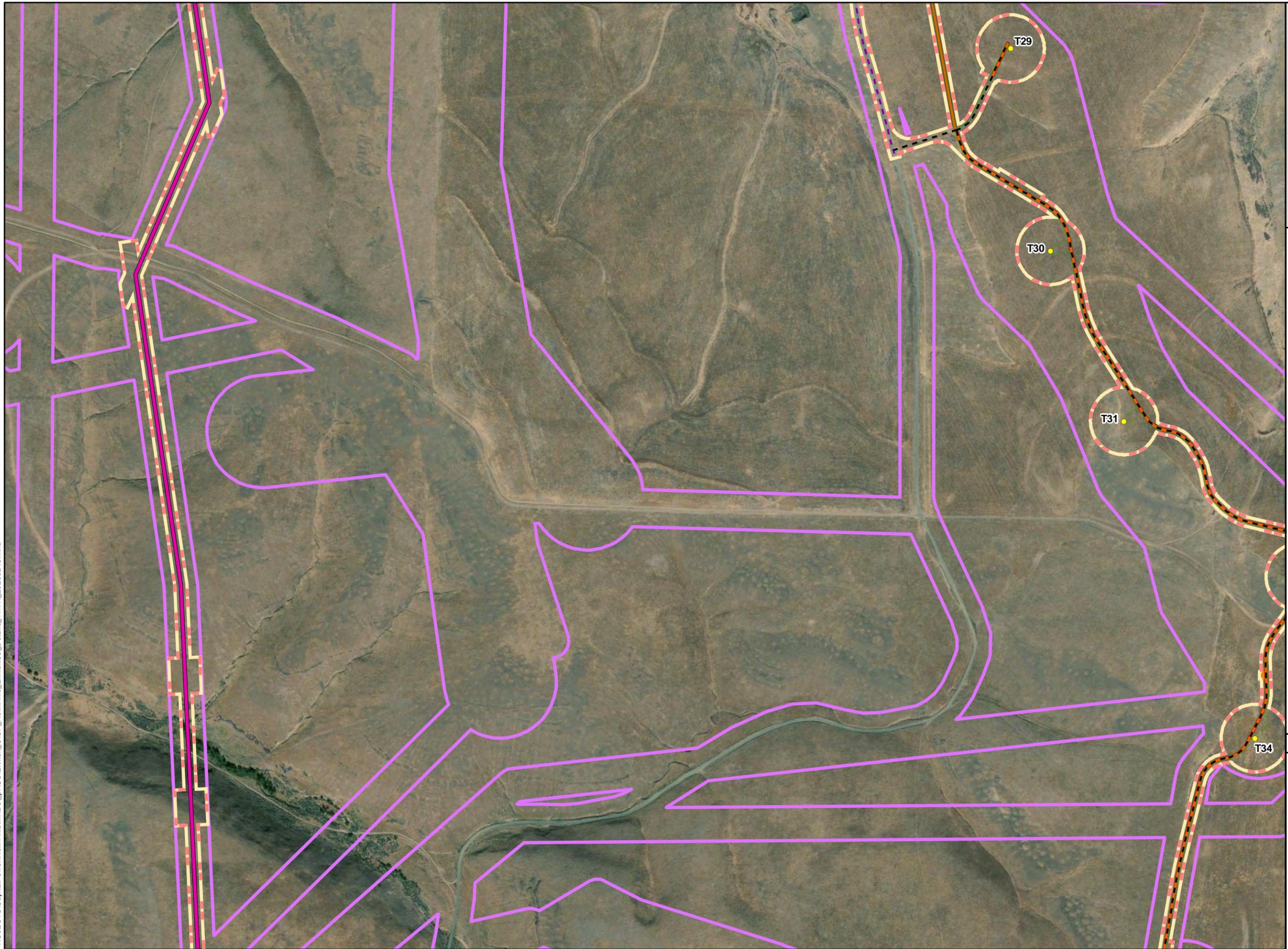
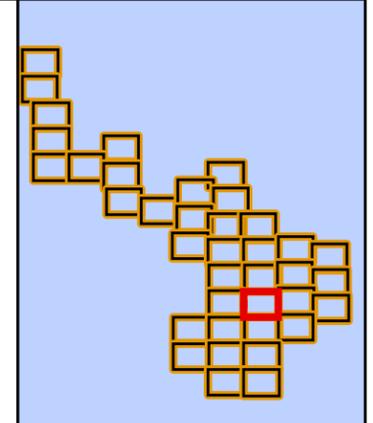
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Proposed Laydown Area
-  Limits of Temporary Disturbance



Data Sources

Reference Map

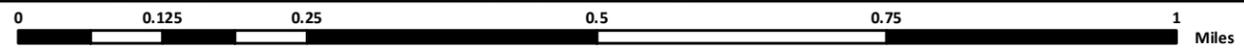
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.28
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

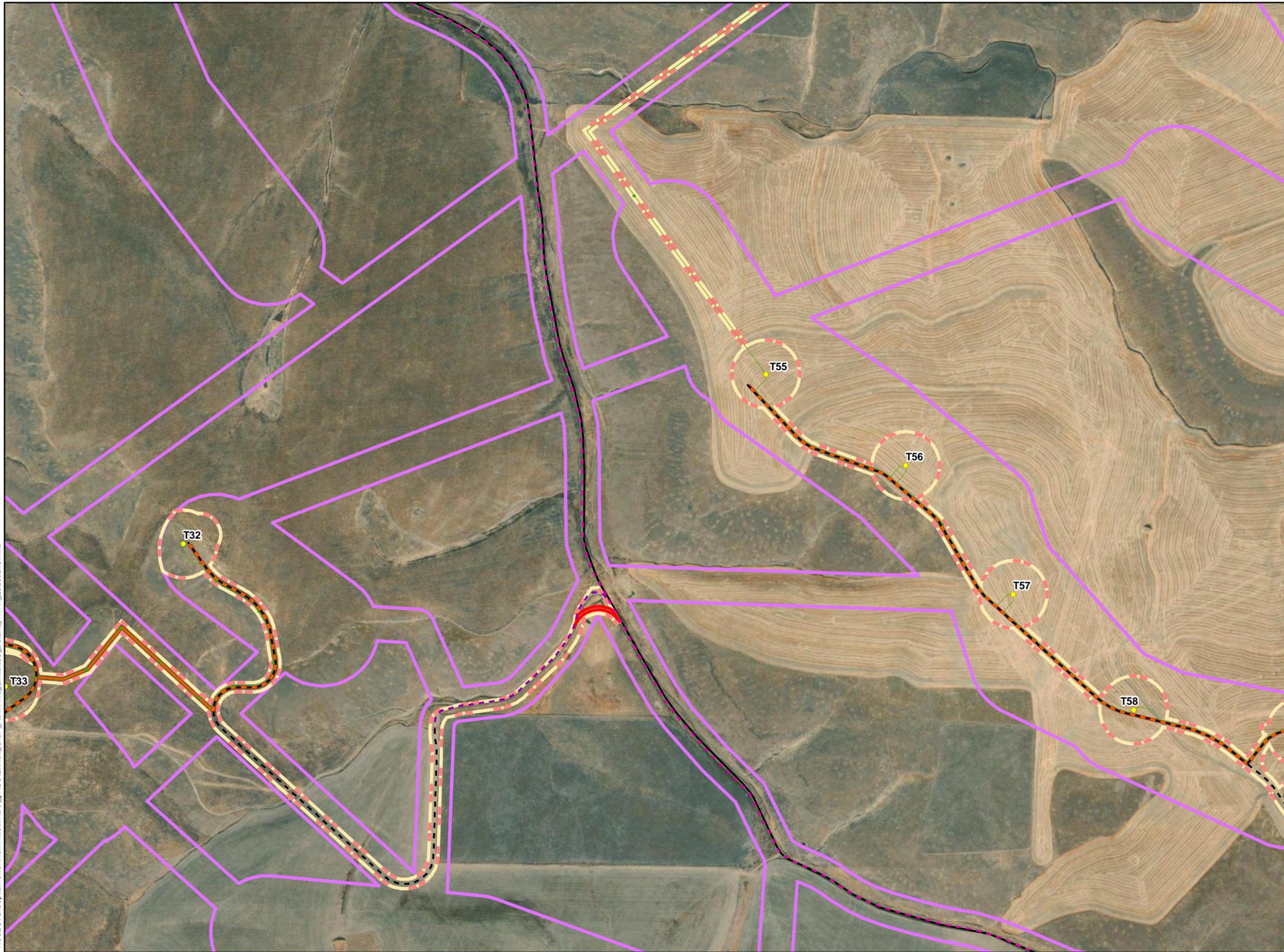
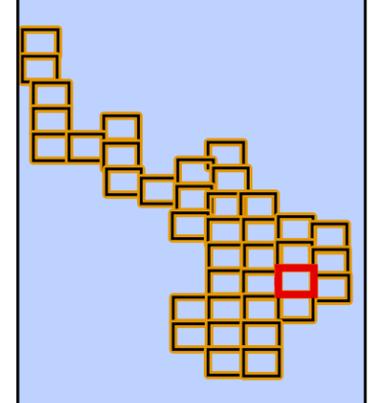
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Turning Radius Improvement
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

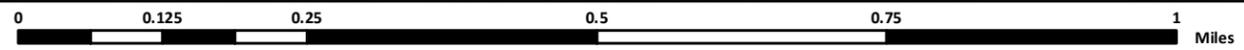
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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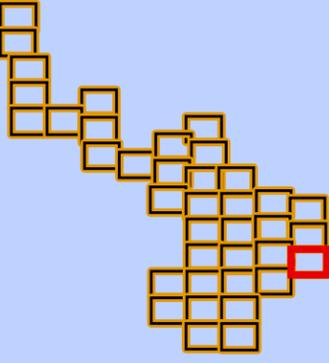
Nolin Hills Wind Power Project

Figure C-5.29
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Met Tower
-  Access Road (New)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance
-  Secondary Road

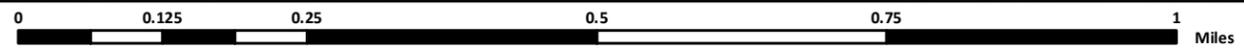


Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure C-5.30
Turbine Option 2
Layout Detail Mapbook

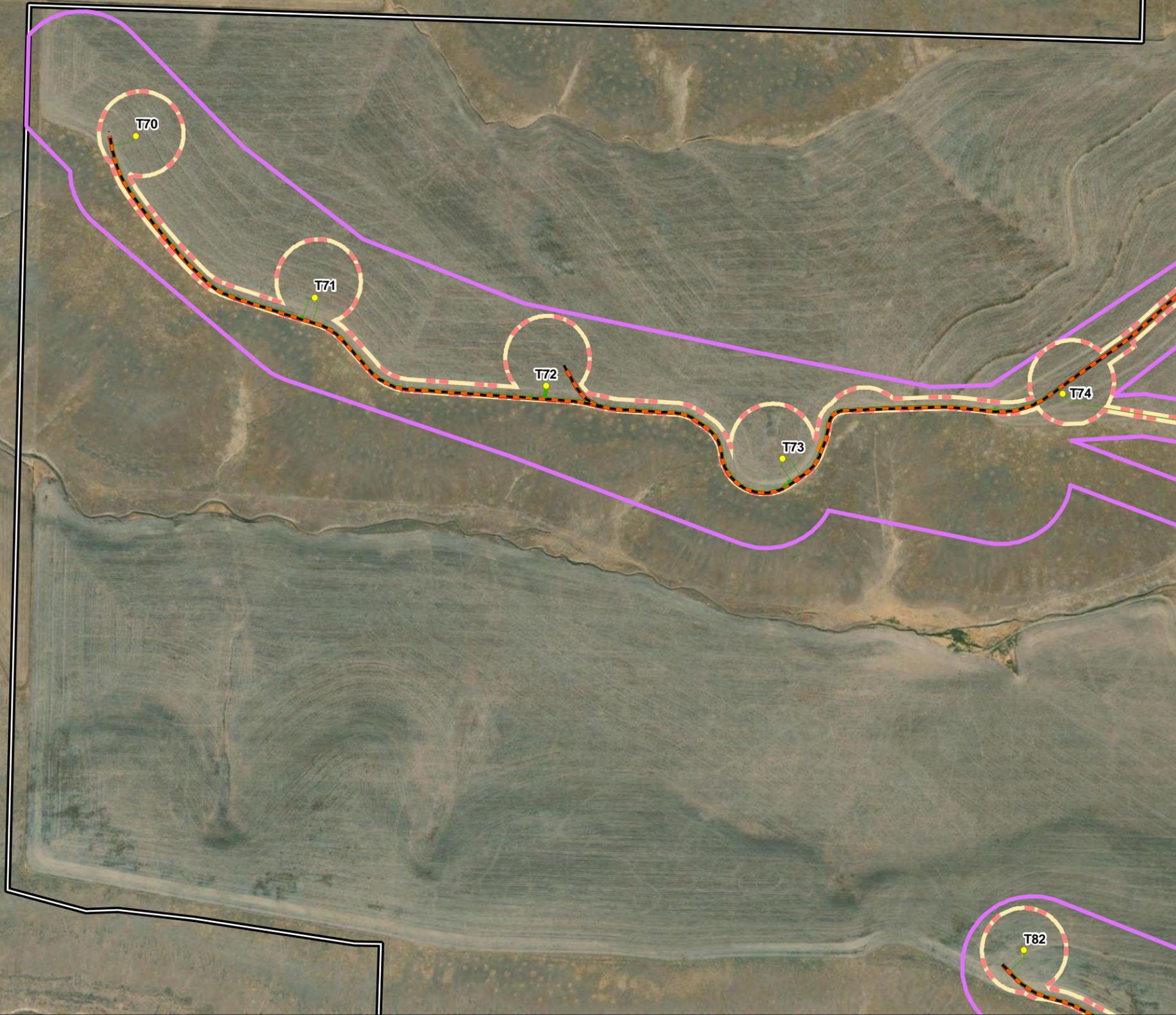
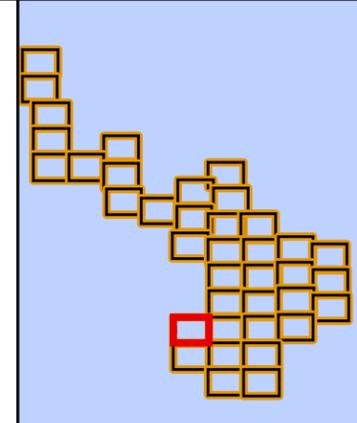
UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance



Data Sources Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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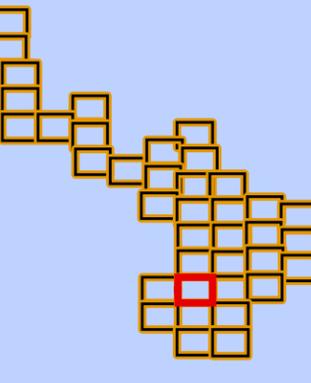
Nolin Hills Wind Power Project

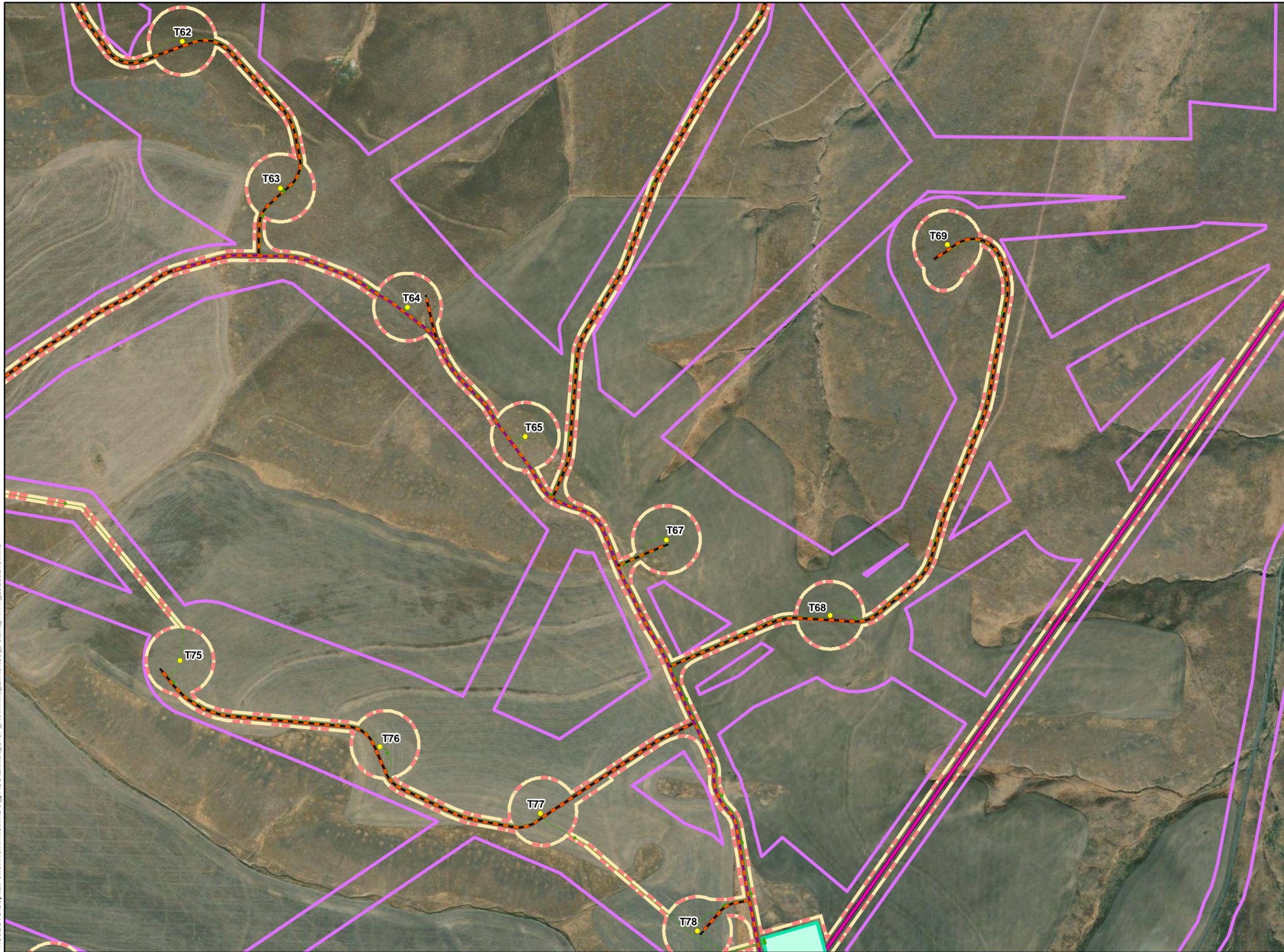
Figure C-5.31
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Proposed Substation
-  Limits of Temporary Disturbance



Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	



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Nolin Hills Wind Power Project

Figure C-5.32
Turbine Option 2
Layout Detail Mapbook

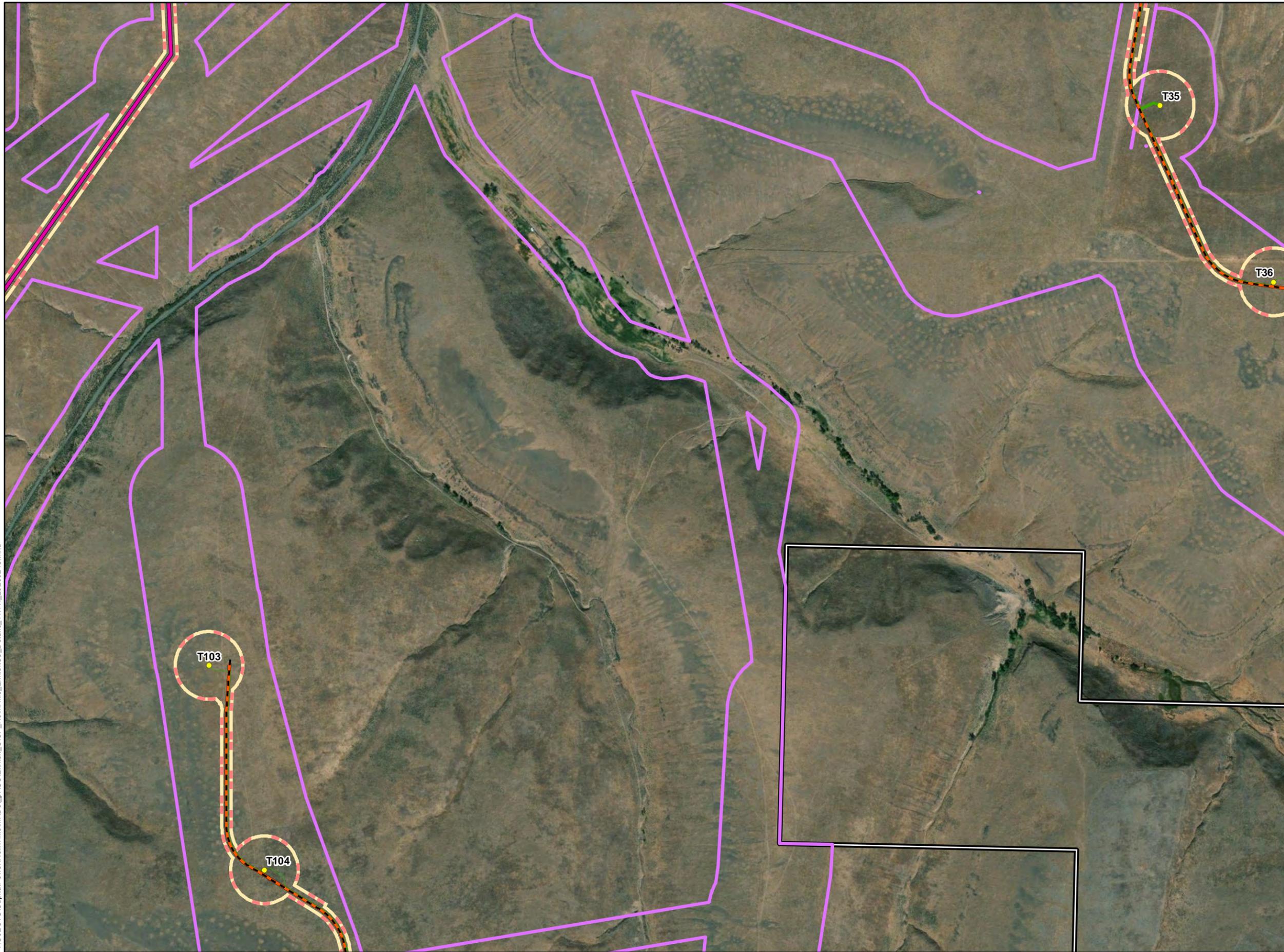
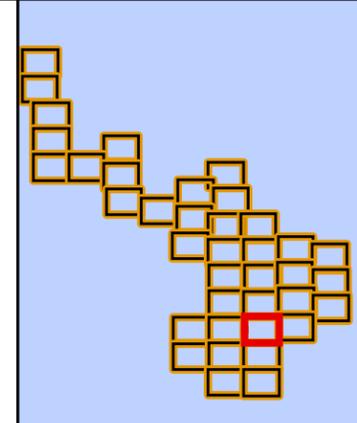
UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Project Substation Connector, 230-kV
-  Limits of Temporary Disturbance



Data Sources Reference Map

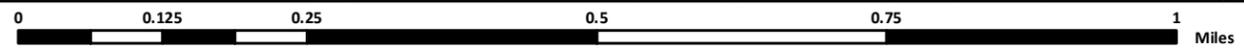
Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

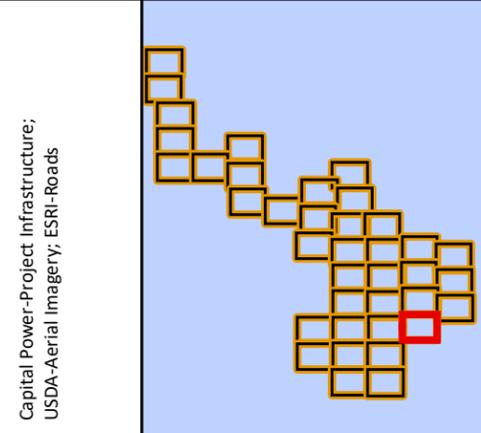
Figure C-5.33
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

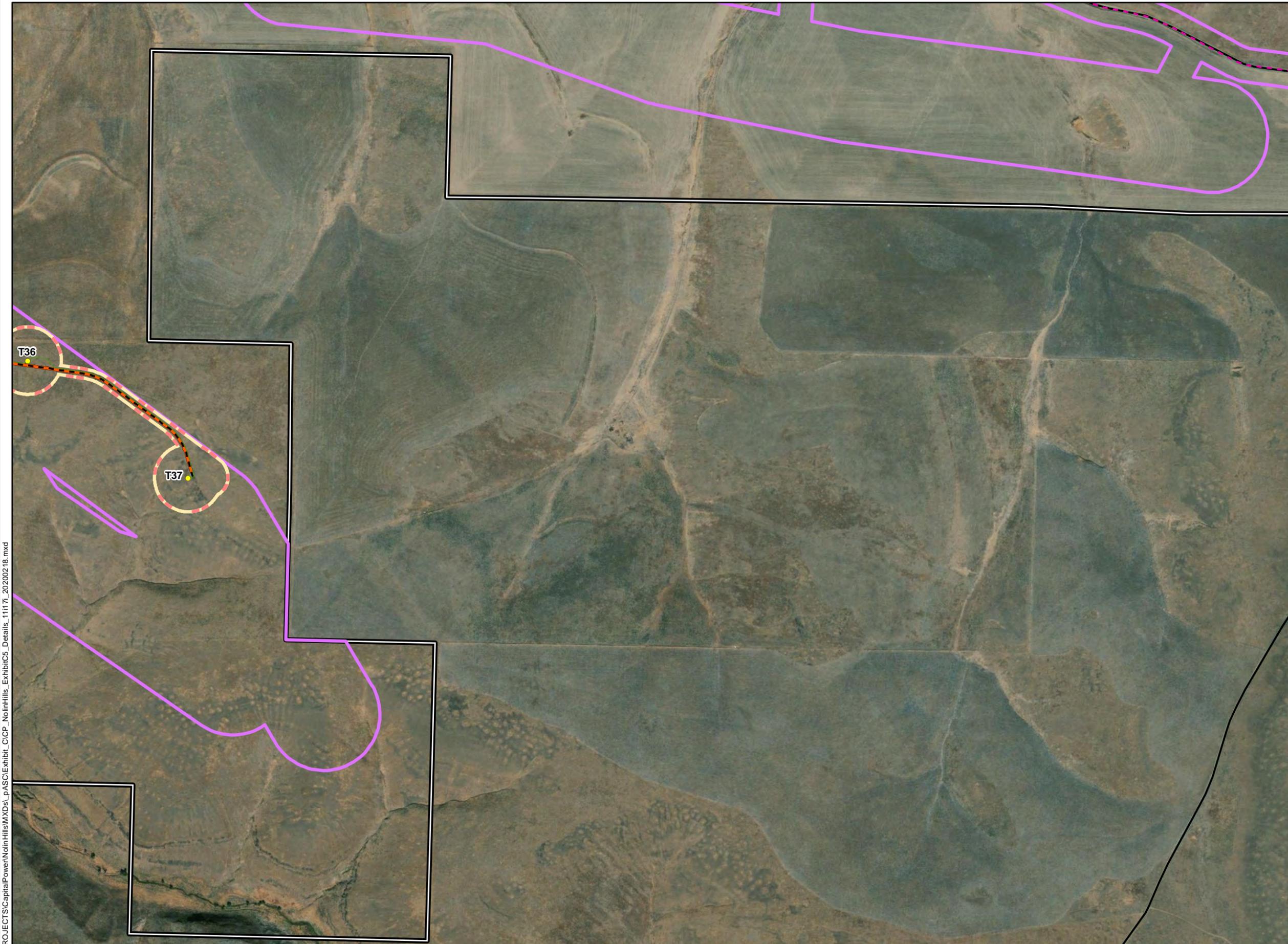
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-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources Reference Map



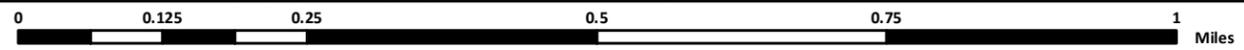
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USDA-Aerial Imagery; ESRI-Roads



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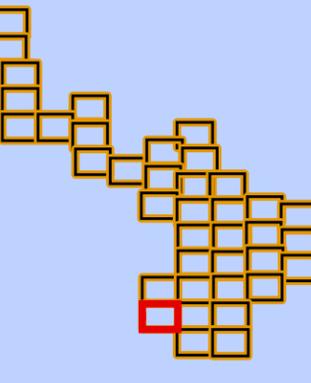
Nolin Hills Wind Power Project

Figure C-5.34
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure C-5.35
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

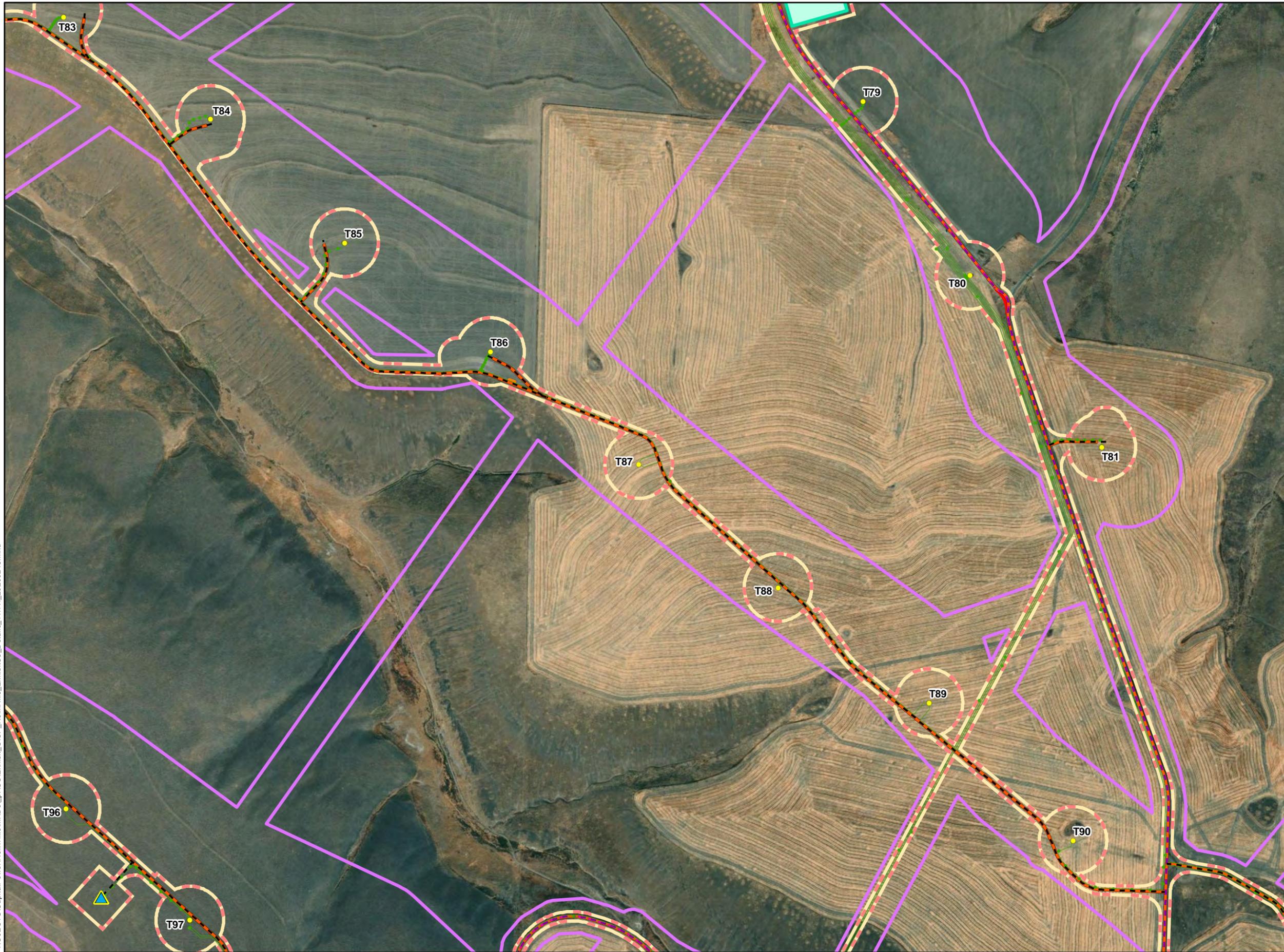
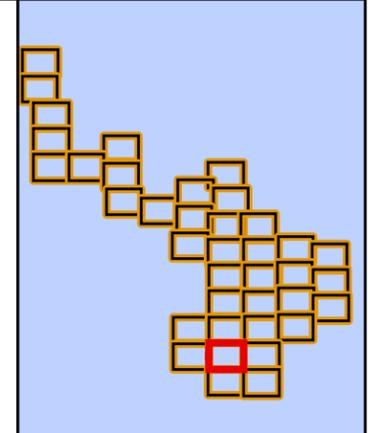
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-  Micrositing Corridor
-  Proposed Turbines
-  Met Tower
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Substation
-  Proposed Turning Radius Improvement
-  Proposed Laydown Area
-  Limits of Temporary Disturbance



Data Sources

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads

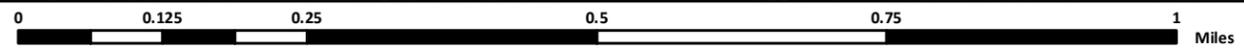
Reference Map



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Nolin Hills Wind Power Project

Figure C-5.36
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

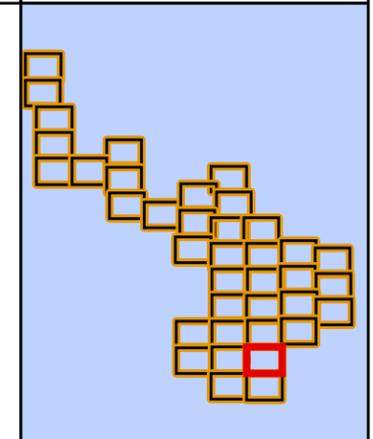
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-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



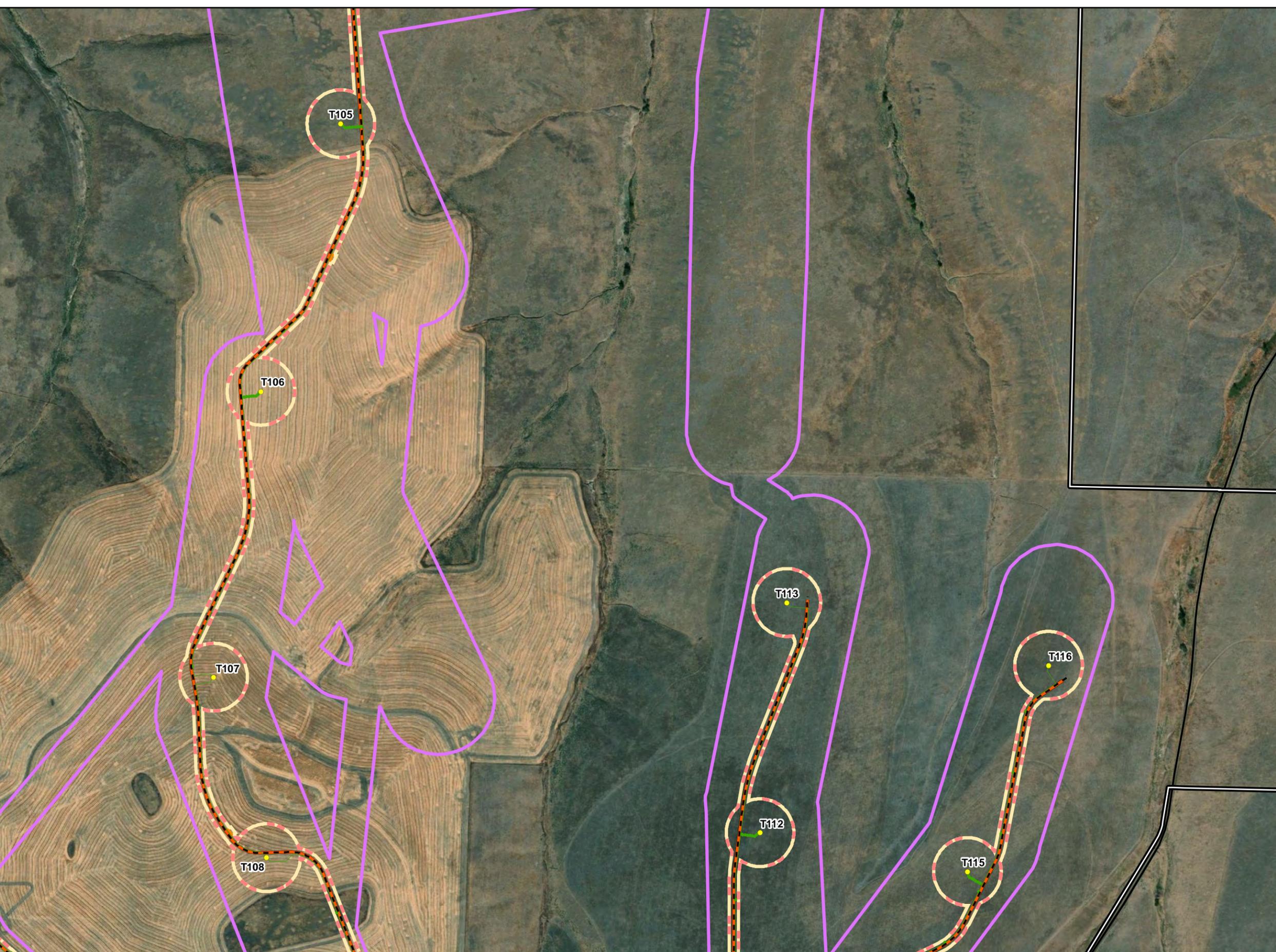
Data Sources

Reference Map

Capital Power-Project Infrastructure;
USDA-Aerial Imagery; ESRI-Roads



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Nolin Hills Wind Power Project

Figure C-5.37
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

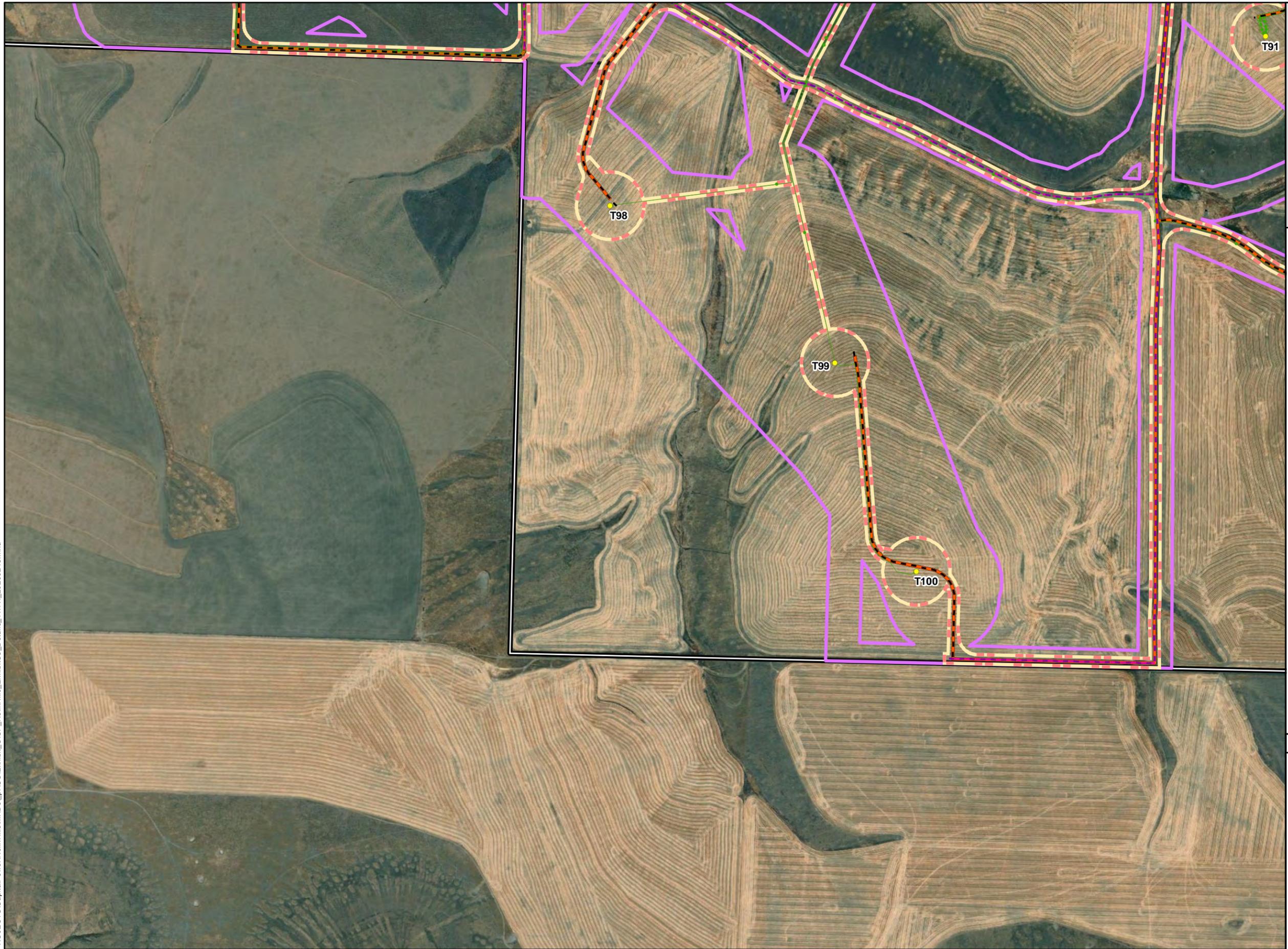
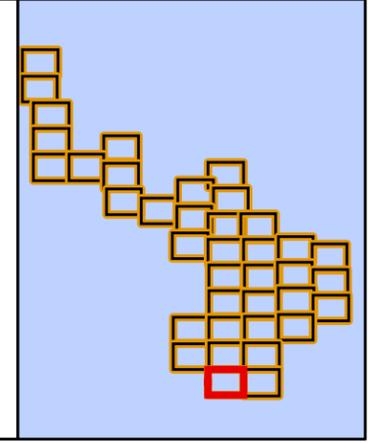
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Access Road (Improve Existing)
-  Proposed Transportation Route
-  Underground Collector Line
-  Proposed Crane Path
-  Limits of Temporary Disturbance



Data Sources

Reference Map

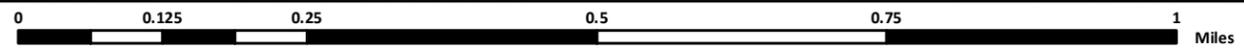
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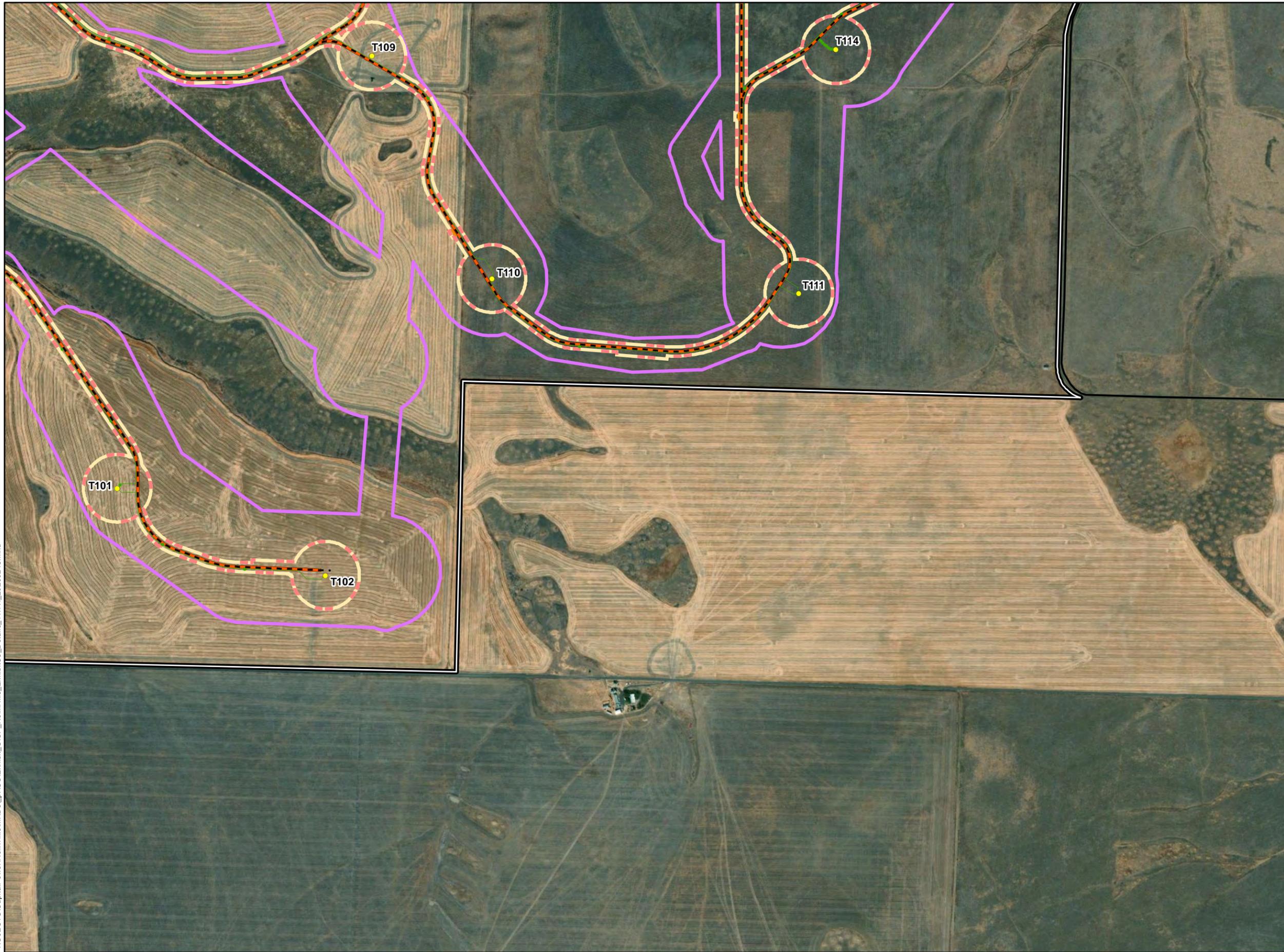
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Nolin Hills Wind Power Project

Figure C-5.38
Turbine Option 2
Layout Detail Mapbook

UMATILLA COUNTY, OREGON

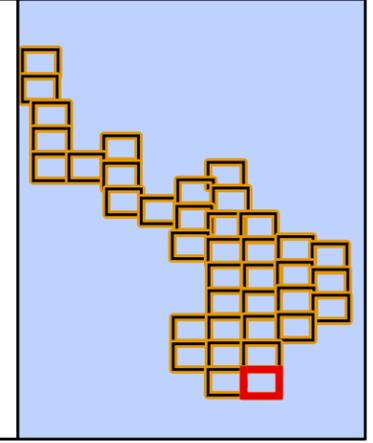
-  Proposed Site Boundary
-  Micrositing Corridor
-  Proposed Turbines
-  Access Road (New)
-  Underground Collector Line
-  Proposed Crane Path
-  Proposed Laydown Area
-  Limits of Temporary Disturbance
-  Secondary Road



Data Sources

Reference Map

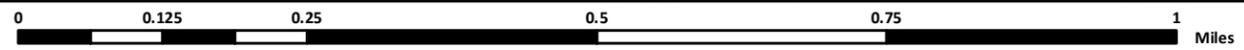
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Attachment C-1. Temporary and Permanent Impacts for Turbine Option 1

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Temporary Impacts for Turbine Option 1 – 58 Siemens-Gamesa 6.0-MW Turbines

Project Component	Units	Dimensions per Unit	Number of Units	Temporary Disturbance Acres ¹	Units	Dimensions per Unit	Number of Units	Permanent Disturbance Acres
Wind Turbines	Acres	6.5	58	369.5	Square feet per tower	5,274	58	7.0
Overhead 34.5-kV Collector Lines	Feet of width per linear foot	35	15.6 (mi)	56.0	Square feet per structure	7.1	366	<0.1
Underground 34.5-kV Collector Lines	Feet of width per linear foot	35	59.2 (mi)	153.6	Feet of width per linear foot	--	--	0
230-kV Project Substation Connector Transmission Line	Feet of width per linear foot	108	6.8 (mi)	88.5	Square feet per structure	25.2	60	<0.1
Pulling & Tensioning Areas	Acres	0.75	10	7.5	Acres	--	--	0
230-kV UEC Cottonwood Transmission Line Route ²	Feet of width per linear foot	12	24.9 (mi)	36.2	Square feet per structure	21	283	0.1
230-kV BPA Stanfield Transmission Line Route ²	Feet of width per linear foot	108	4.1 (mi)	53.7	Square feet per structure	25.2	36	<0.1
Meteorological Towers	Square feet	154,750	2	7.6	Square feet per tower	1,764	2	<0.1
Existing Access Roads to Be Improved	Feet of width per linear foot	66	9.2 (mi)	73.6	Feet of width per linear foot	--	--	0
New Access Roads	Feet of width per linear foot	66	28.9 (mi)	231.1	Feet of width per linear foot	16	28.9 (mi)	56.0
Turning Radius Widening	Acres	--	--	6.8	Acres	--	--	0
Crane Paths	Feet of width per linear foot	75	33.2 (mi)	235.1	Feet of width per linear foot	--	--	0
Substations	Acres	3.3 (N)/2.5 (S)	2	5.8	Acres	10.5 (N)/5.9 (S)	2	16.4

Project Component	Units	Dimensions per Unit	Number of Units	Temporary Disturbance Acres ¹	Units	Dimensions per Unit	Number of Units	Permanent Disturbance Acres
Central Construction Yard	Acres	--	1	27.5	Acres	--	--	0
Distributed Staging Areas	Acres	--	8	0.1	Acres	--	--	0
O&M Building	Acres	--	1	2.9	Acres	--	1	7.63
Total Temporary Impact³				1,011.5	Total Permanent Impact³			87.2
<p>1. Overlapping permanent disturbance area subtracted from temporary impact corridors/areas as described in assumptions Table C-2.</p> <p>2. While only one of the two 230-kV transmission line routes would ultimately be constructed to connect to the regional grid, both are presented to account for all potential impacts.</p> <p>3. Totals were calculated using consolidated data, with areas of overlap eliminated. Therefore, totals are not a sum of the Project component rows.</p>								

Attachment C-2. Temporary and Permanent Impacts for Turbine Option 2

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Temporary and Permanent Impacts for Turbine Option 2 – 116 GE 3.03-MW Turbines

Project Component	Units	Dimensions per Unit	Number of Units	Temporary Disturbance Acres ¹	Units	Dimensions per Unit	Number of Units	Permanent Disturbance Acres
Wind Turbines	Acres	6.5	116	738.9	Square feet per tower	5,274	116	14.1
Overhead 34.5-kV Collector Lines	Feet of width per linear foot	35	9.1 (mi)	28.8	Square feet per structure	7.1	216	<0.1
Underground 34.5-kV Collector Lines	Feet of width per linear foot	35	90.2 (mi)	253.8	Feet of width per linear foot	--	--	0
230-kV Project Substation Connector Transmission Line	Feet of width per linear foot	108	6.8 (mi)	88.5	Square feet per structure	25.2	60	<0.1
Pulling & Tensioning Areas	Acres	0.75	10	7.5	Acres	--	--	0
230-kV UEC Cottonwood Transmission Line Route ²	Feet of width per linear foot	12	24.9 (mi)	36.2	Square feet per structure	21	283	0.1
230-kV BPA Stanfield Transmission Line Route ²	Feet of width per linear foot	108	4.1 (mi)	53.7	Square feet per structure	25.2	36	<0.1
Meteorological Towers	Square feet	154,750	3	10.5	Square feet per tower	1,764	3	0.1
Existing Access Roads to Be Improved	Feet of width per linear foot	66	19 (mi)	151.6	Feet of width per linear foot	--	--	0

Project Component	Units	Dimensions per Unit	Number of Units	Temporary Disturbance Acres ¹	Units	Dimensions per Unit	Number of Units	Permanent Disturbance Acres
New Access Roads	Feet of width per linear foot	66	44 (mi)	351.8	Feet of width per linear foot	16	44 (mi)	85.1
Turning Radius Widening	Acres	--	--	14.6	Acres	--	--	0
Crane Paths	Feet of width per linear foot	75	53.3 (mi)	385.3	Feet of width per linear foot	--	--	0
Substations	Acres	3.3 (N)/ 2.5 (S)	2	5.8	Acres	10.5 (N)/5.9 (S)	2	16.4
Central Construction Yard	Acres	--	1	27.5	Acres	--	--	0
Distributed Staging Areas	Acres	--	11	0.2	Acres	--	--	0
O&M Building	Acres	--	1	2.9	Acres	--	1	7.63
Total Temporary Impact³				1,532.3	Total Permanent Impact³			123.2

1. Overlapping permanent disturbance area subtracted from temporary impact corridors/areas as described in assumptions Table C-2.
 2. While only one of the two 230-kV transmission line routes would ultimately be constructed to connect to the regional grid, both are presented to account for all potential impacts. 3. Totals were calculated using consolidated data, with areas of overlap eliminated. Therefore, totals are not a sum of the Project component rows.