Exhibit B
Project Description

Boardman to Hemingway Transmission Line Project

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Amended Preliminary Application for Site Certificate

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ACRONYMS AND ABBREVIATIONS

AC	alternating current
ACEC	Area of Critical Environmental Concern
ACSR/TW	aluminum conductor steel reinforced with trapezoidal aluminum wires
ANSI	American National Standards Institute
ASC	Application for Site Certificate
B2H	Boardman to Hemingway Transmission Line Project
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
CAP	Community Advisory Process
DOE	United States Department of Energy
EFSC or Council	Energy Facility Siting Council
EFU	exclusive farm use
EHV	extra high voltage
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
I-84	Interstate 84
ICCP	impressed current cathodic protection
IPC	Idaho Power Company
IRP	integrated resource plan
KCM	one thousand circular mils
kV	kilovolt
MW	megawatt
NEPA	National Environmental Policy Act of 1969
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHOTIC	National Historic Oregon Trail Interpretive Center
NOI	Notice of Intent
NWSTF Boardman	Naval Weapons Systems Training Facility Boardman
OAR	Oregon Administrative Rule
OATT	Open Access Transmission Tariff
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
OPGW	optical ground wire
ORS	Oregon Revised Statutes
PAT	Project Advisory Team
PEIS	Programmatic Environmental Impact Statement
PGE	Portland General Electric
Project	Boardman to Hemingway Transmission Line Project
ROW	right-of-way
USFS	United States Forest Service
WAGS	Washington ground squirrel
WECC	Western Electricity Coordinating Council
WWE	West-wide Energy

Exhibit B
Project Description

1.0 INTRODUCTION

Exhibit B provides information about the Boardman to Hemingway Transmission Line Project (Project or B2H), the Project construction schedule, and temporary disturbances of the Project site.

1.1 Project Overview

Idaho Power Company (IPC) is proposing to construct, operate, and maintain a high-voltage electric transmission line between Boardman, Oregon, and the Hemingway Substation in southwestern Idaho as an extension of IPC's electric transmission system. This Amended Preliminary Application for Site Certificate (pASC) seeks authorization for the Project features within the Site Boundary located in Oregon and not Idaho.[1] The Site Boundary for the 500-kilovolt (kV) transmission line is a 500-foot-wide area within which IPC will locate the transmission line and is described in Exhibit C, Section 3.5, Site Boundary. The Site Boundary for the remaining Project features varies by the type of feature (see Exhibit C, Section 3.5, Table C-24).

The Project consists of approximately 296.6 miles of electric transmission line, with 272.8 miles located in Oregon and 23.8 miles in Idaho. The Project includes 270.8 miles of single-circuit 500-kV transmission line, removal of 12 miles of existing 69-kV transmission line, rebuilding of 0.9 mile of a 230-kV transmission line, and rebuilding of 1.1 miles of an existing 138-kV transmission line into a new right-of-way (ROW). Proposed ROW widths are discussed in Section 3.5.2.

The Site Certificate will authorize the following Project features in Oregon:

- ***Transmission Lines.*** The Proposed Corridor consists of an approximately 270.8-mile-long single-circuit 500-kV electric transmission line, removal of 12 miles of existing 69-kV transmission line, rebuilding of 0.9 mile of a 230-kV transmission line, and rebuilding of 1.1 miles of an existing 138-kV transmission line into a new ROW.[2] The Amended pASC includes four alternative routes of the Proposed Corridor, totaling approximately 33.3 miles of transmission line.
- ***Station.*** IPC proposes to build a 20-acre switching station (station) located near the Port of Morrow, Oregon. A switching station provides a combination of switching, protection, and control equipment arranged to provide circuit protection and system switching flexibility for the transfer of electric power, but does not incorporate step-down or step-up voltage equipment.[3] The proposed station will serve to connect the Project to other 500-kV transmission lines and the Pacific Northwest power market. For ease of reference, both the proposed switching station and the Hemingway Substation are referred to simply as "stations" throughout this Amended pASC.

[1] ODOE has jurisdiction over the features located in Oregon and not Idaho. While the Amended pASC discusses the Project features located in Idaho, it does so only to provide context for the analysis related to the Oregon Project features.
[2] The Project features located in Idaho would include an additional 23.8 miles of transmission line leading to the Hemingway Substation.
[3] A switching station is not a substation, which provides the additional function of stepping voltage up and down to allow for distribution to customers. The Project does not include a substation.

- ***Communication Station Sites.*** Communication station sites will consist of a communication shelter and related facilities. The Project will include 10 communication station sites of less than 1/4-acre in size and 2 alternative communication station sites.
- ***Related and Supporting Facilities.*** The Project will include permanent access roads for the Proposed Route, including 206.3 miles of new roads and 223.2 miles of existing roads requiring substantial modification, and for the alternative routes including 30.2 miles of new roads and 22.7 miles of existing roads requiring substantial modification (see Attachment B-5 – Road Classification Guide and Access Control Plan).
- ***Temporary Features***. The Project will include 31 temporary multi-use areas and 299 temporary pulling and tensioning sites, of which four will have light-duty fly yards within the pulling and tensioning sites.

A map of the Project location is set forth in Figure B-1 and details of the alternatives and rebuild routes are shown in Figure B-2. Additional information regarding the location of the Project features is set forth in Exhibit C.

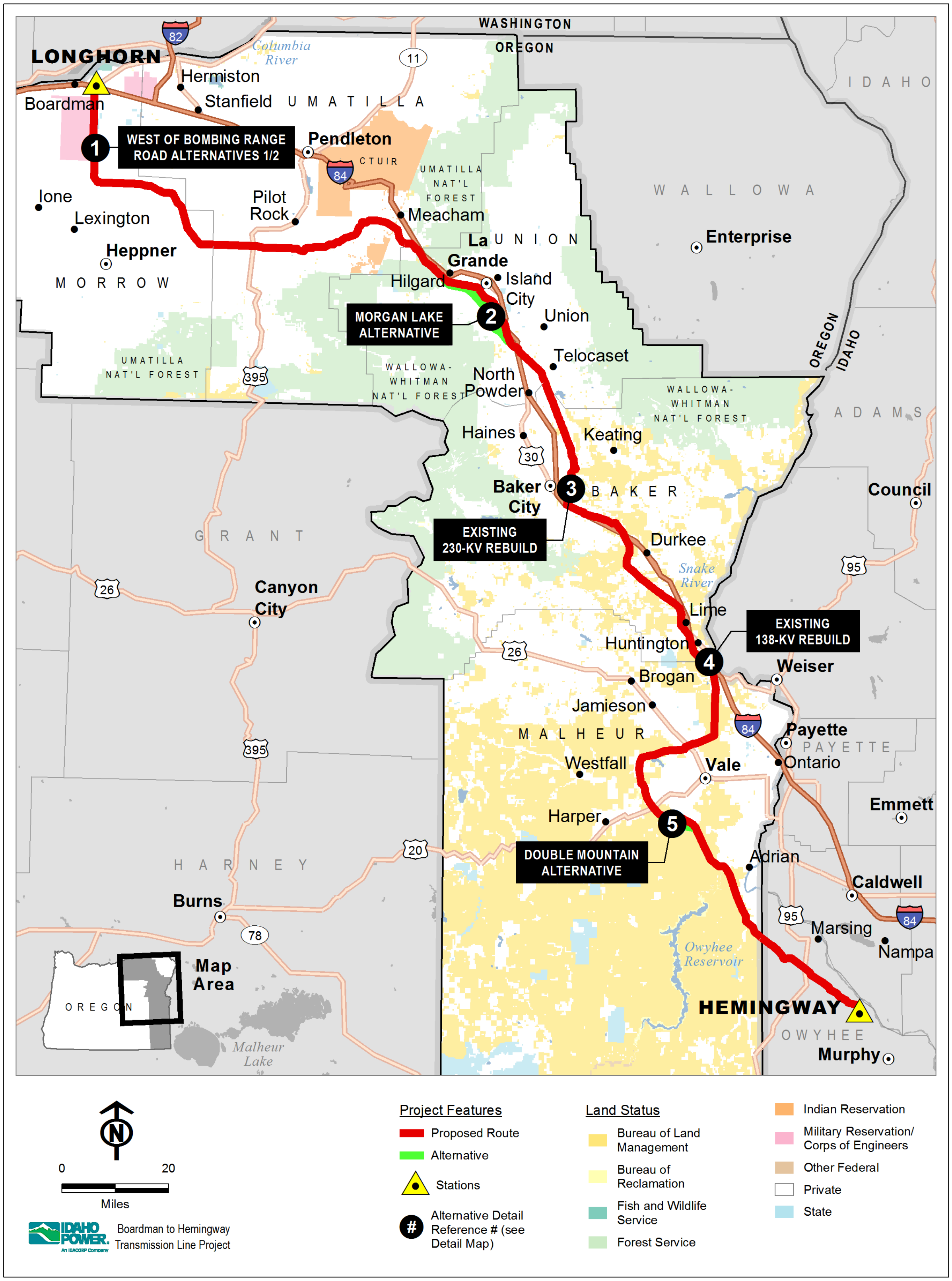


Figure B-1. Location Map

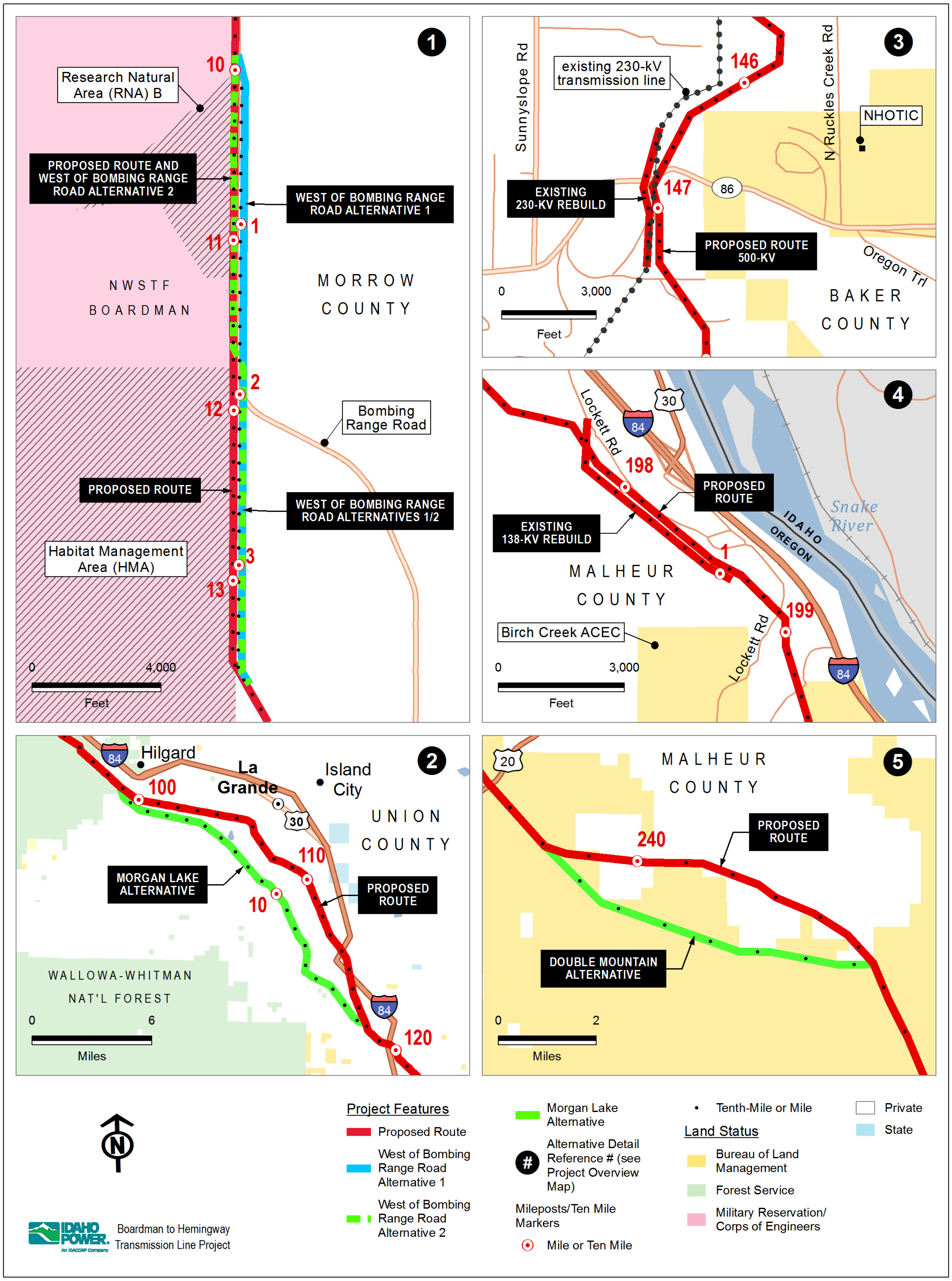


Figure B-2. Detail of Alternatives and 230-kV and 138-kV Rebuilds

1.2 Overview of the Need for the Project

As described in greater detail in Section 3.1 (Corridor Selection Assessment), the location of the Proposed Corridor for the Project has been both driven and limited by the nature of IPC's need for the Project. In order to provide enough background and context to support the Corridor Selection Assessment in Section 3.1, this section provides a high-level summary of IPC's need for the Project. For a detailed technical analysis of how the Project complies with the Energy Facility Siting Council's (EFSC or Council) "need" standard, see Exhibit N.

IPC is required, by both federal and state laws, to plan for and meet load and transmission requirements. Through those planning efforts, IPC identified a 500-kV transmission line between southwest Idaho and the Boardman area in north-central Oregon as a least-cost resource that would enable IPC to meet forecasted load and transmission obligations. Accordingly, IPC has identified a transmission line (now known as the B2H Project) as a critical component of an overall resource portfolio that best balances both cost and risk for more than a decade. As explained in detail in Exhibit N, Section 3.2.2, both the Idaho and Oregon public utility commissions have repeatedly acknowledged resource portfolios that identify the Project as a key resource.

The Project will enable IPC to accomplish the following three critical objectives:

- ***Serve Native Loads.*** The primary objective of the Project is to create additional transmission capacity that would allow IPC to import power from the Pacific Northwest market to serve its retail customers located in the states of Idaho and Oregon. Historically, IPC has been a "summer peaking" utility, while most other utilities in the Pacific Northwest experience system peak loads during the winter. Currently, however, IPC does not have adequate transmission capacity to increase its on-peak power purchases on the western side of its system. As described in the Company's 2013 and 2015 Integrated Resource Plans (IRP), the Project will remedy this transmission constraint by allowing IPC to import an average of 350 megawatts (MW) (500 MW in the summer, 200 MW in the winter) of market purchases to serve its native load (IPC 2013, 2015). In this way, the Project is properly viewed as a supply-side resource, similar to a generation plant, which will allow IPC to meet its expected loads. Further, better access to the Pacific Northwest power market is critical because that market is very liquid with a high number of participants and transactions. On the other hand, the accessible power markets south and east of IPC's system tend to be smaller, less liquid, and have greater transmission distances. Historically, during IPC's peak-hour load periods, off-system market purchases from the south and east have proven to be unavailable or very expensive. Many of the utilities to the south and east of IPC also experience a summer peak, and the weather conditions that drive IPC's summer peak-hour load are often similar across the Intermountain Region. Therefore, IPC imports from the Intermountain Region are not a viable alternative to the Project.
- ***Meet Transmission Reliability Standards.*** The Project is an integral component of regional transmission planning because it will serve as a crucial high-capacity connection between two key points in the existing bulk electric system that currently lack sufficient transmission capacity. The Project will relieve congestion of the existing transmission system and enhance the reliable, efficient, and cost-effective energy transfer capability between the Pacific Northwest and Intermountain regions. The addition of B2H to the regional grid would create additional redundancy in pathways that will enable IPC and other transmission providers to maintain reliable electric service pursuant to the standards set forth by the North American Electric Reliability Corporation (NERC) and implemented by the Western Electricity Coordinating Council (WECC).

- ***Provide Transmission Service to Wholesale Customers***. The Project allows IPC to comply with the requirements of the Federal Energy Regulatory Commission (FERC), which require IPC to construct adequate transmission infrastructure to provide service to wholesale customers in accordance with IPC's Open Access Transmission Tariff. IPC expects interconnection and transmission requests to continue as renewable resources are developed throughout the region.

Through study and planning, IPC concluded that the three Project objectives—to provide additional capacity for the delivery of up to 500 MW of needed energy to IPC's service area, alleviate reliability constraints, and relieve existing transmission congestion in the region—would best be met by connecting IPC's existing transmission system to the existing Pacific Northwest 500-kV transmission grid. These three Project objectives led directly to the identification of the Project's north and south endpoints. IPC identified one endpoint in the Boardman, Oregon, area because it is the easternmost point at which IPC can feasibly interconnect to the Pacific Northwest market. Through system modeling and coordination with other transmission providers, IPC identified two possible interconnection points in the Boardman area (the Boardman–Slatt 500-kV transmission line or the McNary-Coyote Springs 500-kV transmission line). IPC identified the other endpoint as IPC's existing Hemingway Substation because it is the westernmost point in IPC's existing transmission system that could accommodate termination of a 500-kV transmission line.

With these two key endpoints in mind, IPC's corridor selection process involved evaluation of an 11-county study area as shown in Figure B-3 (in Section 3.1.1) and a virtually unlimited number of possible corridors that could connect the identified endpoints. As illustrated in a broad sense in Figure B-4 (in Section 3.1.1.1), which shows selected key constraints, the study area identified by IPC includes an extremely complex assortment of siting constraints, including the following:

- Extensive areas of agricultural land and land zoned exclusive farm use (EFU);
- Areas of the National System of Public Lands administered by the Bureau of Land Management (BLM), United States Forest Service (USFS), and other federal agencies charged with managing the numerous resources in the mountains and high desert; and
- The presence of many sensitive resources, including key wildlife habitat, protected areas, and cultural resources.

The Proposed Corridor described in this Amended pASC is the result of an extensive corridor selection process that has occurred over 9 years and three phases, described more fully in Section 3.1.

2.0 APPLICABLE RULES AND AMENDED PROJECT ORDER PROVISIONS

2.1 Site Certificate Application Requirements

Oregon Administrative Rule (OAR) 345-021-0010(1)(b) provides Exhibit B must include the following information about the proposed facility, construction schedule, and temporary disturbances of the site:

> *(A) A description of the proposed energy facility, including as applicable:*
>
> > *. . .*
> >
> > *(ii) Major components, structures, and system, including a description of the size, type and configuration of equipment used to generate electricity and useful thermal energy;*
> >
> > *(iii) A site plan and general arrangements of buildings, equipment and structures;*
> >
> > *(iv) Fuel and chemical storage facilities, including structures and systems for spill containment;*
> >
> > *(v) Equipment and systems for fire prevention and control.*
> >
> > *. . .*
>
> *(B) A description of major components, structures, and systems of each related or supporting facility.*
>
> *(C) The approximate dimensions of major facility structures and visible features.*
>
> *(D) If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, a corridor selection assessment explaining how the applicant selected the corridor(s) for analysis in the application. In the assessment, the applicant shall evaluate the corridor adjustments the Department has described in the project order, if any. The applicant may select any corridor for analysis in the application and may select more than one corridor. However, if the applicant selects a new corridor, then the applicant must explain why the applicant did not present the new corridor for comment at an informational meeting under OAR 345-015-0130. In the assessment, the applicant shall discuss the reasons for selecting the corridor(s), based upon evaluation of the following factors:*
>
> > *(i) Least disturbance to streams, rivers and wetlands during construction.*
> >
> > *(ii) Least percentage of the total length of the pipeline or transmission line that would be located within areas of Habitat Category 1, as described by the Oregon Department of Fish and Wildlife.*
> >
> > *(iii) Greatest percentage of the total length of the pipeline or transmission line that would be located within or adjacent to public roads and existing pipeline or transmission line rights-of-way.*
> >
> > *(iv) Least percentage of the total length of the pipeline or transmission line that would be located within lands that require zone changes, variances or exceptions.*
> >
> > *(v) Least percentage of the total length of the pipeline or transmission line that would be located in a protected area as described in OAR 345-022-0040.*

(vi) Least disturbance to areas where historical, cultural or archaeological resources are likely to exist.

(vii) Greatest percentage of the total length of the pipeline or transmission line that would be located to avoid seismic, geological and soils hazards.

(viii) Least percentage of the total length of the pipeline or transmission line that would be located within lands zoned for exclusive farm use.

(E) If the proposed energy facility is a pipeline or transmission line or has, as a related or supporting facility, a transmission line or pipeline of any size:

(i) The length of the pipeline or transmission line.

(ii) The proposed right-of-way width of the pipeline or transmission line, including to what extent new right-of-way will be required or existing right-of-way will be widened.

(iii) If the proposed transmission line or pipeline corridor follows or includes public right-of-way, a description of where the transmission line or pipeline would be located within the public right-of-way, to the extent known. If the applicant proposes to locate all or part of a transmission line or pipeline adjacent to but not within the public right-of-way, describe the reasons for locating the transmission line or pipeline outside the public right-of-way. The applicant must include a set of clear and objective criteria and a description of the type of evidence that would support locating the transmission line or pipeline outside the public right-of-way, based on those criteria.

(iv) For pipelines, the operating pressure and delivery capacity in thousand cubic feet per day and the diameter and location, above or below ground, of each pipeline.

(v) For transmission lines, the rated voltage, load carrying capacity, and type of current and a description of transmission line structures and their dimensions.

(F) A construction schedule including the date by which the applicant proposes to begin construction and the date by which the applicant proposes to complete construction. Construction is defined in OAR 345-001-0010. The applicant shall describe in this exhibit all work on the site that the applicant intends to begin before the Council issues a site certificate. The applicant shall include an estimate of the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor, that the applicant anticipates or has performed as of the time of submitting the application.

2.2 Amended Project Order Provisions

The Amended Project Order states that all paragraphs of OAR 345-021-0010(1)(b) apply to the Project, except (A)(i), (vi), (vii), and (viii). The Amended Project Order also includes the following discussion:

The description of the proposed facility in the application will form the basis for the description of the facility in the site certificate. The site certificate will require that IPC build the facility "substantially as described." Exhibit B will also provide the basis for the project description in the notice of application that ODOE will issue to reviewing agencies and public. Therefore, Exhibit B shall describe the project in enough detail for members of the public and reviewing agencies to make informed comments. Exhibit B shall describe the project sufficiently for ODOE staff to verify that the constructed project will meet any representations that are the basis for findings of compliance with *applicable regulations for standards. It should not include descriptive material that IPC would not want to be held in a site certificate condition.*

The application must clearly describe the width of the corridor in which the micrositing corridor right-of-way would be sited along the length of the proposed line. The application must specify the width of the permanent right-of-way IPC will request, and must justify that width. The Council may direct IPC to acquire a narrower right-of-way in areas that are important for agriculture or for habitat, and it may allow a wider right-of-way at certain locations for staging areas. The application must also explain in detail what limitations would be placed on the property owner in the transmission line right-of-way.

The application should describe all related and supporting facilities that the applicant proposes to be included in and governed by the site certificate, including proposed multiple use areas, fly yards, and access roads. For existing roads or road segments that will be included as related and supporting facilities, include a description of the proposed modifications and improvements to those existing roads or road segments. For multiple use areas and fly yards, include a description of the activities that are expected to occur at these areas.

The alternatives analysis described in section OAR 345-021-0010(1)(b)(D) must be consistent with the analysis required by ORS 215.275 and the required information in this rule. The Council recognizes that some of the factors in this rule compete with one another (for example, the requirements to both avoid habitat land and avoid farm land), but expects the application to demonstrate that all required factors were considered.

(Amended Project Order, Section III(b)).

3.0 ANALYSIS

Exhibit B describes how and why IPC selected the Project and its Proposed Corridor, and provides information regarding the Project facilities (major components, structures, and systems).[4] Section 3.0 provides the information required by OAR 345-021-0010(1)(b) in the following order:

- Section 3.1 Corridor Selection Assessment
- Section 3.2 Description of the Proposed Facility
- Section 3.3 Related and Supporting Facilities
- Section 3.4 Approximate Dimensions
- Section 3.5 Information Required for Transmission Line Projects
- Section 3.6 Construction Schedule
- Section 3.7 Limitations on Use of the Right-of-Way

3.1 Corridor Selection Assessment

> OAR 345-021-0010(1)(b)(D): If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, a corridor selection assessment explaining how the applicant selected the corridor(s) for analysis in the application. . .

[4] The specific details regarding the location of the Project and the Project Site Boundary are discussed in Exhibit C.

IPC's corridor selection process occurred primarily in four phases: Phase One between 2008 and 2010, Phase Two between 2010 and 2012, Phase Three between 2012 and 2015, and Phase Four in 2016. In 2010, IPC developed the original Siting Study detailing the company's siting process for the Project (see Attachment B-1, 2010 Siting Study). IPC developed three supplements to the Siting Study, describing changes to the Project corridor and location of the Project features (see Attachment B-2, 2012 Supplemental Siting Study; Attachment B-4, 2015 Supplemental Siting Study; and Attachment B-6, 2017 Supplemental Siting Study).[5] The following discussion summarizes IPC's general approach to siting, each phase of IPC's corridor selection process, and how IPC selected its Proposed Corridor based on careful consideration of numerous siting criteria, including the eight factors set forth in OAR 345-021-0010(1)(b)(D) and the six factors in Oregon Revised Statutes (ORS) 215.275.

3.1.1 Initial Study Area: Constraints and Opportunities

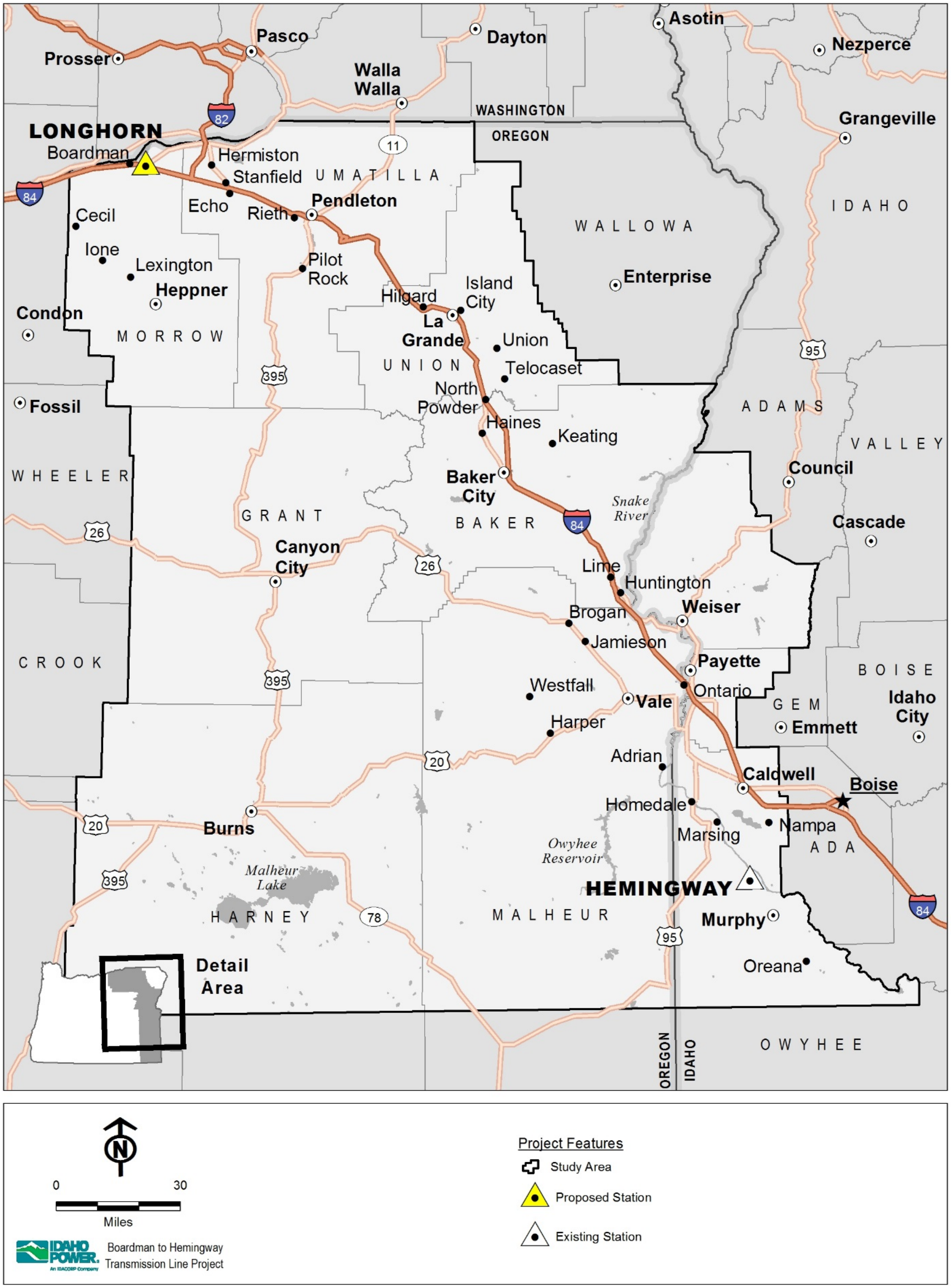
Initially, IPC studied an area extending from Morrow County, Oregon, to the Hemingway Substation in Owyhee County, Idaho. The area included much of eastern Oregon and southwest Idaho as shown in Figure B-3. The study area comprised all or portions of the 11 counties listed in Table B-1 and covered approximately 31,422 square miles, of which 43 percent is privately owned and 57 percent is government-owned.

Table B-1. Counties in the Study Area

Oregon Counties	Idaho Counties
Morrow County	Washington County
Umatilla County	Canyon County
Union County	Payette County
Baker County	Owyhee County
Malheur County (portion)	
Grant County	
Harney County (portion)	

The study area included the agricultural area south of the Columbia River, Blue Mountains, high desert, Owyhee Canyon country, and large areas of irrigated farmland on both sides of the Snake River. Urban development is greatest in the Snake River Valley, especially on the Idaho side of the river, and along Interstate 84 (I-84) around Baker City, La Grande, Pendleton, Hermiston, and Boardman. There are four national forests covering large portions of the central mountainous area that are managed by the USFS for a large number of biological, scenic, recreation, and other resources. BLM manages a variety of resources on a large portion of the high desert areas in the southern half of the study area.

[5] In the siting studies, the term "route" is used in instead of "corridor." The use of the term "route" in those studies should be considered synonymous with "corridor" for the purposes of this Exhibit.



1 **Figure B-3. Study Area**

3.1.1.1 Constraints

IPC considered certain constraints to identify and evaluate feasible corridors for the development of a new transmission line. IPC defined “constraints” as resources or conditions that potentially limit transmission line siting because of relative sensitivity to facility construction or operation and/or regulatory restrictions. Data collection and meetings with stakeholders resulted in over 200 data sets and helped establish the level of permitting importance from the stakeholder perspective of each constraint for siting alternative corridors. The following is a summary description of the constraints:

Agricultural Areas – There are large agricultural areas in the north, in the south, and in Union, Baker and Malheur counties. Northern Morrow and Umatilla counties include many farms with pivot irrigation as well as extensive areas of dryland farming. Union, Baker, and Malheur counties have substantial irrigated agricultural areas in the valley bottoms near the communities of La Grande, Baker City, and Vale. In the south, conditions are similar except that there is more development especially in the Idaho portion of the study area.

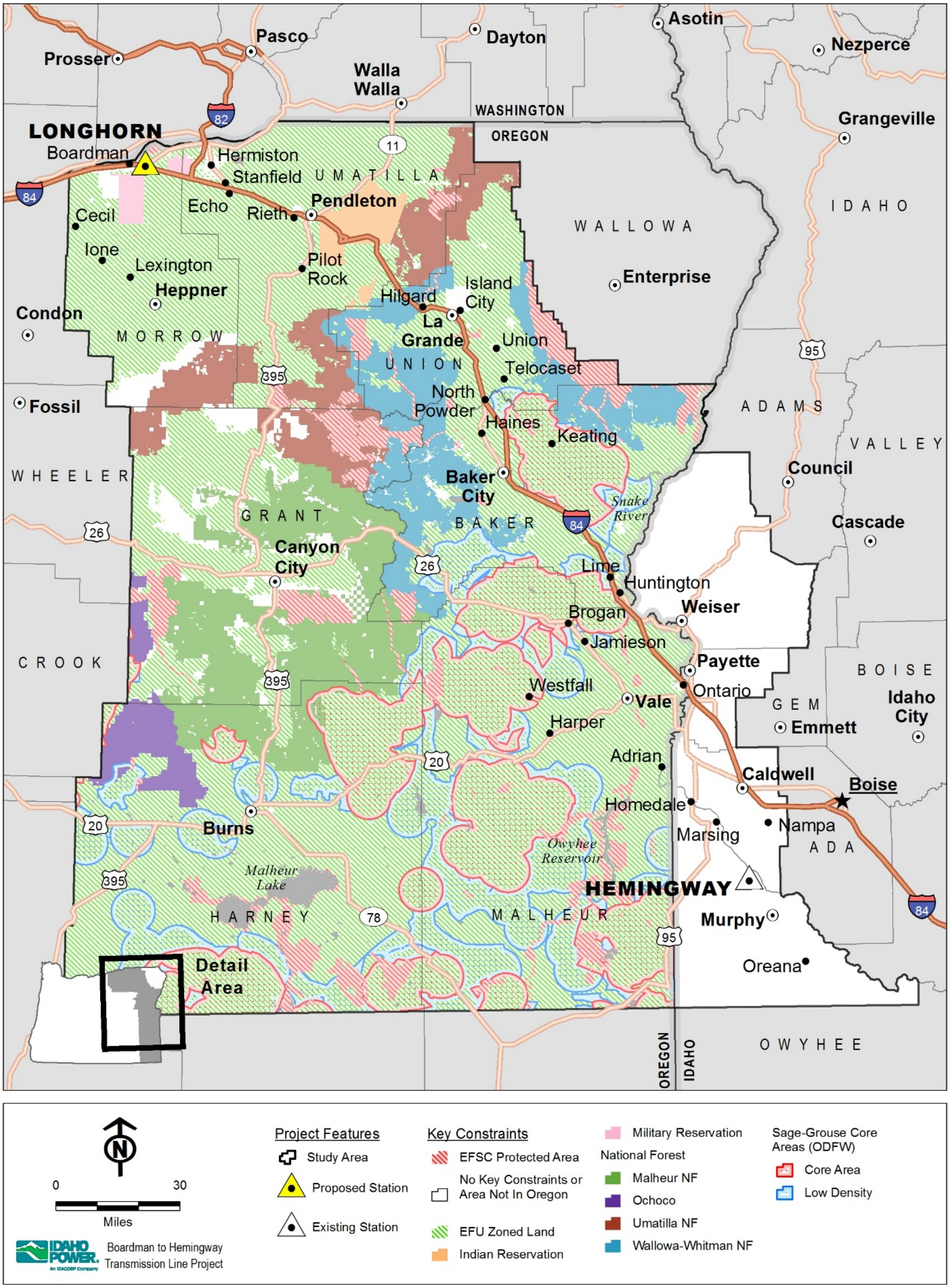
High Desert – Areas of high desert extend across much of the southern half of the study area up into Baker and Grant counties. Much of the land is managed by BLM and is designated as Areas of Critical Environmental Concern (ACECs), wilderness study areas, and other special resource management areas; there are also large areas of sage-grouse habitat. There are a number of small cities and towns but overall development occupies a small percentage of the high desert.

Mountainous Area – The mountainous areas such as the Blue Mountains present very challenging topography with many areas of steep slopes in excess of 35 percent and other areas of unstable slopes presenting design and construction challenges. National forests including the Wallowa-Whitman, Malheur, Umatilla, and Ochoco occupy much of the forested mountainous area (see Figure B-4). Some examples of the most challenging constraints in this area include wilderness areas, wilderness study areas, wild and scenic rivers, special status streams, inventoried roadless areas, and USFS visual quality objectives.

Land Use Zones – Under Oregon law, counties are required to zone agricultural lands to achieve compliance with Statewide Planning Goal 3 (Agriculture). Similarly, counties are required to zone forest lands to achieve compliance with Statewide Planning Goal 4 (Forest Lands). The land in the study area is zoned primarily for agricultural and forest uses; urban and non-resource lands are scarce (see Figure B-5). As shown in Figure B-5, Goal 3 resource lands include all lands designated by counties as either a qualifying exclusive farm use zone or a hybrid agriculture/forest zone. Accordingly, the terms “exclusive farm use” or “EFU” are used in this Exhibit to refer to all Goal 3 resource lands (including hybrid zones). Avoidance of EFU land, and particularly irrigated agricultural lands, was a key siting objective. However, because EFU lands cover approximately 77 percent of the study area in Oregon, avoidance of EFU lands was not possible (see Exhibit K, Section 6.3).

Site-specific Constraints – Many other more site-specific constraints were considered such as the growing number of wind energy facilities, government-managed lands such as the Naval Weapons System Training Facility Boardman (NWSTF Boardman), historic resources such as the Oregon National Historic Trail, and habitat for protected species such as the Oregon-listed Washington ground squirrel.

Figure B-4 provides an overview of certain key constraints in the Project study area. Table B-2 includes a list of each constraint considered. Figure B-5 identifies the location of Goal 3 or Goal 4 resources in the study area.



1 **Figure B-4. Selected Key Constraints**

Table B-2. 2008–2010 Siting Constraints Table

Constraint	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Cultural Resources	
Burns District Archaeological Site	vi
Burns District Traditional Use Areas	vi
Cemetery	vi
Intact Oregon Trail Segment (Oregon BLM)	vi
National Historic Oregon Trail Interpretive Center	vi
National Register Historic Point Site	vi
Oregon Trail	vi
Oregon Trail Brochure – Trail rut	vi
Vale District Archaeological Site	vi
Within 0.5 mile of National Register Historic Place Buffer	vi
Within 1,200 foot Historic Trail Buffer	vi
Within 500 feet of Cemetery	vi
Fish and Wildlife	
Burns District Bald Eagle Site	ii
Burns District Raptor Site	ii
ODFW Big Game Deer Winter Range	ii
ODFW Big Game Elk Winter Range	ii
ODFW Bighorn Sheep Range	ii
ODFW Conservation Opportunity Area	ii
ODFW Sage-grouse Lek	ii
Prineville District Fish Restoration Area	ii
Prineville District Wildlife Habitat Seasonal Closure Area	ii
Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	ii
Sage-grouse Core Area 2: Potential Habitat (Oregon)	ii
Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	ii
Washington Ground Squirrel 785ft Buffer	ii
Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied but able to be Permitted)	ii
Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied)	ii
Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	ii
Within 300ft Special Status Stream/Lake: Bull Trout	i
Within 300ft Special Status Stream: Chinook Salmon	i
Within 300ft Special Status Stream: Coho Salmon	i
Within 300ft Special Status Stream: Cutthroat Trout	i
Within 300ft Special Status Stream: Red Band Trout	i
Within 300ft Special Status Stream: Sockeye Salmon	i
Within 300ft Special Status Stream: Steelhead	i

Constraint	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Geology and Soils	
Erosion Hazard: High (Natural Resources Conservation Service Soil Data – Grant Co, Oregon data NA)	vii
Erosion Hazard: High (Prineville District, Oregon)	vii
Erosion Hazard: Low (NRCS Soil Data – Grant Co., Oregon data NA)	vii
Erosion Hazard: Moderate (NRCS Soil Data – Grant Co, Oregon data NA)	vii
Fault Line	vii
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Oregon Landslide Feature: Landslide	vii
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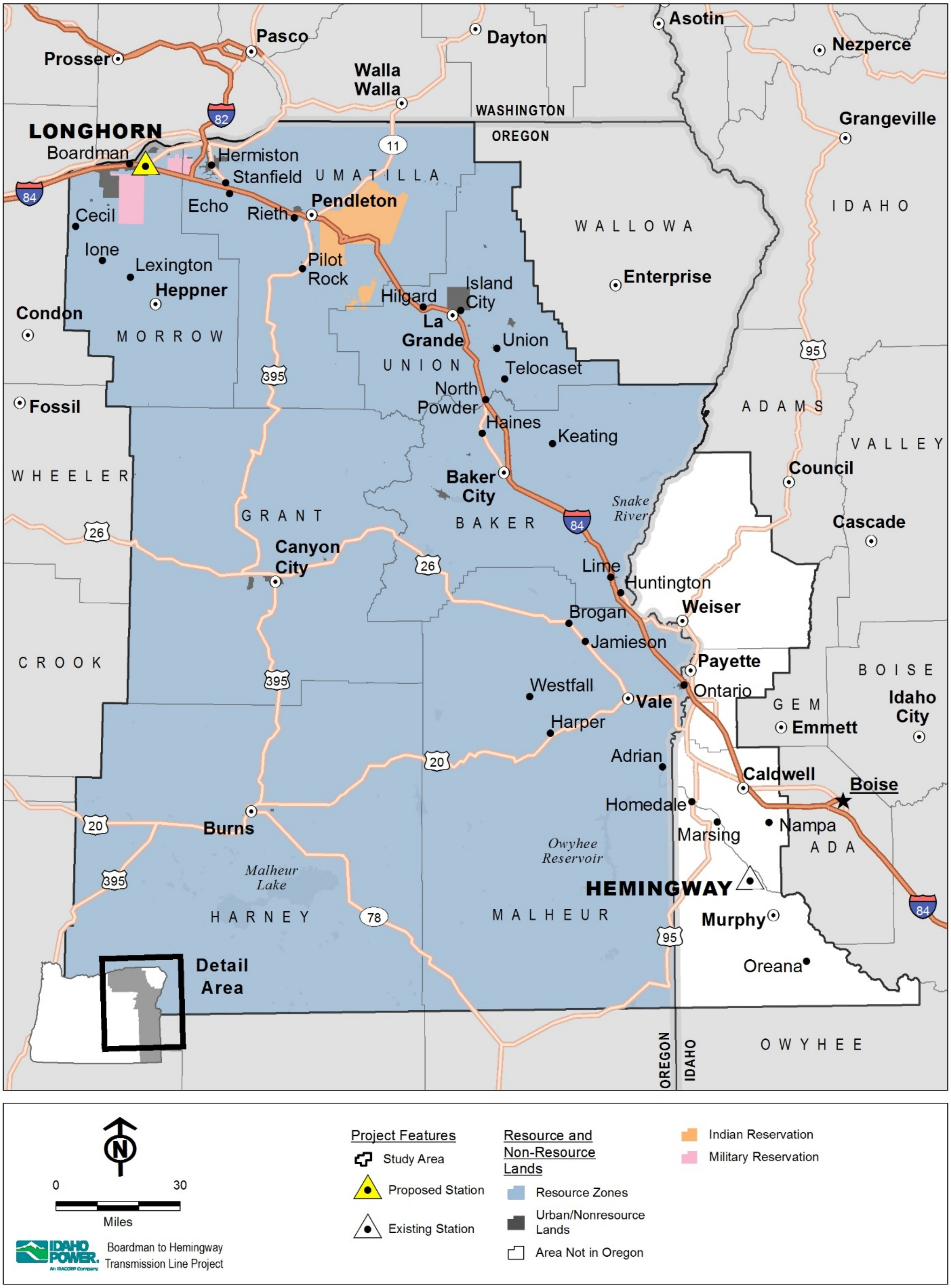
Birch Creek Interpretive Site	v
BLM Recreation Site (Oregon and Idaho)	v
BLM Wild and Scenic River: Recreation	v
BLM Wild and Scenic River: Scenic	v
BLM Wild and Scenic River: Suitable Lands (Prineville District, Oregon)	v
BLM Wild and Scenic River: Wild	v
BLM Wilderness Study Area (Oregon/Idaho)	v
Burns District Off-Highway Vehicle: Limited	O[1]
Burns District Off-Highway Vehicle: Seasonal Closure	O
Burns District ROW Avoidance Corridor	O
Confederated Tribes of the Umatilla Indian Reservation	O
Cropland/Irrigated Agriculture	O
CTWSR Forrest Conservation Area	O
CTWSR Oxbow Conservation Area	O
Forested Land: Private	iv
Forested Land: Public	iv
Grazing/Pasture – Oregon	O
Hells Canyon National Recreation Area	v
Hospitals	O
Howard Meadows	O

Constraint	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Irrigated Agriculture/Cropland	O
Lands with Wilderness Characteristics (Oregon BLM)	O
Lower Powder River Valley	O
Morrow County Park	v
National Forest Inventoried Roadless Area	v
National Forest Military Operations Area	O
National Forest Old Growth Forest Stand	ii
National Forest Recreation Site	v
National Forest Special Use Areas	v
National Forest Wilderness Area	v
National Forest: Special Interest Area	v
National Wildlife Refuge	v
Naval Weapons System Training Facility	O
North Powder Valley	O
Noxious Weeds (Oregon BLM)	O
ODFW Wildlife Management Area	v
Oregon Fish Hatcheries	v
Oregon State Park	v
Oregon/Idaho Trails	O
Prineville District Lands Proposed for Acquisition by BLM	O
Prineville District Noxious Weeds	O
Prineville District Off-Highway Vehicle: Closed	O
Prineville District Off-Highway Vehicle: Limited Use	O
Prineville District Old Growth Forest	ii
Prineville District Proposed Area of Critical Environmental Concern	v
Prineville District Special Recreation Management Area	O
Proposed Wilderness Study Area Oregon Natural Desert Association	O
Proposed Wind Farm Boundary (Burns District, Oregon)	O
Restricted Airspace – Airport	O
Special Recreation Management Area (Malheur Resource Management Area, Vale District, Oregon)	v
Starkey Game Management Area	v
The Nature Conservancy: Portfolio	O
The Nature Conservancy: Preserve	O
Thief Valley Reservoir	O
Urban Area	O
Urban Growth Boundary – Oregon	O
Vale District Off-Highway Vehicle: Closed	O
Vale District Off-Highway Vehicle: Limited to Designated Routes	O
Vale District Off-Highway Vehicle: Limited to Existing Routes	O
Virtue Flat OHV Park	O

Constraint	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Wild Horse and Burro Area (Oregon BLM)	O
Wind Farm Boundary	O
Land Ownership/Management	
Bureau of Land Management	O
Bureau of Reclamation	O
Indian Reservation	O
Military Land	O
National Forest Land	O
National Park Service	v
Other Federal Land	O
Private Land	O
State Land	O
US Fish and Wildlife Service Land	O
Visual Resources	
BLM Visual Resource Management Class 1	O
BLM Visual Resource Management Class 2	O
BLM Visual Resource Management Class 3	O
BLM Visual Resource Management Class 4	O
Devine Scenic Corridor (Burns District)	O
National Forest Scenic Visual Corridor	O
National Forest Visual Quality Objective: Maximum Modification	O
National Forest Visual Quality Objective: Modification	O
National Forest Visual Quality Objective: Partial Retention	O
National Forest Visual Quality Objective: Preservation	O
National Forest Visual Quality Objective: Retention	O
Scenic Byway	O
Viewshed Area (Baker County)	O
Within 1200ft Nationally Designated Scenic Byway	O
Water and Wetlands	
303d Lakes	i
303d Streams	i
Floodplain: 500-yr Flood Zone	i
Floodplain: Area Not Mapped	i
Floodplain: Not in Flood Zone	i
Floodplain: Zone A	i
Floodplain: Zone AE	i
Floodplain: Zone ANI	i
Floodplain: Zone AO	i
National Wetland Inventory	i
Oregon State Scenic Waterway	v
Oregon Watershed Restoration Inventory Facility	i

Constraint	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
(within 500ft Buffer of linear feature)	
Oregon Watershed Restoration Inventory Facility (within 500ft of site location)	i
Oregon Watershed Restoration Inventory Facility Area	i
Snake River	i
Zoning	
Airport	iv
Exclusive Farm Use Zone	viii
Forest	iv
Mineral & Aggregate	iv
Natural Resource	iv
Park	iv
Reserve	iv
Rural Commercial	iv
Rural Industrial	iv
Rural Residential	iv
Rural Service Center	iv
Urban	iv

[1] O – Other than one of the eight factors under OAR 345-021-0010(1)(b)(D).
BLM – Bureau of Land Management; ft – feet; NA – not applicable/available; NRCS – Natural Resources Conservation Service



1 **Figure B-5. Goal 3 and Goal 4 Resource Land within the Study Area**

3.1.1.2 Opportunities

In addition to constraints, IPC identified and considered siting “opportunities,” which were defined as resources or conditions that could accommodate transmission line construction and operation because of their physical characteristics or regulatory designations. In the study area, existing transportation corridors (I-84), pipelines, electric transmission lines, and agency-designated energy corridors were considered as potential siting opportunities (see Table B-3). The Proposed Corridor parallels existing transmission lines where possible but maintains an approximate 250-foot separation distance,[6] when possible. In evaluating corridor locations, consideration was also given to paralleling the Hemingway to Summer Lake 500-kV line as well as to the location of the West-wide Energy (WWE) corridor and BLM- and USFS-designated utility corridors.

Table B-3. Siting Opportunities

Opportunity	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Existing Corridors	
Vale District Utility Corridor	iii
West-wide Energy Corridor	iii
National Forest Utility Corridor	iii
Interstate 84	iii
500-kV Transmission Lines	iii
138/230-kV Transmission Lines	iii
Large Diameter Pipeline	iii

Vale District Utility Corridor

The BLM Vale District Resource Management Plan (BLM 2002) designated two utility corridors in the vicinity of the Owyhee River below the Owyhee Dam. IPC considered these utility corridors as an opportunity for siting the transmission line across the Owyhee River on public lands. The Proposed Route is sited within the Vale District Utility Corridor for approximately 16.8 miles as shown in Exhibit C, Attachment C-2, maps 92 through 95, map 110, maps 117 through 119, and maps 121 through 124.

West-wide Energy Corridor

The BLM, in response to Section 368 of the Energy Policy Act of 2005, participated in a programmatic Environmental Impact Statement (PEIS) for the designation of energy corridors on federal land in the 11 western states (DOE/EIS-0386 [DOE and BLM 2008]), commonly known as Section 368 Corridors, in which the U.S. Department of Energy (DOE) and BLM were the lead federal agencies, and the USFS and other agencies were cooperators. The PEIS designated energy corridors and provided guidance, best management practices, and mitigation measures to be used where linear facilities are proposed crossing BLM-managed and National Forest System lands. Notwithstanding the uncertain legal status of the Section 368 Corridors,[7] IPC considered

[6] As discussed below under “500-kV Transmission Lines,” IPC’s preferred separation distance is 1,500 feet. However, the Proposed Route includes a 250-foot, and not a 1,500-foot, separation distance to bring it in line with BLM’s revised Agency Preferred Alternative.
[7] On July 7, 2009, multiple organizations filed a complaint challenging the PEIS. *Wilderness Society, et al. v. United States Department of the Interior, et al.*, No. 3:09-cv-03048-JW (N.D. Cal.). BLM, USFS, DOE, and the Department of Justice worked collaboratively with the plaintiffs to develop a settlement with specific actions to mutually resolve the challenges in the complaint. The four principal components of the July 3, 2012, Settlement Agreement require the

the Section 368 corridors as siting opportunities on public lands. The Proposed Route is sited within the WWE corridor for approximately 3.9 miles in Baker and Malheur counties as shown in Exhibit C, Attachment C-2, maps 92 through 95, and maps 124 through 125.

National Forest Utility Corridor

The Wallowa-Whitman National Forest includes a designated utility corridor along I-84 west of La Grande, Oregon, through the Blue Mountains. The utility corridor is designated in order to facilitate authorization of future utility (including transmission) ROWs (USFS 1990) on the Wallowa-Whitman National Forest. The utility corridor currently includes several existing facilities including a 230-kV transmission line, a natural gas pipeline, and a refined petroleum product pipeline. In addition, I-84, segments of old US Route 30, and a Union Pacific railway are also located within this utility corridor. IPC considered the Wallowa-Whitman National Forest utility corridor to provide a key opportunity for siting the transmission line across National Forest System public lands. The Proposed Route is sited within 6.8 miles of the 7.4-mile-long Wallowa-Whitman National Forest utility corridor as shown in Exhibit C, Attachment C-2, maps 46 through 48.

Interstate 84

The I-84 corridor, in most cases, did not provide an opportunity for siting the transmission line. Several portions of I-84 within the study area are identified in local land use plans as scenic resources. Land use (population centers, occupied structures, irrigated agriculture, and airports), resources (wetlands, floodplains), and topography adjacent to I-84 prevented siting the transmission line in other areas.

Transmission lines and other utilities can be sited along public roads in Oregon as long as they do not obstruct any public road or navigable stream. However, the rights of utilities to construct facilities along public roads are subject to the needs of the public road system (ORS 758.010). If roadway improvements become necessary, relocation of the utility (transmission line) would be subject to the order of the county governing body and the Department of Transportation, and the utility would incur the cost of the relocation.

500-kV Transmission Lines

IPC's position throughout the siting of the Project has been that a 1,500-foot minimum separation distance between adjacent extra high voltage (EHV, 230-kV or higher) transmission lines is required to minimize the probability of losing two EHV transmission lines that are a part of the same WECC path in quick succession. The simultaneous loss (N-2 contingency) of the 500-kV B2H Project and another EHV line connecting Idaho to Oregon/Washington possibly would result in significant power outages to customers across Idaho, Wyoming, and Utah, and possibly cascading outages throughout the West (blackouts). Accordingly, throughout the first three siting phases, the proposed transmission line route generally was developed with an approximate 1,500-foot separation distance between adjacent EHV transmission lines.

However, in 2016, the BLM's revised Agency Preferred Alternative included a 250-foot, and not a 1,500-foot, EHV minimum separated distance. Because the Proposed Route follows the revised Agency Preferred Alternative, the Proposed Route now includes BLM's 250-foot EHV minimum separation distance.

There are many 500-kV transmission lines in Oregon that are along the Columbia River or in the vicinity of the Interstate 5 corridor along the very northern portion of the Study Area (Figure B-6. Those lines run east-west and not south toward the Hemingway Substation. Because the 500-

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federal agencies to complete an interagency Memorandum of Understanding addressing periodic corridor reviews; update agency guidance; update agency training; and complete a corridor study.

kV lines in the north do not trend on a path connecting the two Project endpoints, the lines do not provide a siting opportunity that meets the objectives of the Project.

The existing PacifiCorp Hemingway to Summer Lake line is the only 500-kV transmission line traversing the southern portion of the Study Area (Figure B-6). It too does not trend on a path connecting the Longhorn Station and Hemingway Substation, so the Hemingway to Summer Lake line did not provide an opportunity for siting the majority of the Project. However, the Hemingway to Summer Lake 500-kV line did provide an opportunity for siting from just inside the eastern edge of Oregon into the Hemingway Substation in southwestern Idaho.

230/138/69-kV Transmission Lines

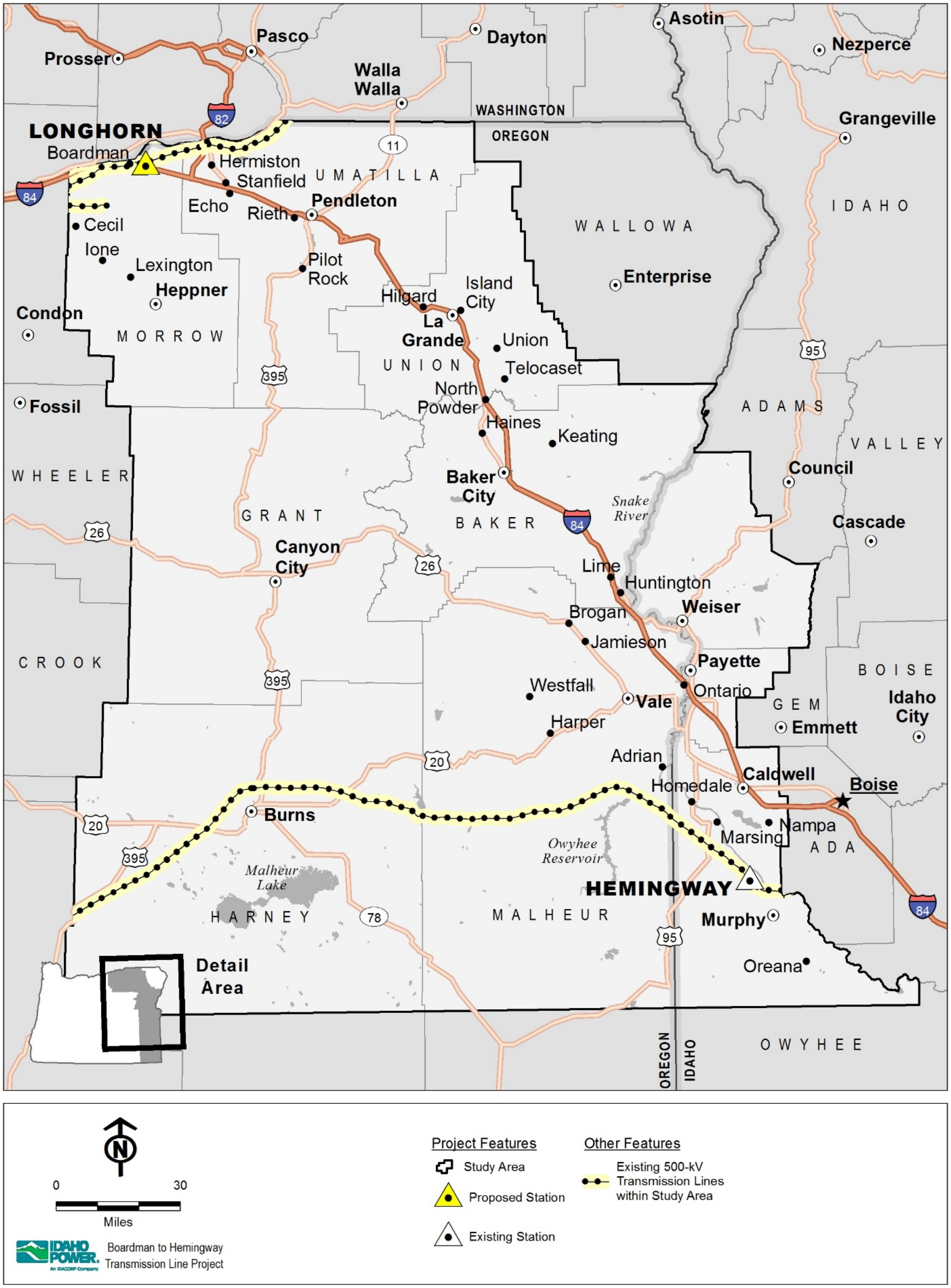
The Proposed Route is sited within approximately 250 feet of existing 69-kV, 138-kV, or 230-kV transmission lines for 73.6 miles as shown in Exhibit C, Attachment C-2.

Large-Diameter Pipeline

Siting a high-voltage transmission line in close proximity and parallel to a metallic underground pipeline may require the installation or upgrade of protective equipment to mitigate potential corrosion of the pipeline from induced voltage caused by the transmission line. Installation of the protective equipment would require additional infrastructure and ground disturbance associated with the Project.[8] As a general siting principle, IPC carefully scrutinized siting the Project parallel to existing buried pipelines. The cost savings and potential for reduced construction impact of siting adjacent to existing pipelines is weighed against the impact to the underground pipelines and potential mitigation to address the impacts. This has been done to minimize disruption or required modifications to existing protective systems and their supporting infrastructures. As the Project continues to consider new constraint information, IPC will continue to work to avoid interference with underground pipelines as well as other types of existing infrastructure to the maximum extent possible. Where it was not possible to move the Project away from the pipeline, IPC will work with the owner/operator of the pipeline to evaluate the interference from the B2H Project and see that the necessary protection system is put in place to protect the pipeline.

Large-diameter pipelines did not provide a significant opportunity for siting the transmission line. However, the Proposed Route is sited within 250 feet of existing large-diameter gas pipelines for 15.6 miles as shown in Exhibit C, Attachment C-2.

[8] Where buried pipelines run parallel to a transmission lines, they are typically protected by an impressed current cathodic protection (ICCP) system, which requires buried anodes connected to a DC-power source, if not already installed by the pipeline owner/operator will generally require construction of a new distribution line to serve the ICCP.



1 **Figure B-6. Existing 500-kV Lines in the Study Area**

3.1.2 Corridor Selection Process – Phase One (2008–2010)

Phase One of IPC's identification and analysis of potential alternative corridors was accomplished primarily between 2008 and 2010 and involved input from many local citizens residing throughout the 11-county, two-state study area. IPC's originally proposed corridor was presented to the public during scoping meetings conducted by BLM and Oregon Department of Energy (ODOE) in October 2008.[9] Because of the level of public interest, corridor suggestions, and opposition to the originally proposed corridor, IPC initiated a process to engage residents, property owners, business leaders, and local officials in siting the Project. Through this Community Advisory Process (CAP) described below, IPC partnered with communities and other stakeholders from northeast Oregon to southwest Idaho to identify proposed and alternative corridors and station locations for the Project.

IPC's CAP took place in 2009 and early 2010. Project Advisory Teams (PATs) representing five geographic areas were convened for the purpose of identifying, developing, and recommending proposed and alternative corridors for the Project. Figure B-7 shows the process graphically.

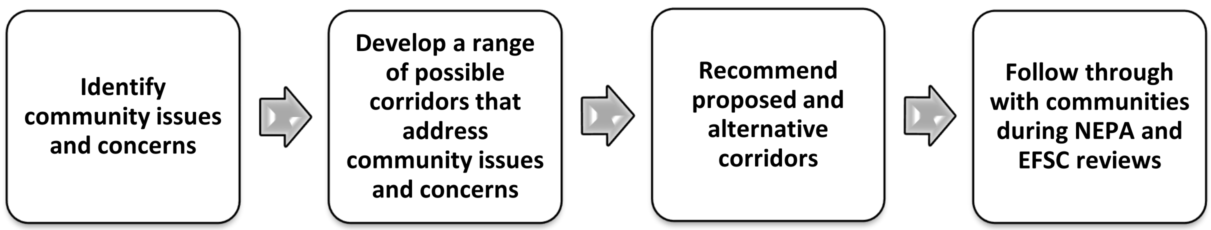


Figure B-7. Community Advisory Process

The process consisted of the following steps:

1. PATs identified issues and concerns. PATs developed community criteria for evaluating possible corridors and integrated these with regulatory requirements and IPC criteria relating to cost and feasibility.
2. PATs developed a range of possible corridors or corridor segments that addressed community issues and concerns. The PATs developed approximately 48 corridors and corridor segments. Corridors not meeting the community, regulatory or IPC cost/feasibility criteria were removed from further consideration.
3. PATs recommended proposed and alternative corridors were evaluated. IPC analyzed all 48 corridors and corridor segments proposed by the PATs using the processes described in Section 3.1.2.3, and identified three corridors as most constructible, least difficult to permit, and most likely to incur the lowest overall cost.
4. IPC evaluated the three possible corridors based on input received from PATs and selected a proposed corridor. IPC presented three corridors to the PATs for their comments. The resulting comments showed no clear preference for any one of the three corridors. IPC selected the Eastern Corridor as the proposed corridor as described in Section 3.1.2.4.

[9] IPC first submitted a Notice of Intent (NOI) to apply for a site certificate to the ODOE – EFSC in 2008. IPC also submitted applications for the necessary federal ROWs to BLM and USFS, and the federal and state agencies held joint public scoping meetings in October 2008. Following those meetings, IPC initiated a process to re-evaluate the 2008 proposed route and engage residents, property owners, business leaders, and local officials in siting the transmission line. Through the CAP, IPC partnered with communities from northeast Oregon to southwest Idaho to identify potential routes for the Project. Based on input received in the CAP, IPC selected a new proposed route for the Project. Accordingly, IPC withdrew its original NOI and submitted a new NOI to ODOE-EFSC in July 2010, as well as revised applications to BLM, USFS, and Bureau of Reclamation requesting the necessary ROW grants. Both the federal and state application are still pending.

5. Follow through with communities during state and federal reviews. IPC continues communicating with the PATs and public throughout the National Environmental Policy Act of 1969 (NEPA) and ODOE processes. Toward this end, IPC will keep the public and PATs updated on corridor revisions and the rationale for them as well as the status of the regulatory actions, and will continue to receive and address public input.

In addition to PAT meetings, IPC held public meetings throughout the Project area to allow the public to review and comment on the PATs' work and further comment on the Project itself.

3.1.2.1 Initial Corridor Selection

IPC compiled a comprehensive geographic information system (GIS) database of constraints and opportunities for the study area. Constraints were then categorized by PATs as exclusion, high avoidance, moderate avoidance, or low avoidance; incorporating input from the PATs, corridor development began with a series of routing meetings and workshops at Baker City, Boardman, and Ontario, Oregon, each of which comprised one evening session followed by a full day of routing. At the evening sessions, IPC educated the participants on the siting process and confirmed community criteria. The next day, individuals and groups of local citizens returned to identify corridor segments or entire corridors between Boardman and Hemingway. Other than providing technical expertise, IPC staff and their contractors did not participate in development of the PAT-derived corridors.

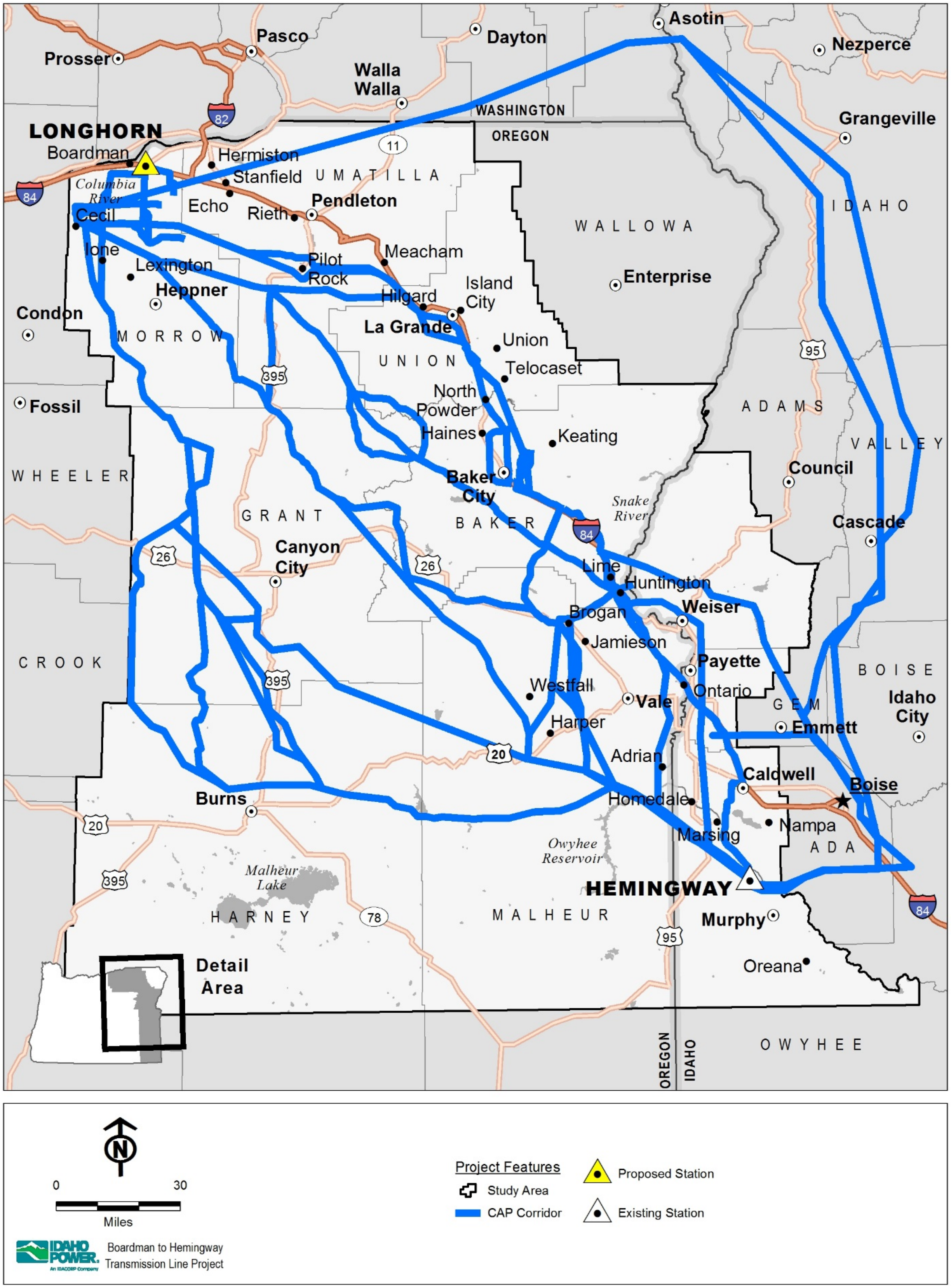
Members of the CAP and other local residents and organizations brought their knowledge of local resources, conditions, and priorities and worked with IPC, GIS analysts and routing experts to identify potential corridors. The GIS analysts, using topographic maps, available aerial photography, and the many GIS layers of constraints and opportunities, worked with participants to identify corridors that avoided exclusion areas and as much as possible minimized crossings of high avoidance constraints and, where practical, moderate and low avoidance areas. In all instances the routing teams were looking for opportunities such as existing transmission lines and the West-wide Energy corridors to parallel or use.

After PATs identified corridors for study in Grant and Harney counties, IPC initiated a formal CAP process and routing sessions were soon held in Mt. Vernon and Hines. Every corridor developed in the five mapping sessions was documented in GIS format and with a form explaining the basis for each corridor or segment. Approximately 47 corridors and corridor segments totaling over 3,000 miles (as shown on Figure B-8) were developed through the CAP.

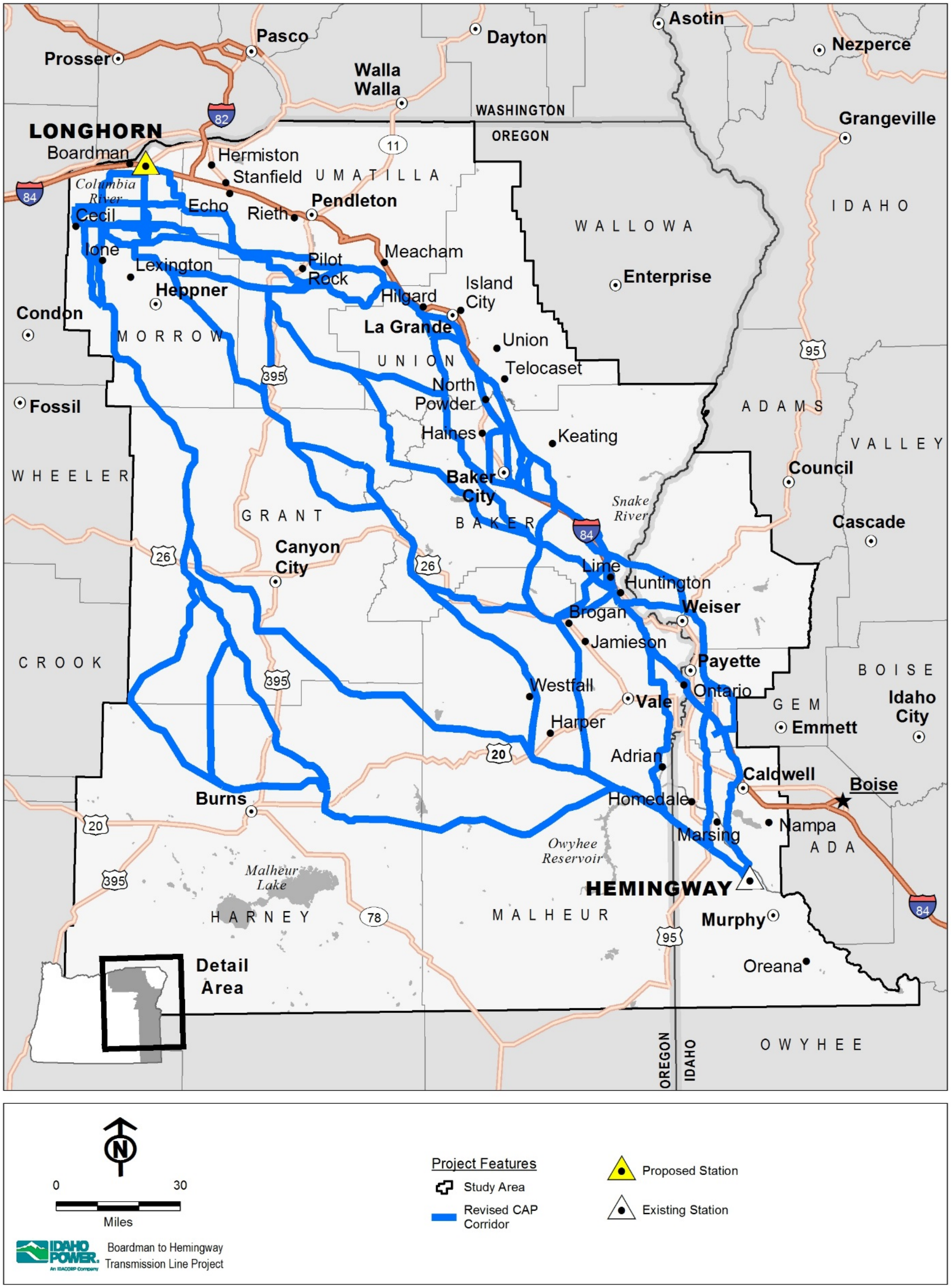
3.1.2.2 Corridor Refinement

Following the routing sessions, IPC reviewed each of the corridors to identify potential issues that could significantly impact the ability to permit a segment or corridor. Each alignment was reviewed using aerial photography, topographic maps, and constraint data. Using aerial photography, houses, barns, and other structures (i.e., wind turbines); irrigation pivots; and other land use constraints could be avoided where practical. Using topographic maps the corridors were adjusted to avoid or minimize distance across very steep slopes and other physical features less desirable for construction and operation of a transmission line. Finally, the corridors were checked against constraint maps to avoid exclusion areas and areas of high permitting difficulty like Oregon Department of Fish and Wildlife (ODFW) Category 1 habitat. In the large majority of instances, changes were made while maintaining the intent of the corridor or corridor segment.

At this time a number of corridors were dropped from further consideration because they did not meet the Project objectives and/or resulted in significantly more environmental impacts and cost. As a result, the miles of corridors for further consideration were reduced to about 2,000 miles. Figure B-9 shows those corridors carried forward as a result of the refinement process.



1 **Figure B-8. Initial CAP Identified Corridors**



1 **Figure B-9. Revised CAP Corridors**

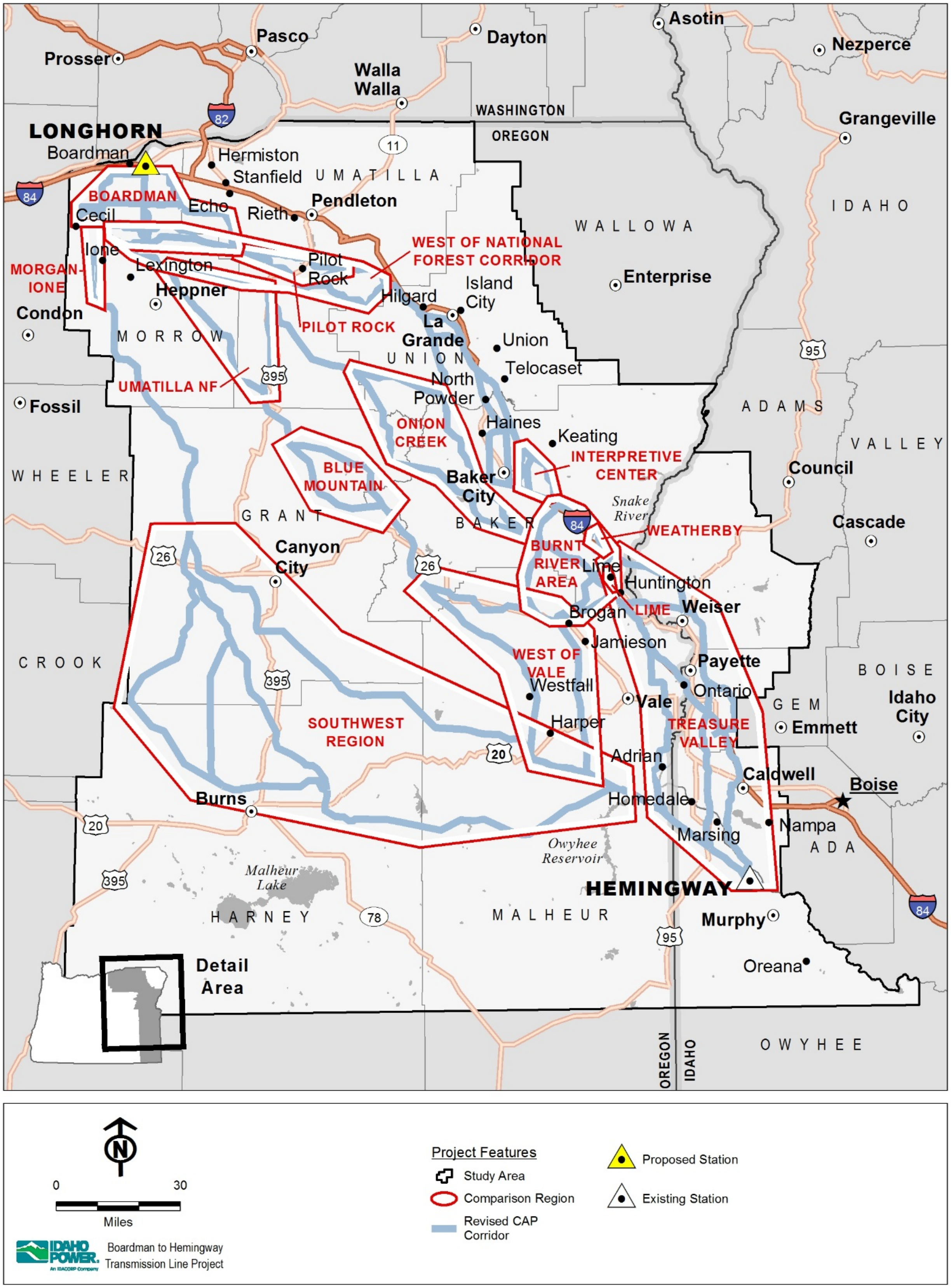
3.1.2.3 Regional Analysis

Next, the remaining corridors, where appropriate, were grouped into 14 regions as shown on Figure B-10. Regions were established where two or more corridors extended from one common point to a second common point. For example, in the southwest region, as shown on Figure B-11, four corridors were identified between points GR3 and MA6. Each corridor in this region was then analyzed for permitting difficulty, construction difficulty, and mitigation costs as shown in Figure B-12 for the southwest region (to see regional analysis for each of the 14 regions, see Attachment B-1, 2010 Siting Study, Section 3.3).

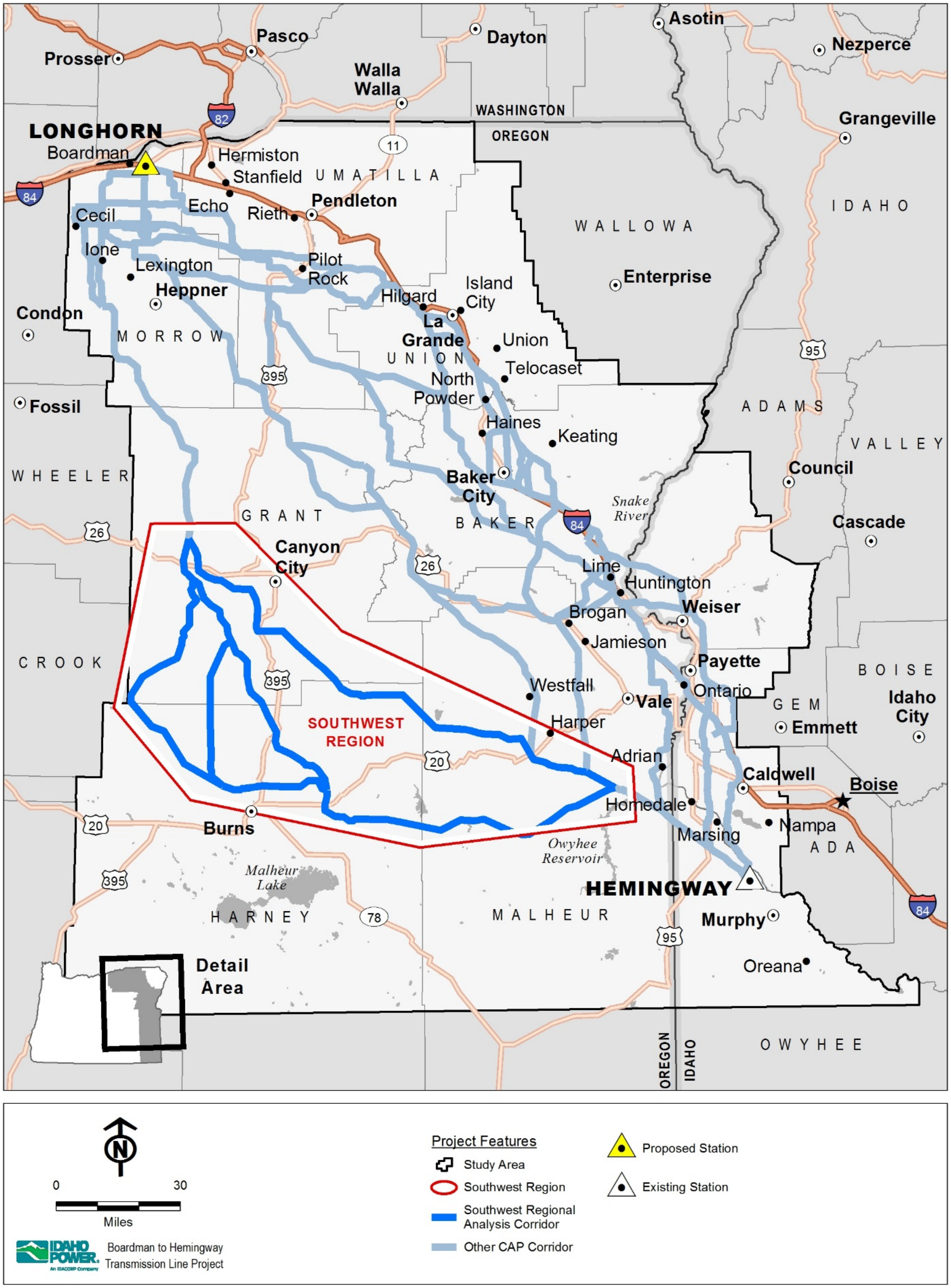
In evaluating permitting difficulty, constraints previously identified were categorized as low, moderate, or high permitting difficulty areas or as exclusion areas or opportunities. Next, the miles of each category were measured and totaled and used to compare pairs of corridors within a region. Also, each corridor was analyzed for specific constraints it crossed and these were documented in attribute tables. The tables were reviewed to identify more significant differences between corridors. These two analyses were used to determine the most reasonable corridor in each region.

In evaluating construction difficulty, accessibility, topography, road construction, equipment movement, and many other factors were used to determine low, moderate, and high construction difficulty. Again, these ratings were measured by mile and totaled and used to compare the corridors in a region. In those cases where the permitting analysis was not conclusive, the construction difficulty analysis was considered.

After the permitting and construction difficulty analyses were completed, potential biological mitigation costs were estimated (high, moderate, or low), measured in miles, and totaled for each alternative corridor. Using these three analyses, including the siting factors identified in OAR 345-021-0010(1)(b)(D), a more reasonable corridor was selected for each region and, combining the selected corridors with those unique segments between two points, three corridors were determined for further analysis as shown on Figure B-13.

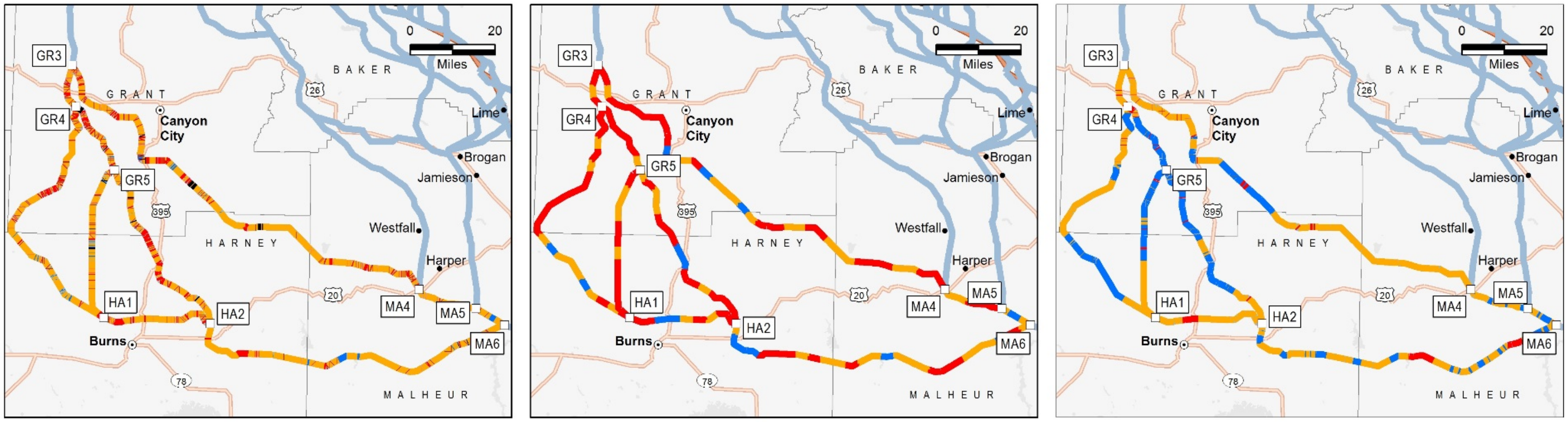


1 **Figure B-10. Regional Analyses**



1 **Figure B-11. Southwest Region Analysis**

PERMITTING DIFFICULTY **CONSTRUCTION DIFFICULTY** **MITIGATION COST**



Exclusion High Moderate Low Other Corridor

High Moderate Low Other Corridor

High Moderate Low Other Corridor

FOUR ROUTES WERE CONSIDERED

- A (GR3-GR4-HA1-HA2-MA6)
- B (GR3-GR4-GR5-HA1-HA2-MA6)
- C (GR3-GR4-GR5-HA2-MA6)
- D (GR3-MA4-MA5-MA6)

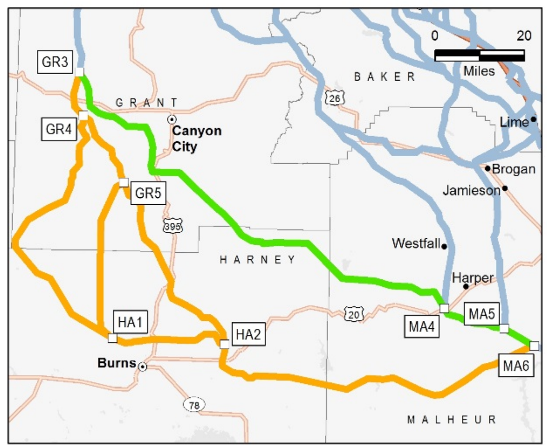
ROUTE A IS NOT REASONABLE

- 53.7 miles longer than shortest route
- Requires 1,630 acres of additional ROW
- Crosses the South Fork of the John Day (wild and scenic river)

ROUTE B IS NOT REASONABLE

- 41.7 miles longer than shortest route
- Requires 1,260 acres of additional ROW
- Crosses 7.3 miles of sage-grouse lek buffers
- Does not allow for acceptable separation between transmission circuits

SUMMARY

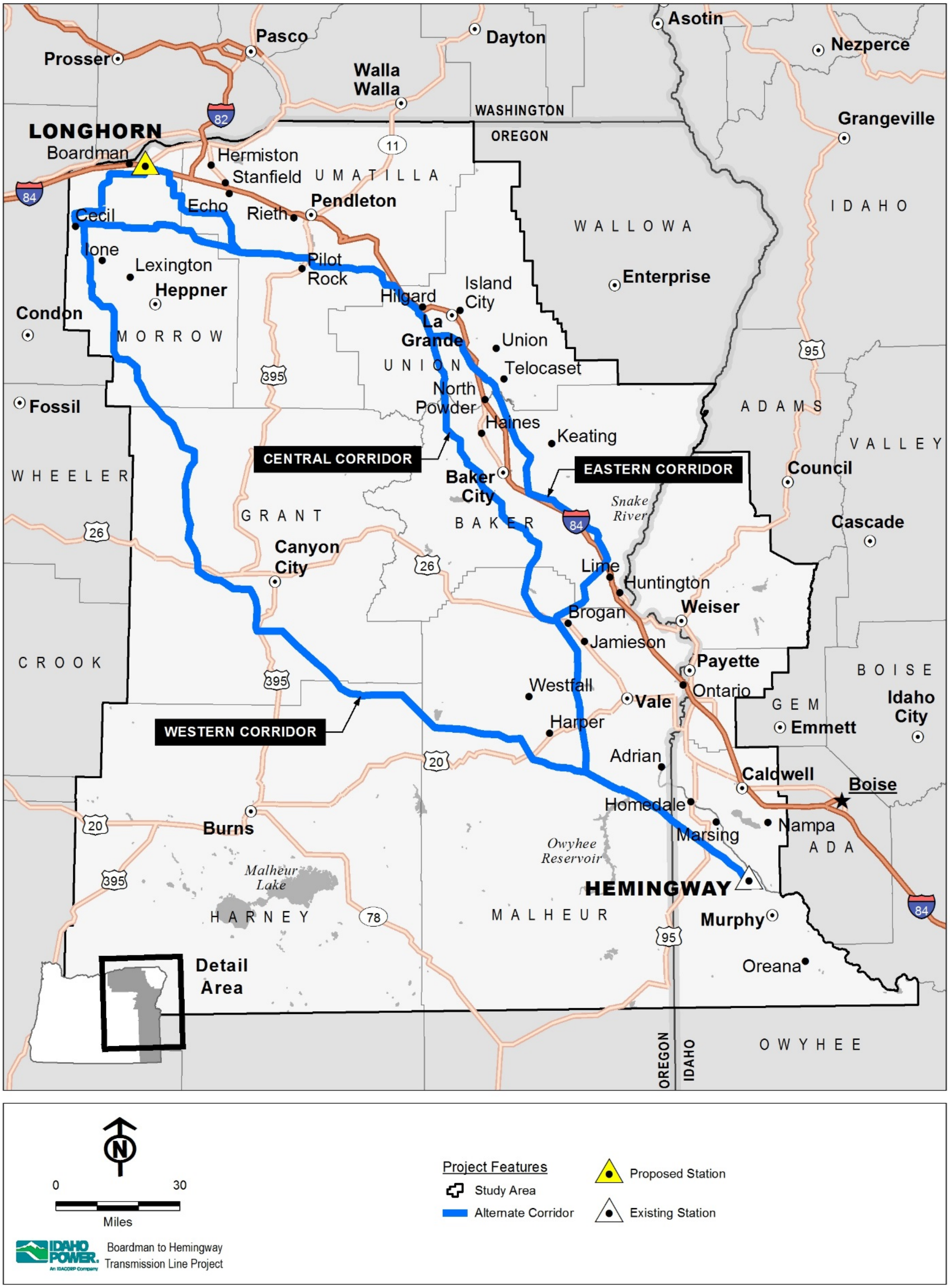


More Reasonable Less Reasonable Other CAP Corridor

ROUTE D IS MORE REASONABLE THAN ROUTE C

- 23.3 miles shorter
- 700 acres less ROW
- Avoids Devine Scenic Corridor
- Avoids 7.3 miles of occupied sage-grouse lek buffers
- Crosses 1.8 fewer miles of designated USFS Visual Quality Objective: Partial Retention
- Crosses 20.4 fewer miles of Sage-Grouse Core Area 1 Habitat
- Crosses 13.6 fewer miles of forested land
- Crosses 27.7 fewer miles of prime farmland soils
- Crosses 4.1 fewer miles of landslide areas
- Allows for acceptable separation between transmission circuits
- Old growth forest areas will be avoided during micro-siting

Figure B-12. Permitting, Construction, and Mitigation Analysis (Southwest Region)



1 **Figure B-13. Alternative Corridors**

3.1.2.4 Analysis of Three Alternative Corridors

As shown on Figure B-13, IPC identified three alternative corridors—Eastern, Central, and Western. For detailed discussion of the analysis, see Attachment B-1.

As a result of the analysis of the three corridors, IPC selected the Eastern Corridor as the basis for its Proposed Corridor.[10] When compared to the Central and Western corridors, the Eastern Corridor:

- Would require over 35 fewer miles of new corridor,
- Would parallel existing utility corridors for over 50 miles more,
- Would require over 1,000 fewer acres of clearing,
- Would be significantly less difficult to construct, and
- Would avoid creating a new 30- to 45-mile utility corridor through one or more National Forests.

While it would avoid new impacts on rugged forest lands, the Eastern Corridor would cross approximately 75.8 more miles of EFU-zoned land than the Western Corridor, and 18.4 more miles than the Central Corridor. Compared to the Central Corridor, the Eastern Corridor would cross 33.1 fewer miles designated as high construction difficulty and 21.1 fewer miles designated high permitting difficulty and it would not require plan amendment to designate a utility corridor in the Wallowa-Whitman National Forest. The Western Corridor would have a similar degree of permitting difficulty as the Eastern Corridor, but would have required plan amendments for utility corridors crossing the Malheur and Wallowa-Whitman National Forests. The Western Corridor would also traverse 55.1 more miles designated high construction difficulty.

Table B-4 compares each corridor across all resource factors listed in Attachment B-3. The total of OAR 345-021-0010(1)(b)(D) factors encountered are categorized as more, less, or least reasonable when the corridors are compared to each other. In other words, the Eastern Corridor was the best corridor for avoiding impacts to 38 resources, the second best for another 19 resources, and the least reasonable for 11 resources. The results indicate an overall lower potential for resource impact for the Eastern Corridor. The results also clearly indicate that there was no single corridor that was the best choice for *all* of the resources; as contemplated by OAR 345-021-0010(1)(b)(D), IPC carefully considered and evaluated each corridor against the eight factors and selected the Eastern Corridor as the basis for the Proposed Corridor.

Table B-4. Comparison of OAR 345-021-0010(1)(b)(D) Factors by Corridor

Resource Factor Encounters	Western Corridor	Central Corridor	Eastern Corridor
More Reasonable	32	25	38
Less Reasonable	32	26	19
Least reasonable	13	11	11
No encounter	12	27	21
Total Resource Factors	**89**	**89**	**89**

Using the factors presented Tables B-4 and B-5, the Eastern Corridor was selected as the Proposed Corridor with the understanding that additional micrositing would be necessary to avoid and reduce potential impacts. The additional siting work that has been done since 2010 is

[10] Note that the Proposed Corridor differs from the Eastern Corridor in the Boardman area.

described in Section 3.1.3, 3.1.4, and 3.1.5 and in further detail in the 2012, 2015, and 2017 Supplemental Siting Studies (Attachments B-2, B-4, and B-6).

3.1.3 Corridor Selection Process Phase Two – September 2010 to February 2013

Having selected a Proposed Corridor for the Project, IPC submitted its Notice of Intent (NOI) to apply for a Site Certificate for the Project in July 2010. The ODOE held public informational meetings regarding IPC's Proposed Corridor in August 2010, and IPC prepared a Siting Study detailing the first phase of its Corridor Selection Process in August 2010 (Attachment B-1).

During the time between IPC's submittal of its July 2010 NOI and the 2010 Siting Study (Attachment B-1) and filing of the pASC in February 2013, IPC engaged in extensive discussions with landowners and performed more detailed engineering and constructability analyses that suggested corridor adjustments and changes. In addition, IPC identified alternatives to the northern terminus of the Project. IPC proposed to remove approximately 4.8 miles of existing 138-kV line and build approximately 4.1 miles of 500-kV line on the ROW. In order to do this, IPC would have to rebuild approximately 5.0 miles of single-circuit 69-kV transmission line onto double-circuit 138/69-kV structures within the existing 69-kV ROW. An additional 0.3 mile of new 138-kV single-circuit transmission line would have to be built to tie the 138-kV part of the double-circuit line back to the existing 138-kV line.

These steps resulted in over 48 adjustments of the Proposed Corridor and alternative corridor segments, as well as identification of two alternative station locations. OAR 345-021-0010(1)(b)(D) required IPC to discuss reasons for selecting corridors not presented at the informational meetings described in OAR 345-015-0130. Table B-5 identifies changes and revised corridors developed after the informational meetings. Table B-5 also lists the reasons for the changes and their relationship to the eight siting factors identified in OAR 345-021-0010(1)(b)(D) (see additional discussion in Section 3.1.2 above, 3.1.4, and 3.1.5 and Attachment B-2, Appendix C for associated maps). The process leading to the selection of the 2012 Proposed Corridor and the alternative corridor segments for portions of the Proposed Corridor is described in Attachment B-2, 2012 Supplemental Siting Study.

Table B-5. Proposed and Alternative Corridor Adjustments since Informational Meetings (August 2010)

Map Label ID	Map Number Reference from Attachment B-2, Appendix C	Approximate Milepost (MP) Location relative to June 2012 Proposed and Alternative Corridors	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
1	Map 1	Grassland Station – Proposed Corridor MP 8	Proposed Corridor shifted north to follow Boardman to Slatt Existing Line	Avoids crossing north edge of The Nature Conservancy Grassland Preserve with Washington ground squirrel (WAGS) colonies	ii
2	Map 1	Proposed Corridor MP 6.8	Added Horn Butte Station as potential Project termination and interconnection to Boardman to Slatt existing transmission line	Shortens overall length of transmission line and avoids WAGS colonies	ii

Map Label ID	Map Number Reference from Attachment B-2, Appendix C	Approximate Milepost (MP) Location relative to June 2012 Proposed and Alternative Corridors	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
3	Map 1	Proposed Corridor MP 6.8-34.1	Added Horn Butte Alternative	Connect to Alternative Station	NA
4	Map 1	Proposed Corridor MP 12-18	Shifted Proposed Corridor to stay closer to Boardman Grasslands Preserve	Adjusted corridor per landowner discussion	ii
5	Map 1	Proposed Corridor MP 20-23	Shifted Proposed Corridor to stay on Property Boundary	Adjusted corridor per landowner discussion	NA
6	Map 1	Proposed Corridor MP 33.5-39	Proposed Corridor Centerline Adjustment	Landowner request to shift around proposed wind turbines	NA
7	Map 1-2	Proposed Corridor MP 39-43	Proposed Corridor Centerline Adjustment	Avoid pivot irrigation; property line offset adjustments; maximize structure offset distances, tower spotting analysis/engineering assessment to improve constructability	NA
8	Map 1-2	Grassland Substation – Proposed Corridor MP 56.5	Eliminated Segment of July 2010 NOI Proposed Corridor (Northern Approach to Grassland Station)	2011 surveys identified potential WAGS colonies (Category 1 habitat); alternative Longhorn Station would preclude need to have a northern corridor to the proposed Grassland Station	ii
9	Map 1	Longhorn Alternative MP 0	Added Longhorn Station as potential Project termination and interconnection to McNary to Coyote Springs existing transmission line	Alternative Longhorn Station would preclude need to have a northern corridor to the proposed Grassland Station	NA
10	Map 1	Longhorn Alternative MP 0-18.4	Added Longhorn Alternative	Connect to Alternative Station	NA
11	Map 2	Proposed Corridor MP 44-50	Proposed Corridor Centerline Adjustment	Engineering assessment to improve constructability	vii
12	Map 2	Proposed Corridor MP 51-56.5	Shifted Proposed Corridor to stay on north side of Slusher Canyon	Avoids crossing Slusher Canyon twice and stream crossings	i and vii

Map Label ID	Map Number Reference from Attachment B-2, Appendix C	Approximate Milepost (MP) Location relative to June 2012 Proposed and Alternative Corridors	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
13	Map 2	Proposed Corridor MP 63-67	Proposed Corridor Centerline Adjustment	Engineering assessment to improve constructability	vii
14	Map 2	Proposed Corridor MP 68-70	Proposed Corridor Centerline Adjustment	Engineering assessment to improve constructability	vii
15	Map 2	Proposed Corridor MP 74-76	Proposed Corridor Centerline Adjustment	Engineering assessment to improve constructability	vii
16	Map 2-3	Proposed Corridor MP 78-85	Shifted Proposed Corridor South	Landowner request to avoid homes, avoids difficult terrain, less access roads, avoids access off of Indian Reservation	vii
17	Map 3	Proposed Corridor MP 86-91	Shifted Proposed Corridor North	Adjusted to avoid canyon crossings	vii
18	Map 3	Proposed Corridor MP 93-96.5	Proposed Corridor Centerline Adjustment	Better use of existing access roads, engineering assessment to improve constructability	vii
19	Map 3	Proposed Corridor MP 100-103	Proposed Corridor Centerline Adjustment	Avoid State Park, engineering assessment to improve tower locations	v
20	Map 3	Proposed Corridor MP 106-108.5	Proposed Corridor Centerline Adjustment	Adjust alignment to follow WECC offset criteria from existing lines	iii
21	Map 3	Proposed Corridor MP 109-116	Proposed Corridor shifted east ~3 miles	Adjusted line corridor to follow existing BPA line corridor and utilize existing access roads per landowner request, avoid adding access roads in timbered areas	iii
22	Map 3-4	Glass Hill MP 5 – Proposed MP 124	Eliminated portion of Glass Hill Alternative	Difficult terrain forced alternative to tie back into Proposed Corridor at earlier point	vii
23	Map 3-4	Proposed Corridor MP 116-126	Shifted Proposed Corridor Southwest	Avoid Oregon State University Research Forest, adjusted per landowner discussions, difficult terrain, engineering assessment to improve constructability	vii

Map Label ID	Map Number Reference from Attachment B-2, Appendix C	Approximate Milepost (MP) Location relative to June 2012 Proposed and Alternative Corridors	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
24	Map 4	Proposed Corridor MP 126-130	Eliminated Clover Creek Valley Alternative	No environmental advantage to alternative which also requires two crossings of existing 230-kV line	NA
25	Map 4	Proposed Corridor MP 127-128	Proposed Corridor Centerline Adjustment	Avoid crossing ODOT gravel pit/blasting area	NA
26	Map 4	Proposed Corridor MP 130-134	Shifted Proposed Corridor North	landowner request to shift alignment to avoid potential new structure location	NA
27	Map 5	Proposed Corridor MP 151-152	Proposed Corridor Centerline Adjustment	Avoid crossing occupied Sage-grouse lek 2-mile buffers	ii
28	Map 5	Proposed Corridor MP 154-157	Shifted Proposed Corridor East	Adjusted corridor to reduce visibility from NHOTIC	vi
29	Map 5	Proposed Corridor MP 154-170	Eliminated Virtue Flat Alternative	Alternative could not be sited to avoid occupied Sage-grouse lek 2-mile buffers in effect at time of elimination	ii
30	Map 5	Proposed Corridor MP 158.5-164	Proposed Corridor Centerline Adjustment	Engineering assessment to improve constructability	vii
31	Map 5	Proposed Corridor MP 165-168	Proposed Corridor Centerline Adjustment	Improve crossing of 69kV and better utilize existing 138-kV corridor	iii
32	Map 5-6	Proposed Corridor MP 168-170	Shifted Proposed Corridor South	Landowner request to shift alignment farther from existing residence	NA
33	Map 6	Proposed Corridor MP 180-183	Proposed Corridor Centerline Adjustment	Adjusted per landowner discussion concerning avoidance of natural amphitheater	NA
34	Map 6	Proposed Corridor MP 186-187.5	Proposed Corridor Centerline Adjustment	Adjusted corridor per landowner discussion	NA
35	Map 6	Proposed Corridor MP 186-191	Eliminated Weatherby Alternative	Difficult terrain, Proposed 138/69-kV Rebuild a better option	iii and vii

Map Label ID	Map Number Reference from Attachment B-2, Appendix C	Approximate Milepost (MP) Location relative to June 2012 Proposed and Alternative Corridors	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
36	Map 6	Proposed Corridor MP 188-193	Added Proposed Double-Circuit 138/ 69-kV Rebuild. 500-kV line to be built within existing 138-kV ROW; existing 138-kV and 69-kV lines to be rebuilt as double circuit structures in existing 69-kV ROW	Difficult terrain	vii
37	Map 7	Proposed Corridor MP 205.5-216	Shifted Proposed Corridor North and West	Avoid crossing occupied Sage-grouse lek 2-mile buffers, adjusted per landowner discussions, engineering assessment to improve constructability across canyon	ii and vii
38	Map 7-8	Proposed Corridor MP 216-229.5	Shifted Proposed Corridor West	Avoid crossing occupied sage-grouse lek 2-mile buffer identified in 2011 survey season	ii
39	Map 7-8	Proposed Corridor MP 199.5-229.5	Added Willow Creek Alternative	Avoid crossing occupied Trail Gulch sage-grouse lek 2-mile buffer	ii
40	Map 8	Proposed Corridor MP 233-238	Shifted Proposed Corridor West	Engineering assessment to improve constructability	vii
41	Map 8	Proposed Corridor MP 238-240	Proposed Corridor Realignment across Malheur River	Avoid cultural resources and golden eagle nest found during 2011 surveys	vi
42	Map 8-9	Proposed Corridor MP 240-273	Shifted Proposed Corridor East	Avoid areas inventoried as having wilderness characteristics, avoid ACEC, follow Vale District Utility Corridor	iii and v
43	Map 8-9	Proposed Corridor MP 243-272	Added Malheur S Alternative	Avoid areas inventoried as having wilderness characteristics, minimizes ACEC crossing	v
44	Map 8-9	Proposed MP 245-252	Added Double Mountain Alternative	Avoid private land/stay on BLM-managed land	NA
45	Map 9	South of Malheur S Alternative MP 18-23	Eliminated Owyhee River Below Dam Alternative	Relocation of Proposed Corridor – no need for alternative	NA
46	Map 10	Proposed Corridor MP 275-277	Shifted Proposed Corridor South	Avoid crossing EFU-zoned land	viii

Map Label ID	Map Number Reference from Attachment B-2, Appendix C	Approximate Milepost (MP) Location relative to June 2012 Proposed and Alternative Corridors	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
47	Map 10	Proposed Corridor MP 281-285	Shifted Proposed Corridor South	Avoid private land, follow WECC offset criteria from existing lines	iii
48	Map 10	Proposed Corridor MP 286-289.5	Shifted Proposed Corridor North	Idaho Department of Lands request to reduce offset to existing 500-kV line	iii

[1]The adjustments that occurred in the state of Idaho are not included in this table.
ACEC – Area of Critical Environmental Concern; BPA – Bonneville Power Administration; EFU – Exclusive Farm Use; NA – Not Applicable; NHOTIC – National Historic Oregon Trail Interpretive Center; ODOT – Oregon Department of Transportation; WECC – Western Electricity Coordinating Council

3.1.4 Corridor Selection Process Phase Three – February 2013 to May 2016

After filing the pASC for the Project in 2013, IPC identified the need to perform additional analysis and revision to the Project, resulting in some macro (major) and micro (minor) route adjustments. The macro changes included the addition of alternatives and the determination not to carry some alternative and stations forward into the Amended pASC as shown in Table B-6. The micro changes included making minor line and road location adjustments to avoid sensitive resources, reduce redundancy of project features, and improve the preliminary engineering design.

Table B-6. Proposed and Alternative Corridor Adjustments (macro changes) since Preliminary Application for Site Certificate (February 2013)

Map Number Reference from Attachment B-4	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Figure 3.1-1 Morrow County	Proposed Station and Proposed Corridor changed due to cancellation of the Portland General Electric's Cascade Crossing transmission line.	Longhorn Station is IPC's proposed station because Grassland and Horn Butte do not provide an adequate electrical connection to meet the needs of the Project. The West of Bombing Range Road is the proposed corridor due to Longhorn Station being the proposed station. Minimizes impacts to agricultural and WAGS and other existing infrastructure.	ii
Figure 3.1-2 Union County	Glass Hill Alternative Corridor Segment not carried forward.	Glass Hill Alternative Corridor Segment was not carried forward by BLM as the agency preferred route.	ii
Figure 3.1-3 Baker County	Virtue Flat and Durkee Alternative not carried forward.	Virtue Flat and Durkee alternatives were not carried forward by BLM as the agency preferred routes due to sage-grouse issues.	ii

Map Number Reference from Attachment B-4	IPC Corridor Change Description	IPC Basis for Corridor Change	Potential OAR 345-021-0010(1)(b)(D) Siting Factor
Figure 3.1-4 Malheur County	Brogan 2012 Proposed Corridor, Willow Creek, Malheur A and Malheur S Alternatives not carried forward.	Brogan 2012, Willow Creek, Malheur A and Malheur S alternatives were not carried forward by BLM as the agency preferred route.	ii

[1] The adjustments that occurred in the state of Idaho are not included in this table.
WAGS – Washington ground squirrel

The 2015 Supplemental Siting Study (Attachment B-4) explains why IPC was required to modify the Project following filing of its 2013 pASC, as identified below:

1) **BLM's identification of a preliminary preferred route that included several segments not analyzed in the pASC:** In May 2013, BLM identified the preliminary preferred alternative for the Project in advance of public release of the Draft Environmental Impact Statement (EIS). BLM selected a preliminary preferred alternative that resulted in the lowest impact on the natural, human, and cultural environment that best protects, preserves, and enhances historic, cultural, and natural resources.

   BLM released the Draft EIS in December 2014 identifying the agency preferred alternative as the same as the environmentally preferred alternative alignment. BLM selected the agency preferred alternative that it believes would fulfill the statutory mission and responsibilities of the agencies while giving consideration to economic, environmental, technical, and other considerations. In addition to the key resources listed above in selecting the environmentally preferred alternative, BLM also identified the following criteria for consideration while identifying the recommended agency preferred alternative:

   - Land Use (ACEC values, lands with wilderness characteristics, and wild and scenic suitable rivers)
   - Agriculture
   - Use of corridors (designated corridors including the WWE corridor, the BLM Vale District corridor, and USFS corridors; proximity to existing roads including I-84; parallel to and in proximity of existing transmission lines)
   - Socioeconomics
   - Technical and other considerations (military operations, constructability, and Resource Management Plan and USFS plan conformance)

2) **Formal guidance from ODFW regarding its interpretation of its Habitat Mitigation policy and sage-grouse guidance:** IPC received a letter from ODFW in August 2013 stating that the ODFW Habitat Mitigation Policy (OAR 635-415-0025) does not draw a distinction between direct and indirect impacts to Category 1 habitat. The letter also stated that ODFW understands that IPC may be faced with rerouting the Project based on their guidance. Without a change in both BLM and ODFW's current positions on sage-grouse habitat, it is highly unlikely that either the federal or state agencies involved will authorize the Virtue Flats and Durkee Alternative Corridor Segments of the Proposed Corridor. These segments are therefore not analyzed in the Amended pASC.

3) **Further coordination with the Bonneville Power Administration (BPA), PacifiCorp, and other utilities in Boardman area:** In order for the Project to meet its objective of adding approximately 1,000 MW of bi-directional capacity between the Pacific Northwest

and Intermountain West regions, the point of interconnection at the northern terminus must provide sufficient capacity to: 1) transfer an additional 1,050 MW of power from the BPA 500-kV transmission system in the Pacific Northwest west-to-east across the Idaho-Northwest transmission path; 2) transfer an additional 1,000 MW of power east-to-west across the Idaho-Northwest transmission path; and 3) allow for actual power flows on the B2H line of up to approximately 1,500 MW, accounting for variations in actual power flows of the various transmission lines comprising the Idaho-Northwest transmission path.

When IPC began the federal permitting process for B2H in 2007, other transmission development projects were being proposed in the Pacific Northwest that influenced Idaho Power's northern terminus location options for the Project. Portland General Electric's (PGE) Cascade Crossing 500-kV project was of particular note. In fact, in 2008, IPC and PGE executed a Memorandum of Understanding concerning Boardman area transmission development, with the intent of sharing development plans and developing facilities collaboratively to assist each company in fulfilling their respective service and system reliability obligations. The proposed Grassland Station was contemplated as an interconnection point between the two projects that could help each company with their respective project objectives. In IPC's 2013 pASC, the proposed termination point in the Boardman area was the Grassland Station.

However, since the 2013 pASC, the transmission development landscape has changed. Several of the development projects under consideration during the time of original application have subsequently been cancelled. Notably, in 2013, PGE indefinitely suspended the Cascade Crossing project. Even though the Grassland Station has been developed in connection with PGE's Carty Generating station, with the cancellation of the Cascade Crossing project, additional 500-kV transmission infrastructure would have been required to provide connection into the transmission grid to meet the needs of the Project. Therefore, the Grassland Station will not be analyzed in the Amended pASC as a termination point. Rather, IPC is proposing to terminate the Project at the Longhorn Station.

4) **Continued engineering to minimize impacts and improve design:** Since submittal of the 2012 Supplemental Siting Study as part of the pASC, IPC has performed more detailed engineering analyses that resulted in corridor adjustments and changes to avoid sensitive resources as well as improve constructability (see Attachment B-4, 2015 Supplemental Siting Study).

3.1.5 Corridor Selection Process Phase Four – May 2016 to Present

In March 2016, the BLM requested additional input from stakeholders on the alternatives being considered in the NEPA process. BLM took the information provided by the stakeholders and developed a revised Agency Preferred Alternative. The revised BLM Agency Preferred Alternative resulted in 147.4 miles of route modifications in Oregon to the IPC Proposed Route as presented in the Draft Amended pASC (see Attachment B-6, 2017 Supplemental Siting Study). The majority of the route modifications occurred in Morrow, Umatilla, Union, and Baker counties (Table B-7).

Table B-7. Miles of Route Modifications as a Result of BLM Agency Preferred Alternative

County	Miles of Route Modifications
Morrow	31.4
Umatilla	30.5
Union	32.3
Baker	47.2
Malheur	6.0
Total	**147.4**

IPC made minor changes to the sections of the Proposed Route that were submitted in the Draft Amended pASC that were not eliminated by the new BLM Agency Preferred Alternative. These included minor line and road location adjustments as well as adjustments to avoid sensitive resources, reduce redundancy of project features, and improve the preliminary engineering design. In addition, in coordination with permitting partners PacifiCorp and BPA and other stakeholders, IPC also added two alternatives in Morrow County and one alternative in Union County.

3.1.6 Analysis of Factors from OAR 345-021-0010(1)(b)(D)(i)-(viii)

> OAR 345-021-0010(1)(b)(D): In the assessment, the applicant shall evaluate the corridor adjustments the Department has described in the project order, if any. The applicant may select any corridor for analysis in the application and may select more than one corridor. However, if the applicant selects a new corridor, then the applicant must explain why the applicant did not present the new corridor for comment at an informational meeting under OAR 345-015-0130. In the assessment, the applicant shall discuss the reasons for selecting the corridor(s), based upon evaluation of the following factors:
>
> (i) Least disturbance to streams, rivers and wetlands during construction.
>
> (ii) Least percentage of the total length of the pipeline or transmission line that would be located within areas of Habitat Category 1, as described by the Oregon Department of Fish and Wildlife;
>
> (iii) Greatest percentage of the total length of the pipeline or transmission line that would be located within or adjacent to public roads and existing pipeline or transmission line rights-of-way.
>
> (iv) Least percentage of the total length of the pipeline or transmission line that would be located within lands that require zone changes, variances or exceptions.
>
> (v) Least percentage of the total length of the pipeline or transmission line that would be located in a protected area as described in OAR 345-022-0040.
>
> (vi) Least disturbance to areas where historical, cultural or archaeological resources are likely to exist.
>
> (vii) Greatest percentage of the total length of the pipeline or transmission line that would be located to avoid seismic, geological and soils hazards.
>
> (viii) Least percentage of the total length of the pipeline or transmission line that would be located within lands zoned for exclusive farm use.

The following section describes IPC's reasons for selecting the Proposed Corridor, based upon evaluation of the factors identified in OAR 345-021-0010(1)(b)(D). It is important to note that these factors do not comprise an EFSC siting standard and IPC is not required to satisfy these factors to meet any EFSC standard; rather, the rule simply requires that IPC discuss the factors in the application. In other words, consideration of the factors in a corridor selection assessment is best viewed as a process and informational requirement, not a substantive requirement or standard.

As described in earlier sections of this Exhibit, the corridor selection process to move from a two-state, 11-county study area comprising over 31,000 square miles to 3,000 miles of preliminary corridors in 2010, to selection of a Proposed Corridor in 2012, to modification of that Proposed Corridor based on input from the BLM and other new developments in 2015 and 2016, has been a complex process with extensive public and agency input. From the beginning of the process, IPC has employed the eight factors identified in OAR 345-021-0010(1)(b)(D) to filter through the various alternatives at an increasing level of detail. In the initial phase, more than 225 constraints to, and opportunities for, siting were identified including 124 that were directly related to the eight factors discussed below (see Tables B-2 and B-3). Using these constraints and opportunities and working with the local citizens, over 3,000 miles of alternative corridor were identified for further analysis.

Each alternative was again reviewed to improve the ability to permit and construct each corridor and corridor segment. Again the eight factors were applied to refine the corridors. In particular, IPC used aerial photography to identify and avoid, where practical, irrigation pivots, houses, barns, private runways, other structures (i.e., wind turbines), and land use features. The corridors were adjusted using topographic maps to avoid or minimize distance across very steep slopes and other physical features (factor vii) less desirable for transmission line construction and operation. Finally, the corridors were again checked against the constraint and opportunity GIS database to avoid, where possible, exclusion areas and areas of high permitting difficulty such as potential ODFW Category 1 habitats (factor ii). As a result of this analysis, the miles of alternative corridor still under consideration were reduced to about 2,000.

The alternative corridors were then grouped into 14 regions (see Figure B-10) and evaluated on the basis of permitting difficulty, construction difficulty and mitigation costs (see example, Figure B-12). Using the constraint database, which included the eight siting factors, the alternatives were reviewed to determine the most reasonable corridor within each region.

The most reasonable corridor segments from each region were combined to form three complete corridors spanning from the Boardman area to the Hemingway Substation. These three corridors were evaluated against the constraint database. This analysis resulted in a recommendation of the Eastern Corridor for reasons such as use of existing utility and transportation corridors for 50 additional miles (factor iii), crossing 20 fewer miles of 25 percent slopes (factor vii), and crossing 38 fewer special status streams (factor i).

After IPC submitted its 2010 NOI, it continued its siting process to further reduce potential impacts, eliminate some alternative corridor segments, and add several more substantial alternative corridor segments. These changes occurred as a result of extensive field studies, environmental analysis to better define areas of impact, and more detailed engineering studies to better define construction and operation requirements. The changes are documented in Attachment B-1, 2010 Siting Study, and Attachment B-2, 2012 Supplemental Siting Study. As a result, alignments have been shifted and access roads and structure sites have been moved to avoid or reduce impacts to the resources, including but not limited to those relevant to the eight factors.

Following IPC's submittal of a pASC in 2013, the third phase of Project siting occurred. Again during this phase, IPC undertook significant evaluation of resources and made many changes to the Project location, both macro and micro, to avoid and minimize impacts to resources identified by one or more of the eight factors in OAR 345-021-0010(1)(b)(D). This third phase of siting is documented in Attachment B-4, 2015 Supplemental Siting Study.

In 2016, the fourth phase of Project siting occurred with the BLM's development of a revised Agency Preferred Alternative. The BLM refined the Agency Preferred Alternative based on input from public comments received on the Draft EIS, with IPC providing input on the eight factors in OAR 345-021-0010(1)(b)(D). This fourth phase of siting is documented in Attachment B-6, 2017 Supplemental Siting Study.

As described below, IPC has carefully considered and weighed the eight factors in OAR 345-021-0010(1)(b)(D) at both the macro- and the micro-siting levels.

(i) Least disturbance to streams, rivers and wetlands during construction. IPC has designed the Project to avoid impacts to streams, rivers, and wetlands to the maximum extent practicable. Streams, rivers, and wetlands have been considered in the siting and evaluation process since the initiation of siting at both the macro- and micro-siting level. As shown in Attachment B-3, six different categories of Special Status streams and National Wetland Inventory wetlands were used in the evaluation of the Eastern, Central, and Western corridors. In Phase One of siting the Project, IPC determined that the Eastern Corridor would cross 8 Special Status streams and 0.7 mile of wetland, compared to 13 crossings and 0.7 mile for the Central Corridor, and 46 crossings and 0.4 mile for the Western Corridor. Among those three corridors, the Eastern Corridor would result in the least disturbance to these resources.

During Phase Two of the siting process, in 2011 and 2012, IPC performed stream, river, and wetland mapping and delineation surveys of the proposed and alternative corridors. Based upon these data, adjustments were made to the proposed facilities to avoid or minimize project impacts to stream, river, and wetland resources.

During Phase Three and Phase Four of the siting process, in 2013, 2014, and 2016, IPC performed additional stream, river, and wetland mapping and delineation surveys of new alternative corridors. The results of these surveys were used to modify the location of proposed facilities to avoid or minimize impacts to stream, river, and wetland resources along these alternative corridors.

(ii) Least percentage of total length of pipeline or transmission line that would be located within areas of Habitat Category 1, as described by the Oregon Department of Fish and Wildlife. Category 1 habitat has been an important factor in IPC's evaluation and siting of the Project, and IPC has avoided impacts to known Category 1 habitat to the maximum extent practicable. Nonetheless, the Project area includes potential Category 1 habitat for Washington ground squirrels (WAGS) and greater sage-grouse (sage-grouse).

Category 1 WAGS habitat occurs within the Project Site Boundary near NWSTF Boardman. The portion of the Project within WAGS Category 1 habitat consists of the removal of the existing 69-kV transmission line along the southeastern boundary of NWSTF Boardman. Ground-disturbing activities will be temporary and will result in the removal of the 69-kV H-frame structures. Removal of the 69-kV H-frame structures will eliminate an existing raptor perching opportunity from which WAGS hunting could occur. IPC will work with ODFW to determine appropriate timing and methods for the removal of the 69-kV transmission line that will result in the least potential impact to WAGS and WAGS Category 1 habitat.

Designing the Project to avoid impacts to Category 1 sage-grouse habitat has been extremely challenging, in large part because of the dynamic and evolving nature of Oregon's sage-grouse habitat protection policy. In selecting and finalizing its 2010 Proposed Corridor, IPC based its efforts to avoid Category 1 sage-grouse habitat on ODFW guidance that Category 1 sage-grouse habitat comprised all habitat within 2 miles of leks, unless site-specific habitat conditions, terrain, or existing man-made features potentially would reduce the category level. Consequently, the 2010 Proposed Corridor avoided most of the many 2-mile lek buffers in the Project vicinity.

In October 2012, IPC was advised that ODOE and ODFW determined that ODFW's core area approach to categorizing sage-grouse habitat must be applied to the Project, as set forth in the *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat* (ODFW 2011), referred to hereafter as the "2011 Strategy." Under the 2011 Strategy, ODFW designated "core areas" of sage-grouse habitat. ODFW recommends that all mapped core areas be identified as Category 1 habitat, subject to site-specific analysis and possible recategorization as Category 2 based on actual habitat conditions (degraded habitat, existing infrastructure or other disturbances, etc.). Consequently, the Proposed Corridor in IPC's 2013 pASC did not entirely avoid Category 1 sage-grouse habitat. To address this issue, IPC worked with ODFW to determine the precise extent of Category 1 sage-grouse habitat within the Site Boundary, and made every effort to micro-site to achieve the least disturbance of Category 1 habitat. Concurrently with IPC's siting efforts, BLM also engaged in siting work that resulted in its development of two new alternatives designed to avoid sage-grouse habitat, and identification of preliminary preferred alternatives that differed from IPC's 2012 proposed corridor.

In July 2015, the Oregon Fish and Wildlife Commission adopted new mitigation policies for addressing impacts to sage-grouse habitat (see OAR 635-140-000, -0002, -0010, -0015, and -0025). The new policies provide mitigation measures for avoiding and minimizing sage-grouse habitat impacts, and compensating for unavoidable impacts (see OAR 635-140-0025(2)). Then Governor Brown ordered all state agencies to update by July 1, 2015, their regulatory programs to be consistent with the new ODFW sage-grouse mitigation policies (see Executive Order No. 15-18). Accordingly, the new policies will dictate the Project's sage-grouse mitigation requirements and the Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000) habitat categories (e.g., Category 1 habitat) will no longer apply to sage-grouse. Importantly, on October 19, 2015, ODFW filed a temporary rule exempting pending EFSC applications such as this Project from the avoidance and certain minimization provisions of ODFW's new sage-grouse policies (see OAR 635-415-0025(7)).

Regardless of the exemption, the history of the Project demonstrates that IPC—in response to ODFW and BLM input—has developed routes and changed the Project numerous times to avoid and minimize impacts to sage-grouse habitat. While the Proposed Corridor will impact some sage-grouse habitat, there is no reasonable alternative location that would avoid the habitat, and the public benefits of the Project outweigh the adverse effects on the same.

As illustrated by IPC's diligent siting efforts during all three phases of siting, IPC selected the Proposed Corridor based on careful consideration of the extent to which it achieves the least percentage of total length of transmission line located within areas of Habitat Category 1, as described by the ODFW.

(iii) Greatest percentage of the total length of the transmission line that would be located within or adjacent to public roads, as defined in ORS 368.001 and existing transmission line rights-of-way. IPC has designed the Project to be located adjacent to public roads and existing transmission line ROWs to the maximum extent practicable. The Project is too large to be entirely located within existing public ROWs; however, IPC has treated existing public roads and utility ROWs as siting opportunities, as reflected in the Exhibit B, Attachment B-2, 2012 Supplemental Siting Study. As a result, the Proposed Corridor is located parallel to over 100 miles of public roads (I-84) and/or existing transmission lines. This is considerably more than the other corridors under consideration, which was a significant factor in IPC's selection of the Proposed Corridor.

Since IPC submitted its NOI, it has considered additional locations in which the Project could be located adjacent to existing roads and utility ROWs. IPC has proposed to remove 12 miles of existing 69-kV transmission line and use its existing 90-foot ROW for the 500-kV transmission line. The existing 90-foot 69-kV ROW will not be widened. IPC has proposed to rebuild 0.9 mile of a 230-kV transmission line into a new 125-foot ROW. The existing 230-kV ROW will be widened to 250 feet to accommodate placement of the 500-kV transmission line. IPC has also proposed to rebuild approximately 1.1 miles of an existing 138-kV line into a new 100-foot ROW, and use approximately 0.8 mile of this ROW for the 500-kV transmission line. The existing 100-foot 138-kV ROW will be widened to 250 feet for 0.8 mile to accommodate placement of the 500-kV transmission line. Proposed ROW widths are discussed in Section 3.5.2.

(iv) Least percentage of the total length of transmission line would be located within lands that would require zone changes, variances or exceptions. IPC has, to the maximum extent practicable, designed the Project to avoid lands for which a zone change, variance, or land use exception would be required. Much of the Project is located on EFU-zoned lands, a zone for which a transmission line is a permitted use if siting the line on EFU is "necessary" for the Project (ORS 215.283; ORS 215.275). However, as described in detail in Exhibit K, Section 7.0, the Project will require a Goal 4 exception for the portions of the Site Boundary located in Goal 4 forest lands in Umatilla and Union counties. For most of the Project, no zone change, variance, or exception is required.

(v) Least percentage of the length of the pipeline or transmission line that would be located in a protected area as described in OAR 345-022-0040. As described in detail in Exhibit L, Section 3.3, IPC's Proposed Corridor was developed to avoid protected areas to the maximum extent practicable. There are approximately 82 protected areas within 20 miles of the Site Boundary, and all were considered constraints during the siting process. The Proposed Corridor crosses the corner of the Blue Mountain Forest State Scenic Corridor. This crossing is discussed further in Exhibit L, Section 3.5, and Exhibit R, Section 3.3. The fact that the Proposed Corridor avoids 81 of the 82 protected areas within the study area was a strong factor in support of its selection.

(vi) Least disturbance to areas where historical, cultural or archaeological resources are likely to exist. To the extent possible, IPC has designed the Project to avoid disturbance to areas where historical, cultural, or archaeological resources were known or likely to exist. Historic, cultural, and archeological resources were important considerations in corridor selection and, where possible, these resources were avoided during the siting process. Five cultural resource factors were considered in evaluating the three corridors at the macro level: As shown in Attachment B-3, these included the "Burns District Archaeological Site," locations "within 1,200 foot Historic Trail Buffer," "within .5 mi of a National Register Historic Place Buffer,", crossings of "Intact Oregon Trail Segments", and "Oregon Trail Brochure – Trail rut" Only locations "within 1,200 foot of historic trail buffer" show a significant difference in the corridor analysis. For this category, the Eastern Corridor is within 1,200 feet of a historic trail for about 4.5 miles more than the Central and Western corridors. Detailed field studies have been completed to identify additional historical, cultural, or archaeological resources. When these resources cannot be avoided, impacts can be addressed by spanning these resources, separating structures by up to 1,500 feet or more, and by other means such as relocating access roads and construction areas. When avoidance does not eliminate the potential for disturbance, treatment plans can be developed to mitigate impacts.

During Phase Two of the siting process, IPC performed cultural resource surveys of the proposed and alternative corridors. Based upon these data, adjustments were made to the proposed facilities to avoid or minimize impacts to historic, cultural, and archeological resources. Exhibit S, Section 3.3 provides additional information on the avoidance of impact to these resources.

During Phase Three and Phase Four, IPC performed additional cultural resource surveys of new alternative corridors. The results of these surveys were used to modify the location of proposed facilities to avoid or minimize impacts to historic, cultural, and archeological resources along these alternative corridors. Exhibit S, Section 3.3 provides additional information on the avoidance of impact to these resources.

(vii) Greatest percentage of the total length the transmission line would be located to avoid seismic, geologic and soils hazards. As described in detail in Section 3.3 of both Exhibits H and I, IPC has designed the Proposed Corridor to avoid seismic, geologic, and soils hazards to the maximum extent practicable. In the corridor selection process there were 17 factors in the list of constraints associated with seismic, geologic, and soils hazards that were used to evaluate the proposed and alternative corridors (see Attachment B-3). Of these factors, four were encountered along the three final corridors considered at the macro level. For slopes greater than 35 percent, high erosion hazard, and landslides, the steeper terrain along the Central and Western corridors indicated a higher potential for impact. The Eastern Corridor showed a higher potential to be near fault lines. As part of micrositing, these factors have been considered in the siting of transmission structures, access roads, and other Project features to minimize seismic, geologic, and soils hazards. Prior to construction, a comprehensive geotechnical investigation will be conducted to further reduce such potential impacts.

(viii) Least percentage of the length of the transmission line located within lands zoned as exclusive farm use. As described in detail in Exhibit K, Sections 4.1 and 6.3, IPC has attempted to design the Proposed Corridor to avoid lands zoned EFU to the maximum extent practicable. However, as illustrated by Figure B-4 and in Exhibit K, Figure K-3 any corridor that meets the Project's stated purpose—connecting IPC's existing Hemingway Substation to the Longhorn Station near Boardman, Oregon—cannot avoid crossing lands zoned EFU. The predominance of land zoned EFU in the study area (approximately 77 percent in Oregon) makes it absolutely necessary for the Project to "cross land in one or more areas zoned for EFU in order to achieve a reasonably direct route." Accordingly, as discussed in detail in Exhibit K, the lack of available non-EFU land is the primary reason that the Project is "locationally dependent" on EFU zones, and is therefore a "utility facility necessary for public service" within the meaning of ORS 215.275. Despite IPC's best efforts to design the Project to avoid EFU-zoned lands, the entire length of the Proposed Corridor in Oregon is zoned EFU or a hybrid farm-forest zone.

Nonetheless, and although not required by ORS 215.275, IPC's extensive siting process has prioritized avoiding impacts to irrigated and other high value farmland to the maximum extent possible.[11] As explained in detail in Attachment B-1, Appendix C, IPC identified irrigated farmland as a "high avoidance" constraint throughout its siting process. In order to both achieve the Project's objective and avoid impacts to the many protected resources in the study area (see discussion of factors i through vii), IPC's 2010 Proposed Corridor crossed 17.8 miles of irrigated farmland. During micrositing, IPC continued to refine its Proposed Corridor in response to site-specific information and landowner requests; these micrositing changes included

[11] IPC's efforts to minimize impacts to EFU-zoned lands are driven by its own siting objectives as well as OAR 345-021-0010(1)(b)(D)(viii), but not ORS 215.275. ORS 215.275 does not require a "utility facility necessary for public service" that is locationally dependent on EFU to further demonstrate that it has minimized impacts on EFU land. *See WKN Chopin LLC v. Umatilla County*, LUBA Opinion No. 2012-016 at page 17 ("ORS 215.275(2) requires consideration of alternatives to siting the proposed facility 'in an exclusive farm use zone.' There are no such alternatives in this case. ORS 215.275 simply does not require that an applicant proceed through additional inquiries that are designed to minimize impacts on EFU-zoned land, where non-EFU-zoned alternatives are not available.")

changes to minimize impacts to irrigated agriculture and agricultural operations. The Project currently crosses 6.6 miles of irrigated farmland. Additionally, in Exhibit K, Section 4.1.2, IPC provides the six factor analysis required by ORS 215.275(2).

In an effort to further reduce impacts to agricultural land, IPC developed the West of Bombing Range Road Alternative (see Attachment B-4, 2015 Supplemental Siting Study). Working with BPA, IPC developed the West of Bombing Range Road Alternative, which takes advantage of an existing 69-kV transmission line ROW and was sited to minimize impacts to agriculture and NWSTF Boardman flight operations, and reduce impacts to WAGS habitat (through micrositing). The West of Bombing Range Road Alternative significantly reduced, but did not completely eliminate, impacts to agricultural lands and operations.

After completion of the corridor selection process, IPC performed more detailed engineering analyses of the Proposed Corridor that resulted in adjustments and changes to avoid sensitive resources as well as improve constructability. With the completion of these adjustments to the Proposed Corridor, IPC developed the Proposed Route that is analyzed in the Amended pASC.

3.2 Description of Proposed Facility

OAR 345-021-0010(1)(b)(A) requires a description of the Project. The following section describes the transmission, station, communication, and related or supporting facilities proposed for this Project. Project dimensions are listed in Section 3.4, Table B-13. Detailed maps showing temporary and permanent facility locations are contained in Exhibit C, Attachments C-1 and C-2.

The information herein and in subsequent sections is based on the preliminary design that has been completed. The exact quantity, size, description, distance between, and placement of the structures and components will depend on the final detailed design of the transmission line, which is influenced by the terrain, land use, and economics.

3.2.1 Electrical Generating Capacity

> OAR 345-021-0010(1)(b)(A)(i): The nominal electric generating capacity and the average electrical generating capacity, as defined in ORS 469.300.

OAR 345-021-0010(1)(b)(A)(i) is not applicable to the Project, because the Project will not generate electricity.

3.2.2 Major Components

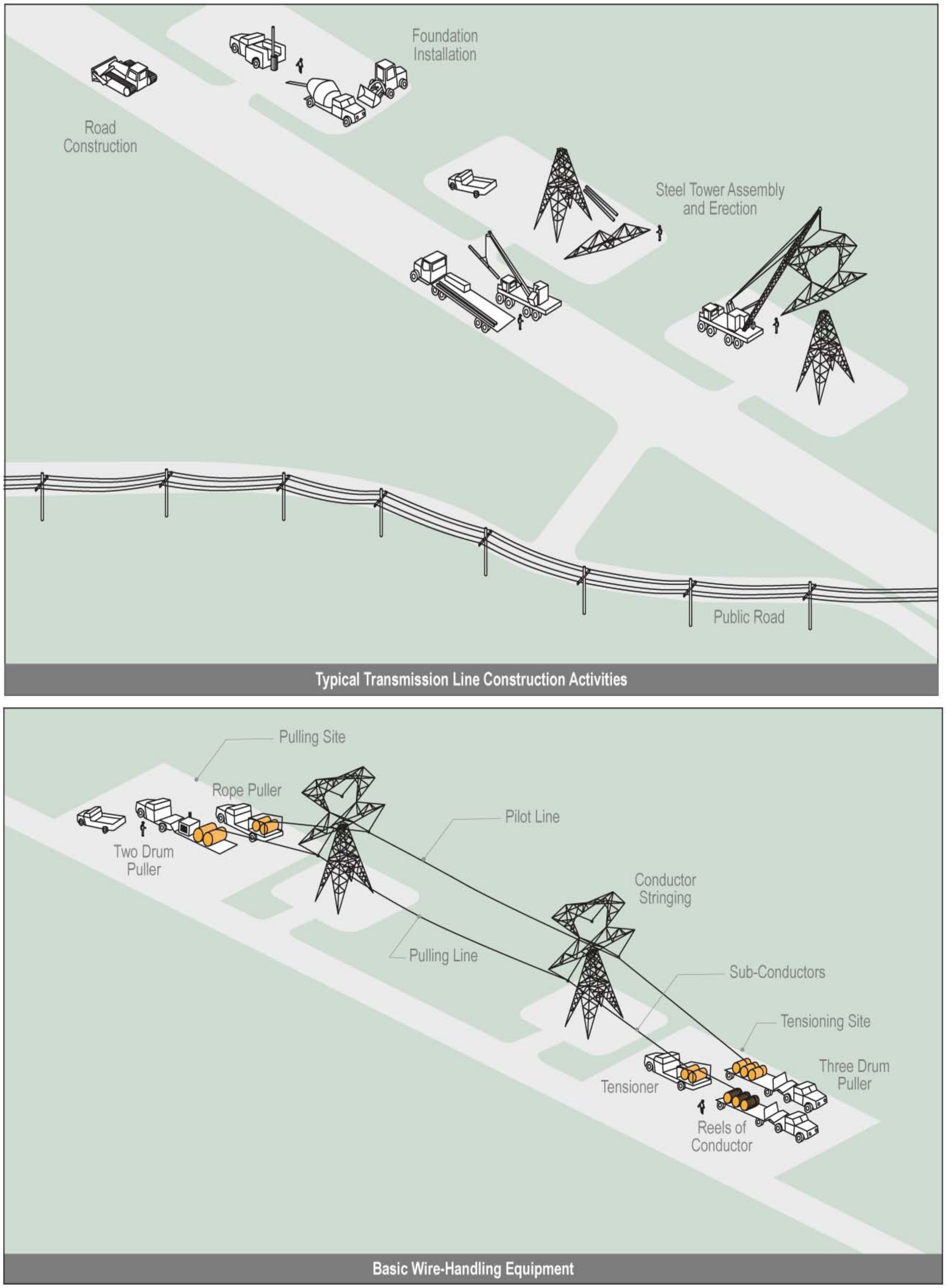
> OAR 345-021-0010(1)(b)(A)(ii): Major components, structures and systems, including a description of the size, type and configuration of equipment used to generate electricity and useful thermal energy.

The Project does not include equipment used to generate electricity or useful thermal energy. Therefore, OAR 345-021-0010(1)(b)(A)(ii) does not apply to the Project.

3.2.2.1 Transmission Line System

The Project is an approximately 296.6-mile-long, electric transmission line. Approximately 272.8 miles of the transmission line are in Oregon and 23.8 miles are in Idaho. The Project is primarily a single-circuit 500-kV electric transmission line with 270.8 miles of single-circuit 500-kV electric transmission line, removal of 12 miles of existing 69-kV transmission line, rebuilding of 0.9 mile of a 230-kV transmission line, and rebuilding of 1.1 miles of an existing 138-kV transmission line.

The transmission line system is made up of ROW, transmission and foundation structures, conductors, grounding system, communication station sites, and associated hardware. Figure B-14 illustrates the typical transmission line construction activities including foundation and roads.



Typical Transmission Line Construction Activities

Basic Wire-Handling Equipment

Figure B-14. Illustration of Transmission Line Components

Transmission Structures

Table B-8 describes structure characteristics for the Proposed Route. Table B-9 describes the structure characteristics for the alternatives. The majority of the proposed transmission line circuits will be supported by 500-kV single-circuit steel lattice towers.

Figure B-15 illustrates the proposed 500-kV single-circuit lattice steel structure configuration. Figure B-16 illustrates the alternative 500-kV single-circuit tubular steel pole Y-frame structure that would be used along the east edge of the NWSTF Boardman for West of Bombing Range Road Alternatives 1 and 2 where shorter structure heights are required. Figure B-17 illustrates the proposed/alternative 500-kV single-circuit tubular steel pole H-frame structure. Figure B-18 illustrates the alternative 500-kV single-circuit H-frame structure that will be used to reduce visual impacts to protected areas. Figure B-19 provides an illustration of a typical 230-kV single-circuit H-frame structure. Figure B-20 illustrates the proposed route rebuild single-circuit 138-kV wooden H-frame structure that would be used for approximately 1.1 miles.

Table B-8. Proposed Route Structure Characteristics

Structure Type	Number of Structures	Height (ft)	Distance Between Structures (ft)	Construction Disturbance Area per Structure (ft)	Operational Disturbance Area per Structure (ft)
Proposed 500-kV Single-Circuit Lattice Steel Structure (Figure B-15)	1,076	109-200	1,200-1,800	250 x 250 (1.4 acres)	50 x 50 (0.06 acre)
Proposed/Alternative 500-kV Single-Circuit Tubular Steel Pole H-Frame Structure (NWSTF Boardman area) (Figure B-17)	70	65-105	350-950	90 x 250 (0.5 acre) on NWSTF and 150 x 250 (0.9 acre) off NWSTF	40 x 10 (0.001 acre)
Proposed Route Rebuild Single-Circuit 138-kV Wood H-Frame Structure (Figure B-20)	9	51-61	500-750	250 x 150 (0.9 acre)	16.5 x 5 (0.001 acre)
Proposed/Alternative 500-kV Single-Circuit Tubular Steel Pole H-Frame (Figure B-18)	6	65-105	450-900	250 x 250 (1.4 acre)	40 x 10 (0.001 acre)
Proposed Route Rebuild Single-Circuit 230-kV Steel H-Frame Structure (Figure B-19)	5	57-75	400-1,200	250 x 100 (0.6 acre)	25 x 5 (0.01 acre)
500-kV Single-Circuit H-Frame	5	85-145	950-1650	250 x 250 (1.4 acres)	40 x 10 (0.001 acre)
Proposed 230-kV Single-Circuit Tubular Steel 3-Pole Dead-end	4	61-66	NA	250 x 150 (0.9 acre)	130 x 40 (0.01 acre)
Proposed 500-kV Single-Circuit Tubular Steel 3-Pole Dead-end.	4	115	NA	250 x 250 (1.4 acres)	90 x 10 (0.02 acre)
Proposed 500-kV Single Circuit Tubular Steel 3-Pole Dead-end (NWSTF Boardman area)	3	115	NA	90 x 250 (0.5 acre)	90 x 10 (0.02 acre)
Proposed 500-kV Single-Circuit Tubular Steel 3-Pole Dead-end	3	75-90	NA	250 x 250 (1.4 acres)	90 x 10 (0.02 acre)

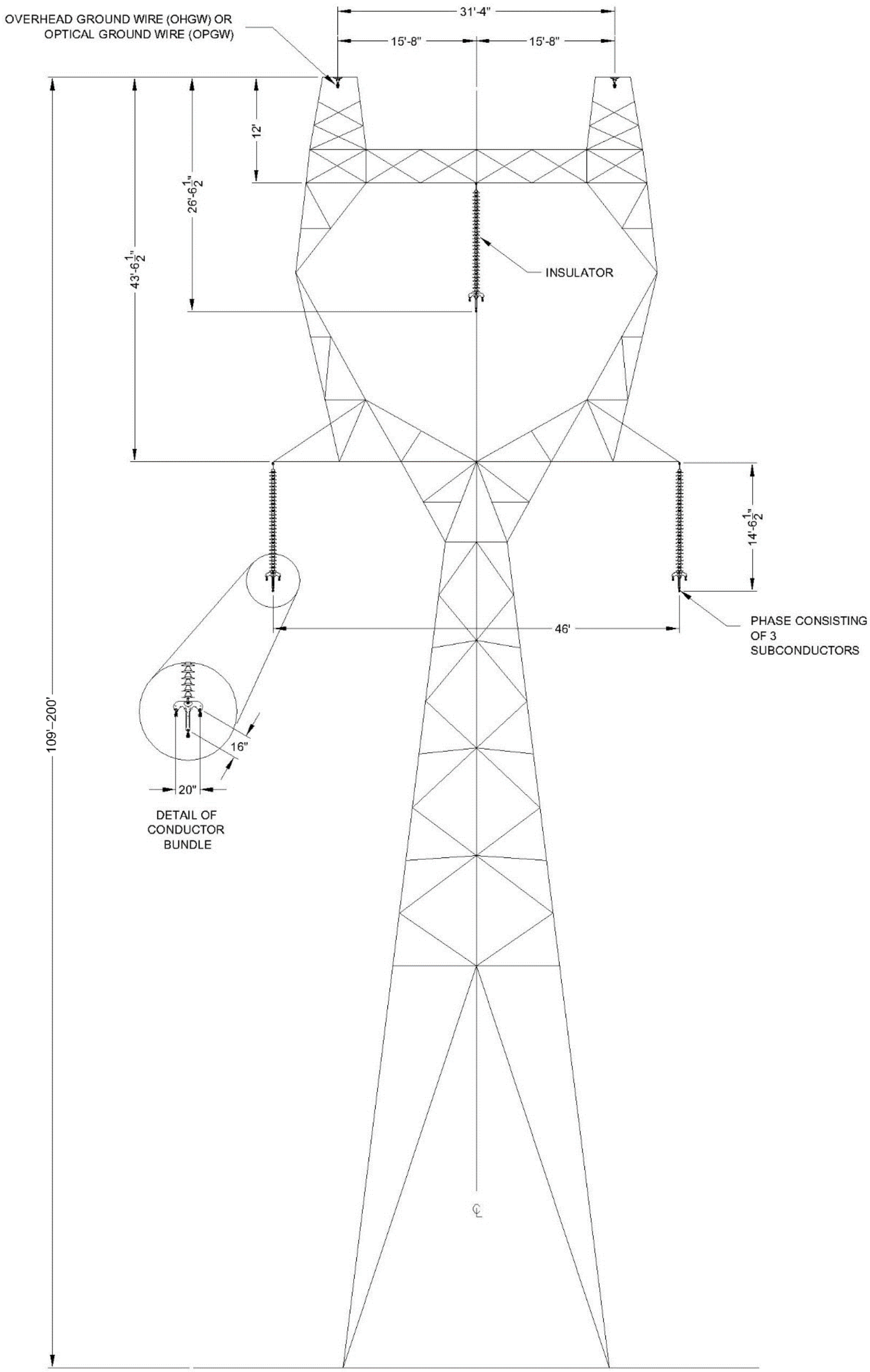
Structure Type	Number of Structures	Height (ft)	Distance Between Structures (ft)	Construction Disturbance Area per Structure (ft)	Operational Disturbance Area per Structure (ft)
138-kV Single-Circuit 3-Pole Dead-end	3	51.5	NA	250 x 150 (0.9 acre)	130 x 30 (0.09 acre)

ft – feet; NA – Not Applicable; NWSTF – Naval Weapons Systems Training Facility

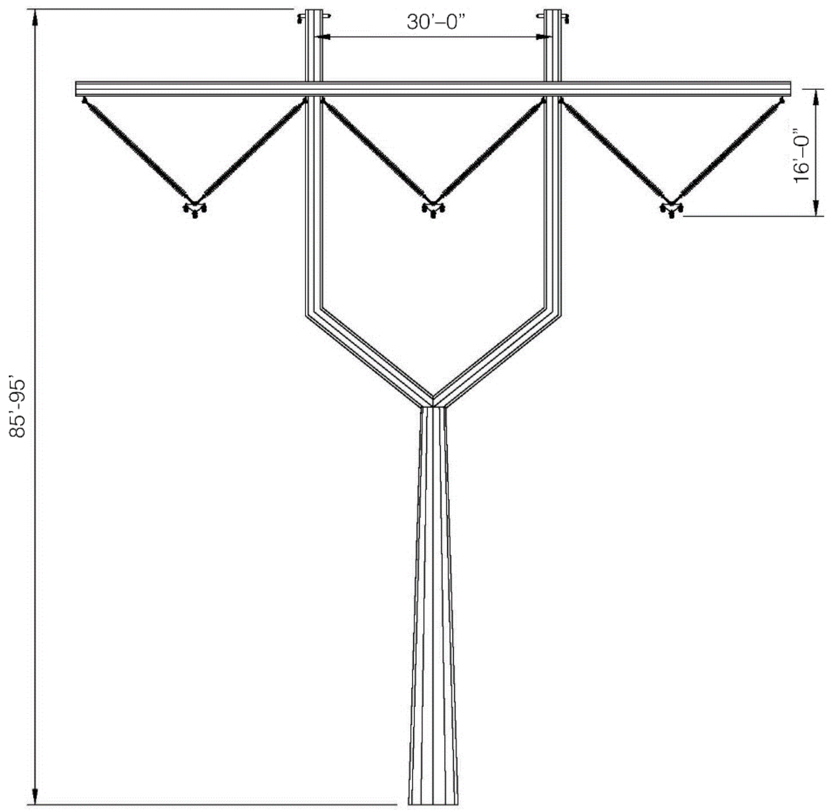
1 **Table B-9. Alternative Routes Structure Characteristics**

Structure Type	Number of Structures	Height (ft)	Distance Between Structures (ft)	Construction Disturbance Area per Structure (ft)	Operational Disturbance Area per Structure (ft)
Proposed 500-kV Single-Circuit Lattice Steel Structure (Figure B-15)	114	109-200	1,200-1,800	250 x 250 (1.4 acres)	50 x 50 (0.06 acre)
Alternative 500-kV Single-Circuit Tubular Steel Pole H-Frame (NWSTF Boardman area) (Figure B-18)	33	90-100	550-1100	90 x 250 (0.5 acre) on NWSTF <u>and</u> 150 x 250 (0.9 acre) off NWSTF	40 x 10 (0.001 acre)
Alternative 500-kV Single-Circuit Tubular Steel Pole Y-Frame (NWSTF Boardman area) (Figure B-16)	8	85-95	575-980	Varies (0.4 acre)	8 x 8 (0.001 acre)
500-kV Single-Circuit, H-Frame Dead-end (NWSTF Boardman area)	2	95-100	NA	90 x 250 (0.5 acre)	50 x 10 (0.01 acre)
500-kV Single-Circuit, 3-Pole Dead-end (NWSTF Boardman area)	2	115	NA	90 x 250 (0.5 acre)	90 x 10 (0.02 acre)

ft – feet; NA – Not Applicable; NWSTF – Naval Weapons Systems Training Facility

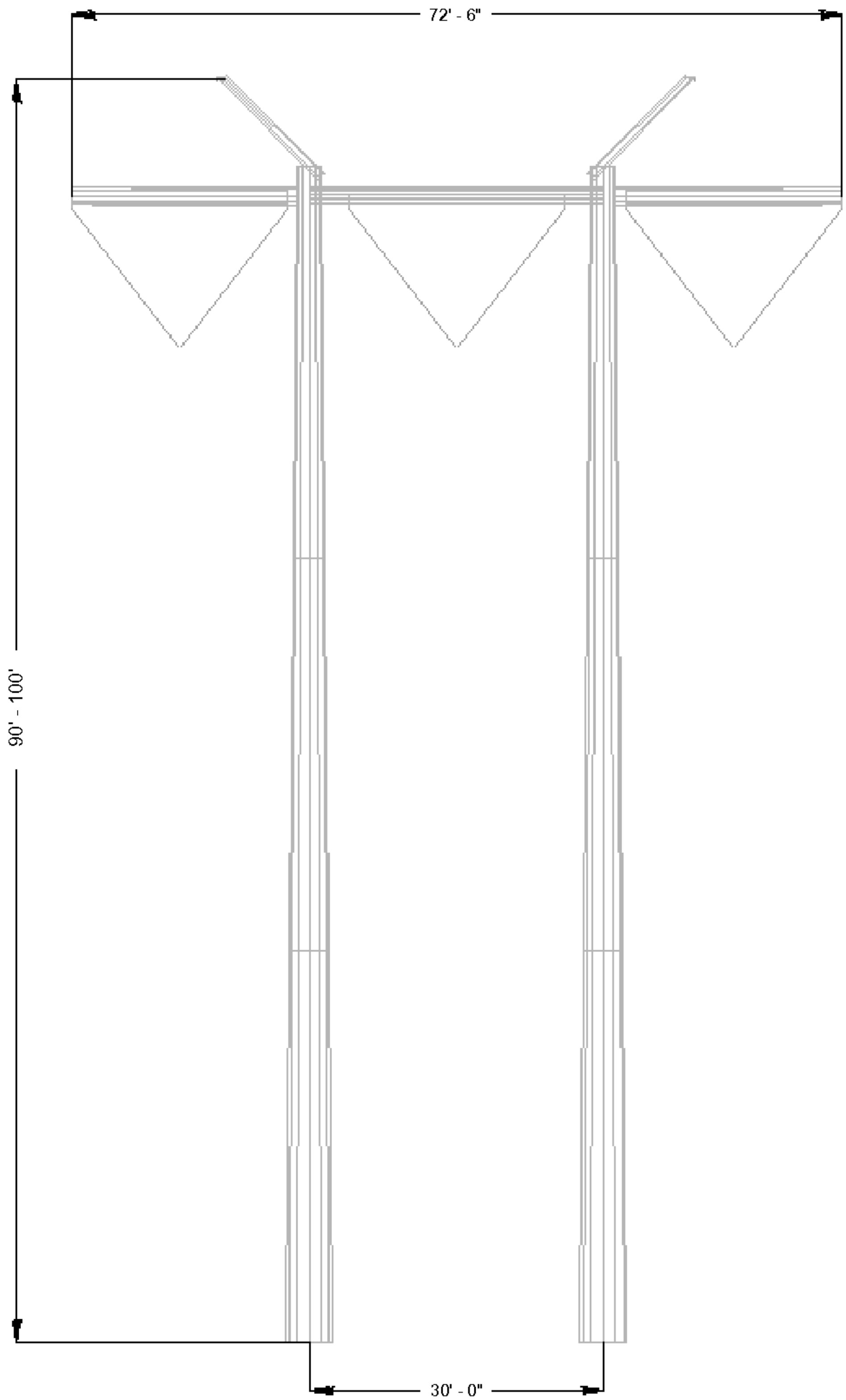
1 

2 **Figure B-15. Proposed 500-kV Single-Circuit Lattice Steel Structure**



1
2 **Figure B-16. Alternative 500-kV Single-Circuit Tubular Steel Pole Y-Frame**
3 **Structure**

Figure B-17. Proposed/Alternative 500-kV Single-Circuit Tubular Steel Pole H-Frame Structure



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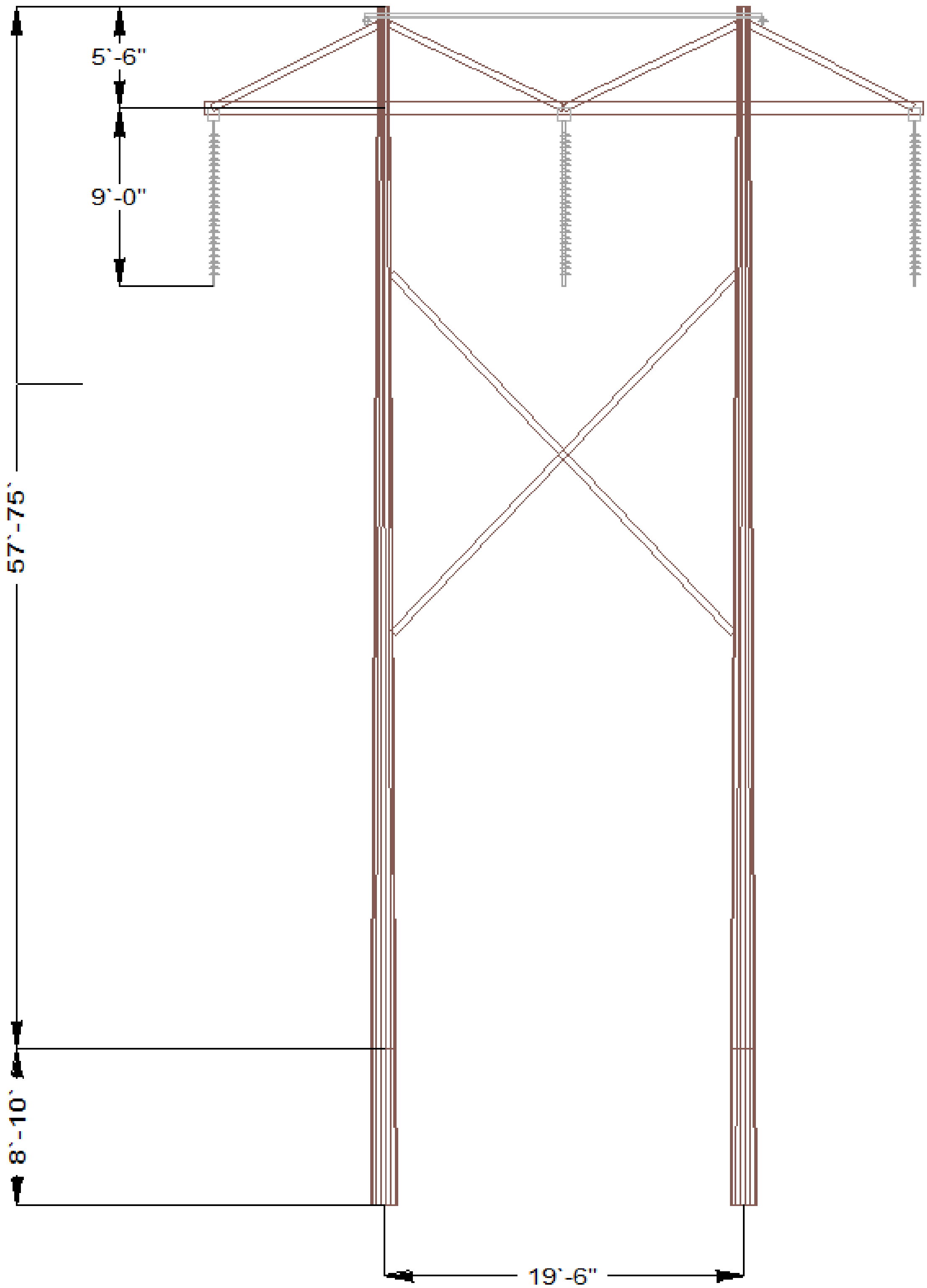
2 **Figure B-18. Proposed/Alternative 500-kV Single-Circuit Tubular Steel Pole H-**
3 **Frame Structure**



1 **Figure B-19. Proposed Route Rebuild Single-Circuit 230-kV Steel H-Frame**
2 **Structure**

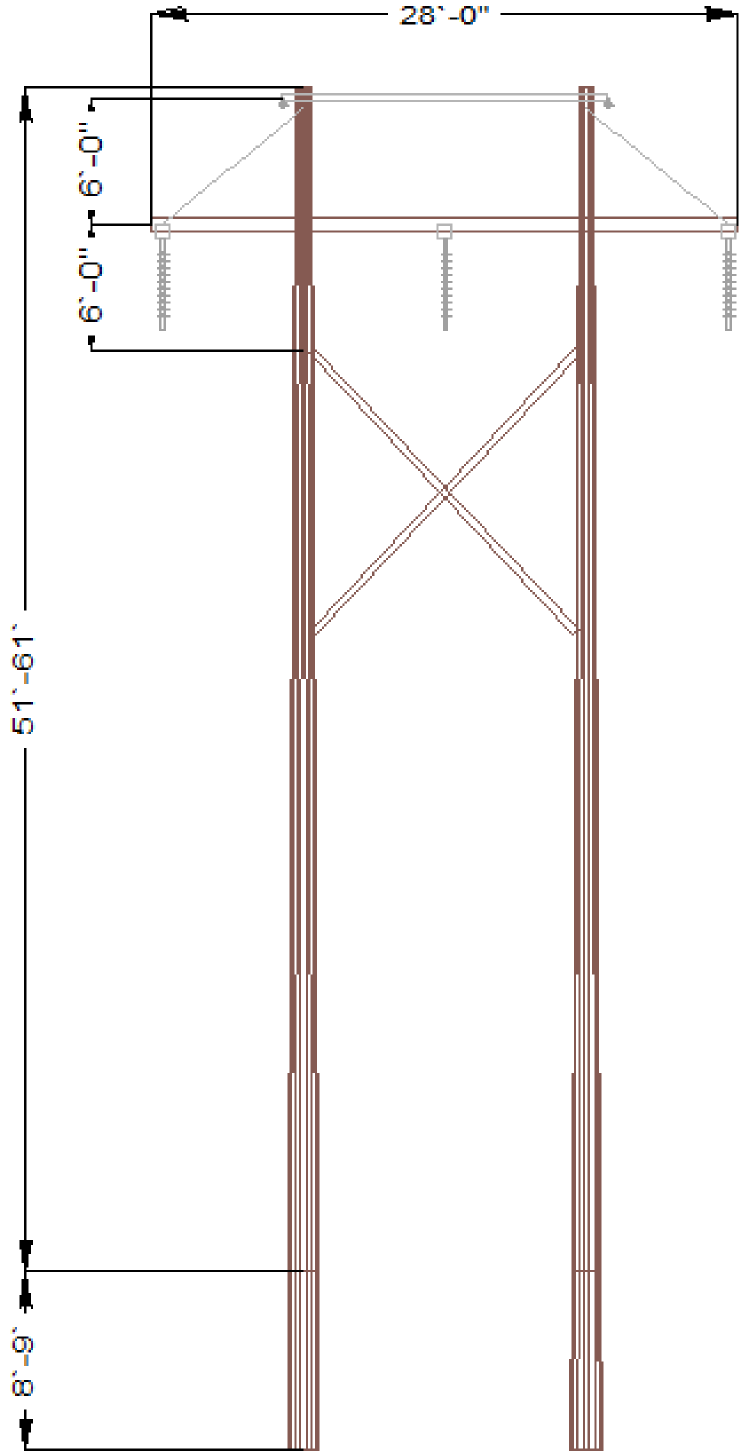


Figure B-20. Proposed Route Rebuild Single-Circuit 138-kV Wood H-Frame Structure

IPC will also use several types of support structures for special purposes as described below.

- *Tangent Structures* – Tangent structures are the most common type of structure and will be used along straight sections of the alignment. These structures are designed to support a range of wind and ice loading conditions but will only support loads associated with very slight line angles (0 to 1 degrees).
- *Angle Structures* – Angle structures are used at angle points along the transmission line corridor. Angle structures that are not designed as dead-end or terminal structures are called "running" angle structures. "Running" angle structures are designed to support a range of wind and ice loading conditions and will support loads associated with moderate line angles up to 25 degrees. Angle structures are typically designed for a specific range angles: 3 to 10 degrees, 10 to 25 degrees, etc.
- *Dead-End Structures* – Dead-end structures are generally used at station termination points, line angles greater than 25 degrees, on each end of long spans such as those crossing canyons and wide rivers, and other points along the transmission line where it is appropriate to support the tension in the conductor. Dead-end structures are designed to support the vertical loads, transverse loads, line angle loads (where appropriate), and the longitudinal load of the conductor. Dead-end structures may also be used in situations where maintaining clearance is difficult with tangent structures.
- *Tubular Steel Frames* – Tubular steel structures are fabricated from high strength plate steel formed into tubes. Tubular poles can be fabricated into various structure configurations including the H-frame and Y-frame structures that will be used on this Project. Tubular steel may be painted, galvanized, or made from weathering steel. Tubular H-frame and Y-frame steel structures will be bolted to drilled piers, piles, or a cast-in-place foundation, allowing their use in various soil types.
- *Transmission Line Crossing Structures* – Transmission line crossing structures are fabricated from high strength steel. These structures may be delta configuration lattice steel towers or tubular H-frame structures. Preferably, these structures are located perpendicular to the line being crossed. These structures' arrangements will allow the 500-kV line to cross over the top of lower voltage transmission lines or under other 500-kV lines when necessary. Crossing structures will have the same design properties as other transmission structures.
- *Transposition Structures* – At certain points along the transmission line corridor, it may be necessary to install transposition structures. A transposition structure is a transmission structure used to "transpose" each of the three phases (or conductors) in the transmission circuit so that each phase changes its relative place in the transmission circuit. Transposition structures used on the Project will be modified dead-end structures with added arms and insulator strings that will allow the phases to move to different positions on the structure. The need to install a transposition structure is dependent on the electrical characteristics and length of the line and the need to balance the electrical impedance of the transmission line between stations.

Removal of Existing 69-kV Structures

Removal of the existing 69-kV transmission line structures along the eastern boundary of the NWSTF Boardman would be completed using two specific methods. The majority of the structures would be removed by taking down the overhead conductor and removing each of the wooden poles at 3 inches below ground surface. The poles would be lifted by cranes onto trucks and removed from the site.

Removal of three of the H-frame structures that occur in WAGS habitat would be removed by cutting the poles into sections, transporting the pole sections by foot to the nearest existing road, and driving the pole sections off-site The construction contractor will climb the poles and remove the sections starting at the top. The poles will be removed down to slightly above ground level in order to eliminate potential raptor perching structures while avoiding ground disturbance. The below grade portions of the poles will be left in place. Alternatively, the wooden pole structures could be removed by using a helicopter in conjunction with hand crews working on the ground.

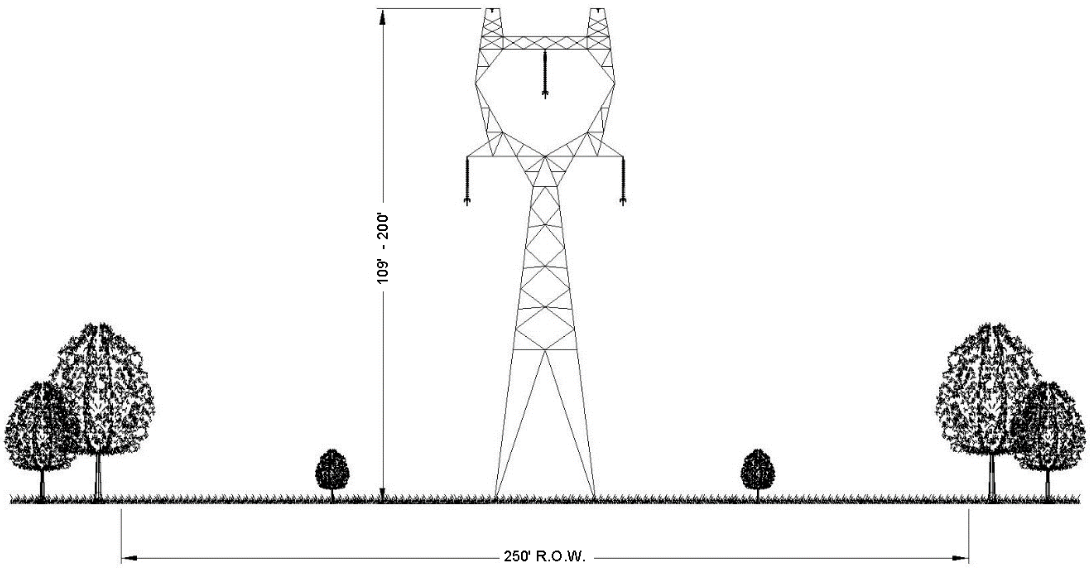
Right-of-Way Width

The ROW width for the majority of the single-circuit 500-kV line will be up to 250 feet. The ROW width requested along the east edge of NWSTF Boardman will be up to 90 feet. The ROW width for the 1.1-mile rebuilding of existing 138-kV transmission line will be up to 100 feet. The existing 138-kV ROW will be widened to 250 feet to facilitate placement of the 500-kV line within it. The ROW width for the 0.9-mile single-circuit 230-kV rebuilding portion will be up to 125 feet. The existing 230-kV ROW will be widened to 250 feet to facilitate placement of the 500-kV line within it.

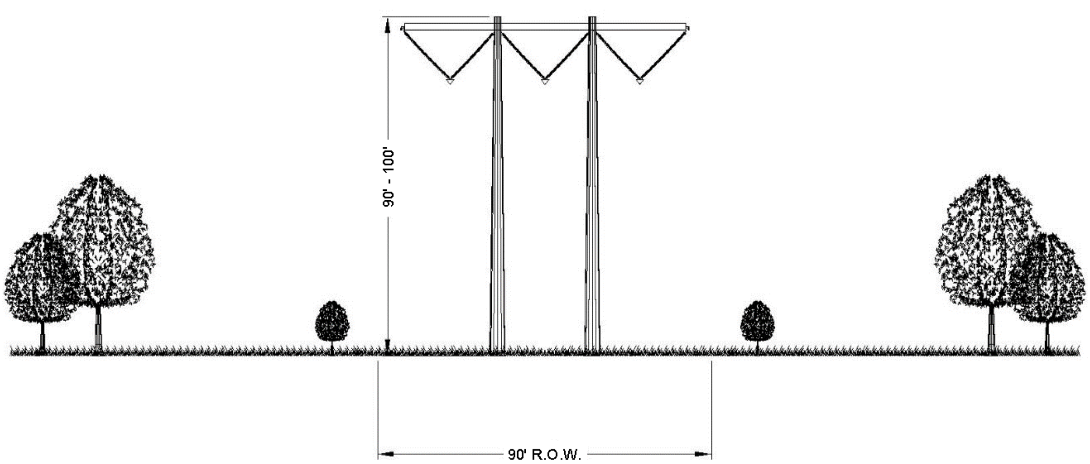
Figures B-21 through B-24 illustrate the ROW width requirements for the proposed and alternative tangent structures. The determination of these widths is based on three criteria:

1. Sufficient National Electrical Safety Code (NESC) clearance must be maintained to the edge of the ROW during a wind event when the conductors are blown towards the ROW edge.
2. Sufficient room must be provided within the ROW to perform transmission line maintenance.
3. Sufficient clearances must be maintained from the transmission line to the edge of the ROW where structures or trees may be located and deemed a hazard or danger to the transmission line. A narrower ROW could be accommodated in some areas, but in others the full 250 feet (125 feet on each side of the centerline) would be required. A narrower ROW in forested areas can result in reliability problems. Falling trees are a major cause of outages and damage to transmission lines. In addition, many forest managers are resistant to allowing utilities to remove hazardous trees, which makes reducing the ROW in forested areas not feasible.

Specific localized conditions may result in slightly different ROW widths. These will be finalized during the detailed design.

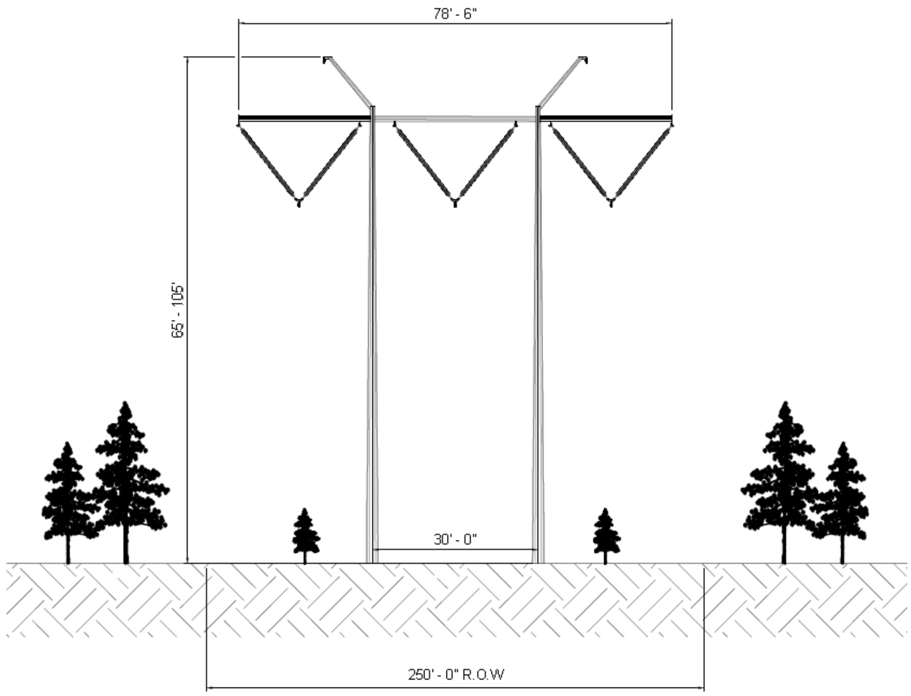


PROPOSED 500-KV LATTICE STEEL ROW DESIGN.



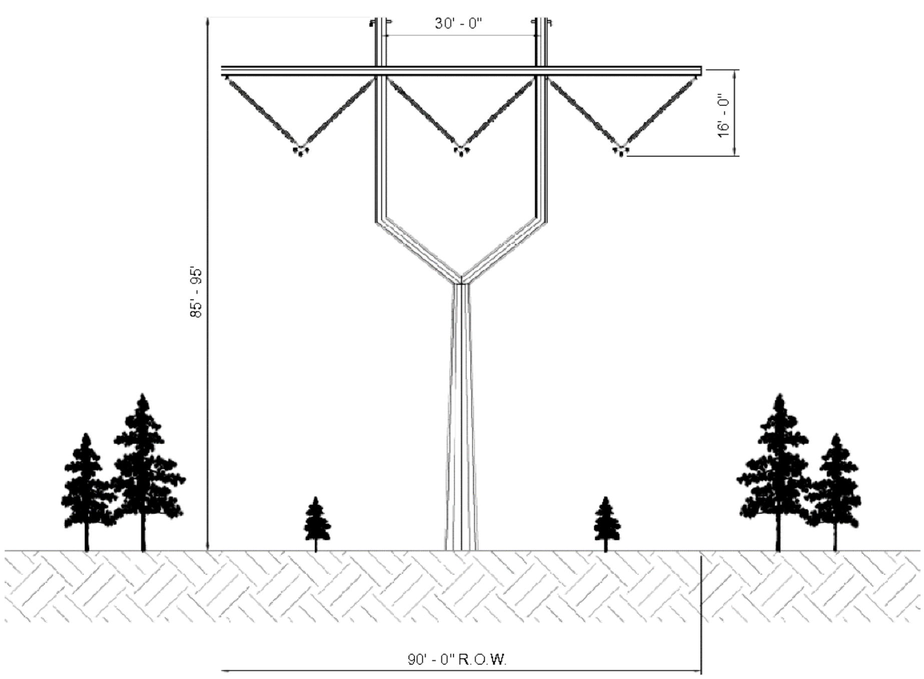
PROPOSED 500-KV STEEL POLE H-FRAME

Figure B-21. 500-kV ROW Designs



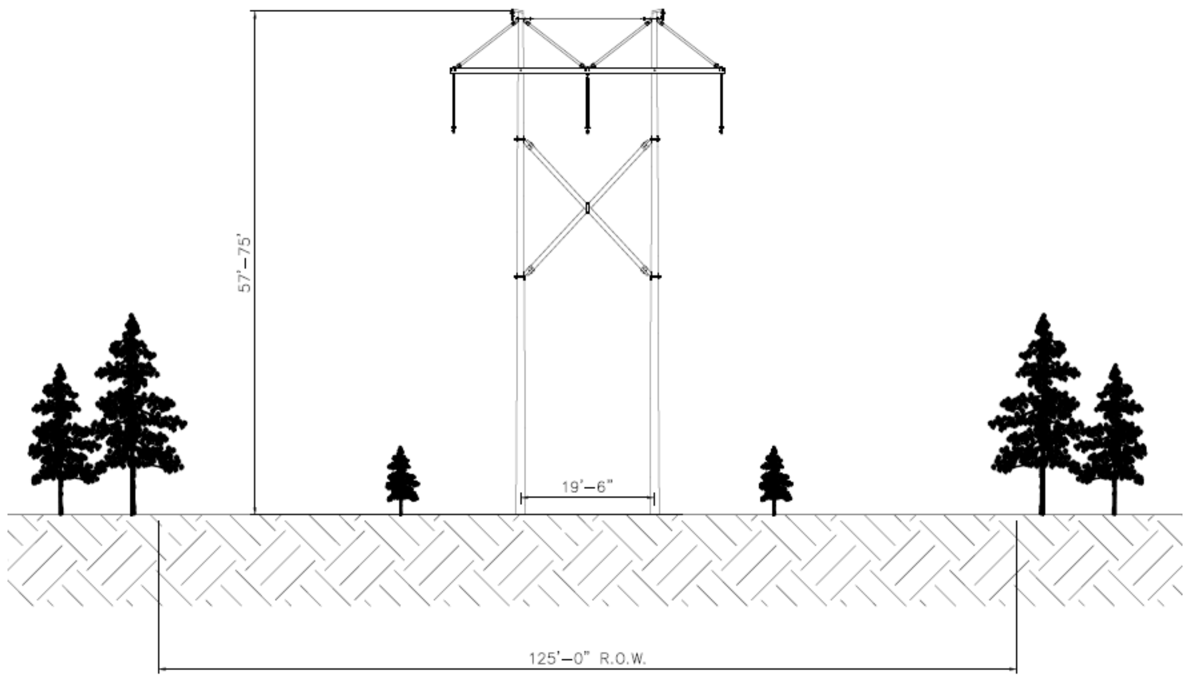
PROPOSED/ALTERNATIVE 500-KV H-FRAME STEEL ROW DESIGN

Figure B-22. Proposed/Alternative 500-kV ROW Designs

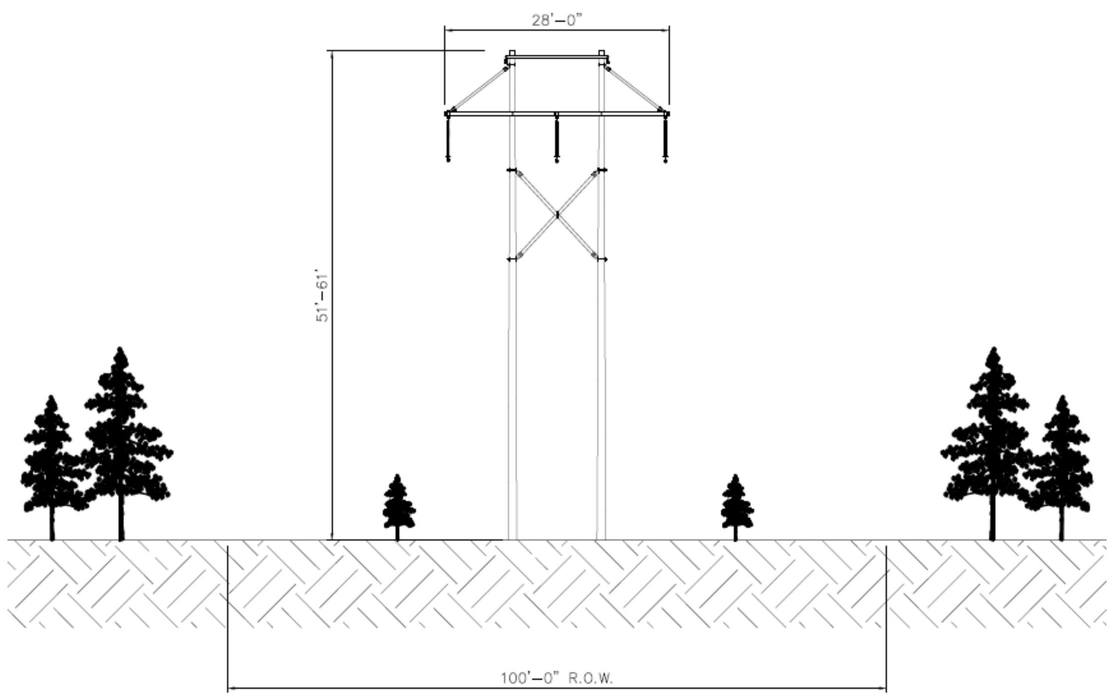


ALTERNATIVE 500-KV Y-FRAME STEEL ROW DESIGN

Figure B-23. Alternative 500-kV ROW Designs



PROPOSED REBUILD 230-KV H-FRAME STEEL ROW DESIGN



PROPOSED REBUILD 138-KV H-FRAME WOOD ROW DESIGN

Figure B-24. 230-kV and 138-kV ROW Designs

Structure and Conductor Clearances

Conductor phase-to-phase and phase-to-ground clearance parameters are determined in accordance with IPC company standards and the NESC, ANSI C2, produced by the American National Standards Institute (ANSI). These documents provide minimum distances between the conductors and ground, crossing points of other lines and the transmission support structure, and other conductors, and minimum working clearances for personnel during energized operation and maintenance activities (IEEE 2011). At normal operating conditions, the minimum clearance of conductors above ground is 34.5 feet for 500-kV lines, 27 feet for 230-kV lines, and 30 feet for 138-kV lines.

Structure Foundations

The 500-kV single-circuit lattice steel structures each require four foundations, one on each of the four corners of the lattice towers. The foundation style, diameter, and depth will be determined during final design and are dependent on structure loading conditions and the type of soil or rock present at each specific site. The preliminary design indicates the foundations for the single-circuit tangent lattice towers will be composed of steel-reinforced concrete drilled piers with a typical diameter of 4 feet and a depth of approximately 15 feet. For the 500-kV H-frame structures, each tangent structure will require two foundations, one for each pole that comprises the H-frame structure. Angle and dead-end structures will use a three-pole structure, each with its own foundation. They will be steel-reinforced drilled piers with a typical diameter of 6 to 8 feet and a depth of approximately 25 to 40 feet. The 138-kV H-frame structures will be direct-embedded wood poles. Tangent structures will be direct-embedded in a single drilled boring, typically 5 feet in diameter and 15 feet deep. Angle and dead-end structures will be on steel-reinforced drilled pier foundations with a typical diameter of 5 to 6 feet and a depth of approximately 20 to 25 feet. For the 230-kV H-frame structures, each of the two poles for tangent structures will be direct-embedded. Each of the three poles that make up the angle and dead-end structures will be direct-embedded and guyed. Typical direct-embedded foundations sizes will be 5 feet in diameter and 12 feet deep.

Typical foundation diameters and depths for the proposed structure families are shown in Table B-10.

Table B-10. Foundation Excavation Dimensions

Structure Type	Number of Holes per Structure	Depth (feet)	Diameter (feet)	Concrete (cubic yards)
500-kV Single-Circuit 3-Pole Dead-end	3	30	9	212
500-kV Single-Circuit H-Frame	2	25	8	93
500-kV Single-Circuit Lattice, Heavy Dead-end	4	30	6	126
500-kV Single-Circuit Lattice, Heavy Tangent	4	16	4	30
500-kV Single-Circuit Lattice, Light Tangent	4	16	4	30
500-kV Single-Circuit Lattice, Medium Dead-end	4	22	6	93
500-kV Single-Circuit Lattice, Small Angle	4	16	6	68

Structure Type	Number of Holes per Structure	Depth (feet)	Diameter (feet)	Concrete (cubic yards)
500-kV Single-Circuit Y-Frame, Tangent	1	43	8	80
500-kV Single-Circuit H-Frame, Tangent	2	25	8	93
230-kV Single-Circuit 3-Pole Dead-end, Guyed	3	12	4	NA
230-kV Single-Circuit H-Frame, Tangent	2	12	4	NA
138-kV Single-Circuit 3-Pole Dead-end	3	9	4	NA
138-kV Single-Circuit H-Frame, Tangent	2	9	4	NA

NA – not applicable

Conductors

The proposed conductor for the 500-kV lattice structure lines is 3-1519 KCM[12] aluminum conductor steel reinforced with trapezoidal aluminum wires (ACSR/TW) “Deschutes”. Each phase of a 500-kV three-phase circuit will be composed of three subconductors in a triple bundle configuration. The individual 1519 KCM conductors will be bundled in a triangular configuration with spacing of 20 inches between horizontal subconductors and 16 inches of diagonal separation between the top two conductors and the lower conductor (see Figure B-15. The triple-bundled configuration is proposed to provide adequate current carrying capacity and to provide for a reduction in audible noise and radio interference as compared to a single large-diameter conductor. Each 500-kV subconductor will have a 36/7 aluminum/steel stranding, with an overall conductor diameter of 1.300 inches and a weight of 1.616 pounds per foot and a non-specular finish.[13]

Where multiple conductors are utilized in a bundle for each phase, the bundle spacing will be maintained through the use of conductor spacers at intermediate points along the conductor bundle between each structure. The spacers serve a dual purpose: in addition to maintaining the correct bundle configuration and spacing, the spacers are also designed to damp out wind-induced vibration in the conductors. The number of spacers required in each span between towers will be determined during the final design of the transmission line.

The proposed conductor for the rebuilt 230-kV line is the 795 KCM 26/7 ACSR “Drake.” Each phase of the 230-kV three-phase circuit will be composed of one conductor. Each conductor will have an overall diameter of 1.107 inches and a weight of 1.093 pounds per foot and a non-specular finish.

The proposed conductor for the 138-kV rebuilt line is the 397 KCM 26/7 ACSR “Ibis” (138-kV, one conductor per phase).

[12] A thousand circular mils
[13] Non-specular finish refers to a “dull” finish rather than a “shiny” finish.

Other Hardware

Insulators

As shown in Figure B-15, the typical insulator assemblies for 500-kV steel lattice tangent structures will consist of an insulator string hung in the form of an “I.” As shown in Figures B-16 and B-17, insulator assemblies for 500-kV H-frame structures will consist of two insulator strings hung in the form of a V. As shown in Figure B-18, insulator assemblies for the alternative 500-kV H-frame will consist of one insulator string hung in the form of an “I” on the outside and two insulator strings hung in the form of “V” on the inside. As shown in Figure B-18, insulator assemblies for 230-kV H-frame structures will consist of a single insulator suspended from the structure cross arm in the form of an “I.” As shown in Figure B-20, insulator assemblies for 138-kV tangent structures will consist of one insulator string hung in the form of an “I” that extend vertically down from the crossbar. Insulators are used to suspend each conductor bundle (phase) from the structure, maintaining the appropriate electrical clearance between the conductors, the ground, and the structure. Dead-end insulator assemblies for the transmission lines will use an I-shaped configuration, which consists of insulators hung from either a tower dead-end arm or a dead-end pole in the form of an “I.” Insulators will be composed of green-tinted toughened glass.

Grounding Systems

Alternating current (AC) transmission lines such as the Project transmission lines have the potential to induce currents on adjacent metallic structures such as transmission lines, railroads, pipelines, fences, or structures that are parallel to, cross, or are adjacent to the transmission line. Induced currents on these facilities will occur to some degree during steady-state operating conditions and during a fault condition on the transmission line. For example, during a lightning strike on the line, the insulators may flash over, causing a fault condition on the line and current will flow down the structure through the grounding system (i.e., ground rod or counterpoise) and into the ground. The magnitude of the effects of the AC induced currents on adjacent facilities is highly dependent on the magnitude of the current flows in the transmission line, the proximity of the adjacent facility to the line, and the distance (length) for which the two facilities parallel one another in proximity.

The methods and equipment needed to mitigate these conditions will be determined through electrical studies of the specific situation. As standard practice and as part of the design of the Project, electrical equipment and fencing at the station will be grounded. All fences, metal gates, pipelines, metal buildings, and other metal structures adjacent to the ROW that cross or are within the transmission line ROW will be grounded as determined necessary. If applicable, grounding of metallic objects outside of the ROW may also occur, depending on the distance from the transmission line as determined through the electrical studies. These actions address the majority of induced current effects on metallic facilities adjacent to the line by shunting the induced currents to ground through ground rods, ground mats, and other grounding systems, thus reducing the effect that a person may experience when touching a metallic object near the line (i.e., reduce electric shock potential). Transmission line public health effects are discussed in Exhibit AA, Section 3.10.

During final design of the transmission line, appropriate electrical studies will be conducted to identify the issues associated with paralleling other facilities and the types of equipment that will need to be installed (if any) to mitigate the effects of the induced currents.

Minor Additional Hardware

In addition to the conductors, insulators, and overhead shield wires, other associated hardware will be installed on the tower as part of the insulator assembly to support the conductors and shield wires. This hardware will include clamps, shackles, links, plates, and various other pieces composed of galvanized steel and aluminum.

A grounding system will be installed at the base of each transmission structure that will consist of copper or copper-clad ground rods embedded into the ground in immediate proximity to the structure foundation and connected to the structure by a buried copper lead. When the resistance to ground for a grounded transmission structure is greater than a specified impedance value with the use of ground rods, counterpoise will be installed to lower the resistance to below a specified impedance value. Counterpoise consists of a bare copper-clad or galvanized-steel cable buried a minimum of 12 inches deep, extending from structures (from one or more legs of structure) for approximately 200 feet within the ROW.

Other hardware that is not associated with the transmission of electricity may be installed as part of the Project. This hardware may include aerial marker spheres or aircraft warning lighting as required for the conductors or structures per Federal Aviation Administration regulations.[14] Structure proximity to airports and structure height are the determinants of whether Federal Aviation Administration regulations will apply based on an assessment of wire/tower strike risk. IPC does not anticipate that structure lighting will be required because proposed structures will be less than 200 feet tall and will not be near airports that require structure lighting.

3.2.2.2 Stations

As explained above in Section 1.2, IPC identified the need for a Project endpoint in the Boardman, Oregon, area because it is the easternmost point at which IPC can feasibly interconnect to the Pacific Northwest market.

Proposed Longhorn Station

The terminus for the Proposed Route is the proposed Longhorn Station. BPA has planned the Longhorn Station on land it purchased from the Port of Morrow. In this application, IPC is requesting authorization to develop (construct and operate) the Longhorn Station if the BPA does not develop the Longhorn Station on a timely basis.

The Longhorn Station location is described in more detail in Exhibit C, Section 3.2 and in Attachment C-1. For termination of the Project 500-kV line at the Longhorn Station, IPC would install 500-kV circuit breakers, high-voltage switches, bus supports, and transmission line termination structures, a 500-kV series capacitor bank, and 500-kV shunt reactor banks. The 500-kV transmission line termination structures are approximately 125 to 135 feet tall. A control house to accommodate the necessary system communications, control equipment, and a restroom facility will be constructed. A new all-weather access road will be used to reach the site, and the site would be supplied by distribution power brought in from the nearby existing system as necessary. Fiber optic signal communication equipment and a backup propane-powered generator will be installed. Figure B-25 is a photograph of a typical 500-kV station with multiple line connections.

[14] U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular AC 70/7460-1K Obstruction Marking and Lighting, August 1, 2000; and Advisory Circular AC 70/7460-2K Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace, March 1, 2000.

Figure B-25. Typical 500-kV Station

3.2.2.3 Communication System

Optical Ground Wire

Reliable and secure communications for system control and monitoring is very important to maintain the operational integrity of the Project and of the overall interconnected system. Primary communications for relaying and control will be provided via the optical ground wire (OPGW) that will be installed on the transmission lines; this path is intended for IPC use.[15] No new microwave sites are planned for the Project. Each 500-kV structure will have two lightning protection shield wires installed on the structure peaks (see Figures B-15 and B-16). One of the shield wires will be composed of extra high strength steel wire with a diameter of 0.495 inch and a weight of 0.517 pound per foot. The second shield wire will be an OPGW constructed of aluminum and steel, and will carry 48 glass fibers within its core. The OPGW will have a diameter of 0.646 inch and a weight of 0.407 pound per foot. The glass fibers inside the OPGW shield wire will provide optical data transfer capability among IPC's facilities along the fiber path. The data transferred are required for system control and monitoring.

Communication Station Sites

As the data signal is passed through the optical fiber cable, the signal degrades with distance. Consequently, signal communication station sites are required to amplify the signals if the distance between communication station sites exceeds approximately 40 miles. The locations of communication station sites are listed in Exhibit C, Table C-11 and shown on the maps in Attachment C-2. A total of 10 proposed and 2 alternative communication station sites have been identified. Communication station sites will be located on private lands; IPC has located the communication station sites within the ROW for the transmission line.

Facility service power will be required at each of the ten communication station sites ultimately selected for development. Typically, facility service power is provided from a local electric distribution line located in proximity to the station communication station site. The voltage of the

[15] A secondary communication path will be used made up of the existing trunk communications systems currently in use by the BPA and IPC.

distribution supply line is typically 34.5-kV or lower and carried on wood poles. Distribution lines will be developed by local electric service providers; the local electric service providers will be responsible for any additional permitting required to develop distribution lines.

The typical communication station site will be 100 feet by 100 feet, with a fenced area of 75 feet by 75 feet. A prefabricated concrete communications structure with dimensions of approximately 11.5 feet by 32 feet by 12 feet tall will be placed on the site and access roads to the site and power from the local electric distribution circuits will be required. A standby generator with a liquefied propane gas tank will be installed at the site inside the fenced area. Two separate conduit (underground) or aerial cable routes will be used for each fiber optic cable bundle between the transmission line and communication station. Conduit will be 2-inch-diameter polyvinyl chloride and will be buried 3 feet below the surface extending from the communication shelter to two different legs of the transmission structure maintaining a 10-foot separation between the cables. All work will occur within the disturbance footprint for either the communication station or the structure to which the cables will attach. Figure B-26 illustrates the plan arrangement of a typical communications station site layout.

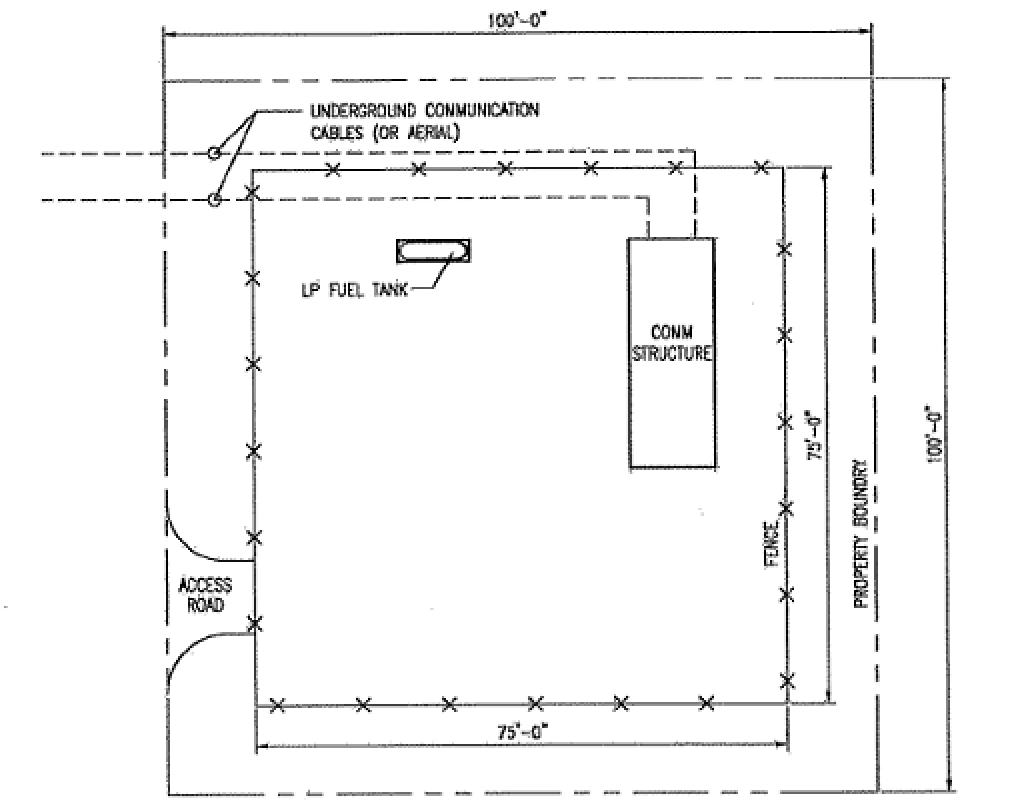


Figure B-26. Typical Communication Station Site Layout

3.2.3 Site Plan and General Arrangement

OAR 345-021-0010(1)(b)(A)(iii): A site plan and general arrangement of buildings, equipment and structures.

The general arrangement of a station and a communication station are shown in Figures B-25 and B-26. The general arrangement of multi-use areas and pulling and tensioning sites are shown in Figures B-27 and B-28 (see Sections 3.3.2 and 3.3.3 below).

3.2.4 Fuel and Chemical Storage Facilities

OAR 345-021-0010(1)(b)(A)(iv): Fuel and chemical storage facilities, including structures and systems for spill containment.

During construction, gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents will be present along the transmission line corridor, typically at multi-use areas, and at the Longhorn Station construction site. These products will be used to fuel, lubricate, and clean vehicles and equipment and will be transported in containerized trucks or in other federal and state approved containers. Enclosed containment will be provided for petroleum products and wastes and petroleum-related construction waste will be removed to a disposal facility authorized to accept such materials. Fuel and chemicals will be properly stored to prevent drainage or accidents. A typical example drawing of a spill containment area used during construction, including dimensions of spill containment area, is included in Exhibit G. Where required, preventive measures such as the use of vehicle drip pans for overnight parking areas may be implemented. Routine visual inspection for presence of petroleum leaks will be required for vehicles. Diesel fuel tanks will be located at the multi-use areas for vehicle and equipment fueling. Each fuel tank will be located within secondary containment and each station will be equipped with a spill kit. When on-ROW refueling is necessary, it will be done away from waterways. Accidental releases of hazardous materials will be prevented or minimized through proper containment of these substances during use and transportation to the site. A Spill Prevention, Containment, and Countermeasures Plan has been prepared for this Project (see Exhibit G, Attachment G-4). All hazardous and dangerous materials will be stored and secured in accordance with the appropriate regulations as discussed in Exhibit G.

During operations, no fuels or potentially hazardous materials such as general lubricants, general cleaners, ethylene glycol (antifreeze), vehicle fuel, or herbicides for weed control will be stored on the ROW. When used, they will be stored and disposed of in accordance with applicable local, state, federal environmental laws and regulations, and product labels where applicable. At the communication stations, liquid propane will be stored in approved tanks. Reactors at the termination station will be filled with an insulating mineral oil. Secondary containment structures will be installed to prevent oil from this equipment from reaching ground or water bodies in the event of a rupture or leak. IPC will use a standard type of oil containment consisting of a pit of a calculated capacity under the oil-filled equipment that has an oil-impervious liner. The pit is filled with rock to grade level. In case of an oil leak or rupture, the oil captured in the containment pit is removed and transported to a disposal facility.

Exhibit G, Section 3.3 describes quantities and handling procedures for fuel, lubricating oils, transformer oils, and other petroleum products and chemicals in greater detail.

3.2.5 Equipment and Systems for Fire

OAR 345-021-0010(1)(b)(A)(v): Equipment and systems for fire prevention and control.

During construction, the risk of fire danger is related to smoking, refueling activities, operating vehicles and other equipment off improved roadways, welding activities, and the use of explosive materials and flammable liquids. During operation, the risk of fire is primarily from vehicles and maintenance activities that require welding.

All federal, state, and county laws, ordinances, rules, and regulations pertaining to fire prevention and suppression will be strictly adhered to. All personnel will be advised of their responsibilities under the applicable fire laws and regulations.

The prevention and suppression of wildfires in eastern Oregon is carried out by BLM, USFS, and local fire districts and agencies (Table B-11). The agencies' activities are closely coordinated, primarily through the Pacific Northwest Wildfire Coordinating Group. Coordination of firefighting resources also occurs under Oregon's *Emergency Conflagration Act* that allows the state fire marshal to mobilize and dispatch structural firefighting personnel and equipment when a significant number of structures are threatened by fire and local structural fire-suppression capability is exhausted (OSFM 2007).

Table B-11. Fire Suppression Responsibilities in Oregon

Who	Where	Miles of Proposed Route
City fire departments and rural fire protection districts in mutual aid with Oregon Department of Forestry	Structures in Oregon's wildland interface areas covered by mutual-aid agreements. Rangeland fire protection associations on rangeland areas of eastern Oregon outside of both a forest protection district and a rural fire district.	193.8
BLM and BOR	National System of Public Lands and BOR-managed lands	69.9
USFS	National Forest and National Grasslands	7.1

BLM – Bureau of Land Management; BOR – Bureau of Reclamation; USFS – United States Department of Agriculture Forest Service
Source: ODEQ 2003

If IPC becomes aware of an emergency situation that is caused by a fire on or threatening BLM-managed or National Forest lands they will notify the appropriate agency contact. Specific construction-related activities and safety measures will be implemented during construction of the transmission line to prevent fires and to ensure quick response and suppression if a fire occurs. Typical practices to prevent fires during construction and maintenance/repair activities include brush clearing prior to work, posting a fire watch, and stationing a water truck at the job site to keep the ground and vegetation moist in extreme fire conditions, enforcing red flag warnings, providing "fire behavior" training to all construction personnel, keeping vehicles on or within designated roads or work areas, and providing fire suppression equipment and emergency notification numbers at each construction site.

IPC will require its contractor to maintain a list, to be provided to local fire-protection agencies, of all equipment that is either specifically designed for, or capable of, being adapted to fighting fires. IPC will require its contractor to provide basic fire-fighting equipment on-site during construction, including fire extinguishers, shovels, axes, and other tools in sufficient numbers so each employee on-site can assist in the event of a fire-fighting operation.

During transmission line operation, the risk of fire danger is minimal. The primary causes of fire on the ROW result from unauthorized entry by individuals for recreational purposes and from fires started outside the ROW. In the latter case, authorities can use the ROW as a potential point of attack for fighting a fire. During transmission line operation, access to the ROW will be restricted in accordance with jurisdictional agency or landowner requirements to minimize recreational use of the ROW.

During maintenance operations, IPC or its contractor will equip personnel with basic fire-fighting equipment, including fire extinguishers, shovels, and polaskis as described above. Maintenance crews will also carry emergency response/fire control phone numbers.

At the Longhorn Station, fire protection systems will be installed. Typical fire protection systems that could be used include:

- Automatic suppression systems such as fire sprinklers, foam, gaseous, explosion suppression, or other specialized extinguishing systems plus appropriate alarms.
- Adequate water supply, storage, and distribution systems are essential elements of water-based extinguishing systems.
- Automatic fire detection, occupant warning, manual fire alarm, and fire alarm reporting systems combined with properly equipped and adequately trained fire departments.
- Fire barrier systems or combinations of physical separation and barriers for outdoor locations.

At communication stations, smoke detectors will be installed that will alarm through the Supervisory Control and Data Acquisition system, which communicates to IPC's System Dispatch Center along the fiber optic lines.

Specific fire protection systems will be determined during final design of these Project facilities.

Exhibit U, Section 3.5.6 provides specific information on the effect of the Project on public and private fire protection providers. Exhibit U, Attachment U-3 contains a project-specific Fire Prevention and Suppression Plan that outlines responsibilities, notification procedures, fire prevention measures and precautions, fire suppression equipment, and initial response procedures.

3.3 Related and Supporting Facilities

OAR 345-021-0010(1)(b)(B): A description of major components, structures and systems of each related or supporting facility.

Permanent and temporary related and supporting facilities include access roads, multi-use areas, pulling and tensioning sites, light-duty fly yards within some pulling and tensioning sites, and communication station distribution lines.

3.3.1 Access Roads

The Project will require vehicular access during construction of the station, each communication station site, and each transmission structure, as well as temporary facilities including multi-use areas and pulling and tensioning sites. As described in Attachment B-5, Road Classification Guide and Access Control Plan, access roads included in the Site Boundary include:

- New roads; and
- Existing roads requiring substantial modification.

Existing roads that will be used for construction and operation of the Project but will not require substantial modification are not "related and supporting facilities"[16] and, therefore, are not included in the Site Boundary. Table B-12 provides a summary of the access road classifications.

[16] ORS 469.300(24) and OAR 345-001-0010(51).

Table B-12. Summary of Access Road Classifications

Access Road Classification		Site Boundary	Construction Disturbance	Operations Disturbance	Road Prism or Profile Changes	Extent of Work
New Roads	Primitive	200 feet	16 feet	10 feet	Yes	Clearing of vegetation or obstructions. Create roads by direct vehicle travel.
	Bladed	200 feet	16–35 feet	14 feet	Yes	Clearing of vegetation or obstructions. Create roads by cutting/filling existing terrain.
Existing Roads - Substantial Modification	Substantial Modification, 21-70% Improved	100 feet	16 feet	14 feet	Yes	Reconstruct portions of existing road to improve road function. Possible road prism widening, profile adjustments, horizontal curve adjustments, or material placement.
	Substantial Modification, 71-100% Improved	100 feet	16–30 feet	14 feet	Yes	Reconstruct portions of existing road to improve road function. Possible road prism widening, profile adjustments, horizontal curve adjustments, or material placement.
Existing Roads – No Substantial Modification	No Substantial Modification, 0-20% Improved	NA[1]	NA[1]	NA[1]	No	Repair of existing road to maintain original road function. No betterment of existing road function or design.

[1] Existing roads with no substantial modifications are not included in the Site Boundary and do not have an operation or construction disturbance width assigned to them.

IPC applied the following definitions to roads.

Access Road: A linear travel route designated to support construction, operation and maintenance of the transmission line.

Road Surface: The surface of the road on which vehicles would travel.

Bladed Road: Roads constructed using heavy equipment and designed to support vehicular traffic. Bladed road features typically include cuts and/or fills to construct a smooth travel surface and manage surface water drainage and include the manipulation or creation of a road prism and profile.

Road Alignment: The series of horizontal curves and tangents that define the travel path.

Road Prism: The area consisting of the road surface and any cut slope, fill slope and contiguous drainage features. For primitive roads, the road prism is defined as the travel surface and extent of clearing necessary for horizontal clearance or the extent of modification from the natural condition, whichever is greater.

Road Profile: The trace of a vertical plane intersecting the surface along the longitudinal centerline of the roadbed.

Road Segment: The length of road between intersecting nodes of a branching road network, between substantially different road surface materials (native and non-native material), or between different road classifications.

3.3.1.1 New Roads

New Primitive Roads. New primitive roads are characterized as follows:

- Created by direct vehicle travel over native material and existing vegetation.
- Disturbance may include clearing of large woody vegetation and other obstructions to ensure safe vehicle operation.
- Will generally be present on the landscape as two-track roads leaving no disturbance beyond the edge of the travel surface.
- May require intermittent maintenance work to support continued safe vehicle passage during construction.
- Typical construction disturbance is 16 feet wide. The operational width is 10 feet. The Site Boundary for a new primitive road will be 200 feet wide (100 feet each side of centerline).

New Bladed Roads. New bladed roads are characterized as follows:

- Construction of new road prism across side slope over 8 percent or over rough and uneven terrain.
- Typical construction disturbance is 16 feet wide, but can be up to 35 feet wide as dictated by terrain and soil conditions. The operational width is 14 feet. The Site Boundary for a new bladed road will be 200 feet wide (100 feet each side of centerline).

New roads are identified as being primitive or bladed for purposes of describing the disturbance width. The disturbance width may affect the Project's impact analysis elsewhere in the application, but it does not affect the classification of the roads for purposes of determining whether they are included in the Site Boundary. All new roads—primitive or bladed—are considered related or supporting facilities and are included in the Site Boundary.

3.3.1.2 Existing Roads – Substantial Modification

To determine whether existing roads will require improvements, IPC conducted field reconnaissance and surveyed aerial photos of existing road segments. If IPC determined improvements to an existing road will involve one or more of the following activities, the road segment was classified as requiring substantial improvements: (1) increasing the width of the existing road prism, (2) changing the existing road alignment, (3) using materials inconsistent with the existing road surface, (4) changing the existing road profile, or (5) involving repairs to more than 20 percent of the road surface area defined by road prism width and longitudinal distance over a defined road segment.

Existing roads that will require substantial modification are characterized as follows:

- Typical construction disturbance is 16 feet wide, but can be up to 30 feet wide when road modification exceeds 70 percent. The operational width is 14 feet. The Site Boundary for a substantial modification existing road will be 100 feet wide (50 feet each side of centerline).

Existing roads requiring substantial modification are identified as requiring 21–70 percent improvements or 71–100 percent improvements. The distinction between the two improvement categories may affect the Project's impact analysis in other sections of the application, but it does not affect the classification of the roads for purposes of determining whether they are included in the Site Boundary. Each existing road requiring improvements to more than 20 percent of the road is considered a related or supporting facility and is included in the Site Boundary.

3.3.1.3 Existing Roads – No Substantial Modification.

IPC classified existing road segments as requiring no substantial improvements if the road segments will meet each of the following criteria:

1. road maintenance activities will be limited to repair of the road prism to (i) produce a stable operating surface, (ii) ensure proper drainage and erosion control, and (iii) establish horizontal clearance;
2. proposed repair and/or construction activities will not (i) increase the width of the existing road prism, (ii) change the existing road alignment, (iii) use materials inconsistent with the existing road surface, and/or (iv) change the existing road profile; and
3. repairs will be limited to 20 percent or less of the road surface area defined by the road prism width and longitudinal distance over a defined road segment.

Note: Notwithstanding the above criteria, IPC may request that ODOE consider alternative road classifications and determinations of substantial modification for individual road segments.

After construction is completed, any new roads developed for the Project connecting to multi-use areas will be removed and restored to preconstruction conditions, unless the landowner requests otherwise. Roads developed for pulling and tensioning sites will be permanent because they will also provide access to structures for operations and maintenance. Both categories of access roads are shown on maps in Exhibit C, Attachment C-2.

3.3.2 Multi-use Areas

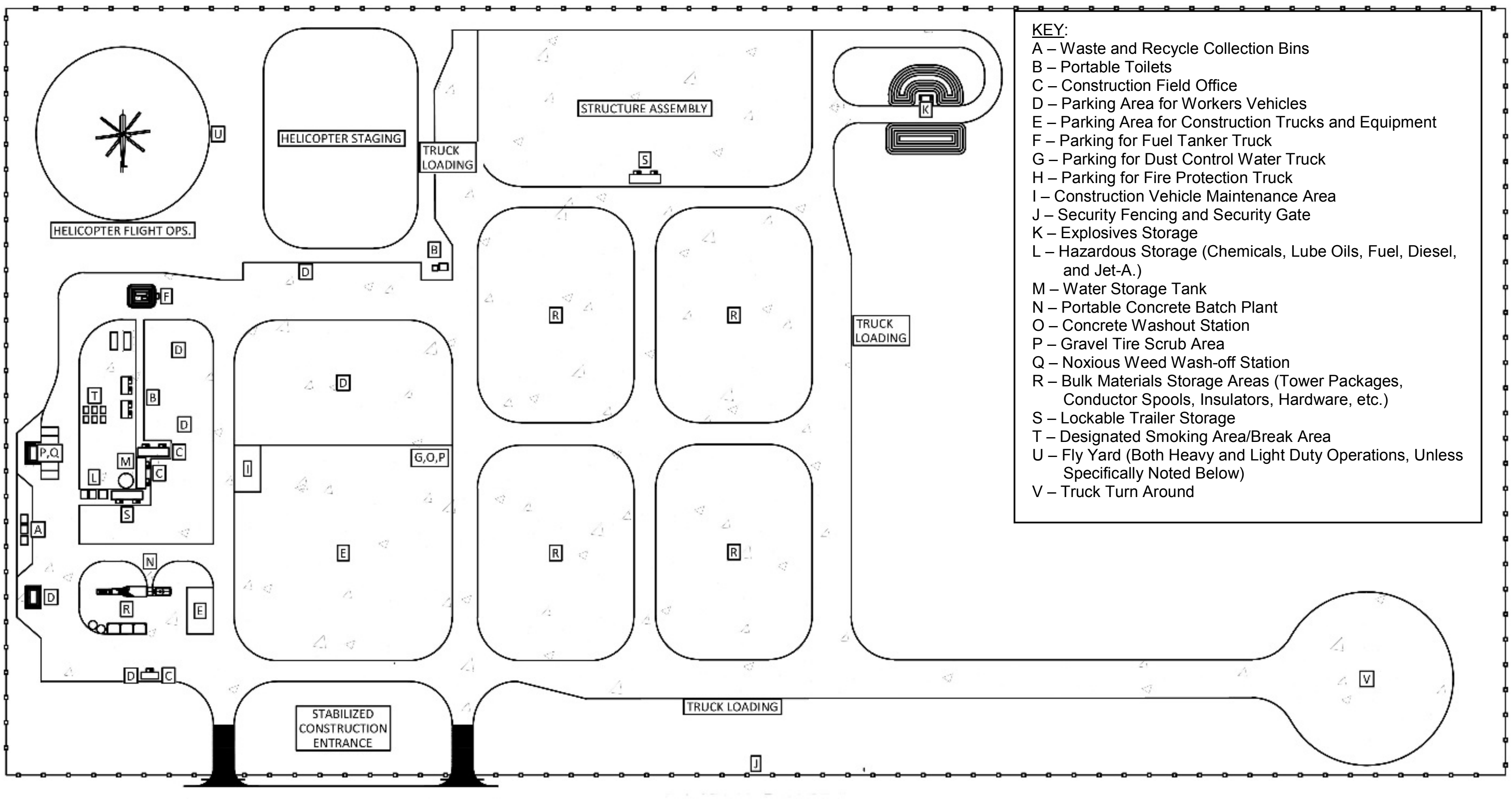
Construction of the Project will begin with the establishment of multi-use areas. The multi-use areas will serve as field offices; reporting locations for workers; parking space for vehicles and equipment; and sites for material delivery and storage, fabrication assembly of towers, cross arms and other hardware, concrete batch plants, and stations for equipment maintenance (see Figure B-27 for complete list of potential activities). Multi-use areas, each of which is about 30 acres in size, will be located approximately every 15 miles along the corridor. Multi-use area locations are listed in Exhibit C, Table C-14 and shown on maps in Exhibit C, Attachments C-2 and C-3 and are subject to change with a final design.

Helicopter operations may be staged out of multi-use areas. Project construction activities facilitated by helicopters may include delivery of construction laborers, equipment, and materials to structure sites; structure placement; hardware installation; and wire stringing operations. Helicopters may also be used to support the administration and management of the Project by IPC, the Construction Contractor, or both. Where construction access by truck is not practical due to steep terrain, all-terrain vehicle trails may be utilized to support maintenance activities. The use of helicopter construction methods for this Project will not change the length of the access road system required for operating the Project because vehicle access is required to each tower site regardless of the construction method employed.

During construction, gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents will be stored at multi-use areas. These products will be used to fuel, lubricate, and clean vehicles and equipment and will be transported to the multi-use sites in containerized trucks or in other federal and state approved containers. Enclosed containment will be provided for petroleum products and wastes and petroleum-related construction waste will be removed to a disposal facility authorized to accept such materials. Fuel and chemicals will be properly stored to prevent drainage or accidents. Where required, preventive measures such as the use of vehicle drip pans for overnight parking areas may be implemented. Routine visual inspection for presence of petroleum leaks will be required for vehicles. Diesel fuel tanks will be located at the multi-use areas for vehicle and equipment fueling. Each fuel tank will be located within secondary containment and each station will be equipped with a spill kit. When on-ROW refueling is necessary, it will be done away from waterways. Accidental releases of hazardous materials will be prevented or minimized through proper containment of these substances during use and transportation to the site. A Spill Prevention, Containment, and Countermeasures Plan will be prepared for all hazardous materials. All hazardous and dangerous materials will be stored and secured in accordance with the appropriate regulations.

During operations, no fuels or potentially hazardous materials such as general lubricants, general cleaners, ethylene glycol (antifreeze), vehicle fuel, and herbicides for weed control will be stored on the ROW. When used, they will be transported and disposed of in accordance with applicable local, state, federal environmental laws and regulations, and product labels as appropriate. At the communication stations, liquid propane will be stored in approved tanks.

Multi-use areas will be fenced and their gates locked. Security guards will be stationed where needed. In some cases, the multi-use area may need to be scraped by a bulldozer and a temporary layer of rock laid to provide an all-weather surface. Unless otherwise directed by the landowner, the rock will be removed from the multi-use area upon completion and the area will be restored.



1 **Figure B-27. Multi-use Area Layout**

3.3.3 Pulling and Tensioning Sites

There will be 299 pulling and tensioning sites required for the Project. Pulling and tensioning sites will be required approximately every 1.5 to 2 miles along the ROW and at angle points greater than 30 degrees and will require approximately 5 acres at each end of the wire section to accommodate required equipment. Equipment at sites required for pulling and tensioning activities will include tractors and trailers with spooled reels that hold the conductors and trucks with the tensioning equipment.

Four pulling and tensioning sites are designated as light-duty fly yards. Light-duty fly yards are similar to the fly yards located in the multi-use areas but are smaller in size (Figure B-28). All of the equipment and activities that occur at a multi-use area may also occur at a light-duty fly yard. The exception would be that no oil and gas or explosive storage will occur and no batch plants will be located at the light-duty fly yards within the pulling and tensioning sites. Preliminary locations are shown in Exhibit C, Attachment C-2. The light-duty fly yards are located within four specific pulling and tensioning sites along the Project where the spacing between multi-use areas is too great. The light-duty fly yards will be approximately 5-acre sites spaced about 15 miles apart.

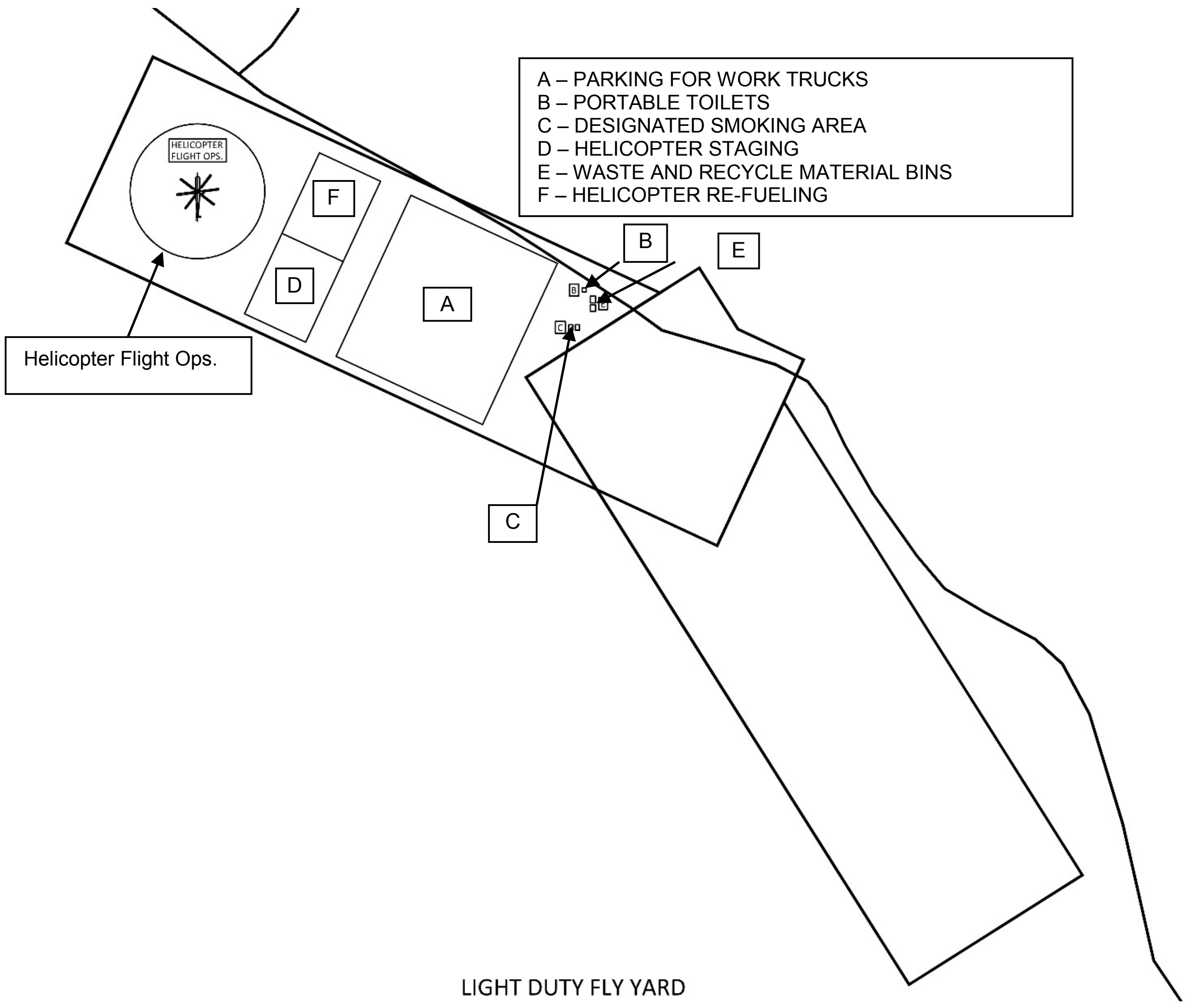


Figure B-28. Light-Duty Fly Yard on Pulling and Tensioning Site Layout

3.3.4 Communication Station Distribution Lines

As discussed in Section 3.2.2.3, local electric distribution service providers will install distribution lines to serve the Project's communication stations. Where the local service provider is a third party and not IPC, the distribution lines would not be considered related or supporting facilities pursuant to ORS § 469.300(24). However, IPC is the local service provider in Malheur and parts of Baker counties that will be serving communication stations BA-02, and MA-01, MA-02, MA-03, as well as alternative a communication station in Malheur County. Therefore, those distribution lines are considered related or supporting facilities and are included within the Site Boundary.

3.4 Approximate Dimensions

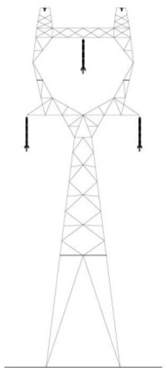
OAR 345-021-0010(1)(b)(C): The approximate dimensions of major facility structures and visible features.

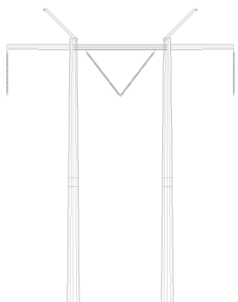
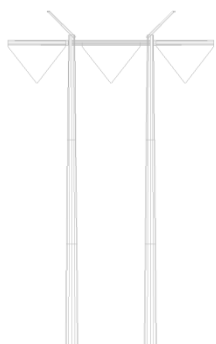
Table B-13 describes the dimensions of facility structures and visible features. The final quantity, heights, span lengths, and clearances provided by the structures and ROW widths will depend on the final detailed design of the transmission line.[17]

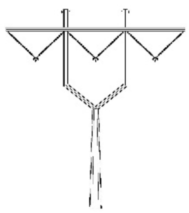
Table B-13. Project Structures and Visible Feature Dimensions

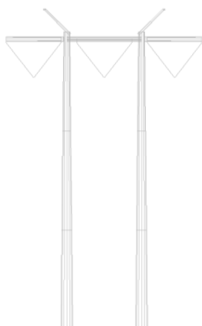
Facility	Description
Longhorn Station Expansion or Construction	• Existing access road. • The Bonneville Power Administration Longhorn Station will be built to terminate the Boardman to Hemingway Transmission Line Project line. The fenced area will be approximately 20 acres. • Tie to existing McNary to Coyote Springs 500-kilovolt (kV) transmission line. • 500-kV circuit breakers and related switching equipment. • Bus and support structures. • 500-kV line termination structures approximately 135 feet in height. • Control, protection, and communications equipment added inside the control building. • 500-kV series capacitor bank. • 500-kV shunt reactor bank. • Existing electric distribution line.

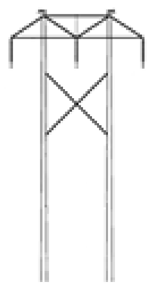
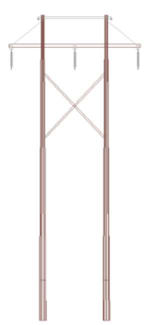
[17] Note that diagrams of structures in this exhibit are not drawn to scale relative to each other.

Facility	Description
Proposed 500-kV Single-Circuit Lattice 	• Proposed 500-kV structure type: Self-supporting steel lattice towers having a dulled galvanized steel finish. • Structure heights: lattice tower varies between 109 to 200 feet. • Approximate span distance between structures: lattice: 1,200 to 1,800 feet. • Right-of-way (ROW) width: lattice: nominal 250 feet. • Three-phase 500-kV construction for all tower designs, conductor spacing, and clearances. • Conductors: Triple-bundled 1519 KCM ACSR/TW "Deschutes", with three sub-conductors per phase. Non-specular finish. • Subconductor diameter is 1.300 inches. • Bundle spacing: Subconductor bundle has a spacing of 20 inches between horizontal sub-conductors and 16 inches of diagonal spacing between the top two sub-conductors and the lower sub-conductor. • Two Shield Wires: One optical ground wire (OPGW) containing 48 fibers and having a diameter of 0.646 inch. One overhead ground wire (OHGW) made of extra high strength (EHS) steel and having a diameter of 0.5 inch. • Minimum ground clearance: 34.5 feet. • Line length: Approximately 270.8 miles (Oregon only). • The final quantity, heights, span lengths, and clearances provided by the structures and ROW widths will depend on the final detailed design of the transmission line.

Facility	Description
Proposed 500-kV Single-Circuit H-Frame  	• Proposed 500-kV structure type: Self-supporting tubular steel H-frame structures, having a weathering steel (Corten) finish. • Number of poles per H-frame: 2. • Approximate pole diameters: 48 to 72 inches (at base), 16 to 24 inches (at tip). • Structure heights: 65-105 feet and 90-100 feet. • Approximate span distance between structures:350 to 1,650 feet. • ROW width: 90-250 feet. • Three-phase 500-kV construction for all tower designs, conductor spacing, and clearances. • Conductors: Triple-bundled 1519 KCM ACSR/TW "Deschutes", with three sub-conductors per phase. Non-specular finish. • Subconductor diameter is 1.300 inches. • Bundle spacing: Subconductor bundle has a spacing of 20 inches between horizontal sub-conductors and 16 inches of diagonal spacing between the top two sub-conductors and the lower sub-conductor. • Two Shield Wires: One OPGW containing 48 fibers and having a diameter of 0.646 inch. One OHGW made of EHS steel and having a diameter of 0.5 inch. • Minimum ground clearance: 34.5 feet. • Line length: approximately 13 miles. The final quantity, heights, span lengths, and clearances provided by the structures and ROW widths will depend on the final detailed design of the transmission line.

Facility	Description
Alternative 500-kV Single-Circuit Y-Frame *(Applicable to West of Bombing Range Road Alternative 2 in portions of NWSTF Boardman)* 	• Proposed 500-kV structure type: Self-supporting tubular steel Y-frame structures, having a weathering steel (Corten) finish. • Number of poles per Y-frame: 1. • Approximate tubular steel pole diameters: 60 to 84 inches at the base. • Structure heights: variable between 85 to 95' feet. • Approximate span distance between structures: 575-980 feet. • ROW width: varies, up to 90 feet. • Three-phase 500-kV construction for all tower designs, conductor spacing, and clearances. • Conductors: Triple-bundled 1519 KCM ACSR/TW "Deschutes," with three sub-conductors per phase. Non-specular finish. • Subconductor diameter is 1.300 inches. • Bundle spacing: Subconductor bundle has a spacing of 20 inches between horizontal sub-conductors and 16 inches of diagonal spacing between the top two sub-conductors and the lower sub-conductor. • Two Shield Wires: One OPGW containing 48 fibers and having a diameter of 0.646 inch. One OHGW made of EHS steel and having a diameter of 0.5 inch. • Minimum ground clearance: 34.5 feet. • Line length: Approximately 1.3 miles. • The final quantity, heights, span lengths, and clearances provided by the structures and ROW widths will depend on the final detailed design of the transmission line.

Facility	Description
Alternative 500-kV Single-Circuit Steel Pole H-Frame *(Used only if required to address specific land manager requirements or constraints)* 	• Alternative 500-kV structure types: Self-supporting tubular steel H-frame structures, having a weathering steel (Corten) finish. • Approximate tubular steel pole diameters: H-frame structures = 48 to 72 inches (at base), 16 to 24 inches (at tip). • Structure heights: variable between 85 to 165 feet. • Approximate span distance between structures: 600-1,300 feet. • ROW width: nominal 250 feet. • Three-phase 500-kV construction for all tower designs, conductor spacing, and clearances. • Conductors: Triple-bundled 1519 KCM ACSR/TW “Deschutes”, with three sub-conductors per phase. Non-specular finish. • Subconductor diameter is 1.300 inches. • Bundle spacing: Subconductor bundle has a spacing of 20 inches between horizontal sub-conductors and 16 inches of diagonal spacing between the top two sub-conductors and the lower sub-conductor. • Two Shield Wires: One OPGW containing 48 fibers and having a diameter of 0.646 inch. One OHGW made of EHS steel and having a diameter of 0.5 inch. • Minimum ground clearance : 34.5 feet. • Line length: Undetermined. • The final quantity, heights, span lengths, and clearances provided by the structures and ROW widths will depend on the final detailed design of the transmission line.

Facility	Description
Single-Circuit 230-kV Transmission Line *(Applicable to 230-kV rebuild portion of Proposed Route)* 	• Proposed structure type: Steel pole H-frame structures. Tangent H-frame structures are self-supporting, angle and dead-end H-frames will be guyed. • Number of poles per H-frame: Tangent and small angle H-frame structures will require two poles per structure. Medium and large angle structures as well as dead-ends will require three poles per structure. • Structure heights: variable between 57 to 75 feet. • Approximate span distance between structures: 400-1,200 feet. • ROW width: nominal 125 feet. • Conductors: 795 KCM 26/7 “Drake”, one conductor per phase, non-specular finish. • Two EHS steel overhead ground wires with a diameter of 0.375 inch. • Minimum ground clearance: 27 feet. • Line length: 0.9 mile. • The final quantity, heights, span lengths, and clearances provided by the structures and ROW widths will depend on the final detailed design of the transmission line.
Single-Circuit 138-kV Transmission Line *(Applicable to 138-kV rebuilding portion of Proposed Route)* 	• Proposed structure type: Wood-pole H-frame structures. Tangent H-frame structures are self-supporting, angle and dead-end H-frames will be guyed. • Number of poles per H-frame: Tangent and small angle H-frame structures will require two poles per structure. Medium and large angle structures as well as dead-ends will require three poles per structure. • Structure heights: variable between 51 to 61 feet. • Approximate span distance between structures: 500-750 feet. • ROW width for: nominal 100 feet. • Conductors: 397 KCM 26/7 ACSR “Ibis”, one conductor per phase. • Conductor Spacing: typical vertical spacing of 5.5 feet between shield wire and 138-kV phase wires, 13.5 feet horizontal spacing between phase wires. • Shield Wire: Two OHGW consisting of EHS steel and having a diameter of 0.375 inch. • Minimum design ground clearance: 30 feet. • Line length: Approximately 1.1 miles. • The final quantity, heights, span lengths, and clearances provided by the structures and ROW widths will depend on the final detailed design of the transmission line.

ACSR/TW – aluminum conductor steel reinforced with trapezoidal aluminum wires; EHS – extra high strength; KCM – one thousand circular mils; OHGW – overhead ground wire; OPGW – optical ground wire; ROW – right-of-way

3.5 Information Required for Transmission Line Projects

3.5.1 Transmission Line Length

OAR 345-021-0010(1)(b)(E)(i): The length of the pipeline or transmission line.

The Project is an approximately 272.8-mile-long, electric transmission line consisting of:

- New construction of 270.8 miles of single-circuit 500-kV electric transmission line,
- Removal of 12 miles of existing 69-kV transmission line,
- Rebuilding of 0.9 mile of a 230-kV transmission line, and
- Rebuilding of 1.1 miles of an existing 138-kV transmission line.

IPC also proposes four alternatives totaling 33.3 additional miles.

3.5.2 Proposed ROW Width

OAR 345-021-0010(1)(b)(E)(ii): The proposed right-of-way width of the pipeline or transmission line, including to what extent new right-of-way will be required or existing right-of-way will be widened.

The Site Boundary for the transmission line is 500 feet wide. IPC may locate the transmission line ROW anywhere within the Site Boundary. The typical ROW width for the 500-kV portion of the Project will be 250 feet. In some areas, the ROW width will be narrower to facilitate avoidance of resources or land owner or agency requests. Specific areas where the ROW width will vary include the following:

- While crossing the NWSTF Boardman, the 500-kV line will use the existing 69-kV line 90-foot ROW. The existing 90-foot ROW will not be widened.
- The new ROW width for the single-circuit 230-kV rebuild portion will be up to 125 feet. The existing 230-kV ROW will be widened to 250 feet to facilitate placement of the 500-kV line.
- The new ROW width for the 1.1 miles of 138-kV rebuild will be 100 feet. The existing 138-kV ROW will be widened from 100 feet to 250 feet to accommodate placement of the 500-kV line.

The site specific required ROW width will be determined and finalized during the final design of the Project.

3.5.3 Where Following Public ROW

OAR 345-021-0010(1)(b)(E)(iii): If the proposed transmission line or pipeline corridor follows or includes public right-of-way, a description of where the transmission line or pipeline would be located within the public right-of-way, to the extent known. If the applicant proposes to locate all or part of a transmission line or pipeline adjacent to but not within the public right-of-way, describe the reasons for locating the transmission line or pipeline outside the public right-of-way. The applicant must include a set of clear and objective criteria and a description of the type of evidence that would support locating the transmission line or pipeline outside the public right-of-way, based on those criteria.

In many locations, the Project is located adjacent to existing public ROWs; however, the Project is too large to be located entirely *within* existing public ROWs (see Section 3.1.1.2, Opportunities, for a discussion of where IPC explored existing ROWs as siting opportunities). All portions of the Project will be located in private ROWs or new ROW grants or special use authorizations on public land except to the extent the corridor must cross existing public ROWs.

3.5.4 Pipeline Operating Pressure and Delivery Capacity

OAR 345-021-0010(1)(b)(E)(iv): For pipelines, the operating pressure and delivery capacity in thousand cubic feet per day and the diameter and location, above or below ground, of each pipeline.

The Project does not involve a pipeline. OAR 345-021-0010(1)(b)(E)(iv) is not applicable.

3.5.5 Rated Voltage, Load Carrying Capacity Current and Structures

OAR 345-021-0010(1)(b)(E)(v): For transmission lines, the rated voltage, load carrying capacity, and type of current and a description of transmission line structures and dimensions.

Rated voltage – 500 kV.

Operating voltage – IPC will operate the Project between 535 kV and 550 kV.

Load carrying capacity – The Project, a single-circuit 500-kV line, will have a thermal continuous rating of about 3,000 MW. Due to reliability standards and the WECC's rating process, the initial implementation of the facility is likely to result in a bidirectional rating of 1,400 MW. In total, the transfer capability of the Idaho to Northwest path will increase by 1,050 MW from west to east (imports into IPC's balancing authority area). When coupled with other projects under development, the transfer capability of the Idaho to Northwest path will increase by 1,000 MW from east to west (exports into the Pacific Northwest).

Type of Current – AC.

Transmission line structures and dimensions are described in Section 3.2.2 above.

3.6 Construction Schedule

OAR 345-021-0010(1)(b)(F): A construction schedule including the date by which the applicant proposes to begin construction and the date by which the applicant proposes to complete construction. Construction is defined in OAR 345-001-0010. The applicant shall describe in this exhibit all work on the site that the applicant intends to begin before the Council issues a site certificate. The applicant shall include an estimate of the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor, that the applicant anticipates or has performed as of the time of submitting the application.

The station expansion construction and the communication station work will begin on a schedule that will allow for completion at approximately the same timeframe as the transmission line. Construction activity is expected to begin no earlier than 2020 and completed for an in-service date that is expected to be no sooner than 2023. No work on the site as defined in OAR 345-001-0010 will take place before EFSC issues a Site Certificate.

3.7 Limitations on Use of the Right-of-Way (Amended Project Order Comments)

The Amended Project Order states that "[t]he application must explain in detail what limitations are placed on property owners in the transmission line right-of-way." After the transmission line has been energized, agricultural and non-agricultural land uses that are compatible with safety regulations will be permitted in the ROW, subject to limitations. Limitations on uses include restrictions on placing buildings or structures within the ROW; restrictions on the use of equipment taller than 15 feet under the transmission line or around towers except as noted below; restrictions on crops that can grow to over 15 feet at maturity (such as timber) within 25 feet of the outermost phase conductor; restrictions on storage of flammable materials of any kind on the ROW; restrictions on refueling equipment under the transmission line; restrictions on grading, land recontouring, and material stockpiling under the transmission line or near structure locations; and required coordination with IPC for the construction of fences, irrigation lines, or other facilities that could be subject to induced current and for the use of agricultural equipment taller than 20 feet (see Exhibit K, Attachment K-1, Agricultural Lands Assessment; Exhibit P1, Attachment P1-4, Vegetation Management Plan; Exhibit AA, Electric and Magnetic Fields; and Attachment B-5 of this Exhibit, Road Classification Guide and Access Control Plan] for additional discussions regarding land uses within the ROW).

4.0 CONCLUSIONS

Exhibit B includes the application information required by OAR 345-021-0010(1)(b). The project description provides sufficient detail for members of the public and reviewing agencies to make informed comments, and it includes sufficient explanation of how the Proposed Corridor and alternative corridor segments were chosen and consideration of the siting factors under OAR 345-021-0010(1)(b)(D) as well as the analysis required by ORS 215.275.

5.0 COMPLIANCE CROSS-REFERENCES

Table B-14 identifies the location within the Amended pASC of the information responsive to the application submittal requirements in OAR 345-021-0010(1)(d) and the relevant Amended Project Order provisions.

Table B-14. Compliance Requirements and Relevant Cross-References

Requirement	Location
OAR 345-021-0010(1)(b)	
(b) Exhibit B. Information about the proposed facility, construction schedule and temporary disturbances of the site, including:	All sections
(A) A description of the proposed energy facility, including as applicable:	Exhibit B, Section 3.2
(i) The nominal electric generating capacity and the average electrical generating capacity, as defined in ORS 469.300.	Exhibit B, Section 3.2.1
(ii) Major components, structures and systems, including a description of the size, type and configuration of equipment used to generate electricity and useful thermal energy.	Exhibit B, Section 3.2.2
(iii) A site plan and general arrangement of buildings, equipment and structures.	Exhibit B, Section 3.2.3
(iv) Fuel and chemical storage facilities, including structures and systems for spill containment.	Exhibit B, Section 3.2.4
(v) Equipment and systems for fire prevention and control.	Exhibit B, Section 3.2.5
(vi) For thermal power plants.	Not Applicable

Requirement	Location
(vii) For surface facilities related to underground gas storage, estimated daily injection and withdrawal rates, horsepower compression required to operate at design injection or withdrawal rates, operating pressure range and fuel type of compressors.	Not Applicable
(viii) For facilities to store liquefied natural gas, the volume, maximum pressure, liquefaction and gasification capacity in thousand cubic feet per hour.	Not Applicable
(B) A description of major components, structures and systems of each related or supporting facility.	Exhibit B, Section 3.3
(C) The approximate dimensions of major facility structures and visible features.	Exhibit B, Section 3.4
(D) If the proposed energy facility is a pipeline or a transmission line or has, as a related or supporting facility, a transmission line or pipeline that, by itself, is an energy facility under the definition in ORS 469.300, a corridor selection assessment explaining how the applicant selected the corridor(s) for analysis in the application. In the assessment, the applicant shall evaluate the corridor adjustments the Department has described in the project order, if any. The applicant may select any corridor for analysis in the application and may select more than one corridor. However, if the applicant selects a new corridor, then the applicant must explain why the applicant did not present the new corridor for comment at an informational meeting under OAR 345-015-0130. In the assessment, the applicant shall discuss the reasons for selecting the corridor(s), based upon evaluation of the following factors:	Exhibit B, Section 3.1 and Section 3.1.1 through Section 3.1.5
(i) Least disturbance to streams, rivers and wetlands during construction.	Exhibit B, Section 3.1.6
(ii) Least percentage of the total length of the pipeline or transmission line that would be located within areas of Habitat Category 1, as described by the Oregon Department of Fish and Wildlife.	Exhibit B, Section 3.1.6
(iii) Greatest percentage of the total length of the pipeline or transmission line that would be located within or adjacent to public roads and existing pipeline or transmission line rights-of-way.	Exhibit B, Section 3.1.6
(iv) Least percentage of the total length of the pipeline or transmission line that would be located within lands that require zone changes, variances or exceptions.	Exhibit B, Section 3.1.6
(v) Least percentage of the total length of the pipeline or transmission line that would be located in a protected area as described in OAR 345-022-0040.	Exhibit B, Section 3.1.6
(vi) Least disturbance to areas where historical, cultural or archaeological resources are likely to exist.	Exhibit B, Section 3.1.6
(vii) Greatest percentage of the total length of the pipeline or transmission line that would be located to avoid seismic, geological and soils hazards.	Exhibit B, Section 3.1.6
(viii) Least percentage of the total length of the pipeline or transmission line that would be located within lands zoned for exclusive farm use.	Exhibit B, Section 3.1.6
(E) If the proposed energy facility is a pipeline or transmission line or has, as a related or supporting facility, a transmission line or pipeline of any size:	Exhibit B, Section 3.5

Requirement	Location
(i) The length of the pipeline or transmission line.	Exhibit B, Section 3.5.1
(ii) The proposed right-of-way width of the pipeline or transmission line, including to what extent new right-of-way will be required or existing right-of-way will be widened.	Exhibit B, Section 3.5.2
(iii) If the proposed transmission line or pipeline corridor follows or includes public right-of-way, a description of where the transmission line or pipeline would be located within the public right-of-way, to the extent known. If the applicant proposes to locate all or part of a transmission line or pipeline adjacent to but not within the public right-of-way, describe the reasons for locating the transmission line or pipeline outside the public right-of-way. The applicant must include a set of clear and objective criteria and a description of the type of evidence that would support locating the transmission line or pipeline outside the public right-of-way, based on those criteria.	Exhibit B, Section 3.5.3
(iv) For pipelines, the operating pressure and delivery capacity in thousand cubic feet per day and the diameter and location, above or below ground, of each pipeline.	Exhibit B, Section 3.5.4
(v) For transmission lines, the rated voltage, load carrying capacity, and type of current and a description of transmission line structures and dimensions.	Exhibit B, Section 3.5.5
(F) A construction schedule including the date by which the applicant proposes to begin construction and the date by which the applicant proposes to complete construction. Construction is defined in OAR 345-001-0010. The applicant shall describe in this exhibit all work on the site that the applicant intends to begin before the Council issues a site certificate. The applicant shall include an estimate of the cost of that work. For the purpose of this exhibit, “work on the site” means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor, that the applicant anticipates or has performed as of the time of submitting the application.	Exhibit B, Section 3.6
Amended Project Order	
The description of the proposed facility in the application will form the basis for the description of the facility in the site certificate. The site certificate will require that IPC build the facility “substantially as described.” Exhibit B will also provide the basis for the project description in the notice of application that ODOE will issue to reviewing agencies and public. Therefore, Exhibit B shall describe the project in enough detail for members of the public and reviewing agencies to make informed comments. Exhibit B shall describe the project sufficiently for ODOE staff to verify that the constructed project will meet any representations that are the basis for findings of compliance with applicable regulations for standards. It should not include descriptive material that IPC would not want to be held in a site certificate condition.	Exhibit B, Section 3.2 through Section 3.6

Requirement	Location
The application must clearly describe the width of the corridor in which the micrositing corridor right-of-way would be sited along the length of the proposed line. The application must specify the width of the permanent right-of-way IPC will request, and must justify that width. The Council may direct IPC to acquire a narrower right-of-way in areas that are important for agriculture or for habitat, and it may allow a wider right-of-way at certain locations for staging areas. The application must also explain in detail what limitations would be placed on the property owner in the transmission line right-of-way.	Exhibit B, Section 3.2.2 and Section 3.5.2
The application should describe all related and supporting facilities that the applicant proposes to be included in and governed by the site certificate, including proposed multiple use areas, fly yards, and access roads. For existing roads or road segments that will be included as related and supporting facilities, include a description of the proposed modifications and improvements to those existing roads or road segments. For multi-use areas and fly yards, include a description of the activities that are expected to occur at these areas.	Exhibit B, Section 3.3
The alternatives analysis described in section OAR 345-021-0010(1)(b)(D) must be consistent with the analysis required by ORS 215.275 and the required information in this rule. The Council recognizes that some of the factors in this rule compete with one another (for example, the requirements to both avoid habitat land and avoid farm land), but expects the application to demonstrate that all required factors were considered.	Exhibit B, Section 3.1, Sections 3.1.1 through 3.1.4, and Exhibit K, Section 4

6.0 RESPONSE TO COMMENTS FROM THE PUBLIC AND REVIEWING AGENCIES

Table B-15 provides a cross reference between comments cited in the Project Order from the public and reviewing agencies and where discussion can be found in the Exhibit.

Table B-15. Public and Reviewing Agency

Comments	Location
Not Directly Related to an EFSC Standard. Commenters expressed many concerns about specific corridors proposed in the NOI. The Department understands that the corridor proposed in the Preliminary ASC might differ from that ultimately proposed in the Final ASC, but the applicant should ensure that the corridor selection analysis is included in Exhibit B.	Exhibit B, Section 3.1, and Attachment B-1 through Attachment B-6

7.0 REFERENCES

BLM (United States Department of Interior, Bureau of Land Management). 2002. Southeastern Oregon Resource Management Plan and Record of Decision. Vale Field Office, Vale Oregon.

DOE and BLM (lead agencies). 2008. Programmatic Environmental Impact Statement for the Designation of Energy Corridors on Federal Land in the 11 Western States (DOE/EIS-0386).November. Available online at http://corridoreis.anl.gov/index.cfm

IEEE (Institute of Electrical and Electronics Engineers). 2011. 2012 National Electrical Safety Code. August 1. ISBN: 9780738165882.

IPC (Idaho Power Company). 2013. 2013 Integrated Resource Plan. September. Available online at: http://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2013/2013IRP.pdf

IPC. 2015. 2015 Integrated Resource Plan. October. Available online at: http://www.idahopower.com/pdfs/AboutUs/PlanningForFuture/irp/2015/2015IRP.pdf

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ODFW (Oregon Department of Fish and Wildlife). 2011. *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitat*. Oregon Department of Fish and Wildlife. Primary author Chris Hagen. April 22. Available online at: http://www.dfw.state.or.us/wildlife/sagegrouse/docs/20110422_GRSG_April_Final%2052511.pdf

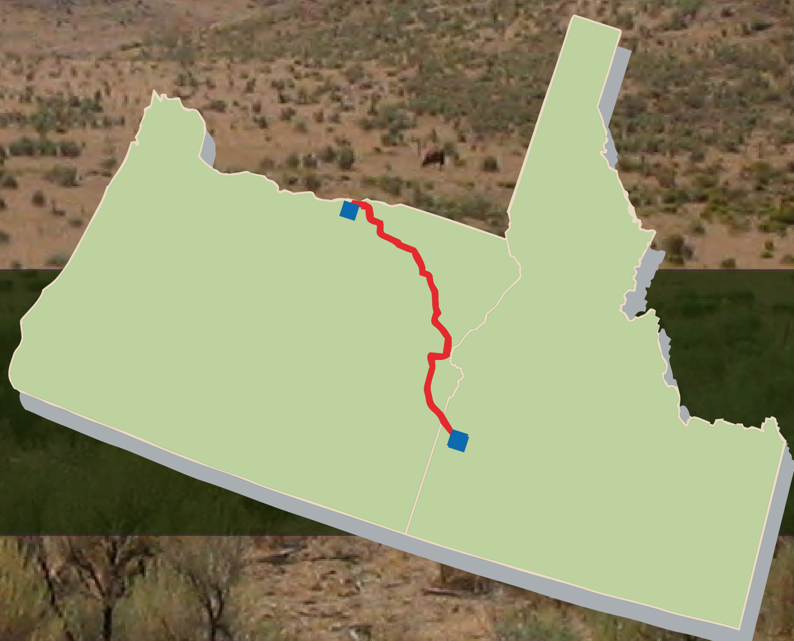
OSFM (Oregon State Police – Oregon Office of State Fire Marshal). 2007. "Conflagration FAQs: What is the Conflagration Act?" [Internet]. Available online at: http://www.oregon.gov/OSP/SFM/Pages/Conflagration_Information_2007.aspx

USFS (United States Forest Service). 1990. Wallowa-Whitman National Forest Land and Resource Management Plan. April. Available online at http://www.fs.usda.gov/detail/wallowa-whitman/landmanagement/planning/?cid=stelprdb5259879.

ATTACHMENT B-1
2010 SITING STUDY

Siting Study

August 2010



Boardman to Hemingway

Transmission Line Project

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Boardman to Hemingway Transmission Line Project Siting Study

Prepared By

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Boise, ID 83702

August 2010

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Acronyms and Abbreviations

ACEC	area of critical environmental concern
ACSR	aluminum conductor steel reinforced
ANSI	American National Standards Institute
B2H Project	Boardman to Hemingway Transmission Line Project
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
CAP	Community Advisory Process
EFSC	Energy Facility Siting Council
EFU	Exclusive Farm Use
GIS	geographic information system
I-84	Interstate 84
Idaho Power	Idaho Power Company
IDFG	Idaho Department of Fish and Game
IPUC	Idaho Public Utilities Commission
IRP	Integrated Resource Plan
kV	kilovolt
MP	milepost
MW	megawatt
NAD83	North American Datum of 1983
NEPA	National Environmental Policy Act
NFD	National Forest Development
NRCS	Natural Resources Conservation Service
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ONDA	Oregon Natural Desert Association
OPGW	optical ground wire
OPUC	Oregon Public Utilities Commission
PAT	Project Advisory Team
PGE	Portland General Electric
Project	Boardman to Hemingway Transmission Line Project
ROW	right-of-way
TNC	The Nature Conservancy
USFS	U.S. Department of Agriculture Forest Service
UTM	Universal Transverse Mercator

WECC	Western Electricity Coordinating Council
WSA	wilderness study area

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1 INTRODUCTION

1.1 Background and Objectives

This document presents the results of the transmission line siting conducted by Idaho Power Company for the proposed Boardman to Hemingway Transmission Line Project (B2H Project or Project). Idaho Power partnered with communities from northeast Oregon to southwest Idaho to create a Community Advisory Process (CAP) that was responsible for identifying proposed and alternative routes for the B2H Project. The overall objectives for siting the Project were to address community concerns while balancing regulatory requirements, construction difficulty, and overall costs. Data and methods used to analyze the 49 routes and/or route segments that were developed through the CAP and the results of the analysis are described in this document.

1.2 Project Overview

Idaho Power is proposing to construct, operate, and maintain a new, approximately 300-mile-long, single-circuit electric transmission line between northeast Oregon and southwest Idaho known as the Boardman to Hemingway Transmission Line Project. The overhead, 500 kilovolt (kV) transmission line will carry energy bi-directionally between a Portland General Electric (PGE) planned switching yard (Grassland Substation) adjacent to the Boardman Generating Plant, near the city of Boardman in Morrow County, Oregon, and the existing Idaho Power Hemingway Substation, located in Owyhee County, Idaho. The proposed transmission line will connect with other transmission lines at these substations to convey electricity on a regional scale and serve native loads. Federal, state, and private lands in five counties in Oregon and one in Idaho will be utilized to construct the proposed transmission line. Table 1.2-1 describes land ownership by county and major land managing agency and private owners.

Table 1.2-1. Route Mileage Summary by Land Manager/Owner

Segment	County	Miles	National Forest System		Bureau of Reclamation		BLM Public Lands		Department of Defense		State and Municipal		Private	
			Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
1	Morrow	36.2							8.1	22.4			28.1	77.6
2	Umatilla	60.9											60.9	100
3	Union	40.2	6.3	15.7			0.7	1.7			0.1	0.2	33.1	82.3
4	Baker	68.2					16.0	23.5			3.0	4.4	49.2	72.1
5	Malheur	70.7			0.5	0.7	46.8	66.2					23.4	33.1
6	Owyhee	23.5					17.3	73.6			3.5	14.9	2.7	11.5
Totals		**299.7**	**6.3**	2.1	**0.5**	0.2	**80.8**	27.0	**8.1**	2.7	**6.6**	2.2	**197.4**	65.9

The B2H Project is proposed for the following reasons:

1. To allow Idaho Power to meet its obligations to serve its retail customers located in the states of Idaho and Oregon.

2. To comply with the requirements of the Federal Energy Regulatory Commission that Idaho Power construct adequate transmission infrastructure to provide service to wholesale customers in accordance with Idaho Power's Open Access Transmission Tariff (2008).
3. To provide a cost effective resource which serves as a critical component of the Company's preferred resource portfolio presented in the 2009 Integrated Resource Plan (IRP) prepared by Idaho Power (2009) and submitted in December 2009 for acknowledgement to both the Idaho Public Utilities Commission (IPUC) and the Oregon Public Utility Commission (OPUC).
4. To allow Idaho Power to maintain reliable electric service pursuant to the standards set forth by the North American Electric Reliability Corporation and implemented by the Western Electricity Coordinating Council (WECC).
5. To relieve congestion of the existing transmission system and enhance the reliable, efficient and cost-effective energy transfer capability between the Pacific Northwest and Intermountain regions.

In short, the B2H Project will relieve existing congestion, alleviate reliability constraints, and provide additional capacity for the delivery of up to 250 megawatts (MW) of needed energy to Idaho Power's Boise service area by mid-2015 and an additional 175 MW by 2017.

The B2H Project is neither required to support any particular new generation project nor is it justified by any particular existing generation project. Rather, the B2H Project would serve as a crucial high-capacity connection between two key points in the existing bulk electric system. The bulk electric system can be thought of as a network of "hubs" and "spokes" in which substations serve as central "hubs" that send and receive electricity along distribution lines or "spokes." For this system to work reliably, there must be a network of high-capacity transmission lines connecting major "hubs." These high-capacity transmission lines are often the only way to transport electricity from where it is generated to where it is needed to serve load. Idaho Power's proposed B2H Project would serve as a crucial high-capacity "backbone" connecting the load served by Idaho Power's Hemingway Substation to electricity available in the Boardman, Oregon, vicinity, and vice versa, depending on the time of year.

2 APPROACH TO SITING

Idaho Power established a broad study area that encompassed the two fixed points for the Project—the proposed Grassland Substation and the existing Hemingway Substation—and established five Project Advisory Teams (PATs) representing five geographic areas within the study area. The PATs developed community criteria that they used in conjunction with regulatory and Idaho Power criteria to identify, develop, and recommend proposed and alternative routes. This section provides information on the study area, opportunities and constraints, and the CAP. Additional information is also included in the Preliminary POD (Idaho Power 2010).

2.1 Study Area

The study area for the proposed Project extends from the proposed Grassland Substation near the city of Boardman in Morrow County, Oregon, to the Hemingway Substation in Owyhee County, Idaho. This area includes much of eastern Oregon (7 counties) and southwest Idaho (4 counties) as shown on Figure 2.1-1. In total, the study area comprises all or portions of 11 counties as listed in Table 2.1-1 covering approximately 31,422 square miles, of which 44.3 percent is privately owned and 55.7 percent is federally and state owned.

Table 2.1-1. Counties in the Study Area

Oregon Counties	Idaho Counties
Morrow County	Washington County
Umatilla County	Canyon County
Union County	Payette County
Baker County	Owyhee County (portion)
Malheur County (portion)	
Grant County	
Harney County (portion)	

Proceeding south and east the study area transitions from a large agricultural area south of the Columbia River, to the mountains in the middle of the study area, and to a large irrigated valley along the Snake River. Development is greatest in the Snake River valley, especially on the Idaho side of the river, and along Interstate 84 (I-84) around Baker City, La Grande, Pendleton, Hermiston, and Boardman. There are four national forests covering large portions of the central mountainous area, which are managed by the U.S. Department of Agriculture Forest Service (USFS) for a large number of biological, scenic, recreation and other resources. The Bureau of Land Management (BLM) manages a variety of resources and a large portion of the high desert areas in the southern part of the study area.

2.2 Constraints and Opportunities

Constraints are defined as resources or conditions that potentially limit transmission line routing because of relative sensitivity to facility construction or operation. Opportunities are defined as resources or conditions that can accommodate transmission line construction and operation because of their physical characteristics or regulatory designations. See Appendix A for a list of spatial (geographic information system [GIS]) constraints and opportunities along with data sources considered for this Project.

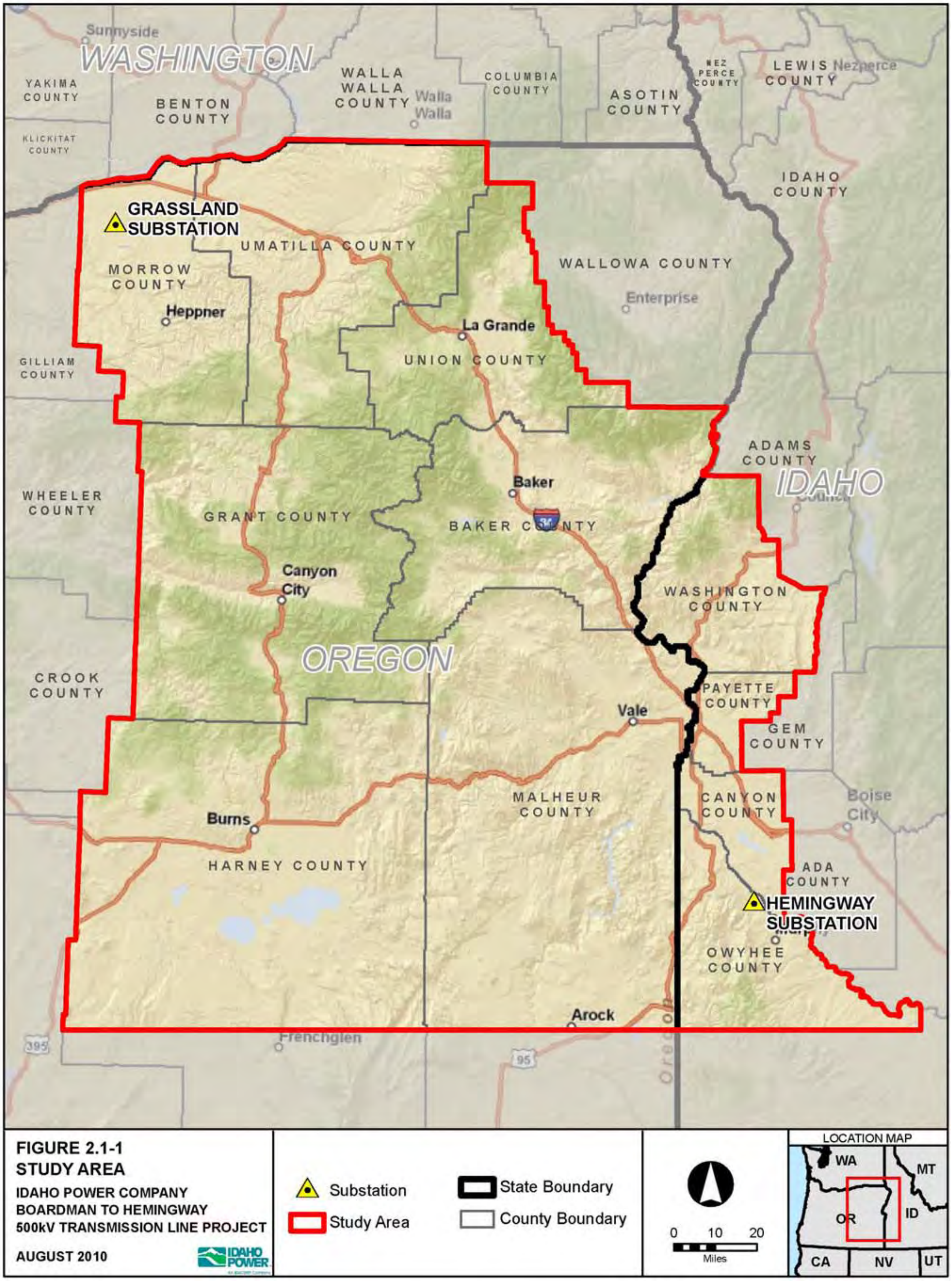

FIGURE 2.1-1
STUDY AREA
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

2.2.1 Constraints

Geographically the study area comprises three general landscapes—agricultural areas, mountains, and high desert. Each has a unique set of constraints (see Figure 2.2.1-1) to be considered in identifying and evaluating feasible routes for development of a new transmission line.

- Agricultural Areas—There are large agricultural areas throughout the study area. Morrow and Umatilla Counties include many farms with pivot irrigation as well as vast areas of dry agriculture, urban areas like Boardman and Pendleton and smaller communities like Pilot Rock. Additionally, there are a growing number of wind farms, government-owned lands like the Boardman Bombing Range, historic resources like the Oregon National Historic Trail, and habitat for protected species like the Oregon-listed endangered Washington ground squirrel.

  In the middle portion of the study there is considerable farming, much of which is irrigated in Baker and Union Counties. Development in these two counties has occurred around Baker City, La Grande, and a number of smaller communities. Both counties also include large mountainous areas and large tracts of National Forest.

  In the southern counties, including Malheur County, Oregon, and the Idaho portion of the study area, conditions are similar with much irrigated farmland and less dry agriculture in the Snake River Valley. There is also much more development, especially in Idaho counties, and I-84 is the major transportation corridor.

  A siting constraint unique to Oregon is the protection provided to Exclusive Farm Use (EFU) zones under Oregon law regarding utility facility siting. The Energy Facility Siting Council (EFSC) will not issue the necessary site certificate for a utility project sited on EFU-zoned lands unless reasonable alternatives have been considered and found unsuitable.

- High Desert Areas—Areas of high desert extend across much of the southern half of the study area north and west into Baker and Grant Counties. Much of the land is managed by the BLM and is designated as areas of critical environmental concern (ACECs), wilderness study areas (WSAs), and other special resource management areas. There are large areas of sage-grouse leks, associated 2-mile lek exclusion buffers, and sage-grouse habitat. There are a number of small cities and towns but overall developed areas occupy a very small percentage of the high desert region.

- Mountainous Areas—The mountainous areas such as the Blue Mountains have rugged topography with many areas of steep slopes in excess of 35 percent and other areas of unstable slopes that present design and construction challenges. National Forests including the Wallowa-Whitman, Malheur, Umatilla, and Ochoco occupy much of the forested mountainous area. Some of the most challenging resource and/or land use constraints in these areas include wilderness areas, WSAs, wild and scenic rivers, special status streams, visual resource retention and preservation lands, and inventoried roadless areas.

Constraints were considered from both an environmental and a regulatory perspective as well as from a community perspective. The CAP, discussed further in Section 2.6, allowed citizens to identify resources important to the communities, which may or may not fall under regulatory guidance. Appendix B provides the community criteria collected from the five PATs during the CAP.

2.2.2 Opportunities

In the study area, the most extensive opportunities are existing transmission lines and the utility corridors designated by the U.S. Department of Energy as West-wide Energy Corridors, the USFS, and the BLM.

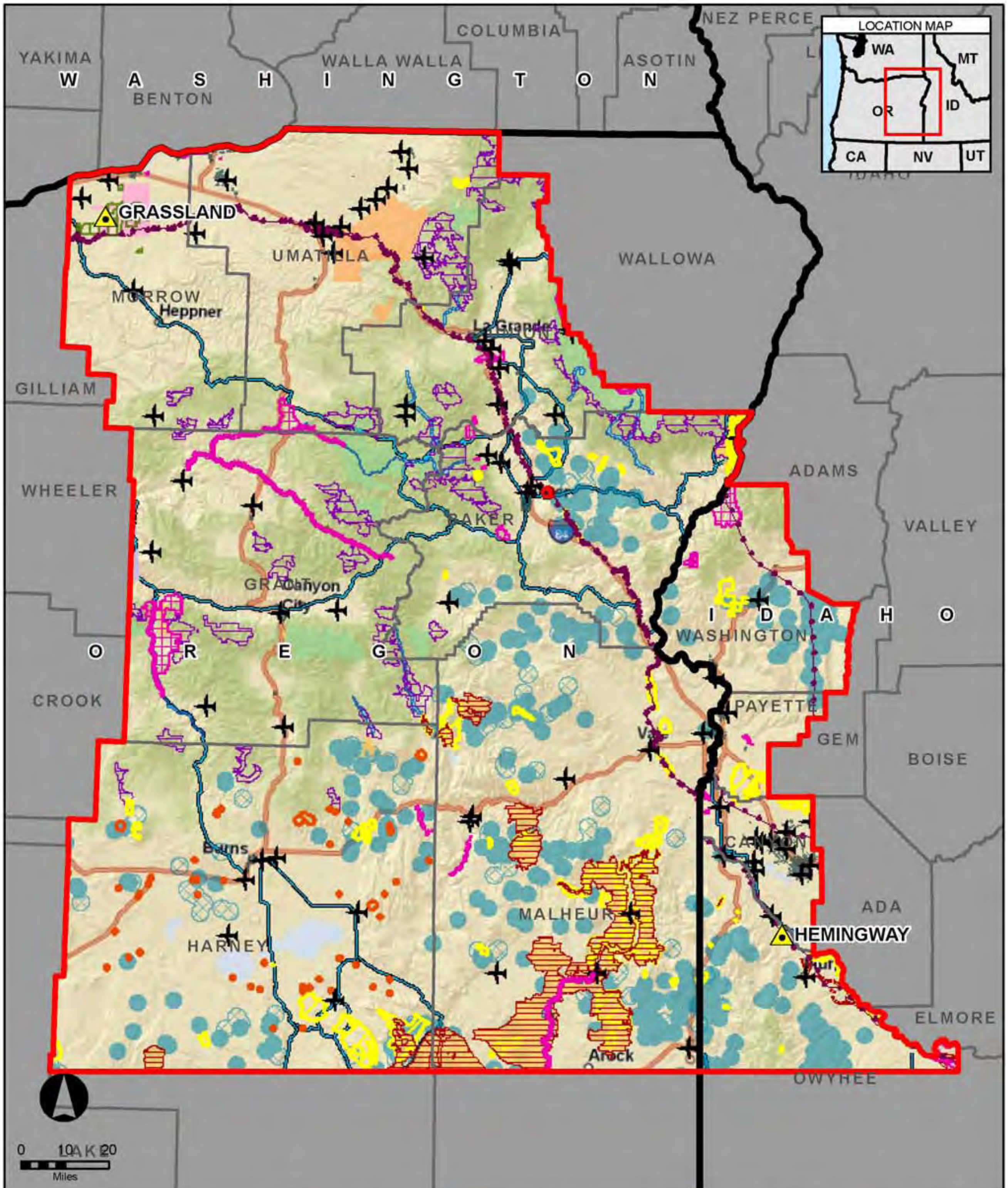

FIGURE 2.2.1-1
SELECTED KEY CONSTRAINTS
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

IDAHO POWER

- Scenic Waterway
- Airport
- Oregon Trail Interpretive Center
- Nature Preserve
- Wildlife Management Area
- Raptor Buffer
- Occupied Sage-grouse Lek
- Unoccupied Sage-grouse Lek
- Area of Critical Environmental Concern
- Naval Weapons System Training Facility
- US Forest Service Roadless Area
- Wild/Scenic River
- Indian Reservation
- BLM Wilderness Study Area
- National Park Service
- US Forest Service Wilderness Area
- Urban Area
- Scenic Byway Route
- Historic Trail
- VRM Class I

The PATs and Idaho Power sought to maximize the use of existing and designated corridors where practicable.

2.3 Data Sources

ArcGIS software was the main tool used in the analysis and siting of the B2H Project transmission line. GIS data were collected from a wide range of sources including federal, state, and local governments and agencies; conservation organizations; and other private organizations. In some cases, digital data were not available and the necessary GIS layers were created from existing hard copy maps and reports. Additionally, many online resource centers were used to gain unlimited access to various data sets.

Data collected for the project ranged from general geographic raster-based data, like aerial imagery and topographic maps to vector-based data including state parks, recreation sites, and special management areas. Over 75 different datasets were collected depicting various land use types within the study area. Information on biological resources, like sage-grouse habitat and elk and deer winter range data, were collected along with cultural data including the Oregon National Historic Trail and existing intact ”trailruts.” Water and wetland resource data were also compiled, as were geologic data including landslide and soil information. Datasets were gathered on visually sensitive areas as well, including scenic byways.

In addition to these sources, letters from knowledgeable landowners, stakeholder input at public meetings, and information from local agency staff members directly influenced the siting process.

2.4 GIS Database

Using ArcGIS software, a comprehensive digital spatial database was developed and used extensively in the siting process. Datasets as listed in Appendix A were compiled into a master constraint/opportunity geodatabase, which then supported subsequent analyses and map production.

Before importing the data into the master geodatabase, datasets underwent several geoprocessing steps to maximize efficiency and organization. Data were initially placed into a Source Data folder under an appropriately named subfolder based on the agency or website where the data originated or were located. Datasets were then projected to a common spatial coordinate system, North American Datum of 1983 (NAD83) Universal Transverse Mercator (UTM) Zone 11N, allowing for proper display and consistent analysis of all data going forward. Data were clipped to the study area, attributed with additional fields to be used in later analyses, dissolved and exploded as needed, and finally imported to the master geodatabase that resides outside the Source Data folder.

Not all data were incorporated into the geodatabase using the above geoprocessing steps alone. For several datasets, additional steps were required to obtain the specific resource desired for analysis and display. For example, through various geoprocessing steps, 0-15 percent, 15-25 percent, 25-35 percent and greater than 35 percent slope datasets were derived from a digital elevation model. Soils data underwent various analyses to first classify the data into irrigated soil capability classes, which then allowed for the display and analysis of prime farmlands.

Generally, the data within the master geodatabase were organized by resource type. Nine feature datasets support this organization, grouping similar resources into the following categories: cultural resources, land use features (including ownership data), zoning (state and county), linear features, geologic, biologic and visual resources, and water and wetlands resources.

The master geodatabase is continually being updated as existing data are frequently updated, new data are generated, and spatial locations change as resources vary over time across the landscape. The above detailed process is applied to each new dataset and either replaces or is added to the master geodatabase. Metadata, when available, accompany the data.

Currently over 160 datasets reside in the master constraints geodatabase allowing for display of more than 370 different resources, land uses, and geographic features within the Project study area.

2.5 Consultation

As part of the routing process Idaho Power also contacted and received input from federal and state agencies, the U.S. Navy, and The Nature Conservancy (TNC) as described below.

2.5.1 Bureau of Land Management

In gathering data on constraints and opportunities in the study area, Idaho Power representatives met with BLM staff in the Burns, Prineville, and Vale Districts. Of the three districts, Vale has been the federal lead for the B2H Project for over 2 years and is familiar with the CAP and previous routing efforts. Once the alternatives were identified, Idaho Power requested that the Vale District identify potential issues related to the routes within their management area.

The Burns and Prineville Districts were brought into the routing process in the fall of 2009. In October 2009, Idaho Power met with the Burns District at their office in Hines, Oregon. At the meeting, B2H representatives presented the Project and its current status and discussed the routes with several of the BLM staff. The Burns District also provided a number of GIS data layers with geographic information on constraints and opportunities.

A similar meeting was held with the Prineville District on October 22, 2009, in Prineville and again the Project was presented to several of the BLM staff and a discussion of various constraints and opportunities followed. Following the meeting, a GIS layer with PAT routes was sent to the Prineville District and the District sent GIS layers with additional constraint and opportunity data to Idaho Power.

2.5.2 U.S. Forest Service

The USFS has been a cooperating agency in the National Environmental Policy Act (NEPA) process for the B2H project since 2008 and has participated in a number of the Project and PAT meetings. Initially the USFS was represented by the Wallowa-Whitman National Forest, but in 2009 USFS participation expanded to include the Ochoco, Malheur, and Umatilla National Forests during the CAP. On October 23, 2009, Idaho Power met with representatives from all three National Forests to present the project, its status, and the CAP siting process. As a result of the meeting, a GIS layer of current CAP routes was sent to the USFS for their review and a list of potential concerns was sent to Idaho Power.

2.5.3 The Nature Conservancy

In October 2009, Idaho Power requested information from TNC regarding the B2H Project and in particular the Boardman Grassland Conservation Area managed by TNC for the Oregon Department of Fish and Wildlife (ODFW). On November 24, 2009, a comprehensive response was sent to Idaho Power addressing the Conservation Area and the routes proposed by the PATs.

The letter addresses the Conservation Area in more detail, stating that the ODFW holds a perpetual conservation easement on and over the Conservation Area that specifically prohibits many activities. Relevant prohibitions include “Construction or placement of buildings or structures including temporary living quarters of any sort, mobile homes, or utility towers or other structures," "Construction of roads or vehicle trails," and "Cutting, removing or destruction of native vegetation." Concerning the Conservation Area, "the Conservancy does not support any transmission line development on, across or immediately adjacent to any of the 22,642-acre property, the adjacent Naval Weapons Systems Training facility, or Horn Butte ACEC."

2.5.4 Oregon Department of Fish and Wildlife

ODFW provided input to the siting process in several ways:

Boardman Grasslands Conservation Easement— In a letter dated October 22, 2009, ODFW explains that while the Boardman Grasslands Conservation Easement is managed by TNC, it is owned by Threemile Farms. Threemile Farms purchased this tract of land from the State of Oregon and it was during this 93,000-acre land transfer that the Conservation Area was designated. The State of Oregon, through the ODFW, retained a Conservation Easement on part of the land, the 22,600-acre Conservation Area, as part of the sale agreement. Language within the conservation easement provides conservation measures for the following species: Washington ground squirrel, ferruginous hawks, loggerhead shrikes, and sage sparrows.

In the letter, ODFW points to the section of the Boardman Grasslands Conservation Easement that specifies prohibited activities and states that "Construction or placement of buildings or structures including temporary living quarters of any sort, mobile homes, or utility towers or other structures" is prohibited. The letter concludes that "the Department cannot support any route of the proposed transmission line that crosses any portion of the Conservation Area."

Route Selection Guidance—One of the B2H Project goals has always been to work closely with state and federal agencies to obtain current and accurate data, agency feedback regarding potential routes and resource concerns, and to adhere to agency policy and guidelines. ODFW specialists have provided special status species occurrence data (e.g., raptor nest locations) along with ROW siting guidelines for the avoidance of special status species locations and crucial habitat types that have been carefully considered during the routing process. Spatial and temporal ROW siting guidelines have included, but are not limited to, seasonal restrictions for big game winter range, and avoidance buffers for sensitive fish-bearing streams, raptor nests, sage-grouse leks, wetlands containing sensitive species, and occupied Washington ground squirrel habitat.

ODFW has been the primary contact for greater sage-grouse management considerations. The B2H Project has initiated survey efforts, including preliminary route review in areas containing sensitive wildlife habitats. Several ODFW specialists have participated in Web-based meetings to review route alternatives and provide insight about wildlife considerations and potential solutions. During these Web meetings, ODFW specialists also recommended areas to be surveyed for greater sage-grouse, and have conducted follow-up ground surveys to verify the presence of potential leks identified during aerial surveys. Close coordination between Idaho Power and ODFW has resulted in an effective working team to evaluate potential resource constraints that can affect transmission line routes.

2.5.5 U.S. Navy

The U.S. Navy operates the Boardman Bombing Range, which is a significant geographic constraint to approaching the proposed Grassland Substation, the northern terminus of the proposed B2H Project. Idaho Power has had several contacts with the Navy to discuss routing around or across the approach zones to and within the Bombing Range itself. To date, the Navy has confirmed that the off-range approach zones could be crossed but with very short structures (100 feet tall or less). The Navy has taken a position that the proposed transmission line should not be located across the northern portion of the range. Idaho Power and PGE (Cascade Crossing Project) continue to discuss this issue in light of trying to balance Navy concerns with adjacent private landowner concerns.

2.6 Community Advisory Process

Idaho Power partnered with communities from northeast Oregon to southwest Idaho to identify proposed and alternative routes for the B2H Project.

The initial process of identifying a route began in 2008. Following public scoping meetings conducted by the BLM and Oregon EFSC in October 2008, Idaho Power initiated a process to engage residents, property owners, business leaders, and local officials in siting the transmission line. Through 2009 and early 2010, PATs representing five geographic areas were convened for the purpose of identifying, developing, and recommending proposed and alternative routes for the project. This process was called the CAP. Figure 2.6-1 shows the process graphically and Figure 2.6-2 shows how the study area was broken down into the five geographic areas.

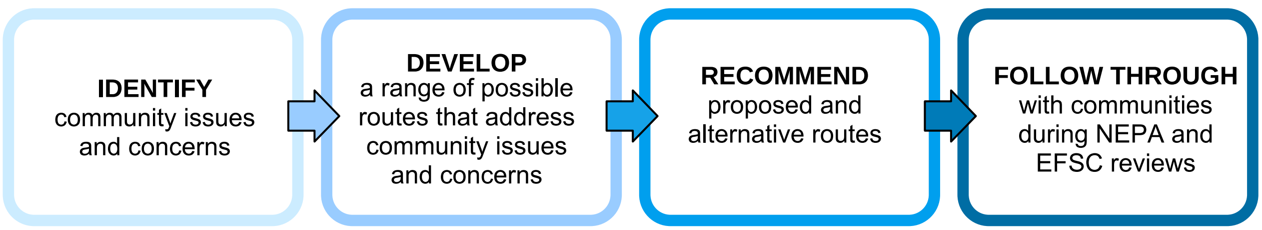

Figure 2.6-1. Community Advisory Process Steps

The process consists of the following four steps:

1. **Identify** community issues and concerns and develop criteria for evaluating possible routes. Integrate community's criteria with regulatory requirements.
2. **Develop** a range of possible routes that address community issues and concerns through public mapping sessions and eliminate routes that do not meet the criteria.
3. **Recommend** proposed and alternative routes. The proposed and alternative routes will be carried through the siting process.
4. **Follow through** with communities during BLM and Oregon Department of Energy (ODOE), EFSC reviews. Idaho Power will resubmit applications to the BLM and the USFS, which will proceed with a review under NEPA. There will be a concurrent detailed review by the ODOE, EFSC.

The public was involved in every step of the process, through PATs and public meetings.

- **PATs** met in the north, central, and south areas and Grant and Harney Counties to identify issues and concerns and to identity and recommend routes.
- **Public meetings** occurred in August of 2009 and July of 2010. The public was asked to review and comment on the PATs' work. The teams considered and incorporated public input.
- **A project coordinating team**, made of representatives from the PATs, brought together the work of each team.

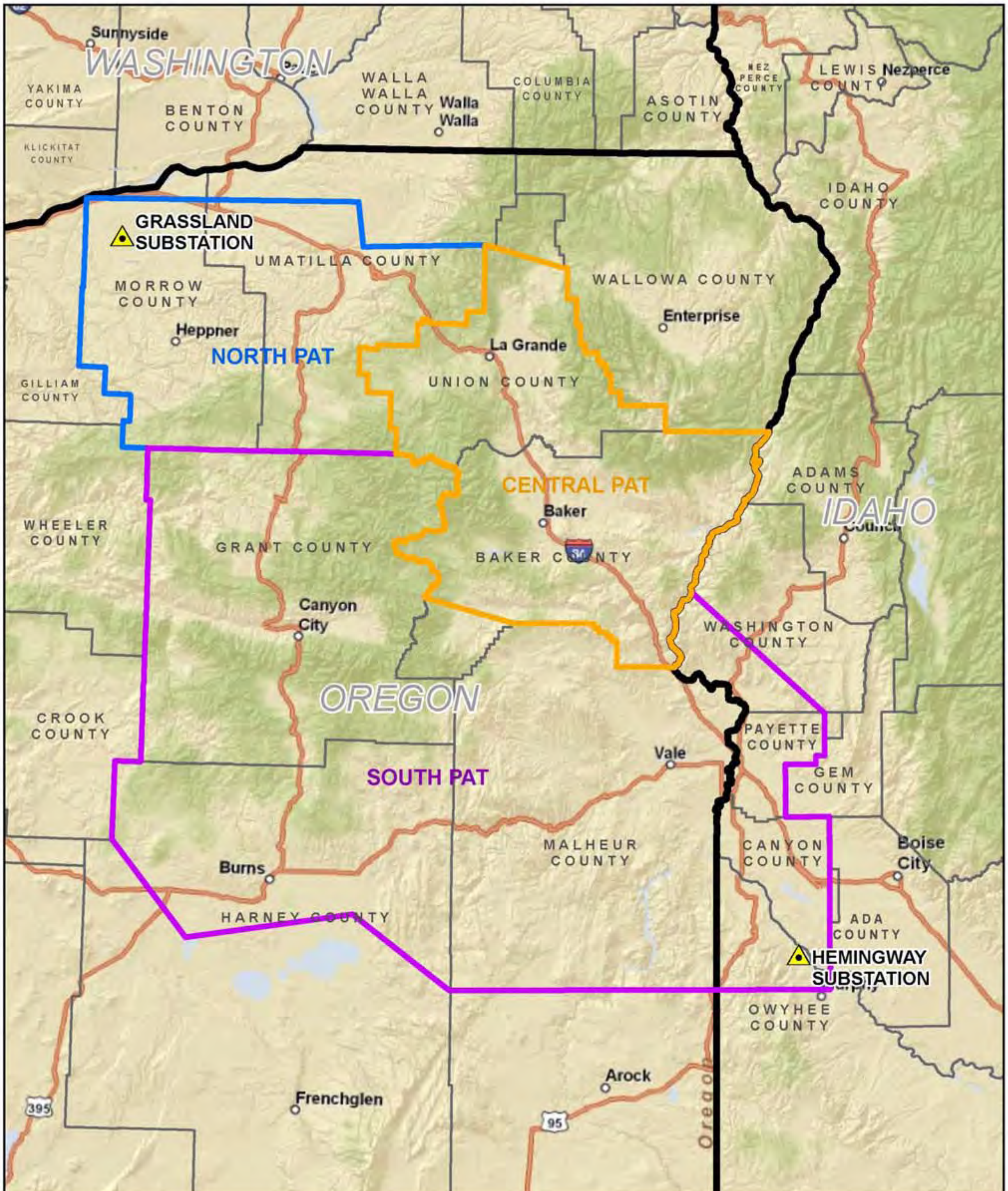

FIGURE 2.6-2
CAP PROJECT ADVISORY TEAMS
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

From the beginning of the PAT process in May 2009 to the conclusion of routing in March 2010 there were 27 PAT meetings held in the study area. These meetings each had specific objectives as follows:

- Meeting #1 – The first meeting in each CAP Area explained Project work to date, Project status, and the CAP; discussed the purpose and need for the Project; and identified community concerns and suggestions about siting the proposed transmission line.
- Meeting #2 – The second set of meetings were used to review the federal and state permitting processes for the Project, and to present the regulatory, engineering and community criteria to be used in route selection.
- Meeting #3 – In the third set of PAT meetings the PAT members and other local citizens reviewed the criteria, the routing process and the results of public meetings and the next day participated in routing sessions producing 49 initial routes and route segments .
- Meeting #4 – At these meetings held in December 2009, the approach to analyzing the almost 3,000 miles of routes was discussed as well as the status of the analysis. At these meetings the refinements of the initial routes were presented for PAT review.
- Meeting #5 – In early March 2010, the results of the route selection process were presented at five meetings and final input was requested from all the attendees. As a result of this process, the Eastern, Central, and Western Routes were recommended to the PATs.
- Meeting #6 – In late April and early May 2010, Idaho Power reviewed all comments received concerning the three alternative routes shown to the PATs in March and presented the Company's choice for the proposed route.

For additional information on the CAP, please see the Boardman to Hemingway website at www.boardmantohemingway.com or the Preliminary POD (Idaho Power 2010).

3 SITING

3.1 Initial Route Selection

Route selection began at CAP Meeting 3, which consisted of an evening session followed by a full day of routing, at Baker City, Boardman, and Ontario, Oregon. At the evening sessions Idaho Power educated the participants on the siting process; on the next day, individuals and groups of local citizens returned to identify route segments or entire routes between Boardman and Hemingway.

Members of the CAP and other local residents and organizations brought their knowledge of local resources, conditions, and priorities and worked with Idaho Power, GIS analysts, and routing experts to identify potential routes. To facilitate the siting effort, the GIS database was categorized into exclusion, high avoidance, moderate avoidance, low avoidance, or opportunity areas (see Table 3.1-1 for definitions). This database included PAT input on transmission line siting collected during the CAP Meetings 1 and 2.

Table 3.1-1. Resource Opportunity, Avoidance, and Exclusion Categorization

	Avoidance Categories These areas should be avoided unless there is no reasonable alternative. Mitigation[1/] would be required for federally-managed lands and to meet Oregon Department of Energy Energy Facility Siting Council standards. Also a potential that federal resource plans would need to be amended to allow the project.			
Placement Opportunity	**Avoidance: Low**	**Avoidance: Moderate**	**Avoidance: High**	**Exclusion**
Areas that should be considered for transmission line routes because land uses were identified by the Project Advisory Team as a high priority for placement, and/ or routes are compatible with the construction, maintenance, and operation of overhead transmission lines.	Very low to low impact. Mitigation, if necessary, would be very easy to implement	Moderate impact that could likely result in significant adverse impact that could require mitigation. Mitigation, if necessary, would range from fairly easy to implement to being costly or require longer time frames.	High to very high impact (duration, magnitude). Very difficult or infeasible to mitigate (due to technology, sensitivity of resource, time frame, or cost of mitigation).	Areas where a transmission line is precluded by statute or regulation (federal, state, local) or as identified by the Project Advisory Team.

Note:
1/ Mitigation is a way to reduce the effect of an action. Mitigation is a process that includes avoiding the impact, minimizing the impact, and/or compensating for remaining unavoidable impacts.

The GIS analysts, using topographic maps, available aerial photography, and the GIS database of constraints and opportunities, worked with each participant to identify routes that avoided exclusion areas and as much as possible minimized crossings of high avoidance constraints and, where practical, moderate and low avoidance areas. In all instances, the routing teams were looking for opportunities like existing transmission lines and the West-wide Energy Corridors to parallel or use.

Once routes were identified for study in Grant and Harney Counties, the community interest within these two counties intensified and PAT routing sessions were soon held in Mt. Vernon and Hines. Each route selected during the five routing sessions was documented in a GIS database and filed with a form explaining the basis for each route or segment. For unique identification, as each route was selected it was named using the first letter of the PAT meeting ("C" for Central, "N" for North, "S" for South, "G" for Grant, "H" for Harney) followed by a number to allow for unique identification and easy reference. Approximately 49 routes and route segments totaling over 3,000 miles were developed during the workshops (Figure 3.1-1).

3.2 Route Refinement

Following the CAP routing sessions, the Idaho Power team reviewed each of the routes to identify potential issues that may have been missed during initial route selection that could significantly impact the ability to permit or construct the suggested segment or route. Each alignment was reviewed using aerial photography, topographic maps, and the GIS database of constraints and opportunities. Using the aerial photography, irrigation pivots, houses, barns, private runways, other structures (i.e., wind turbines), and land use features could be avoided where practical. The routes were adjusted using topographic maps to avoid or minimize distance across very steep slopes and other physical features less desirable for transmission line construction and operation. Finally, the routes were again checked against the constraint and opportunity GIS database to avoid, where possible, exclusion areas and areas of high permitting difficulty like ODFW Category 1 habitats. While adjustments to CAP routes were made, the Idaho Power team strove to maintain the original intent of the route or route segment.

Also at this time a number of CAP routes were no longer considered because they did not meet the purpose and need of the Project; this reduced the miles of routes for further consideration to about 2,000 miles. Figure 3.2-1 shows the revised CAP routes.

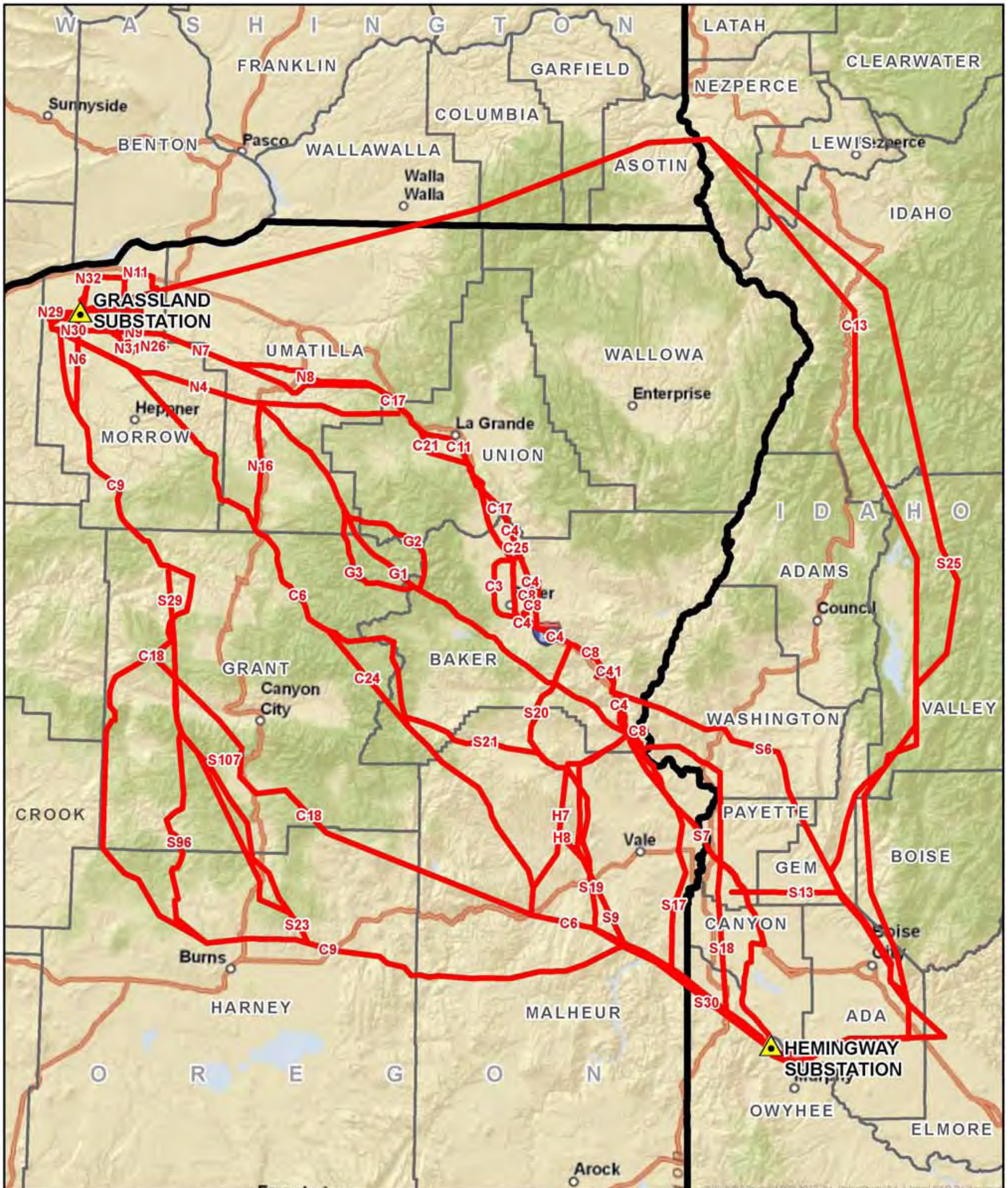

FIGURE 3.1-1
INITIAL CAP ROUTES
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

Substation
Initial CAP Route
State Boundary
County Boundary

0 10 20
Miles

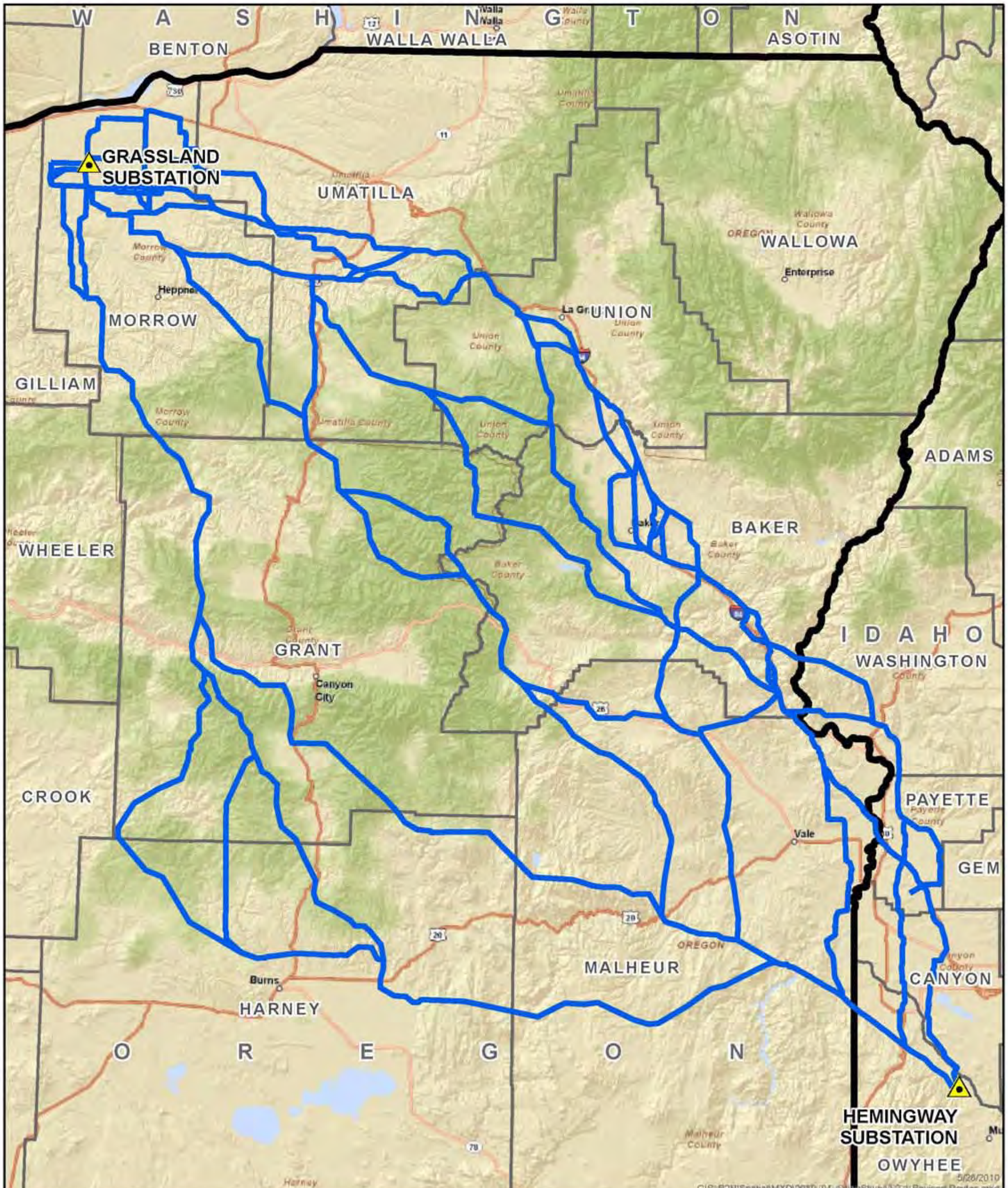

FIGURE 3.2-1
REVISED CAP ROUTES
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

Substation
Revised CAP Route
State Boundary
County Boundary

3.3 Regional Analyses

After completing the refinement of the initial CAP routes, almost 2,000 miles of alternatives remained. These remaining routes, where appropriate, were grouped into 14 regions for analysis as shown on Figure 3.3-1. Regions were established where two or more routes extended from one common point to a second common point. For example, in the southwest part of the study area, four routes were identified and grouped together between points GR3 and MA6 to create the Southwest Region (see Figure 3.3-2). Each route within the 14 regions was then analyzed for permitting difficulty, construction difficulty, and mitigation cost.

Permitting Analysis—The first part of the permitting analysis involved creating constraint/opportunity data tables detailing miles crossed of each constraint. This analysis was performed for each route within each region and resulted in a table detailing the total miles of each constraint/opportunity crossed by each route segment. A final attribute table was produced for the alternative routes in each region, allowing for direct comparison of constraints crossed.

For the second part of the permitting analysis, the GIS database was sorted into low, moderate, and/or high permitting difficulty datasets, exclusion datasets, and opportunity datasets as shown in Appendix C. The datasets were compiled into grids based on permitting difficulty categories and then overlaid with the revised routes. Next, the miles crossed of each permitting difficulty category were measured and totaled by individual route segment within each of the 14 regions. Regional permitting difficulty tables were then compiled, allowing for comparison of total miles of low, moderate, high, and exclusion permitting difficulty areas crossed by the routes.

Using results from the preceding analyses, route segments were analyzed in pairs. Specific resource constraints crossed and significant differences were noted and finally the more reasonable route to permit from each region was determined for each region.

Construction Analysis—In evaluating construction difficulty, accessibility, topography, road construction, equipment movement, and many other factors were used to categorize the routes into low, moderate, and high construction difficulty areas. Again, these ratings were applied to segments along the routes, were measured in miles, summed, and used to compare the routes within regions. Factors considered included the following:

- *Length of Route*—Longer routes requiring more structures, more wire and more access roads are more expensive projects with longer construction durations.
- *Slope of Terrain*—Tree clearing, access road construction, foundation installation, and tower erection are all more difficult in steep sloped terrain, especially in severe weather. In areas of severe slopes, significant grading work may be necessary to perform construction work or, in some instances, helicopters may be required.
- *Number of Angle Structures*—Angle structures are heavier and require larger foundations than tangent structures.
- *Proximity to Major Roads*—The closer the transmission line is to major roads, the more accessible it is.
- *Tree Clearing*—Areas requiring significant tree clearing represent higher costs and can extend overall line construction duration.

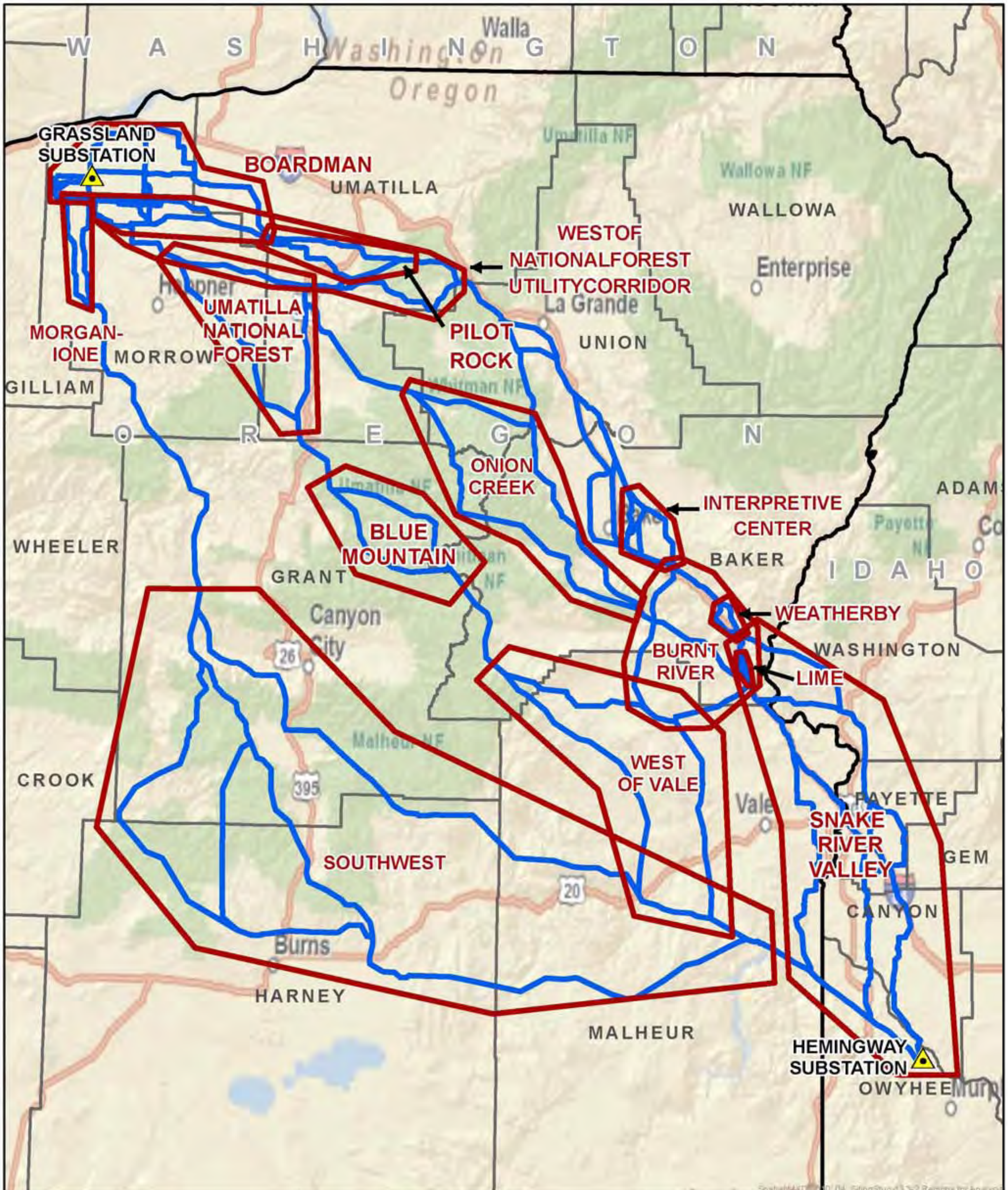

FIGURE 3.3-1
REGIONS FOR ANALYSIS
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

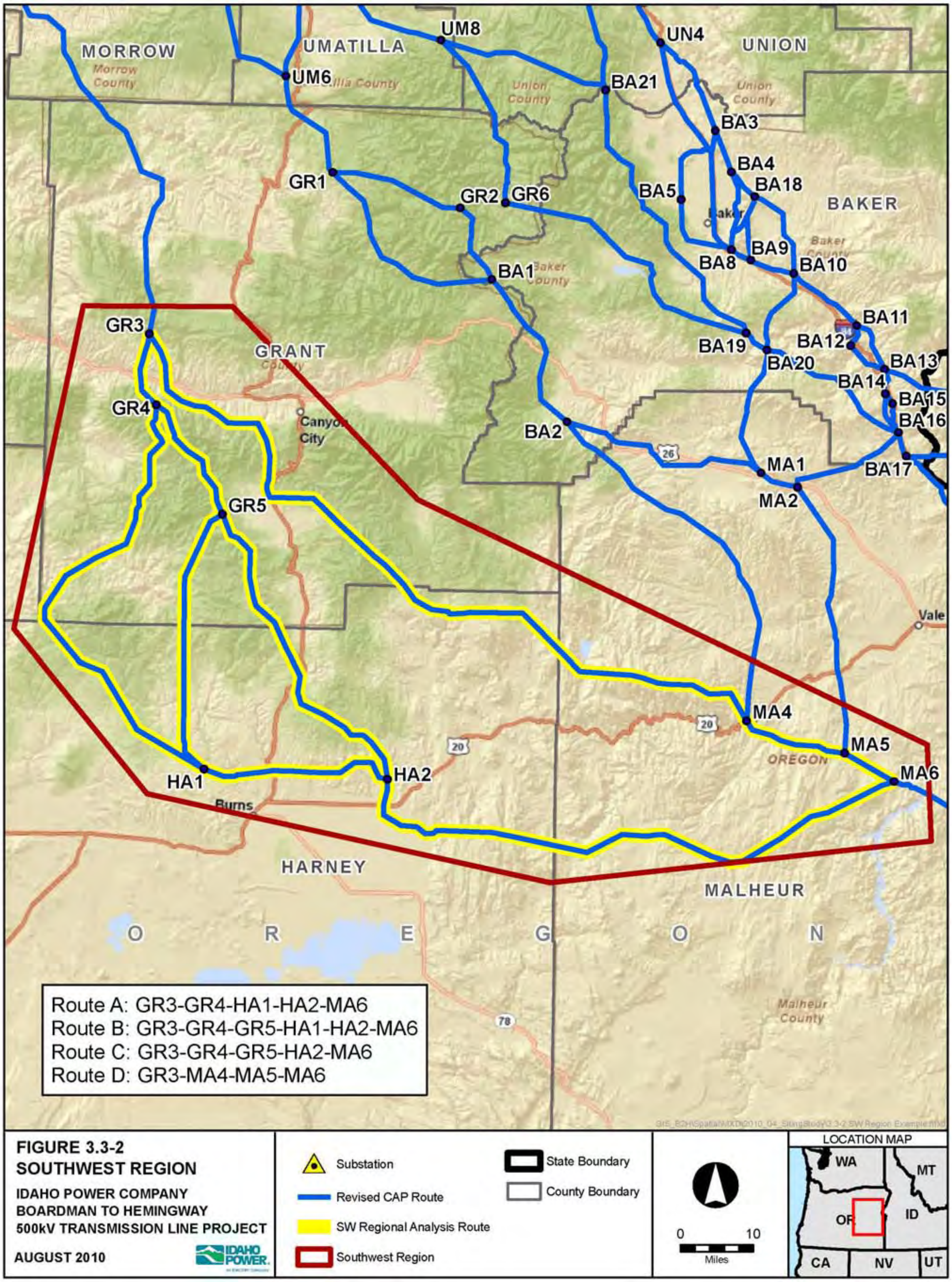

FIGURE 3.3-2
SOUTHWEST REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
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- *Access Roads*—Access roads are generally necessary along the transmission ROW both during construction and for future maintenance. In general, as the degree of slopes increases the length of access roads also increases. Routes along highly sloped areas are therefore more expensive due to the additional cost of more access roads.
- *Stream Crossings*—Transmission lines with many stream crossings are more difficult and expensive to construct because temporary bridges must be built to cross the streams or the use of much longer access roads avoiding new stream crossings may be required.

These parameters were considered simultaneously to arrive at an overall construction difficulty ranking of high, moderate, or low.

Mitigation Cost Analysis—To evaluate mitigation costs for potential impact to biological resources, the habitat value of the landscapes traversed was measured and considered in conjunction with ODFW value assumptions to arrive at potential high, moderate, and low mitigation cost estimates. ODFW has created a Habitat Mitigation Policy that attributes habitat values to the landscape based on ecological importance. These habitat values are considered by EFSC during the permitting process to understand and evaluate impacts to the environment. Each segment along each route was measured in miles of high, moderate, and low cost and totaled for each route within a region.

Habitat with high mitigation costs include sage-grouse 2-mile buffers, ODFW Wildlife Management Areas, bald eagle 1-mile buffers, and ODFW Category 1 habitat; moderate mitigation costs are associated with big game winter range, potential sage-grouse habitat, wetlands, and ODFW Category 2 and 3 habitat; lower mitigation costs are associated with ODFW Category 3 to 6 habitat.

3.3.1 Boardman Region

As shown on Figure 3.3.1-1 the Boardman region extends from just east of the Morrow/Gilliam County line approximately 41 miles east and includes portions of northern Morrow County and northwestern Umatilla County. The region extends south from the city of Boardman and I-84 and at its widest point is about 19 miles.

This region is situated at the north end of the study area and includes a large number of alternatives associated with accessing the proposed Grassland Substation. The Boardman Bombing Range and the Boardman Grasslands Conservation Area are two of the largest constraints to approaching the proposed substation and push potential routes to the north, south, or west. Other significant constraints include irrigated agriculture, the city of Boardman, and wind farms.

Early on a number of alternatives were adjusted or removed from further consideration because of high level constraints, existing land use conditions, and permitting exclusion areas as follows:

CAP Route	Reason(s) for being adjusted or removed from further consideration
C6	Portion along north boundary of the Boardman Grasslands Conservation Area was shifted north to avoid Washington ground squirrel (Oregon state endangered species) Category 1 habitat.
C13	Alternative removed from further consideration because it added over 100 miles of additional 500 kV transmission line substantially adding to the area disturbed, potential impact, and cost. Also added a third state, Washington, which would substantially add to the complexity of permitting.
N4	Portion along north boundary of the Boardman Grasslands Conservation Area was shifted north to avoid Washington ground squirrel Category 1 habitat.
N6	Portion removed from further consideration as it crosses about 2.3 miles of the Boardman Grasslands Conservation Area.
N7	Portion along the southern boundary of the Boardman Bombing Range was adjusted to avoid Washington ground squirrel Category 1 habitat. Segments adjacent to north and south boundaries of Boardman Grasslands Conservation Area were shifted north and south respectively away from Washington ground squirrel Category 1 habitat.
N10	Alternative removed from further consideration as it crosses the center of the Boardman Bombing Range and an approximately 1.0 mile segment of the Boardman Grasslands Conservation Area.
N24	Portion north of the proposed Grassland Substation was shifted west to avoid the Boardman Grasslands Conservation Area and parallel existing 230-kV line.
N26	Portion of this alternative shifted because portion along eastern boundary of Boardman Bombing Range (about 12.0 miles) crosses about 1.3 miles of the Boardman Grasslands Conservation Area and traverses Washington ground squirrel Category 1 habitat.
N28	Portion along southern boundary of the Boardman Bombing Range was shifted as it crosses Washington ground squirrel Category 1 habitat.

N29	Alternative removed from further consideration even though it is located within an existing PGE easement. Even if this ROW were available, it would place the existing Boardman-Slatt single-circuit 500-kV line, the proposed Cascade Crossing double-circuit 500-kV line, and the proposed Boardman-Hemingway single-circuit 500-kV line all in one ROW that would not meet WECC reliability criteria.
N30	Portion along the southern boundary of the Boardman Bombing Range crosses Washington ground squirrel Category 1 habitat: segments adjacent to north and south boundaries of Boardman-Grassland Conservation Area were shifted north and south respectively away from Washington ground squirrel Category 1 habitat.
N31	Alternative adjusted to avoid the Boardman-Grassland Conservation Area and Washington ground squirrel Category 1 habitat.
N32	Portion north of proposed Grassland Substation shifted west to avoid the Boardman Grasslands Conservation Area and parallel existing 230-kV line.

After making the route revisions described above, three routes were left for more detailed comparison:

- the Northern Route (MO1-MO2-MO5-MO4-MO7-UM1);
- the Central Route (MO1-MO10-MO9-MO8-MO11-MO12-MO13-MO14-MO15-MO16-MO17-MO18-MO21-MO23-UM1); and
- the Southern Route (MO1-MO10-MO9-MO8-MO11-MO12-MO13-MO14-MO15-MO16-MO26-MO22-MO23-UM1).

As shown on Figure 3.3.1-1, the Southern Route (CAP routes C6, C9, N4, N7, N26, N30) exits the location for the proposed Grassland Substation to the south and then turns due west across a series of center pivots and grassland to the Willow Creek Valley. It follows the west side of the valley to the south for about 2.4 miles before angling east between the Boardman Grasslands Conservation Area and the community of Cecil. The Route then continues east, turns south near the town of Ella, and angles southeasterly across Ella Butte toward Juniper Canyon. The Southern Route then angles northeast for the next approximate 7.0 miles to Sand Hollow before heading due east, passing to the north of Pine City. The route continues southeasterly for the next approximately 14.0 miles to its common point with the Central and Northern Routes in the Boardman Region, UM1. The Southern Route crosses dry agricultural lands for most of its 54.6 miles.

The Central Route (CAP routes C6, C9, N4, N7, N8, N9, N28, N30) exits the proposed Grassland Substation following the same path as the Southern Route to point MO16, a location about 7.0 miles east of Cecil. While the Southern Route angles south at this point, the Central Route continues heading east along the south side of the Boardman Grasslands Conservation Area and the Boardman Bombing Range. The Central Route continues east, crossing Sand Hollow and passing to the south of Butter Creek Junction before angling southeast to rejoin the path of the Southern Route at point MO23, approximately 2.5 miles east of Pine City. The Central Route follows the same path as the Southern Route for the next approximately 11.0 miles to point UM1.

The Southern Route and the Central Route are similar in many aspects; however, as shown in Appendix D, Table D-1, the Central Route is 1.9 miles shorter, crosses 1.9 miles less EFU, and crosses 2.2 fewer miles of moderate and high erosion hazard soils. The Southern Route crosses 0.5 fewer mile of irrigated cropland and 1.8 miles less landslide hazard area, and parallels 2.9 miles of existing transmission line. As shown on Table 3.3.1-1, the two routes are very similar in total moderate and high permitting difficulty:

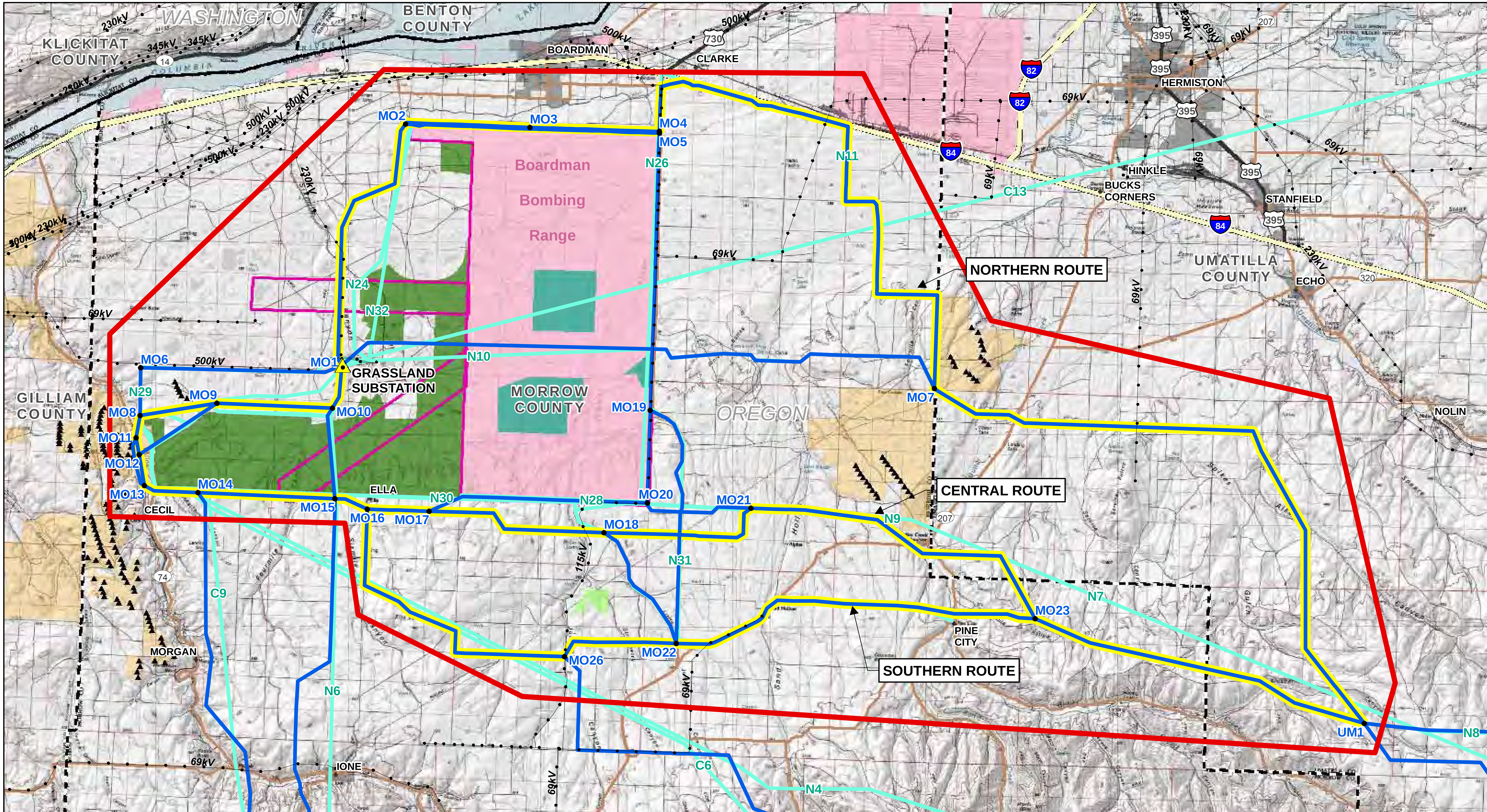

FIGURE 3.3.1-1
BOARDMAN REGION

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

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IDAHO POWER

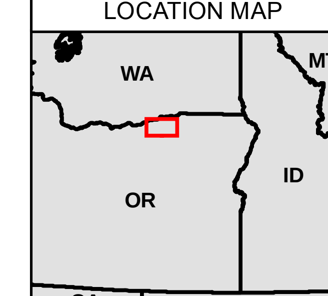
- Substation
- Analysis Region
- Existing Transmission Line
- Revised CAP Route
- Initial CAP Route

The Nature Conservancy
- Boardman Grasslands Conservation Area
- Boardman Research Natural Area
- Lindsay Prairie
- Naval Weapons System Training Facility
- Military Land

- Wind Turbine
- Wind Farm Boundary
- State Boundary
- County Boundary
- Urban Area

0 1 2 3
Miles

LOCATION MAP



the Central Route has a total of 50.8 miles and the Southern Route 52.8 miles. These two routes are similar in moderate and high construction difficulty with the Central Route having a total of 30.8 miles and the Southern Route 27.1 miles. Based on the facts presented above, the Central Route was determined to be more reasonable than the Southern Route.

Table 3.3.1-1. Boardman Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	Northern Route (MO1-MO2-MO5-MO4-MO7-UM1)	**Central Route** (MO1-MO10-MO9-MO8-MO11-MO12-MO13-MO14-MO15-MO16-MO17-MO18-MO21-MO23-UM1)	**Southern Route** (MO1-MO10-MO9-MO8-MO11-MO12-MO13-MO14-MO15-MO16-MO26-MO22-MO23-UM1)
	Length in Miles		
Permitting Difficulty			
Low	1.3	1.9	1.8
Moderate	42.5	42.1	44.4
High	13.5	8.7	8.4
Exclusion	0.0	0.0	0.0
Construction Difficulty			
Low	29.1	21.9	27.5
Moderate	22.2	19.0	19.8
High	6.0	11.8	7.3
Mitigation Cost			
Low	48.7	51.6	3.9
Moderate	8.6	1.1	49.6
High	0.0	0.0	1.1

The Northern Route (CAP routes N11, 24, 26, and N32) exits the proposed Grassland Substation site to the north passing through a large area of pivot irrigation. This route then turns east, enters the Boardman Bombing Range, and passes along its northern boundary for the next 8.1 miles. The route angles north to follow Bombing Range Road before turning southeast and following along the south side of I-84 for the next approximately 5.5 miles. The Northern Route then angles south and east passing through agricultural lands, a poplar tree farm, and between wind farms before crossing into Umatilla County. Continuing due east, the route passes north of Service Buttes and angles southeasterly across Alkali Canyon, Spikes Gulch, and Slusher Canyon to point UM1, the eastern common point for the three remaining routes in the Boardman Region.

The comparison of the Northern Route with the Central Route is complicated by the fact that the PGE Cascade Crossing Project shares about 18 miles with the B2H Project's Northern Route. In terms of total transmission development in this area, the Central Route would result in 70.7 miles of 500-kV line (52.7 miles for the B2H Project's Central Route and 18 miles for the Cascade Crossing Project) as compared to 57.3 miles for the Northern Route (Cascade Crossing Project included). Therefore, developing the Northern Route would require 13.4 fewer miles of transmission line and about 400 fewer acres of ROW considering the additional miles for the Cascade Crossing Project.

Table 3.3.1-1 compares the Central Route and the Southern Route to the Northern Route. Figure 3.3.1-2 displays the results of the permitting difficulty, construction difficulty, and potential mitigation cost analyses on each route. Because of significantly less total required transmission line development for the Northern Route, it was recommended as the more reasonable route.

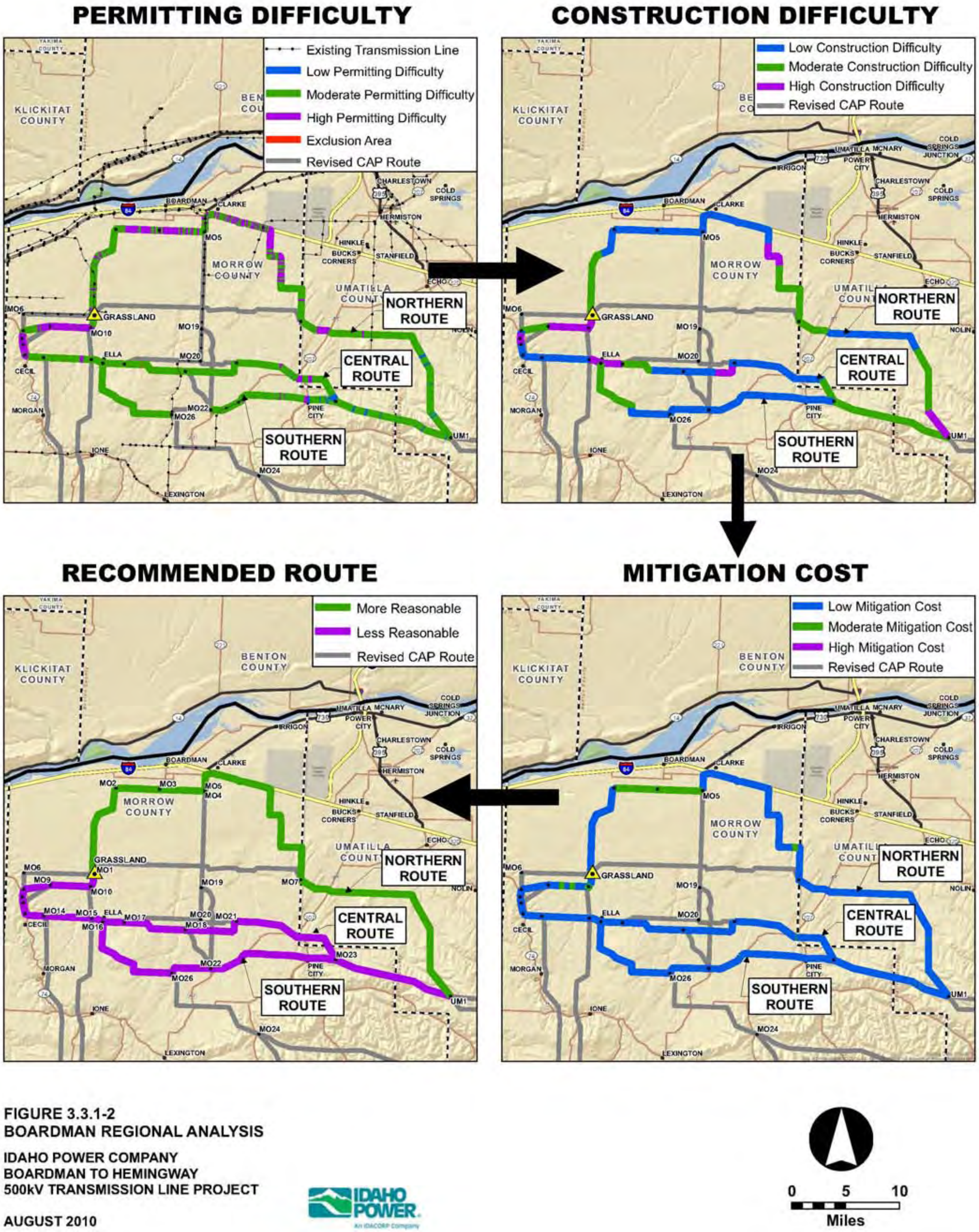


FIGURE 3.3.1-2
BOARDMAN REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

3.3.2 Morgan-Ione Region

The Morgan-Ione region is located in western Morrow County and extends about 21 miles to the south from the southern boundary of the Boardman Grassland Conservation Area. Much of the area is dry agricultural lands and the topography is generally rolling but steeper north and south of State Route 74 and along Willow Creek and other drainages. The major road through the area is State Route 74; Ione, the largest community in the area, is located on the east side of the middle portion of the region.

In this region two CAP routes, C9 and N6, as shown on Figure 3.3.2-1 were identified at the Central and North PAT routing sessions held in early December 2009. The West Route, designated MO14-MO25, was a revision of a portion of CAP route C9. Beginning at MO14, the route proceeds south, crossing the Oregon National Historic Trail and Schoolhouse Canyon before passing east of the community of Morgan. Continuing south, the route then passes east of the community of McNab, across State Route 74 and Willow Creek, and proceeds across Jordan Canyon. The route passes to the east of Utts Butte, then angles to the southeast, staying to the north of Eightmile Canyon, proceeding toward the southern terminus of the Morgan-Ione Region, MO25.

The East Route was a revision of portions of CAP routes N6, N7, and N30 and was designated MO14-MO15-MO25. Beginning at MO14, the East Route proceeds due east for approximately 4.4 miles along the south side of the Boardman Grasslands Conservation Area to MO15. At MO15, west of Sixmile Canyon and the community of Ella, the East Route turns and proceeds south. Approximately 9.0 miles later, the East Route crosses State Route 74 and Willow Creek, about 1 mile west of the community of Ione. The route continues south, about 2 miles east of the path of the West Route, passing along the west side of Jordan Butte and crossing Brenner Canyon twice before meeting the West Route at MO25 at the southern end of the region.

Figure 3.3.2-2 and Table 3.3.2-1 display the results by category of the permitting difficulty, construction difficulty, and mitigation cost analyses for the Morgan-Ione Region. The East Route crosses 3.1 more miles of moderate and high permitting difficulty and 2.1 more miles of moderate and high construction difficulty areas than the West Route. More specifically, the East Route crosses more deer winter range, more high erosion hazard soils, more EFU-zoned lands, more prime farmland soils, and more historic trail buffers (see Appendix D). The West Route crosses less deer winter range, less high erosion hazard soils, less EFU-zoned lands, less prime farmland soils, and fewer historic trail buffers (see Appendix D, Table D-2). For the reasons stated above, the West Route was determined to be more reasonable.

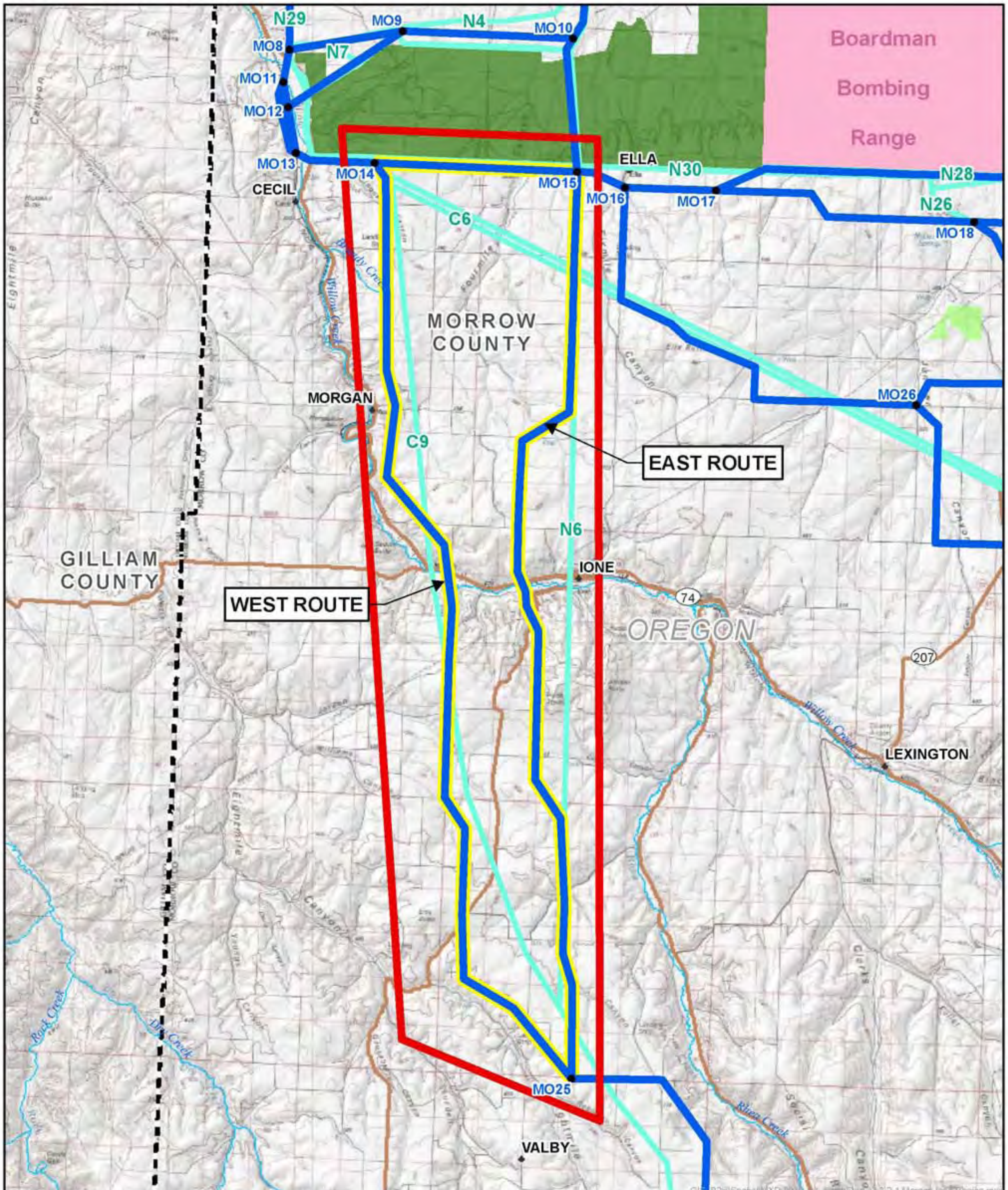


FIGURE 3.3.2-1
MORGAN-IONE REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
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Substation
Analysis Region
Revised CAP Route
Initial CAP Route
Military Land

The Nature Conservancy
Boardman-Grassland Conservation Area
Lindsay Prairie
County Boundary

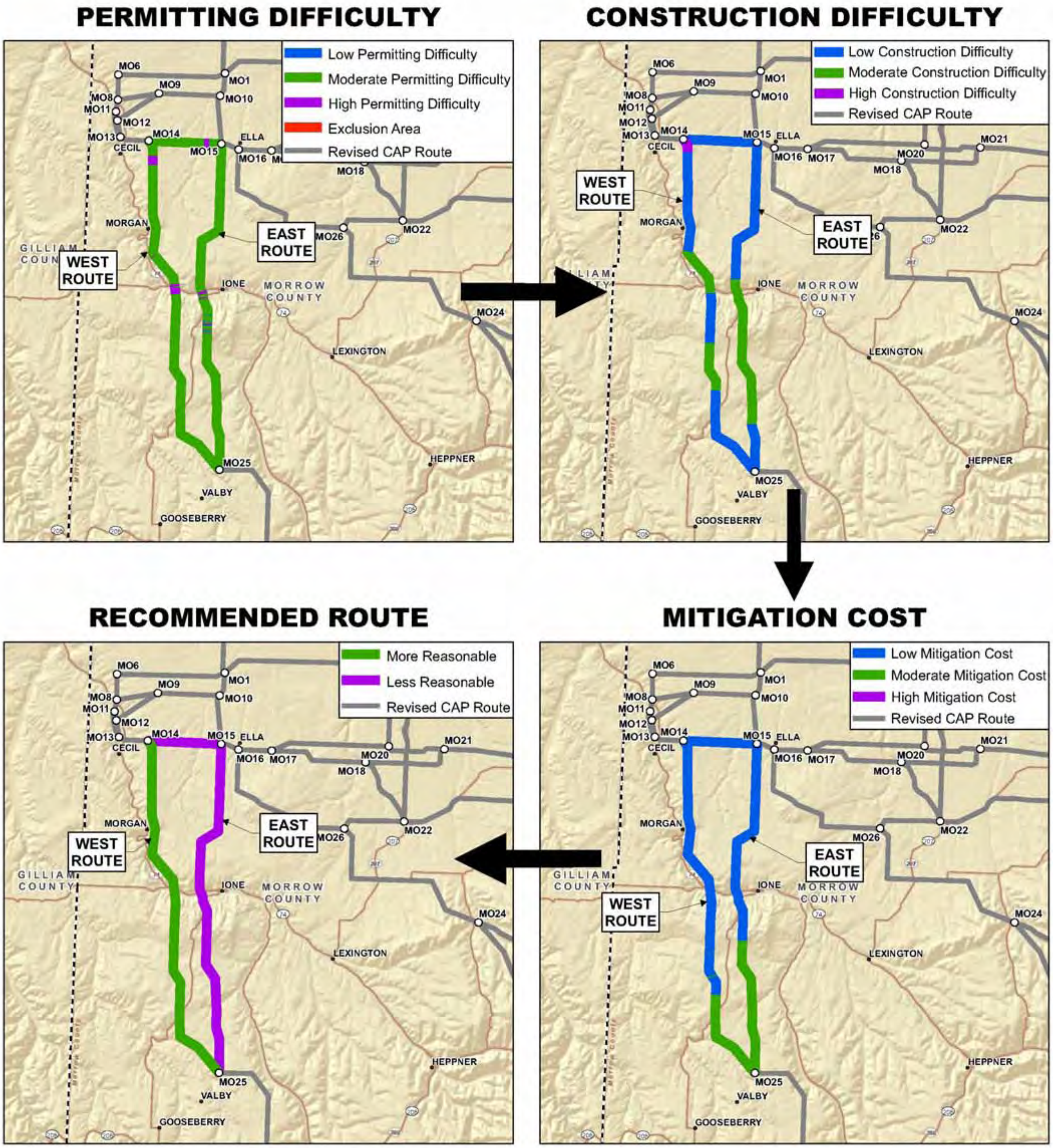

FIGURE 3.3.2-2
MORGAN - IONE REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 5 10
Miles

Table 3.3.2-1. Morgan-Ione Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	West Route (MO14-MO25)	**East Route** (MO14-MO15-MO25)
	Length in Miles	
Permitting Difficulty		
Low	0.0	0.2
Moderate	20.7	24.1
High	1.2	0.9
Exclusion	0.0	0.0
Construction Difficulty		
Low	15.0	16.2
Moderate	6.0	9.0
High	0.9	0.0
Mitigation Cost		
Low	16.0	17.0
Moderate	5.9	8.2
High	0.0	0.0

3.3.3 Umatilla National Forest Region

This region straddles the southern portion of the Morrow/Umatilla County line, spanning from approximately 7 miles north of Heppner, Oregon, southeast to approximately 2 miles north of Dale, Oregon. It is also just north of the North Fork of the John Day River and in the southeast includes portions of the Ukiah-Dale Forest State Scenic Corridor and the Bridge Creek Wildlife Management Area as shown on Figure 3.3.3-1. Bounding the region along the eastern side is U.S. Highway 395, while the Blue Mountain Scenic Byway crosses through the southern portion of the region before heading northwest along the region's southeastern boundary. Due to the severe topography throughout the region, agricultural areas are minimal, mainly confined to the narrow valleys as well as along State Route 74, which crosses the northern part of the region. The southern portion of the region is forested and includes the northernmost part of the Umatilla National Forest. Numerous drainage areas and rivers can be found throughout the region. Figure 3.3.3-1 shows the Umatilla National Forest region and the original and revised CAP routes.

The routes through this region were originally generated during the Central and North PAT routing sessions. The section of CAP route C6 within this region was refined and designated the West Route (MO24-UM6), which is approximately 41 miles long. Beginning at the northern end of the region, the West Route heads south from MO24 located to the east of Sandhollow Road then angles southeast across State Highway 207. The route continues southeast crossing the southwest side of Freezeout Ridge and other steep terrain, before turning south and entering the Umatilla National Forest north of Matlock Hill. The route continues south for the next 8.5 miles, crossing the Blue Mountain Scenic Byway. Angling east across the Umatilla County/Morrow County line, the route exits the national forest and follows Deerhorn Ridge to UM6, its eastern common point with the East Route.

The East Route (MO24-UM5-UM7-UM6) was a refinement of CAP route N4 and part of CAP route N16. Beginning in the northern part of the region, the route heads east passing south of Gleason Butte and approximately 4 miles north of the community of Lena, Oregon. The route crosses State Highway 74 just west of the Umatilla County/Morrow County line and continues east for approximately 7 miles to Whittaker Flats where it turns due south just west of U.S. Highway 395.

The route continues south along the west side of U.S. Highway 395 for approximately 3 miles before crossing this highway. Approximately 1 mile west of the Battle Mountain Forest Wayside, the route crosses back to the west side of this highway and continues south for the next 11.4 miles until it crosses the Blue Mountain Scenic Byway. Angling southwest to avoid the Ukiah-Dale Forest State Park and Bridge Creek Wildlife Management Area, the route crosses a deep ravine to join the West Route at UM6.

Figure 3.3.3-2 and Table 3.3.3-1 display the results of the permitting difficulty, construction difficulty, and potential mitigation cost analyses for each route. The results of the analysis show that the West Route is 9.4 miles shorter than the East Route and crosses 14.3 fewer miles of deer winter range, 14.2 fewer miles of EFU-zoned land, 20.3 fewer miles of private land, and has fewer miles of both high erosion hazard soils and slopes greater than 35 percent. For additional detail on constraints crossed by each route, see Table D-3 in Appendix D. The West Route also crosses approximately 8.7 fewer miles of moderate and high permitting difficulty areas. For the reasons explained above, the West Route, MO24-UM6, was recommended as more reasonable than the East Route, MO24-UM5-UM7-UM6.

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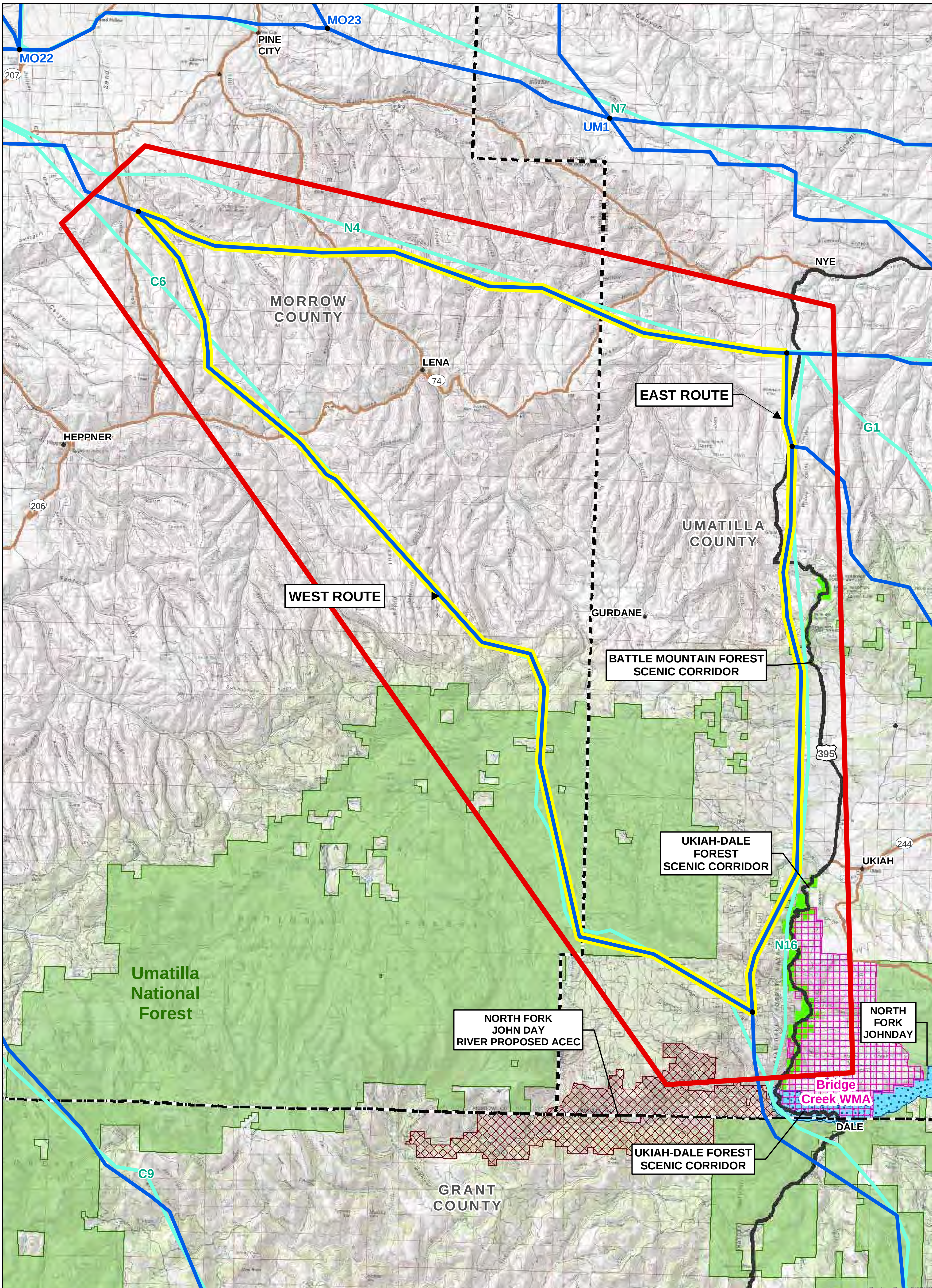

FIGURE 3.3.3-1
UMATILLA NATIONAL FOREST REGION

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BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

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IDAHO POWER
An IDACORP Company

Analysis Region
Revised CAP Route
Initial CAP Route
County Boundary
Wildlife Management Area
Wild and Scenic River
State Park
Proposed Area of Critical Environmental Concern
National Forest

0 1 2 3
Miles

LOCATION MAP

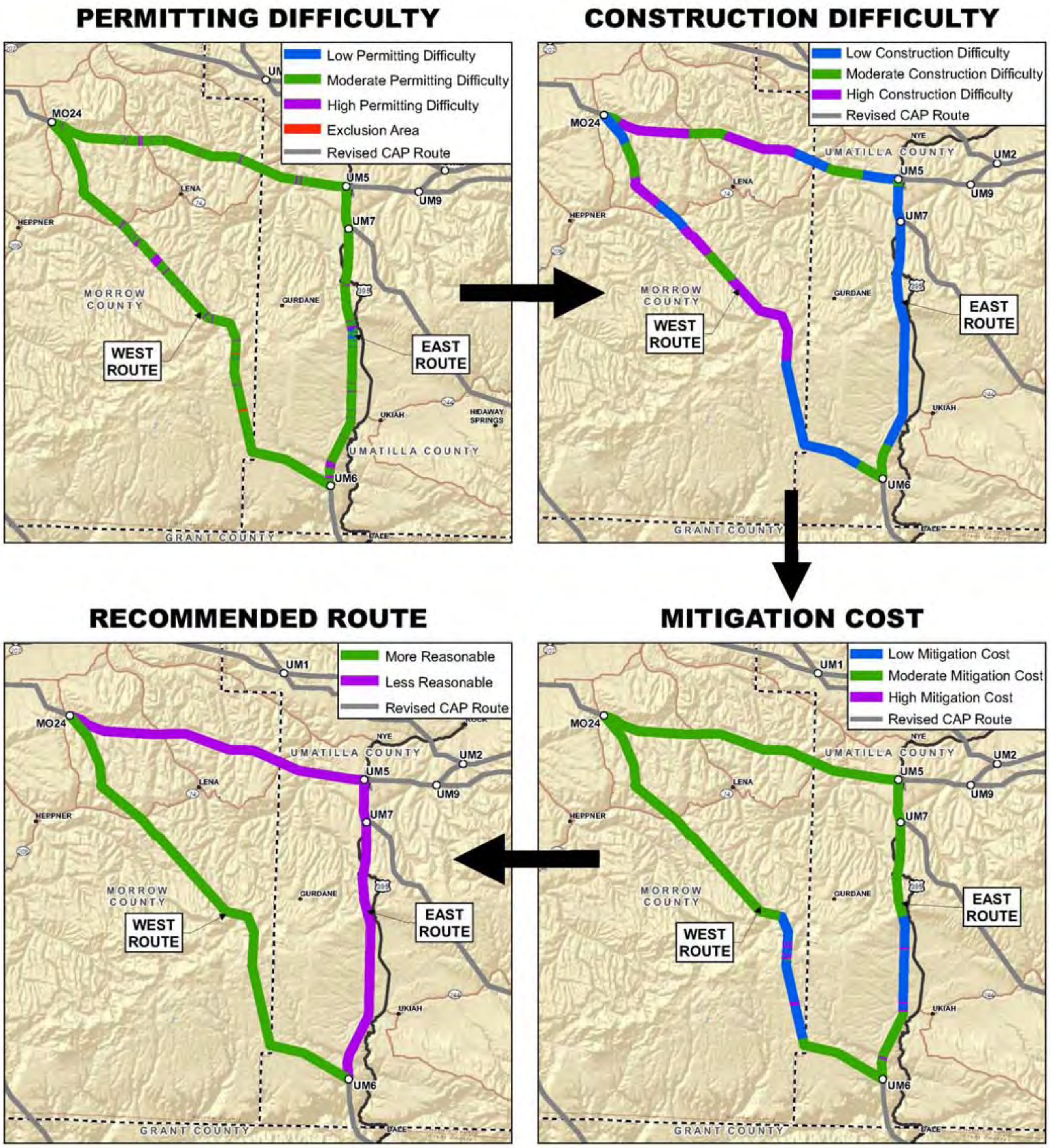

FIGURE 3.3.3-2
UMATILLA NATIONAL FOREST REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

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0 5 10
Miles

Table 3.3.3-1. Umatilla National Forest Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	West Route (MO24-UM6)	**East Route** (MO24-UM5-UM7-UM6)
	Length in Miles	
Permitting Difficulty		
Low	0.1	0.8
Moderate	37.9	46.1
High	2.9	3.8
Exclusion	0.4[1/]	0.0
Construction Difficulty		
Low	18.0	27.8
Moderate	8.3	10.9
High	15.0	12.0
Mitigation Cost		
Low	9.8	7.5
Moderate	30.8	42.7
High	0.7	0.5

Note:
1/ Old Growth Forest Areas will be avoided during micro-siting.

3.3.4 Pilot Rock Region

As shown in Figure 3.3.4-1, beginning approximately 1.8 miles southeast of the community of McKay, Oregon, this region spans west mostly to the south of the Confederated Tribes of the Umatilla Indian Reservation, past Pilot Rock and U.S. Highway 395 to the Morrow County/Umatilla County boundary in the vicinity of Slusher Canyon. While the eastern portion of the region consists of steep terrain and drainages within irrigated agricultural areas along the valleys and around Pilot Rock, dry agricultural lands and pasture occupy much of the lands in the western portion of the region.

Two routes were identified in this region, one to the north and one to the south of the town of Pilot Rock, Oregon, located along U.S. Highway 395. The North PAT routing session resulted in CAP route N8 crossing U.S. Highway 395 to the north of Pilot Rock and CAP route N7 crossing U.S. Highway 395 to the south of Pilot Rock. Information gathered during development of CAP route N8 indicated approximately 33 miles of lands along the northern route were owned by citizens ready to cooperate with the B2H Project. For this reason, CAP route N8 was minimally revised, and later designated the North Route (UM1-UM3) in the Pilot Rock regional analysis. CAP route N7 was revised using landowner input and designated the South Route (UM1-UM2-UM3) in the region.

The North and South Routes were analyzed for permitting difficulty, construction difficulty, and mitigation cost. The results of these analyses are shown on Figure 3.3.4-2. Table D-4 in Appendix D shows that the North Route is 3.5 miles shorter, crosses 7.4 fewer miles of deer winter range, and crosses fewer miles of EFU-zoned land than the South Route. Appendix D contains additional details on the miles of each constraint crossed by both the North and the South Routes. Table 3.3.4-1 summarizes the analyses by category and shows the North Route having fewer permitting and construction difficulties and lower mitigation costs than the South Route. Additionally, there are cooperative landowners along a 33-mile segment of the North Route and as a result it was recommended as the more reasonable route in this region.

Table 3.3.4-1. Pilot Rock Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	South Route (UM1-UM2-UM3)	**North Route** (UM1-UM3)
	Length in Miles	
Permitting Difficulty		
Low	0.6	0.4
Moderate	25.9	22.8
High	2.8	2.6
Exclusion	0.0	0.0
Construction Difficulty		
Low	13.8	15.0
Moderate	6.5	6.0
High	9.0	4.8
Mitigation Cost		
Low	16.4	20.2
Moderate	12.6	5.5
High	0.3	0.1

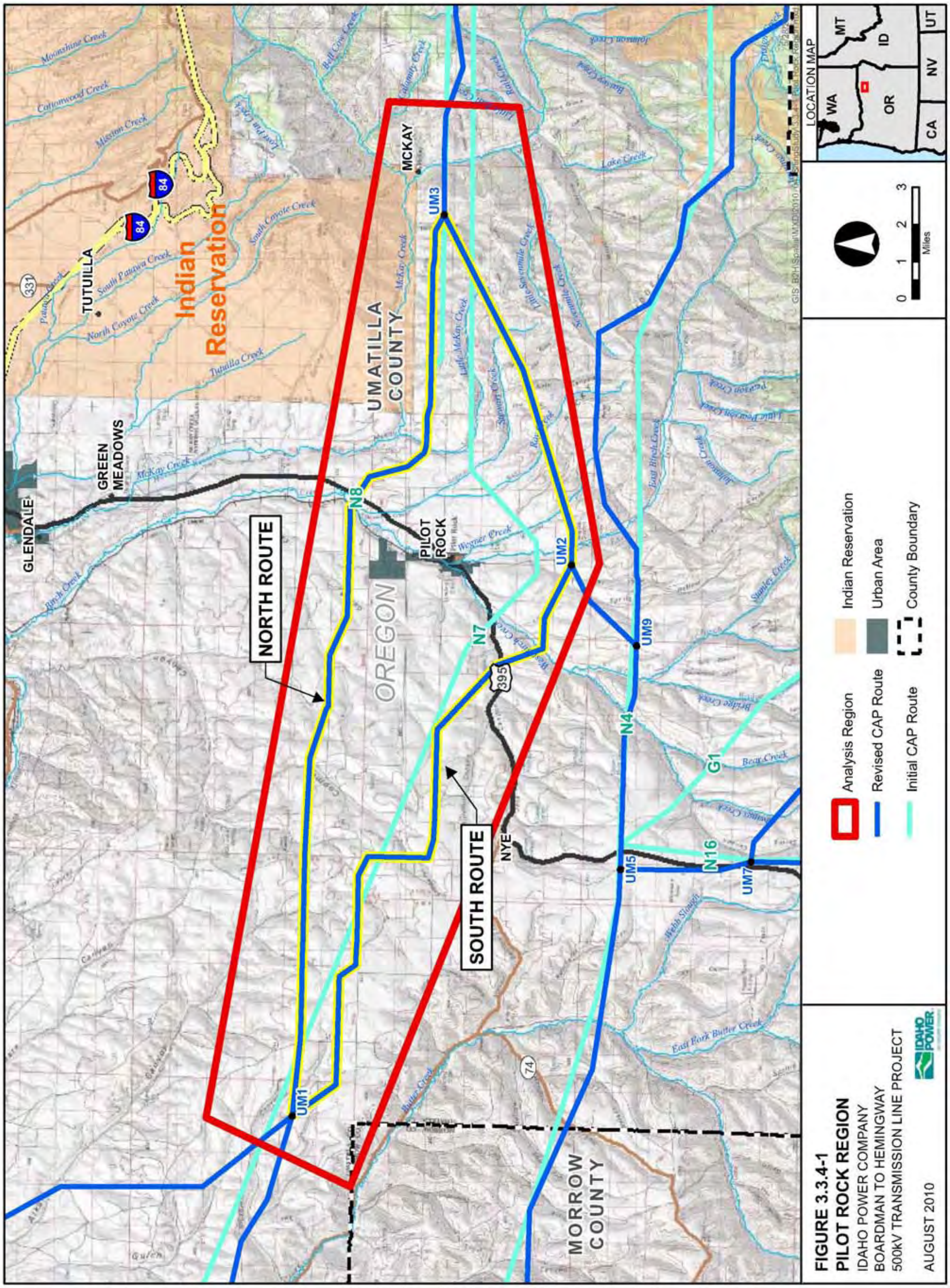

FIGURE 3.3.4-1
PILOT ROCK REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500KV TRANSMISSION LINE PROJECT
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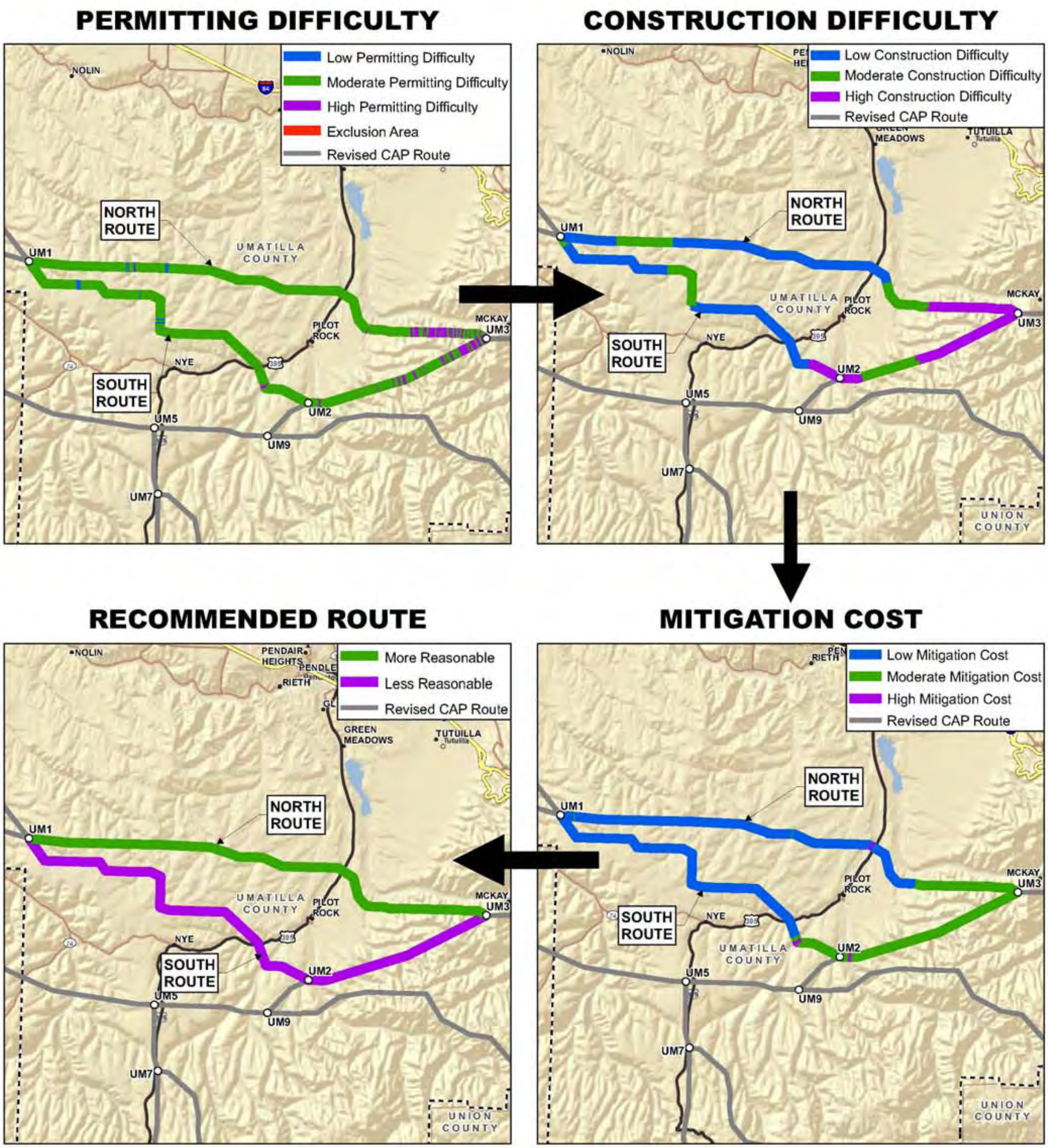

FIGURE 3.3.4-2
PILOT ROCK REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

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3.3.5 West of National Forest Utility Corridor Region

This region, shown on Figure 3.3.5-1, begins just west of the Wallowa-Whitman National Forest Utility Corridor near the Union County/Umatilla County line. It spans west across Umatilla County into Morrow County ending of the community of Ella, Oregon, along the southern boundary of the Boardman Conservation Area. This region spans just over 70 miles and includes two routes for analysis, the North Route (MO16-MO17-MO18-MO21-MO23-UM1-UM3-UM4) and the South Route (MO16-MO26-MO24-UM5-UM9-UM4). The region is located mostly to the south of the Confederated Tribes of the Umatilla Indian Reservation and to the west and north of Wallowa-Whitman and Umatilla National Forests. Much of the region covers severe topography, U.S. Highway 395 and State Highway 74 cross through the central part of the region, and Pilot Rock is the largest town in the area. The western portion of the region, crossed by State Highway 207, comprises dry agricultural lands and rolling topography.

The North Route (MO16-MO17-MO18-MO21-MO23-UM1-UM3-UM4) is a revision of several CAP routes, including N8, N9, and parts of N28, N7, and N30. Beginning at MO16, located south of the Boardman Grasslands Conservation Area and southwest of the Boardman Bombing Range in Morrow County, the North Route heads east passing south of the Echo Wind Farm and north of Butter Creek Junction. Just west of the Morrow County/Umatilla County line, the route crosses State Highway 207 and continues south and east for the next 20 miles to meet with CAP route N8. The route then follows CAP route N8 closely for the next 33 miles along potentially cooperative landowner parcels, crossing U.S. Highway 395 approximately 2.5 miles north of Pilot Rock, Oregon and passing to the south of the Confederated Tribes of the Umatilla Indian Reservation. The North Route then angles southeast crossing between outlying land parcels belonging to the Confederated Tribes of the Umatilla Indian Reservation to UM4, just west of the Wallowa-Whitman National Forest Utility Corridor.

CAP route N4, originally generated during the North PAT routing session, was revised and analyzed as the South Route (MO16-MO26-MO24-UM5-UM9-UM4) within the West of National Forest Utility Corridor Region. Proceeding southeast from MO16, the South Route traverses dry agricultural lands before crossing State Highway 207, passing south of Gleason Butter and crossing State Highway 74 at the Morrow County/Umatilla County line. The route crosses U.S. Highway 395 about 3.5 miles south of Nye and the junction of State Highway 74 and U.S. Highway 395, before passing approximately 5.3 miles south of Pilot Rock. Continuing east, the terrain in the area becomes quite steep and the route crosses the foothills of Porter Hill before angling south to follow Rocky Ridge for approximately 5 miles. The South Route then threads its way east through outlying land parcels owned by the Confederated Tribes of the Umatilla Indian Reservation while staying to the north and west of the Wallowa-Whitman National Forest. The route joins with the North Route at UM4, just west of the designated utility corridor.

Figure 3.3.5-2 graphically details the results of the permitting difficulty, construction difficulty, and mitigation cost analyses performed on the North and South Routes. Mileage summaries by difficulty/cost categories can be found in Table 3.3.5-1. As the table shows, the North Route crosses 6.6 fewer miles of moderate and high permitting difficulty and about 15 fewer miles of moderate and high construction difficulty than the South Route.

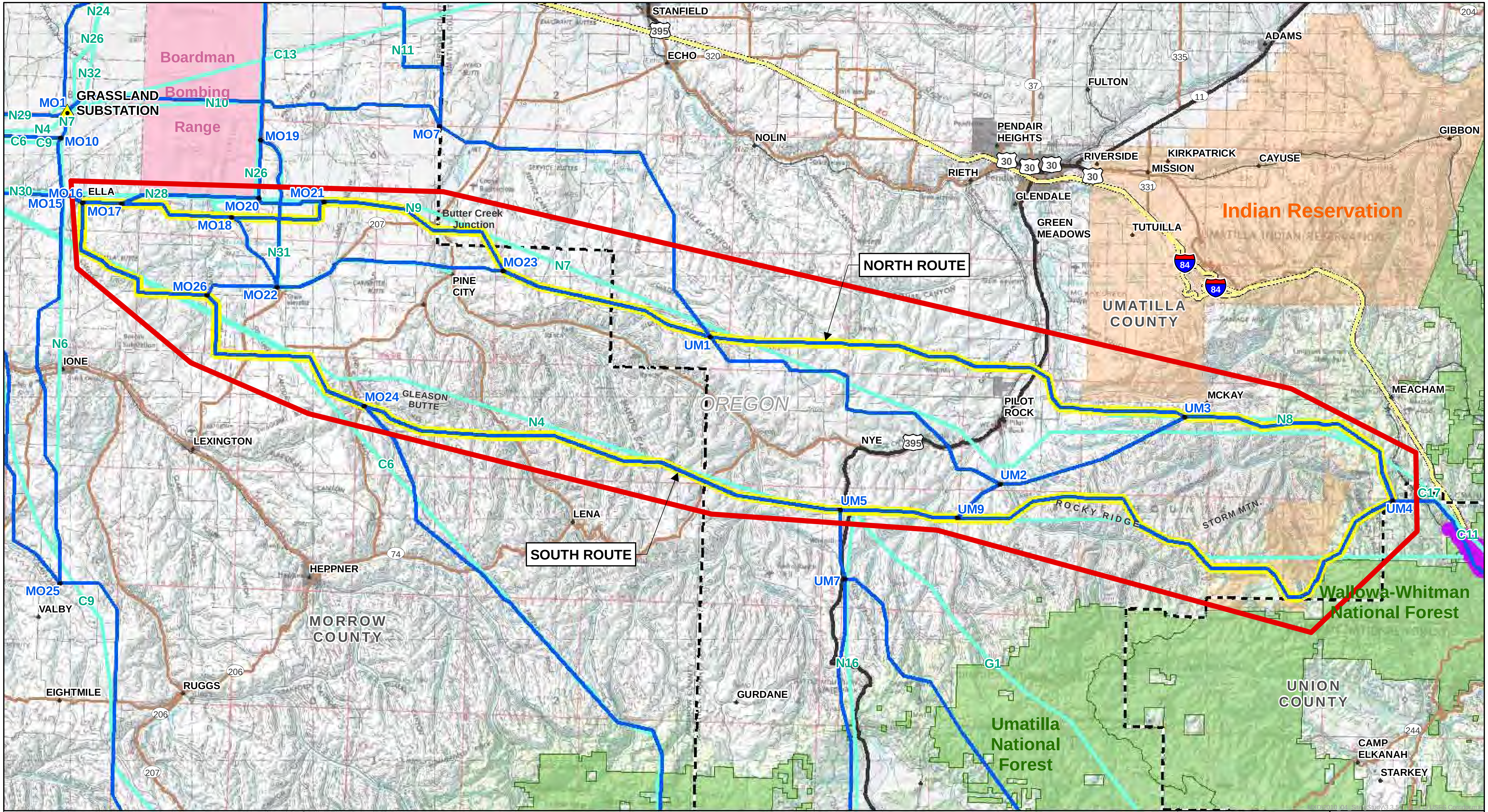


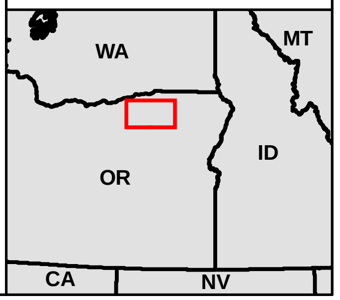
FIGURE 3.3.5-1
WEST OF NATIONAL FOREST UTILITY CORRIDOR REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

Substation
Analysis Region
Revised CAP Route
Initial CAP Route
National Forest Utility Corridor
Urban Area
Indian Reservation
National Forest
Military Land
County Boundary

0 2 4 6
Miles

LOCATION MAP



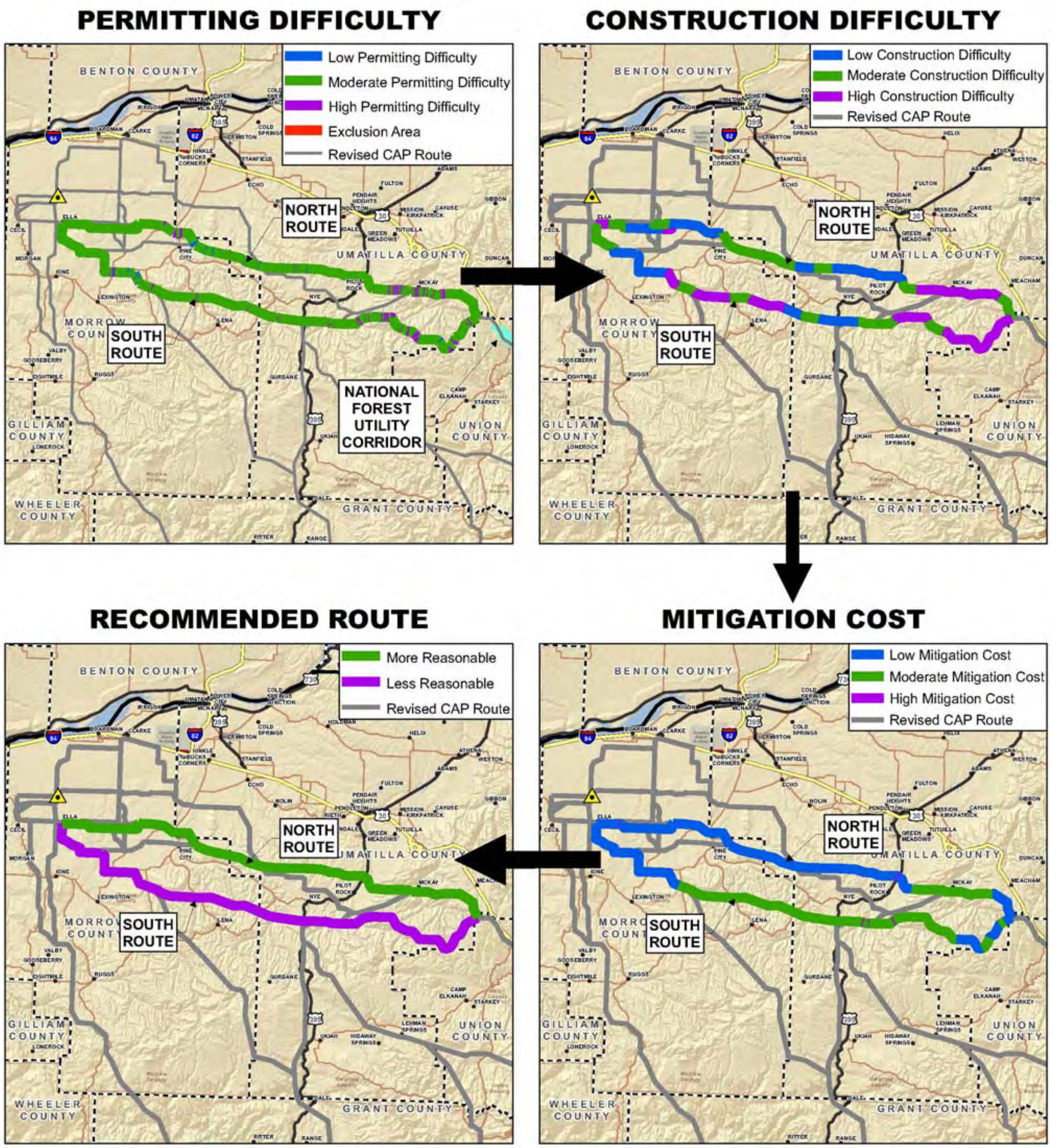


FIGURE 3.3.5-2
WEST OF NATIONAL FOREST UTILITY CORRIDOR REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

Table 3.3.5-1. West of National Forest Utility Corridor Summary of Permitting and Construction Difficulty and Mitigation Cost

	North Route (MO16-MO17-MO18-MO21-MO23-UM1-UM3-UM4)	**South Route** (MO16-MO26-MO24-UM5-UM9-UM4)
	Length in Miles	
Permitting Difficulty		
Low	2.3	2.3
Moderate	65.7	69.3
High	6.3	9.3
Exclusion	0.0	0.0
Construction Difficulty		
Low	29.9	21.4
Moderate	26.2	23.5
High	18.2	36.0
Mitigation Cost		
Low	61.0	30.2
Moderate	13.2	50.4
High	0.1	0.3

Table D-5 in Appendix D lists the constraints crossed by each route. This table shows that the North Route is 6.7 miles shorter than the South Route, crossing 39.9 fewer miles of deer winter range, 6.5 fewer miles of private land, and 1.8 fewer miles of slopes greater than 35 percent. Additionally, the North Route has approximately 33 miles of potential landowner support. For the reasons detailed above, the North Route was determined to be more reasonable than the South Route.

3.3.6 Blue Mountain Region

The Blue Mountain Region is located in the central part of the study area on the western edge of Baker County and northeastern Grant County, spanning across the Blue Mountains to Sharp Ridge as shown on Figure 3.3.6-1. Situated at the convergence of the Malheur, Umatilla, and Wallowa-Whitman National Forests, just north of the Middle Fork of the John Day River, the region covers severe terrain and pristine forests, with numerous special status fish streams and habitat restoration areas. State Highway 7, the Journey Through Time Scenic Byway, is located at the southeastern end of the region, while U.S. Highway 395 runs north-south approximately 7 miles west of the northwestern end of the region. The sparsely populated towns of Galena and Susanville lie in the southwestern part of the region, while the communities of Greenhorn and Robinsonville are located in the southeastern part of this region.

The Central PAT routing session resulted in CAP route C6 passing through the Blue Mountains and south of Sharp Ridge in this region. CAP route C6 was slightly revised and designated GR1-BA1, the South Route in the Blue Mountain Region. The North Route, GR1-GR2-BA1, which attempted to minimize crossings of special status streams and fish restoration areas, is located through the Blue Mountains and north of Sharp Ridge, and can be seen as another revision of CAP route C6.

These routes were analyzed for permitting difficulty, construction difficulty and potential mitigation costs. Figure 3.3.6-2 graphically displays the results of these analyses. The permitting difficulty and mitigation cost analyses show the routes to be similar; however, the North Route crosses about 2 more miles of high permitting difficulty than the South Route. The construction difficulty analysis was more informative, indicating that although these two routes are similar in total miles of moderate and high permitting difficulty there are an additional 11.9 miles of high construction difficulty along the North Route. See Table 3.3.6-1 for mileage summaries of the analyses. Table D-6 in Appendix D details the constraints crossed along each route. Of note is the fact that the South Route completely avoids USFS Partial Retention lands as well as the USFS Special Interest Area for Fish Management, while the North Route crosses 3.5 and 17.0 miles respectively of each area. For the reasons explained above, the South Route (CAP route C6) was recommended as more reasonable than the North Route (CAP route C6) in the Blue Mountain Region.

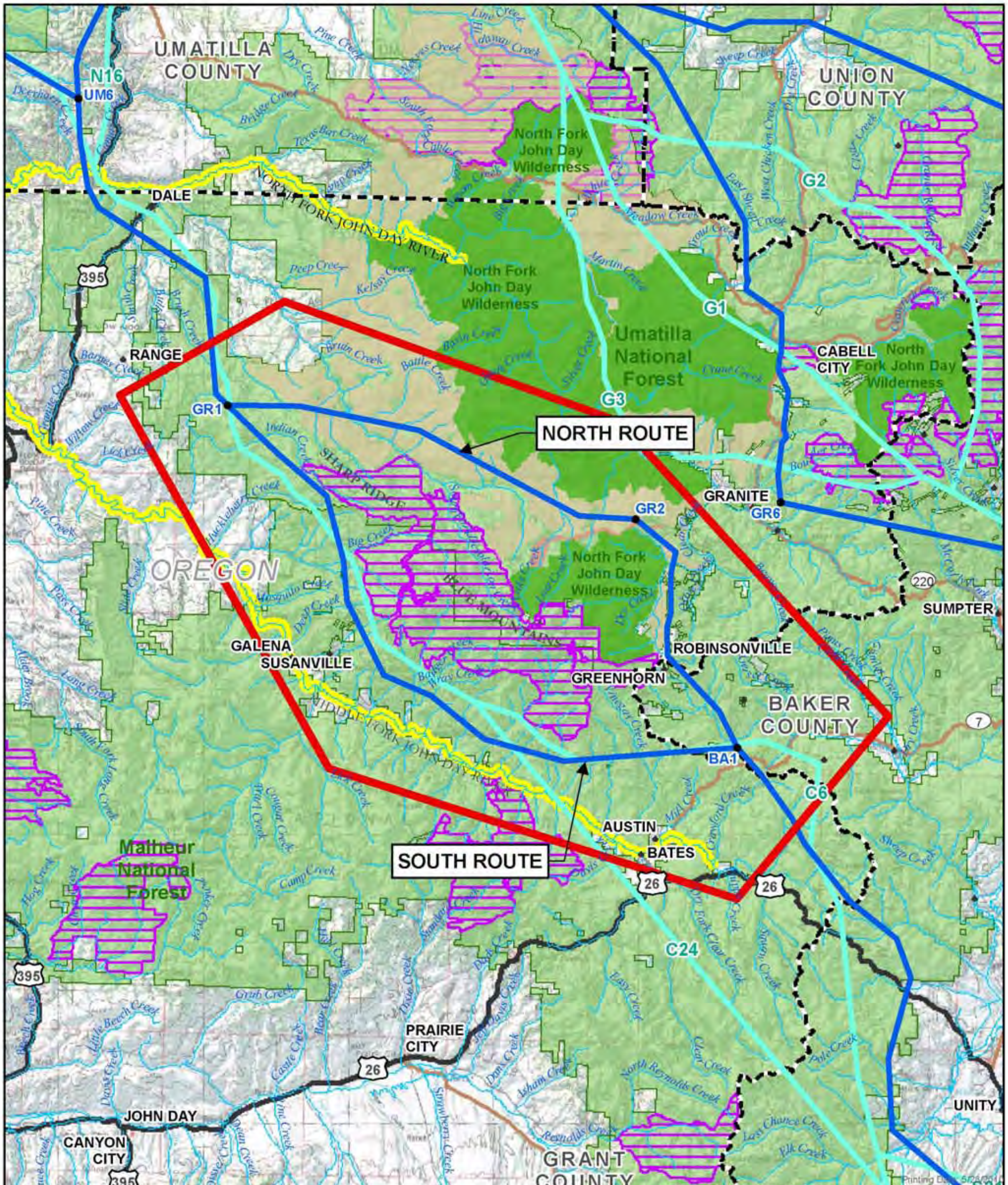


FIGURE 3.3.6-1
BLUE MOUNTAIN REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

Analysis Region
Revised CAP Route
Initial CAP Route
County Boundary
State Scenic Waterway
National Forest
US Forest Service Roadless Area
US Forest Service Wilderness Area
USFS Special Interest Area
Olive Lake - Fremont Powerhouse
Special Fish Management Area

0 1 2 3
Miles

LOCATION MAP
WA MT OR ID CA NV UT

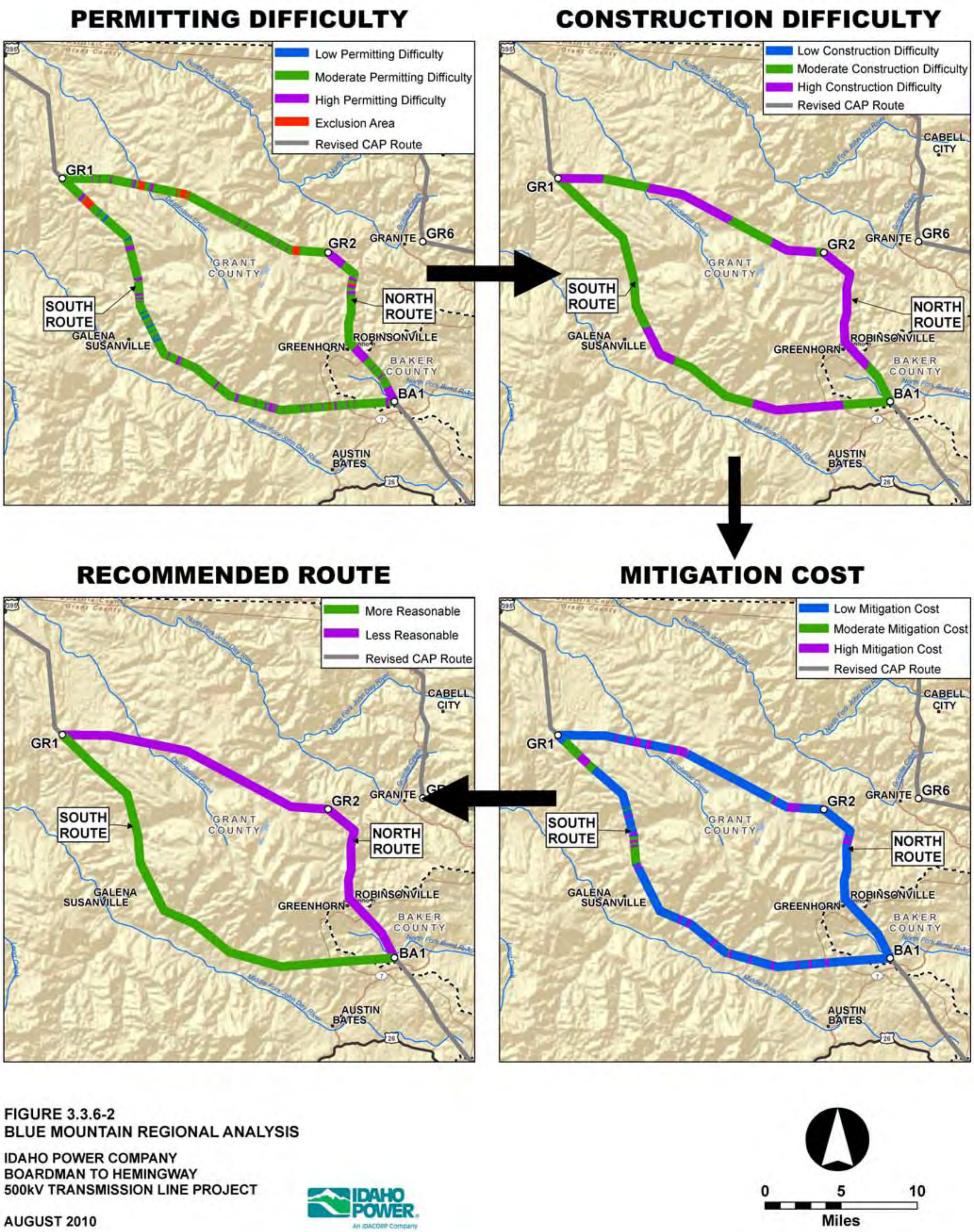


FIGURE 3.3.6-2
BLUE MOUNTAIN REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

Table 3.3.6-1. Blue Mountain Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	North Route (GR1-GR2-BA1)	South Route (GR1-BA1)
	Length in Miles	
Permitting Difficulty		
Low	0.1	1.2
Moderate	23.0	24.6
High	5.4	3.5
Exclusion	1.8[1/]	0.8[1/]
Construction Difficulty		
Low	0.0	0.0
Moderate	9.2	21.0
High	21.0	9.1
Mitigation Cost		
Low	26.8	23.7
Moderate	0.1	3.7
High	3.3	2.7

Note:
1/ Old Growth Forest Areas will be avoided during micro-siting.

3.3.7 Onion Creek Region

The Onion Creek Region shown on Figure 3.3.7-1, extending nearly 60 miles, begins in the north in Umatilla County approximately 2.5 miles east of the community of Lehman Springs and spans east and south through portions of Umatilla, Union, Grant, and Baker Counties to approximately 3 miles north of Bridgeport, Oregon. This region, heavily forested with significant topography and steep slopes, is mostly located within the Wallowa-Whitman National Forest, west of Baker Valley.

Within the Onion Creek region three CAP routes G1, G2, and G3 were identified. These routes were reviewed and revised, forming a west and an east route through the region. The West Route, designated UM8-GR6-BA19, was a revision of CAP routes G1 and G3, while the East Route, designated UM8-BA21-BA19, was a revision of CAP routes G1 and G2.

The East Route, beginning at UM8 in Umatilla County, heads east into Union County, passing south of Fly Valley before crossing an area of severe terrain, the Grande Ronde River Road and the Grande Ronde River. At the eastern boundary of the Wallowa-Whitman National Forest, the route turns south, heads into Baker County passing west of the Elkhorn State Wildlife Management Area. Continuing south, the route crosses the Elkhorn Scenic Byway, enters the foothills of Twin Mountain, and angles southeast traversing the east side of Hunt Mountain and Elkhorn Ridge, as it travels along the west side of Baker Valley. South of Bowen Valley, the East Route crosses State Highway 7, a scenic byway, angles south toward Dooley Mountain and then east, passing north of Beaver Mountain proceeding to BA19 at the southern end of the region.

The West Route heads southeast from UM8, passing into Union County, and turns south across steep terrain before entering Grant County. The route then enters into a highly constrained area (see Figure 3.3.7-2), passing through USFS Retention Lands while paralleling and crossing the Blue Mountain Scenic Byway two times and the Elkhorn Scenic Byway three times. Due to the USFS North Fork John Day Wilderness Area located along the western side of the highway and the USFS Twin Mountain Inventoried Roadless Area located long the eastern side, the route is confined to a narrow corridor in close proximity to the Scenic Byway. Continuing south, offset to the east of the Blue Mountain Scenic Byway, the route proceeds across special status fish streams, fish restoration habitat, and severe terrain before turning east approximately 1 mile east of the community of Granite and north of the community of Porterville. The route then crosses into Baker County and continues east, passing south of Pole Creek Ridge angling to the southeast while staying to the north of Sumpter Valley. The route angles around the north and eastern sides of Phillips Lake and passes north of Bald Mountain and across the Snake River-Mormon Basin Back County Byway to BA19 where it joins with the East Route at the southern end of the region.

With the revision of the West Route unable to avoid the USFS Retention Lands, a permitting exclusion area, and the route's close proximity to the Blue Mountain and Elkhorn Scenic Byways for about 5 miles, the East Route was determined to be more reasonable than the West Route. While the permitting difficulty analysis confirmed this, the construction difficulty analysis indicated that both routes cross similar distances of moderate and high construction difficulty. Figure 3.3.7-3 displays the results of the three analyses and Table 3.3.7-1 summarizes the miles crossed of each difficulty level within each analysis.

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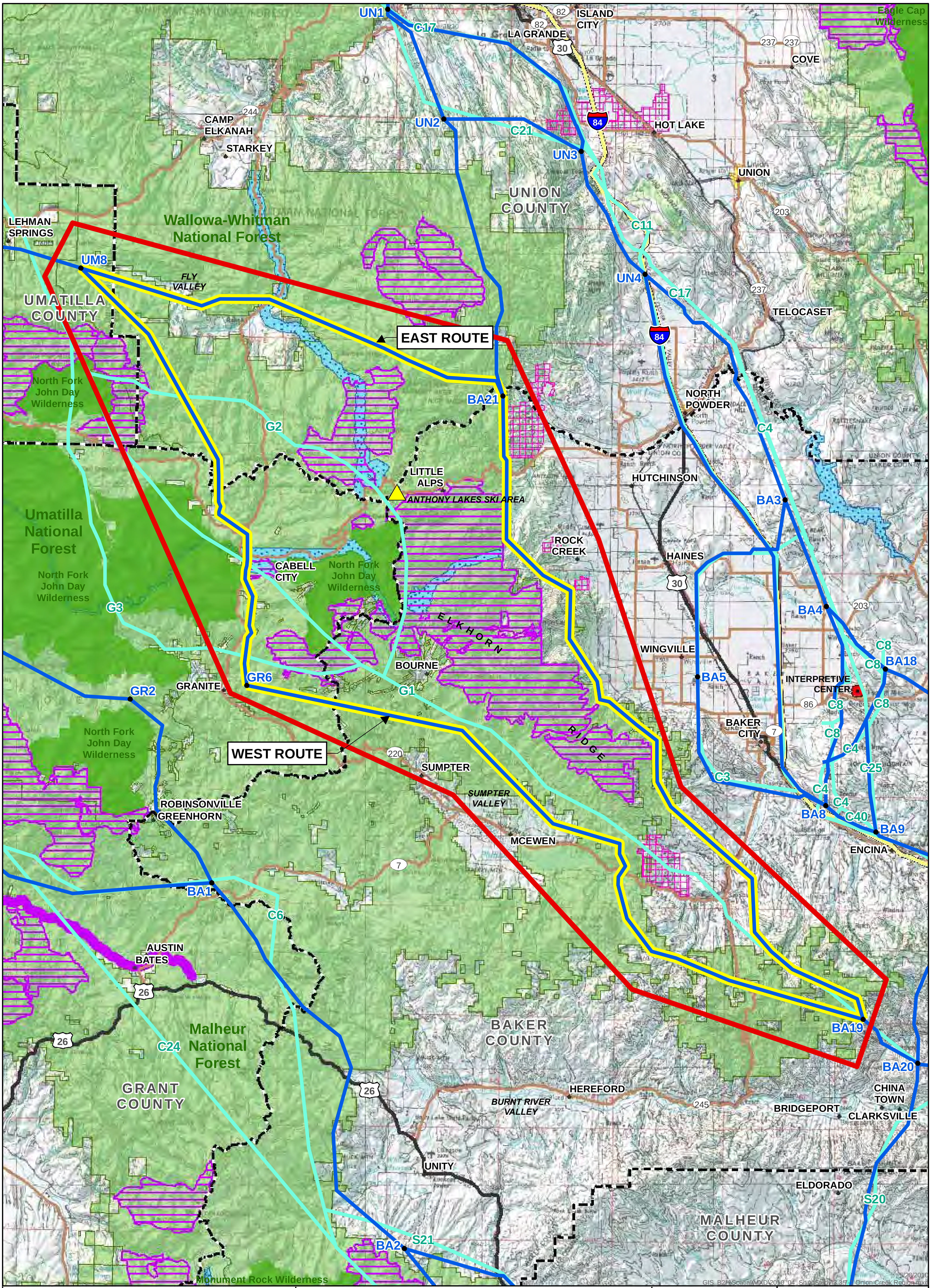

FIGURE 3.3.7-1
ONION CREEK REGION

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

- Analysis Region
- Revised CAP Route
- Initial CAP Route
- County Boundary
- Wildlife Management Area
- State Scenic Waterway
- US Forest Service Roadless Area
- US Forest Service Wilderness Area
- National Forest
- Wild/Scenic River

0 5
Miles

LOCATION MAP
WA MT OR ID CA NV

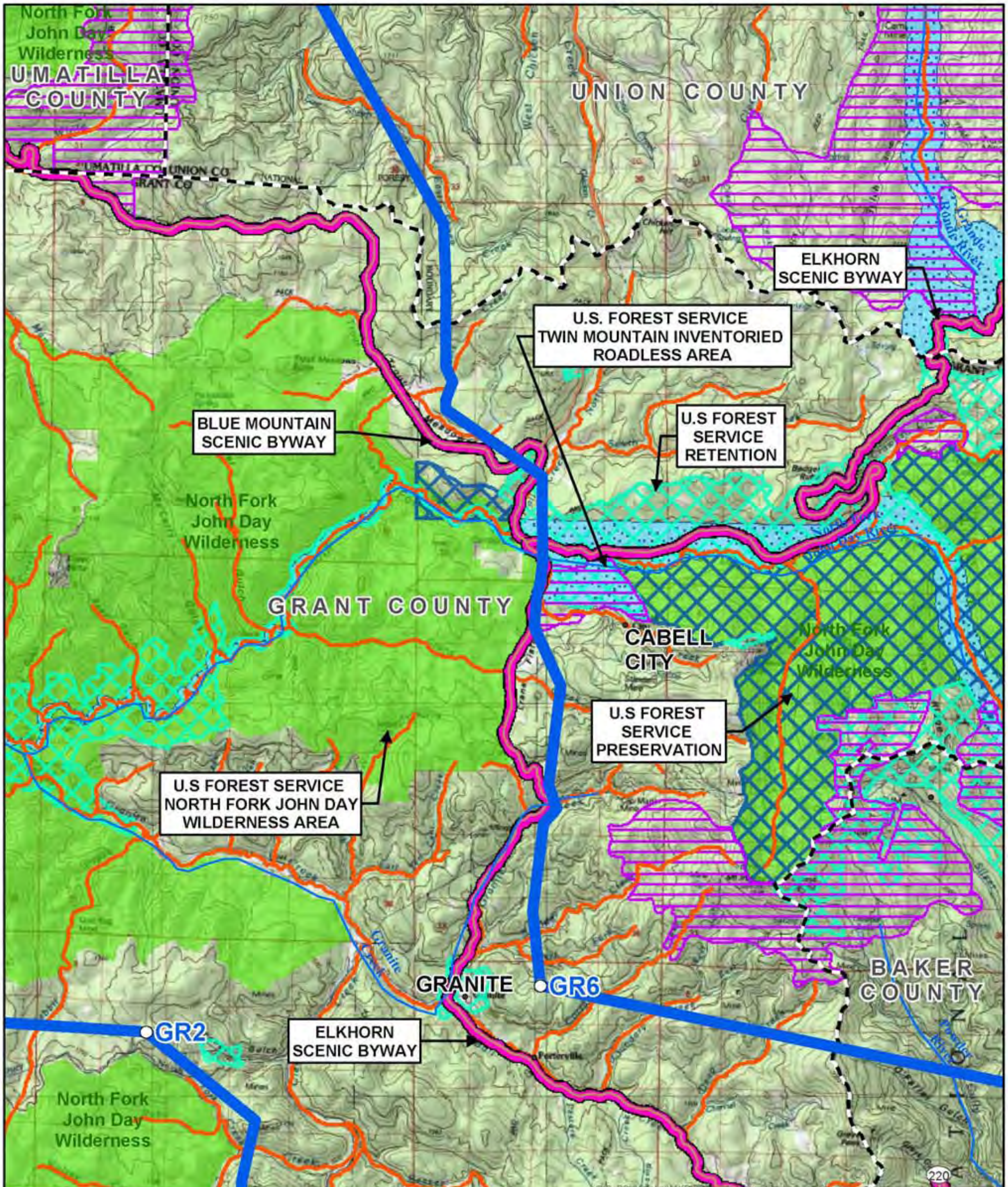

FIGURE 3.3.7-2
WEST ROUTE CONSTRAINTS
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

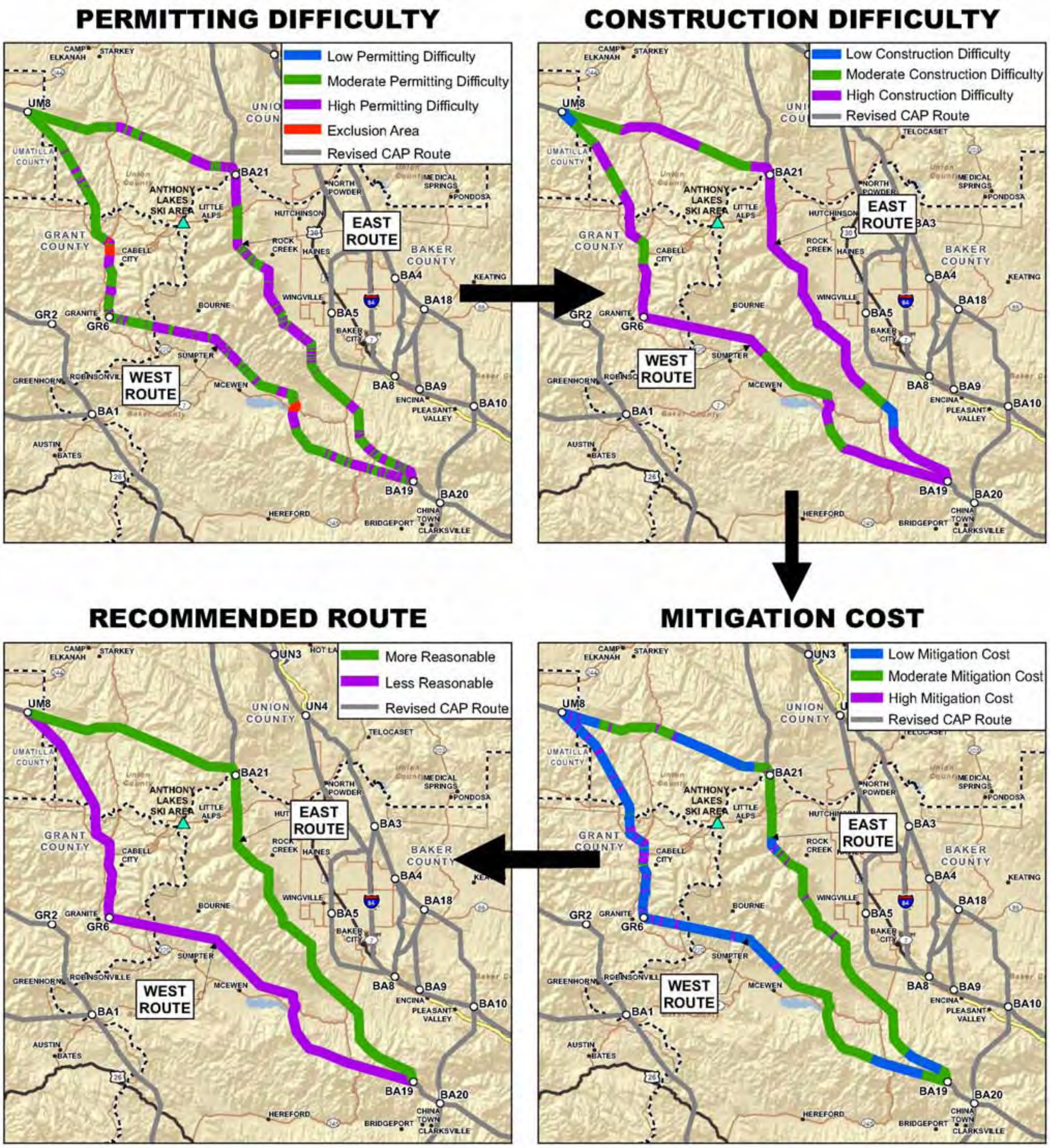

FIGURE 3.3.7-3
ONION CREEK REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 5 10 15
Miles

Table 3.3.7-1. Onion Creek Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	East Route (UM8-BA21-BA19)	**West Route** (UM8-GR6-BA19)
	Length in Miles	
Permitting Difficulty		
Low	0.1	0.0
Moderate	36.3	38.1
High	30.2	25.9
Exclusion	0.0	2.6
Construction Difficulty		
Low	3.6	1.8
Moderate	15.0	21.0
High	48.0	43.7
Mitigation Cost		
Low	19.3	44.0
Moderate	45.7	18.7
High	1.6	3.9

Table D-7 in Appendix D shows the more reasonable East Route crossing 1.2 miles of a BLM-designated Wild and Scenic River, the Grande Ronde River. While not a permitting exclusion area due to its designation for recreation, it is highly preferable to avoid crossing this river along the East Route. This river crossing combined with a strong preference to use the designated utility corridor resulted in a new route extending due north from BA21 to meet with another revised CAP route at UN2 (see Figure 3.3.7-4). This new segment, UN2-BA21, makes it possible to avoid crossing the Grande Ronde River and use the Wallowa-Whitman designated utility corridor. This modified East Route was recommended as the most reasonable route in the Onion Creek Region.

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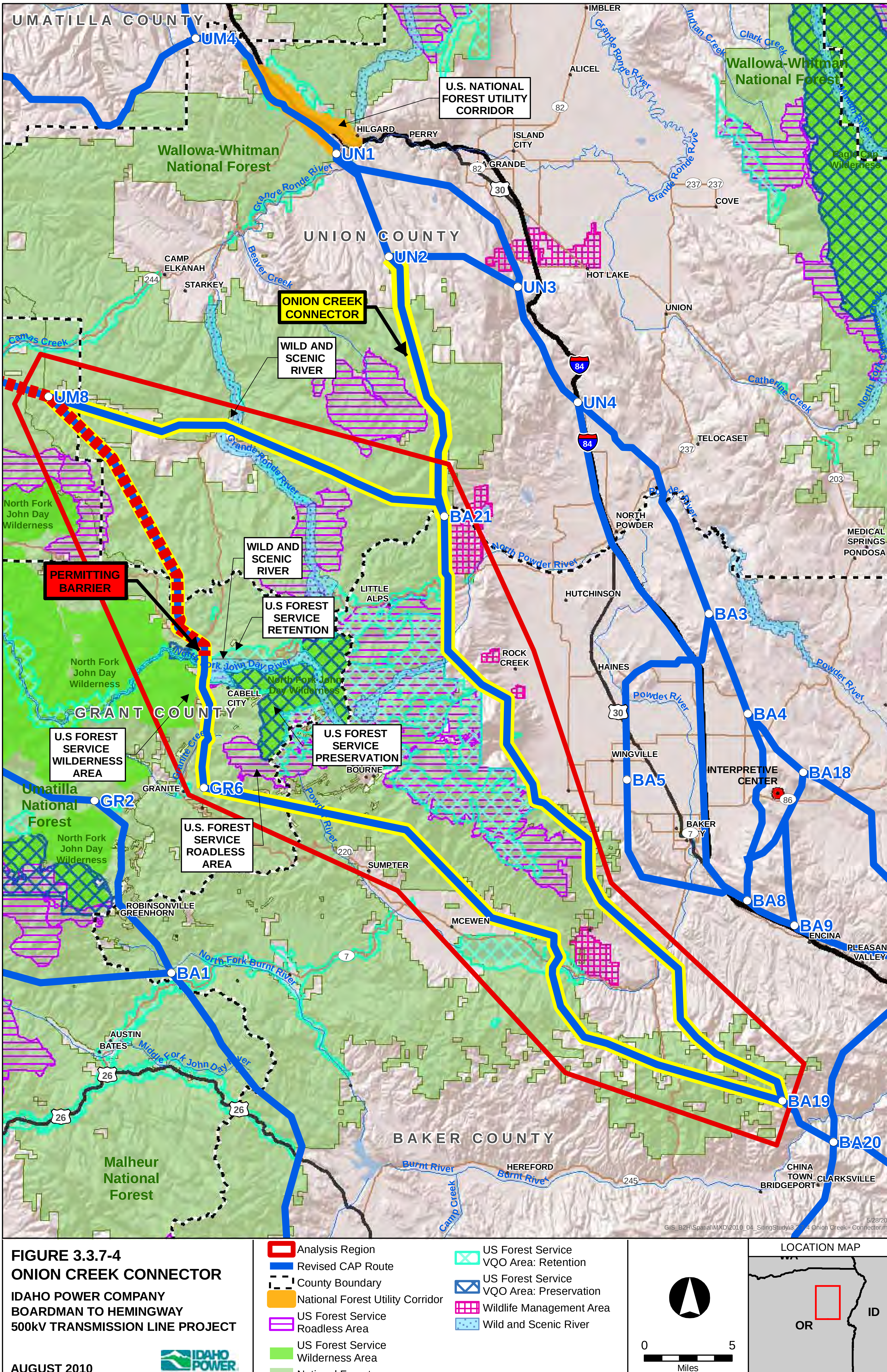


FIGURE 3.3.7-4
ONION CREEK CONNECTOR

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

3.3.8 Interpretive Center Region

As shown on Figure 3.3.8-1 the Interpretive Center Region is generally bounded on the west and south by I-84. It extends from State Route 203 in the north to the vicinity of Pleasant Valley in the south and from Baker City in the west to Virtue Flat in the east. In this region, two routes—the West Route and the Central Route—were identified at the PAT meetings in Baker County. The West Route was developed from CAP routes C4, C8, and C40 and the Central Route evolved from CAP routes C4, C8, and C25.

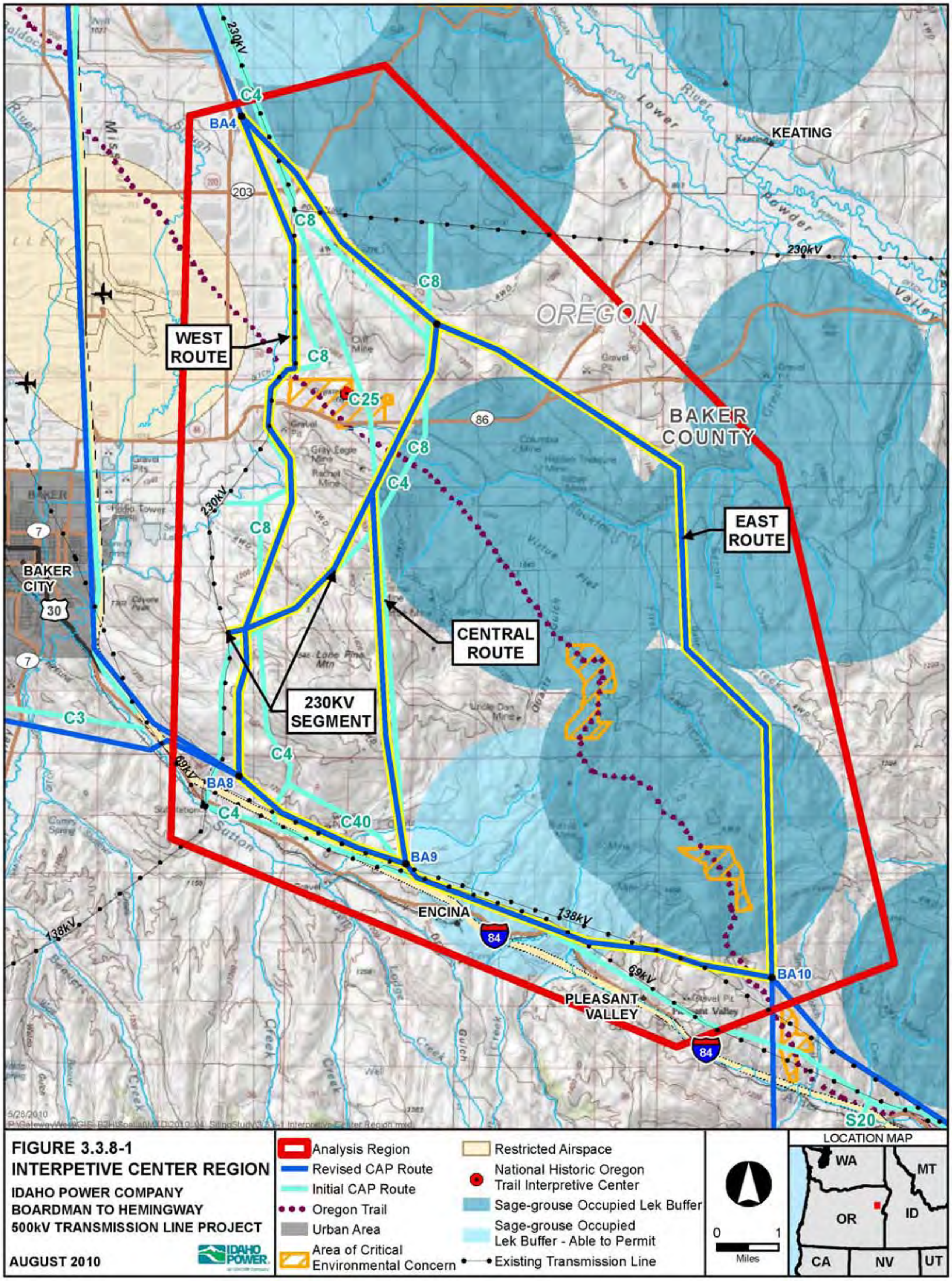
The East Route (BA4-BA18-BA10) was identified in December 2009 using sage-grouse lek buffer data that showed an open path between the occupied sage-grouse lek buffers in the Virtue Flat area. Because the route was now located several miles east of the National Historic Oregon Trail Interpretive Center, the visual impact concerns for the Oregon National Historic Trail seemed to be resolved. However, in early 2010 the sage-grouse lek buffer data were updated and showed the East Route crossing an occupied sage-grouse lek 2-mile buffer and now impacting ODFW Category 1 habitat. This route cannot be considered preferred, but was kept should the sage-grouse lek buffer data subsequently change again.

The West Route (BA4-BA8-BA9-BA10, + 230-kV reroute), which places the proposed 500-kV line within the ROW for the existing 230-kV line and relocates the existing 230-kV line to the east side of the National Historic Oregon Trail Interpretive Center, was suggested as a means of minimizing visual impact to the National Historic Oregon Trail Interpretive Center. The West Route leaves point BA4 and proceeds southeast for about 2.2 miles before following the path of the existing 230-kV (which would be relocated). The route continues south following the 230-kV path for the next approximately 3.0 miles, turning southwest across State Route 86. Approximately 3.6 miles south of this highway, the West Route crosses the proposed location for the 230-kV line reroute and then parallels the existing 230-kV line south to the vicinity of I-84 offset 1,500 feet to the east. The West Route then turns eastward while remaining on the north side of I-84 for about 9.3 miles generally in corridor with the existing 69-kV and 138-kV lines to point BA10, northeast of Pleasant Valley.

The West Route would require approximately 9.0 miles of the existing 230-kV line to be relocated to allow for the 500-kV line placement west of the National Historic Oregon Trail Interpretive Center. The proposed 230-kV line reroute begins southeast of BA4 and proceeds southeasterly toward BA18 where it angles south and west, east of the National Historic Oregon Trail Interpretive Center. The 230-kV line reroute crosses State Route 86 and continues southwesterly for the next 4.7 miles, passing north of Lone Pine Mountain and meeting with the existing 230-kV line approximately 1.0 mile northwest of the Lone Pine Waterhole.

The Central Route (BA4-BA18-BA9-BA10) follows the same path as the 230-kV reroute (West Route) from point BA4 to BA18, to a location approximately 1.3 miles south of State Route 86 where instead of heading west the Central Route proceeds nearly due south passing east of Lone Pine Mountain. This route joins the north side of I-84 and the existing 69-kV and 138-kV transmission corridor, and follows the same path as the West Route to point BA10.

Figure 3.3.8-2 graphically details the results of the permitting difficulty, construction difficulty, and mitigation cost analyses performed on the routes in this region. As shown in Table 3.3.8-1 and in Appendix D Table D-8, compared to the West Route the Central Route would result in 11.0 fewer miles of construction, cross 5.9 miles less sage-grouse Core Area 1 Habitat, cross 11 fewer miles of EFU, cross 7.5 fewer miles of prime farmland soils, and cross 3.5 fewer miles of deer winter range. Overall, the Central Route appears less difficult to permit and less difficult to construct than the West Route. For the reasons stated above, the Central Route was recommended as the most reasonable alternative route in this region.



230kV
C4
BA4
203
C8
230kV
KEATING
OREGON
WEST ROUTE
C25
86
BAKER COUNTY
C4
EAST ROUTE
BAKER CITY
30
7
CENTRAL ROUTE
230KV SEGMENT
C3
BA8
C40
BA9
ENCINA
84
138kV
69kV
BA10
PLEASANT VALLEY
S20
FIGURE 3.3.8-1
INTERPETIVE CENTER REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010
Analysis Region
Revised CAP Route
Initial CAP Route
Oregon Trail
Urban Area
Area of Critical Environmental Concern
Restricted Airspace
National Historic Oregon Trail Interpretive Center
Sage-grouse Occupied Lek Buffer
Sage-grouse Occupied Lek Buffer - Able to Permit
Existing Transmission Line
0 1
Miles
LOCATION MAP
WA
MT
OR
ID
CA
NV
UT

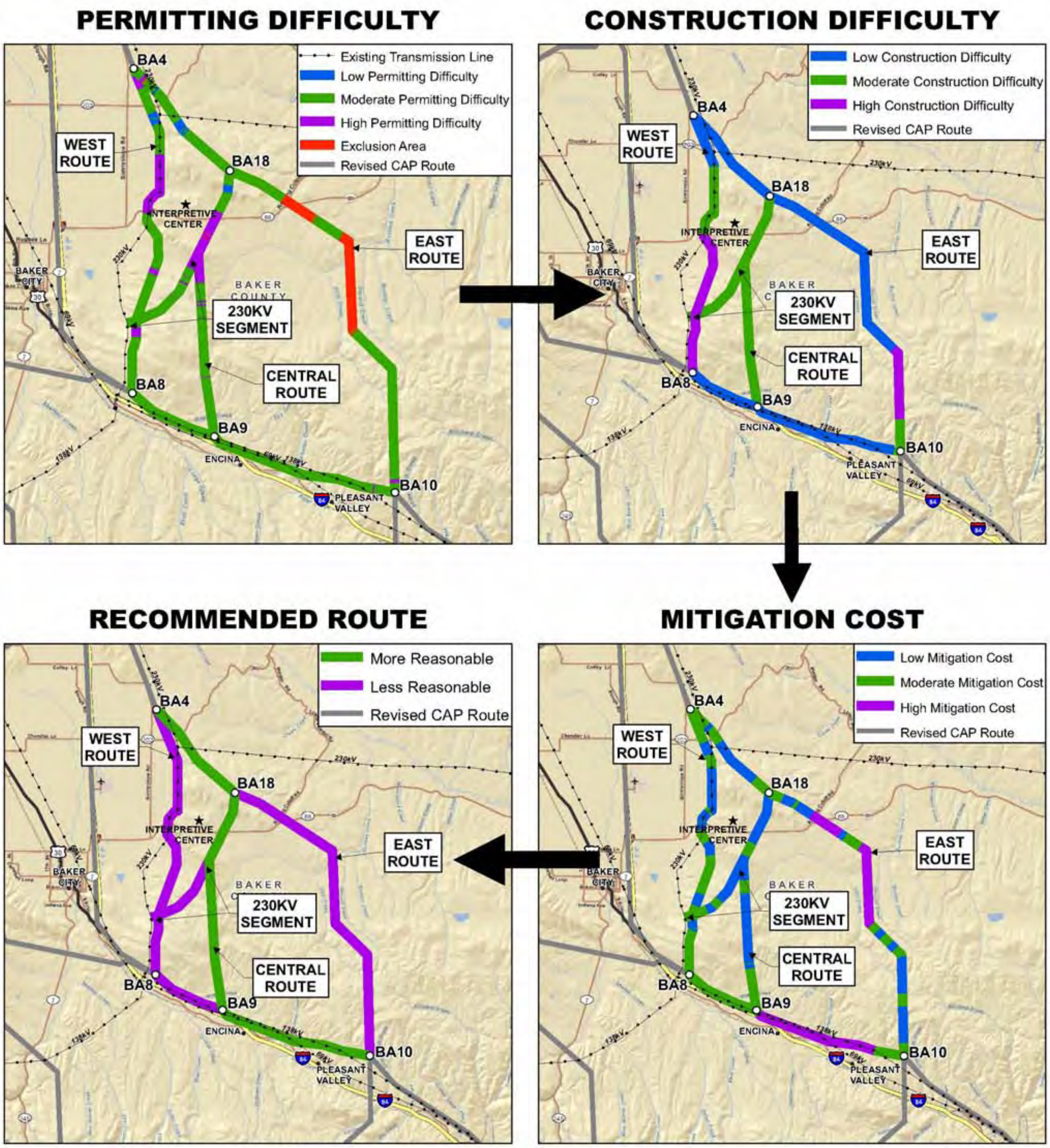


FIGURE 3.3.8-2
INTERPRETIVE CENTER REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

Table 3.3.8-1. Interpretive Center Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	West Route (BA4-BA8-BA9-BA10 + 230 kV ReRoute)	**Central Route** (BA4-BA18-BA9-BA10)	**East Route** (BA4-BA18-BA10)
	Length in Miles		
Permitting Difficulty			
Low	1.2	0.8	0.6
Moderate	24.2	16.1	12.5
High	5.4	2.9	0.2
Exclusion	0.0	0.0	4.6
Construction Difficulty			
Low	17.4	10.6	13.6
Moderate	7.4	9.2	1.3
High	6.0	0.0	3.0
Mitigation Cost			
Low	11.6	8.4	7.4
Moderate	14.3	6.5	5.9
High	4.9	4.9	4.6

3.3.9 Southwest Region

The Southwest Region includes portions of northwest Malheur County, northern Harney County, and southern Grant County as shown on Figure 3.3.9-1. In the western half of this region, the Malheur and Ochoco National Forests cover much of the higher elevations and the eastern half is mostly sage brush and high desert. U.S. Route 26 (Journey Through Time Scenic Byway) is the major east-west highway in the northern part of the region, passing through communities such as John Day and Mount Vernon. To the south, U.S. Route 20 extends across the southern part of this region and passes through communities like Burns and Hines. Outside these major transportation corridors there is sparse and scattered development.

Within the region, four routes evolved from the CAP as shown on Figure 3.3.9-1 including Route A (GR3-GR4-HA1-HA2-MA6), Route B (GR3-GR4-GR5-HA1-HA2-MA6), Route C (GR3-GR4-GR5-HA2-MA6), and Route D (GR3-MA4-MA5-MA6). The initial routes from which these refined routes were developed were identified at the Central and South routing sessions.

Route A, developed from CAP route C9, proceeds from common point GR3 southwest for 6.2 miles before crossing U.S. Route 26 about 7 miles east of Dayville. It then turns southeast and then generally south across the Aldrich Mountains, the Malheur National Forest, and the South Fork of the John Day River. It then angles to the southwest and continues to the southwest corner of Grant County where it turns southeast through the common points HA1 and HA2 where it generally parallels U.S. Route 20. About 3.5 miles northwest of Buchanan, it turns south and crosses this highway. Route A turns and continues easterly passing south of Lawton Point, crossing Stinkingwater Mountains, south of Warm Springs Reservoir and Riverside, and then angling northeast along the Summer Lake-Midpoint 500-kV line to common point MA6.

Route B, developed from CAP routes C9 and S96, is similar to Route A except where it crosses the Aldrich Mountains. From common point GR4 this route angles southeast. At common point GR 5, Route B turns southwest and then due south to rejoin Route A at common point HA1. This route follows the western side of Bear Valley and is largely located in the Malheur National Forest and crosses the Grant/Harvey County line on the west side of Cougar Mountain. From common point HA1 this alternative shares the same alignment as Route A.

Route C, developed from CAP routes C9 and S23, is similar to Route B except for a 47-mile segment where it leaves common point GR5 and proceeds southeast to point HA2. This route also passes to the west of Bear Valley and is located mostly in the Malheur National Forest. This alternative follows the alignment for Route A from common point HA2 to the end at point MA6.

Route D, developed from CAP routes C6 and C18, proceeds from point GR3 in a southeasterly direction and crosses U.S. Route 26 just west of Moores Crossing. This route then follows the north side of the Aldrich Mountains for about 14 miles before turning south to cross these mountains. On the south side of these mountains, the route angles generally southeast, continues through Harney County and into Malheur County, joining Routes A, B, and C at common point MA6 just west of the Owyhee Reservoir.

As shown on Table D-9 in Appendix D, Route A is the longest alternative in this region at 186.6 miles, requiring about 360 to 1,630 additional acres of new ROW. It crosses more miles of deer and elk winter range, more EFU, more private land, and more land slide area than Routes B, C, and D. It also crosses the South Fork of the John Day River, a designated Wild and Scenic River, and crosses a BLM recreation area for 2.9 miles.

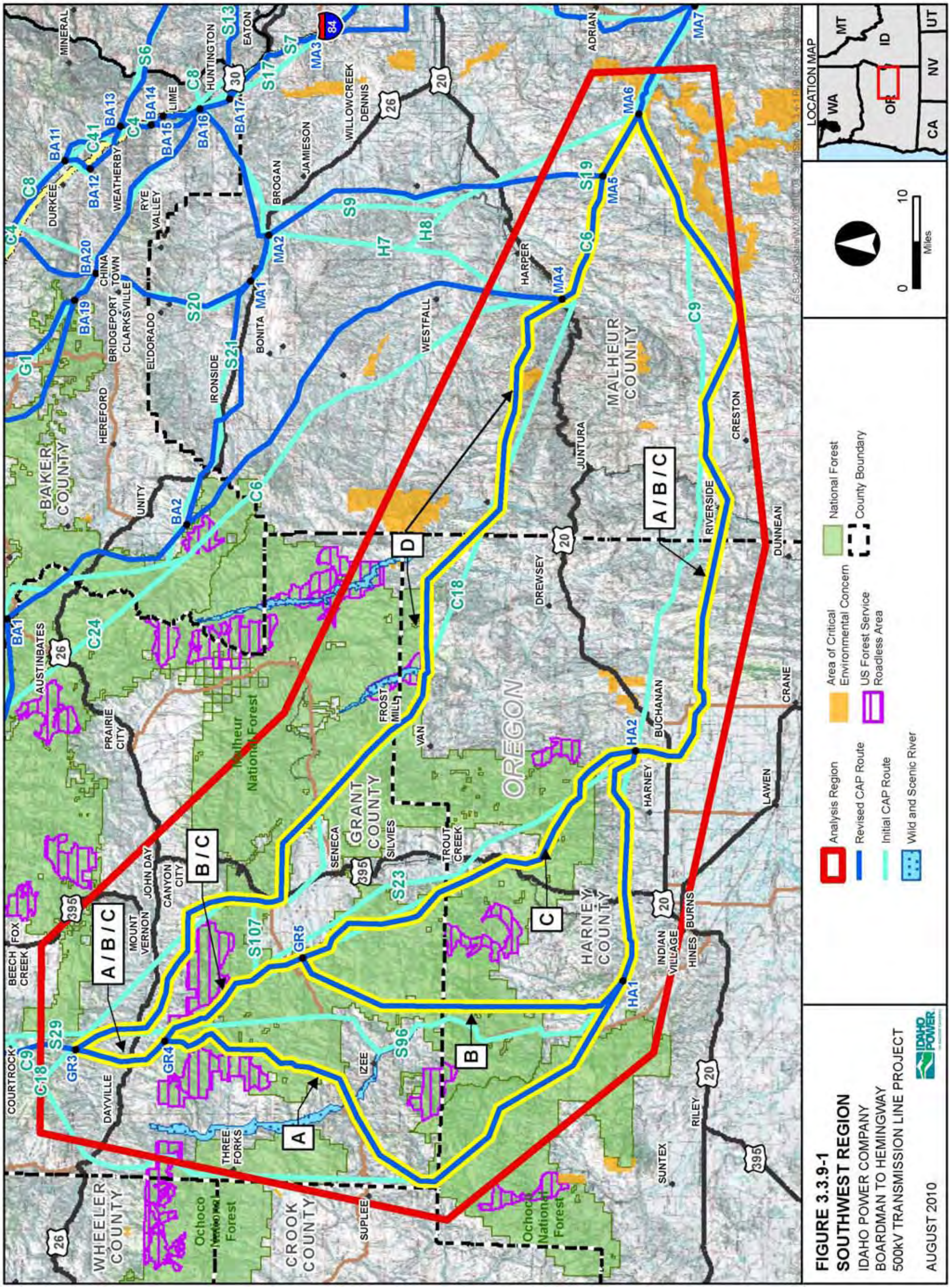


FIGURE 3.3.9-1
SOUTHWEST REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

Figure 3.3.9-2 and Table 3.3.9-1 detail the results of the permitting difficulty, construction difficulty, and mitigation cost analyses performed on the routes in this region. In total, this route has the highest permitting difficulty and is one of the two most difficult to construct. As a result of the factors described above, Route A was not recommended for further consideration.

Table 3.3.9-1. Southwest Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	A (GR3-GR4-HA1-HA2-MA6)	**B** (GR3-GR4-GR5-HA1-HA2-MA6)	**C** (GR3-GR4-GR5-HA2-MA6)	**D** (GR3-MA4-MA5-MA6)
	Length in Miles			
Permitting Difficulty				
Low	5.6	6.1	4.8	3.3
Moderate	151.9	137.9	119.9	104.3
High	28.0	26.9	27.9	22.2
Exclusion	1.1[1/]	3.8[1/]	3.6[1/]	3.0[1/]
Construction Difficulty				
Low	27.0	21.0	21.0	15.0
Moderate	71.4	62.4	56.4	48.4
High	88.2	91.3	78.8	69.4
Mitigation Cost				
Low	48.0	53.4	63.8	25.0
Moderate	123.5	103.3	78.4	103.7
High	15.1	18.0	14.0	4.1

Note:
1/ Old Growth Forest Areas will be avoided during micro-siting.

Of the three remaining routes, Route B is longer than Routes C and D by 18.4 to 41.7 miles, respectively, and would require about 560 to about 1,260 additional acres of ROW. This route crosses a BLM recreation area for 3.1 miles as compared to 0.0 mile for Routes C and D. Route B also crosses significantly more deer wintering area, sage-grouse Core Area 1, prime farmland soils, and slopes over 25 percent (see Table D-9 in Appendix D). On the positive side, this alternative parallels significantly more existing ROW, but requires about 8.0 to 12.5 miles more of new ROW. In terms of permitting difficulty, it appears that Route B is very similar to Route C but greater than Route D; Route B also appears significantly more difficult to construct. Based on these factors, Route B was not recommended for further consideration.

As shown in Appendix D Table D-9, compared to Route D, Route C is 23.3 miles longer requiring just over 700 acres of additional ROW. Route D avoids the Divine Scenic Corridor and Area of Critical Environmental Concern, and crosses about 20.4 fewer miles of sage-grouse Core Area 1, 13.6 fewer miles (approximately 410 fewer acres) of forest land, 4.6 fewer miles of high erosion hazard areas, and 27.7 fewer miles of prime farmland soils. In comparison, Route C crosses significantly less deer and elk wintering area, avoids lands having wilderness characteristics as defined by the BLM, and parallels about 13 more miles of existing transmission line. Route C seems slightly more difficult to permit and significantly more difficult to construct. As a result of this analysis, Route C was not recommended for further study and Route D was recommended as the more reasonable route in the Southwest Region.

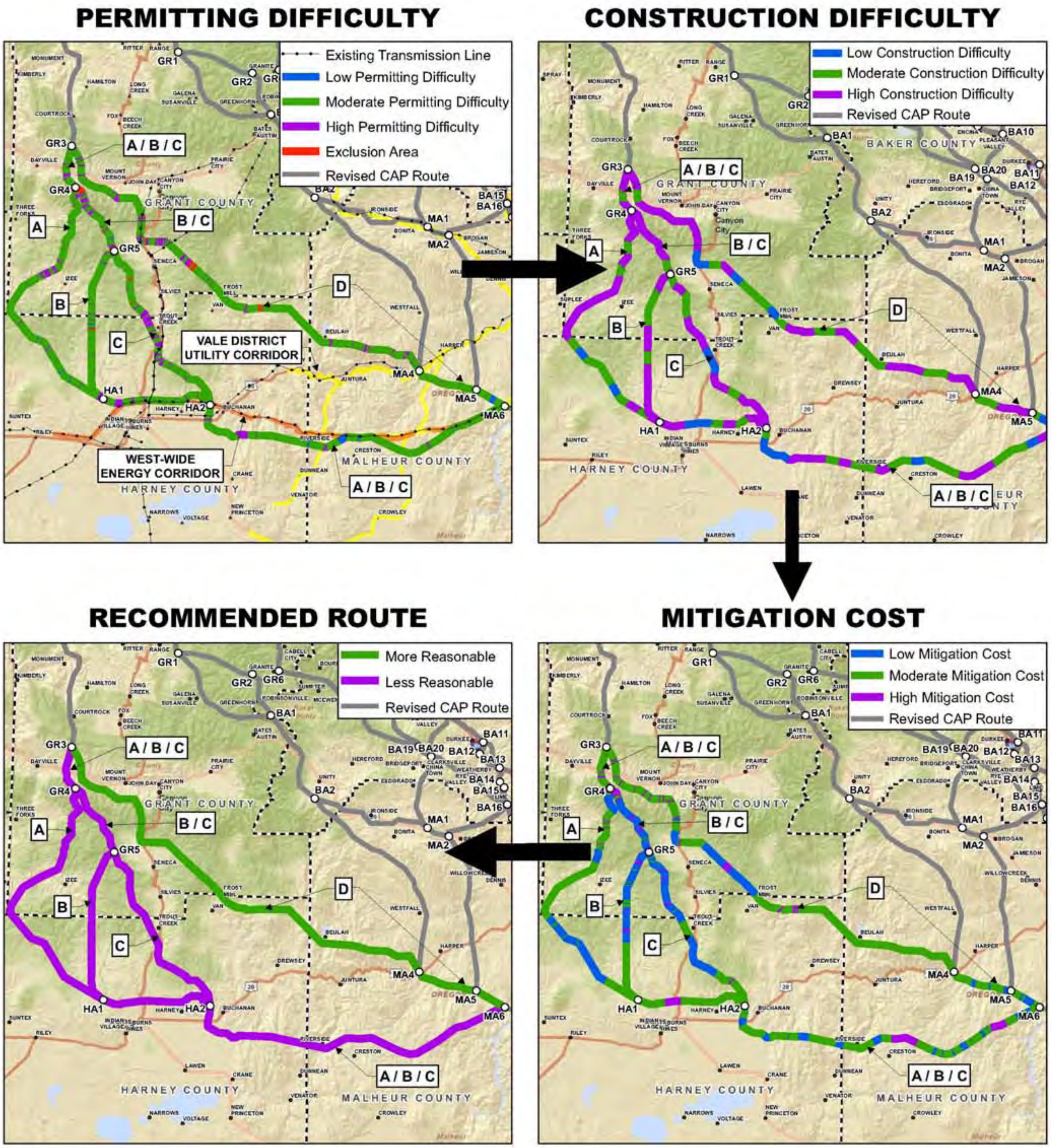


FIGURE 3.3.9-2
SOUTHWEST REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 10 20 30
Miles

3.3.10 Burnt River Region

As shown in Figure 3.3.10-1, the Burnt River Region, located just west of the Idaho/Oregon state boundary, spans south from Pleasant Valley, Oregon, across the Baker County/Malheur County line to the town of Brogan, located along U.S. Highway 26. Severe topography covers the region and includes the Burnt River Canyon, Pedro Mountain, California Mountain, and the Weatherby Mountains. Deer and elk winter range habitat is found throughout the region, while sage-grouse habitat grounds cover the southern portion. There is little agriculture and the few small towns in the area can be found along I-84 at the eastern edge of the region and along the Snake River-Mormon Basin Back Country Byway that runs east-west across the central part of the region. In this region two routes identified in the central PAT meeting have been carried forward, revised, and are described below.

The eastern route in the Burnt River Region is a revision of several CAP route segments, including C4, C8, C41, S9, and S19. Initially, revisions of these routes resulted in an East Route designated BA10-BA11-BA13-MA2. Spring 2010 field surveys identified an active sage-grouse lek site west of the I-84 corridor along the proposed route segment BA13-MA2. State regulations prohibit the siting of a transmission line within 2-miles of an active sage-grouse lek and therefore the route was shifted south to avoid the lek and buffer as shown on Figure 3.3.10-2.

The revised East Route begins at BA10 and heads south following an existing 138-kV line along the north side of I-84. North of the Durkee Valley, the route turns east away from the existing 138-kV transmission line, passes approximately 1.2 miles east of the community of Durkee, Oregon, angles south and east around Gold Hill, and heads south past the communities of Weatherby and Dixie. The route then crosses to the west side of I-84 at the southern end of the Weatherby Mountains where it again meets with and parallels the west side of the 138-kV transmission line heading south. West of I-84 and a mile north of the town of Huntington, Oregon, the route angles south and west, past Limestone Butte, avoiding the sage-grouse lek and buffer and continuing across the Baker/Malheur County line into Malheur County where it ends at MA2 approximately 2.5 miles west of the town of Brogan .

The West Route in the Burnt River Region is a revision of CAP route S20 and a small portion of CAP route S21. These routes were revised to form the West Route in the region, designated BA10-BA20-MA1-MA2.

Heading south from BA-10, the West Route crosses I-84 approximately 2 miles southeast of Pleasant Valley and heads southwest across severe slopes to the east of the Wallowa-Whitman National Forest. Continuing south, the West Route proceeds across the Burnt River Canyon, crosses the Snake River-Mormon Basin Back County Byway 4 miles east of the town of Bridgeport, Oregon, and passes to the west side of Shasta Butte and the Malheur Reservoir. After passing between Reservoir Butte and Cow Valley Butte, the West Route intersects and parallels an existing 69-kV transmission line and, after crossing U.S. Highway 26 three times, the route ends at MA2 located west of Brogan, Oregon.

The permitting difficulty, construction difficulty, and mitigation cost analyses were performed on the West Route and the original East Route (BA10-BA11-BA13-MA2), as the analyses took place prior to identification of a new sage-grouse lek site (during the spring 2010 field survey) and the development of the revised East Route. The results of these analyses, shown on Figure 3.3.10-3 and in Table 3.3.10-1, along with Table D-10, Appendix D, show the two routes to be similar in permitting difficulty and the East Route slightly more difficult to construct. However, a helicopter flyover of potentially difficult engineering/construction areas, including the Burnt River Region, was performed by Idaho Power after desktop analysis of the revised CAP routes and subsequent regional analyses. This aerial review indicated that construction and maintenance of a 500-kV line along the West Route, especially in the areas north and south of the Burnt River Canyon, would be exceptionally difficult and costly, mainly due to poor existing access and the extremely severe terrain. Based on this information, the original East Route was determined more reasonable than the West Route. Shifting the southern segment of the East Route south of the sage-grouse lek and buffer (BA13-MA2 revised to BA13-BA14-BA16-MA2) resulted in the lek being screened by existing topography but did not change the route's construction and engineering difficulty. As a result, the (revised) East Route, BA10-BA11-BA13-BA14-BA16-MA2 (comprising CAP routes C4, C8, C41, S9, and S19) was recommended as more reasonable than the West Route, BA10-BA20-MA1-MA2 (CAP routes S20 and S21).

Table 3.3.10-1. Burnt River Mileage Summary of Permitting and Construction Difficulty and Mitigation Cost

	West Route (BA10-BA20-MA1-MA2)	**East Route** (BA10-BA11-BA13-MA2)
	Length in Miles	
Permitting Difficulty		
Low	0.0	0.1
Moderate	26.6	35.6
High	9.5	6.2
Exclusion	0.0	0.1
Construction Difficulty		
Low	5.6	9.0
Moderate	15.0	16.2
High	15.5	16.7
Mitigation Cost		
Low	0.0	1.9
Moderate	36.1	39.8
High	0.0	0.2

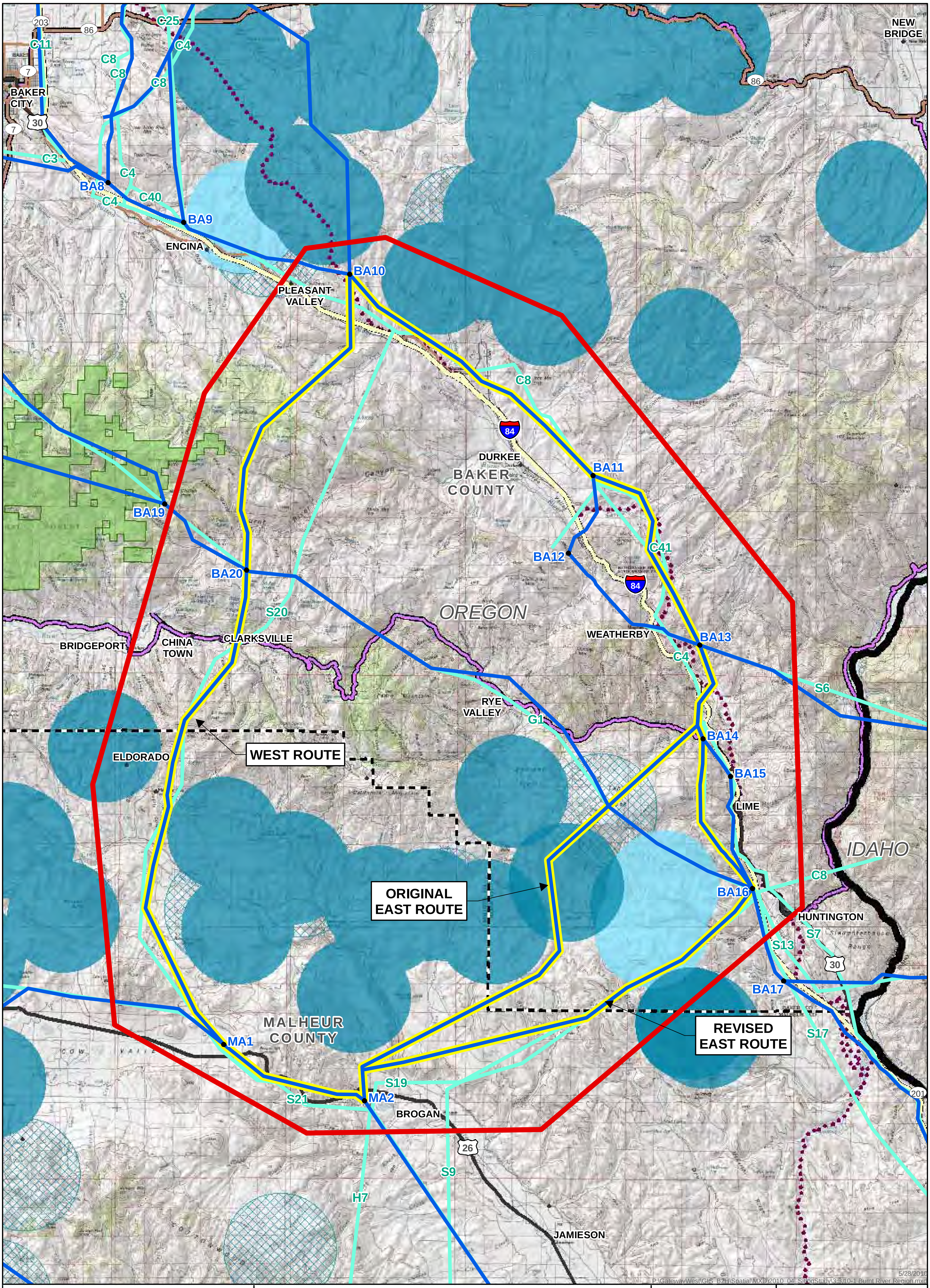


FIGURE 3.3.10-1
BURNT RIVER REGION

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

IDAHO POWER
An IDACORP Company

Analysis Region
Revised CAP Route
Initial CAP Route
State Boundary
County Boundary
National Forest
Oregon Trail
Scenic Byway Route
Sage-grouse Occupied Lek Buffer
Sage-grouse Occupied Lek Buffer - Able to Permit
Sage-grouse Unoccupied Lek Buffer

0 1 2 3
Miles

LOCATION MAP
WA
MT
OR
ID
CA
NV

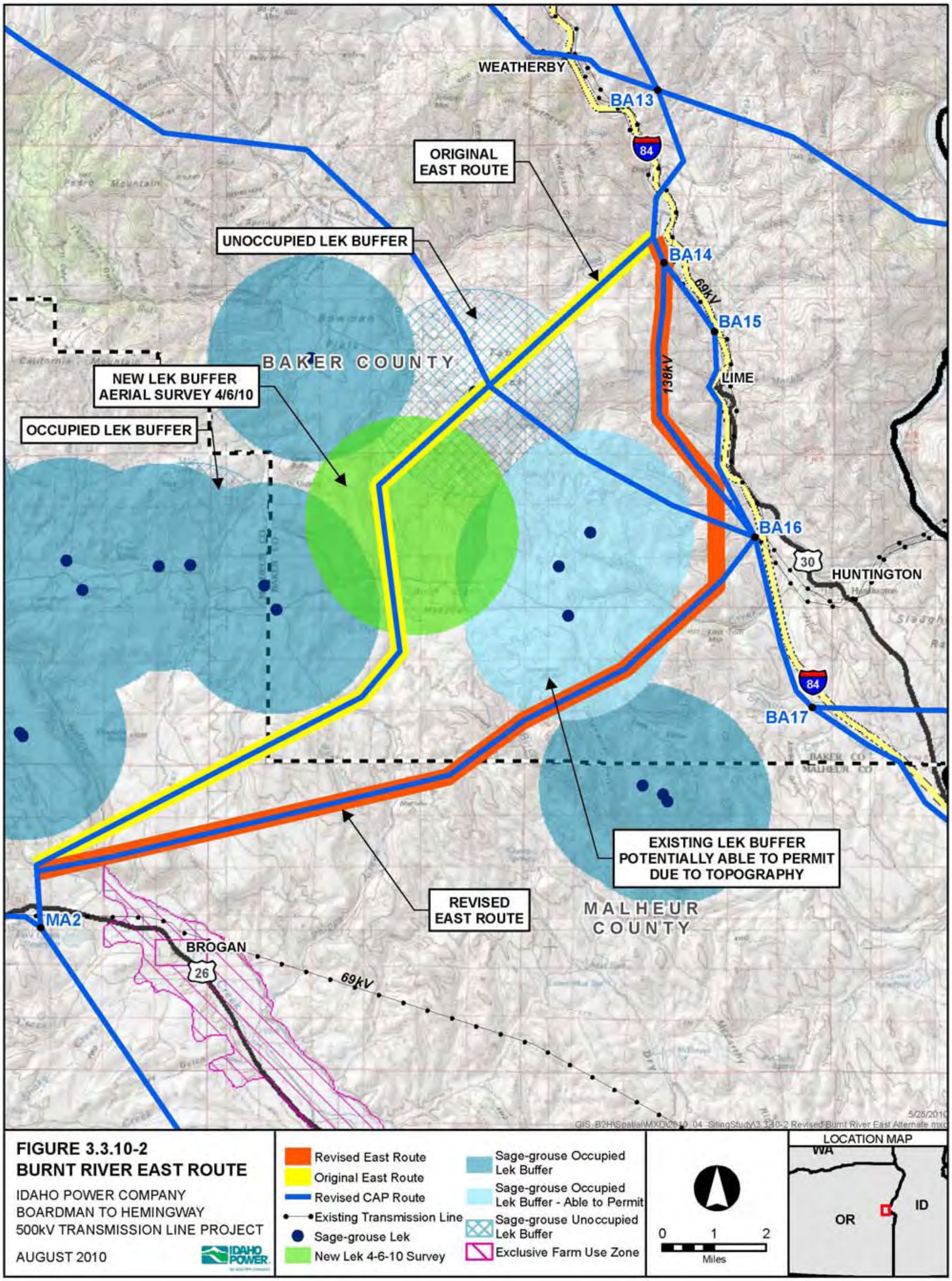


FIGURE 3.3.10-2
BURNT RIVER EAST ROUTE

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

Revised East Route
Original East Route
Revised CAP Route
Existing Transmission Line
Sage-grouse Lek
New Lek 4-6-10 Survey
Sage-grouse Occupied Lek Buffer
Sage-grouse Occupied Lek Buffer - Able to Permit
Sage-grouse Unoccupied Lek Buffer
Exclusive Farm Use Zone

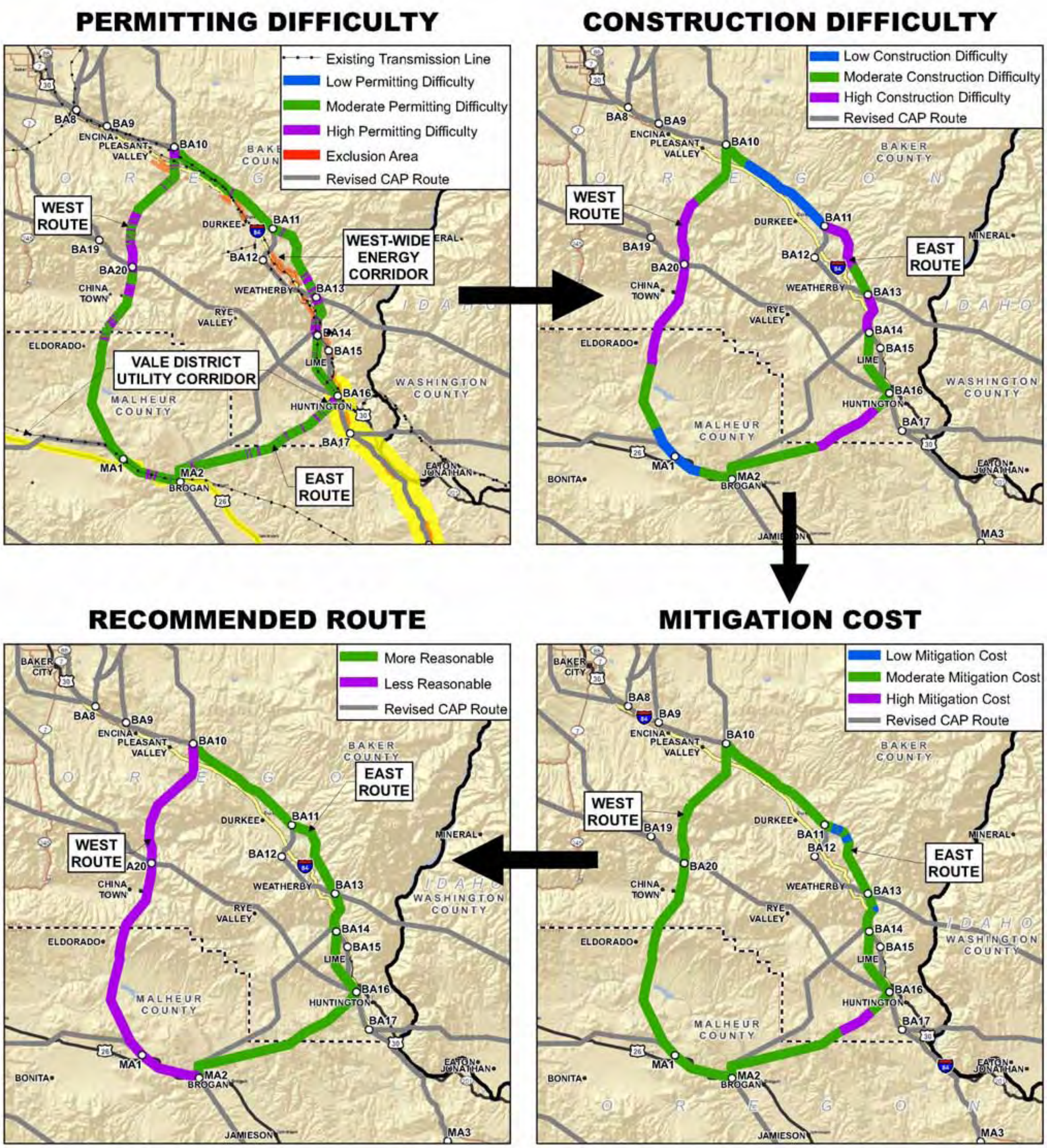


FIGURE 3.3.10-3
BURNT RIVER REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 5 10
Miles

3.3.11 West of Vale Region

Beginning in the southwestern corner of Baker County and spanning into northern Malheur County, the West of Vale Region as shown on Figure 3.3.11-1 covers nearly 70 miles. While much of the region is dry, barren land, forested lands can be found in the northern part of the region, which crosses the southeastern edge of the Wallowa-Whitman National Forest, and irrigated agriculture can be found at the southern end of the region, mainly along U.S. Highway 20 near the town of Harper. Elk winter range, sage-grouse habitat, and sage-grouse lekking grounds cover much of the region, most of which is BLM-managed lands. The town of Vale, Oregon, is located east of the southern part of the region, and U.S. Highway 26 runs along the northern part of the region.

CAP route C6 was revised, shifted east to avoid sage-grouse lek buffers, and designated the West Route, BA2-MA4-MA5 within the West of Vale Region. The East Route, BA2-MA1-MA2-MA5, is a revision of several CAP routes, including S19, S9, H7, H8, S19, and S21.

The West Route begins in Baker County at BA2, approximately 4 miles south of the community of Unity, Oregon, west of U.S. Highway 26 and northeast of Bullrun Mountain. Proceeding southeast, the route crosses through severe terrains within the Wallowa-Whitman National Forest before crossing into Malheur County and passing to the north and east of Ironside Mountain. West of Cottonwood Mountain, the route angles south passing east of the community of Westfall and, crossing U.S. Highway 20 approximately 7 miles southwest of Harper, the route angles east across Harper Basin to MA5 located at the southern end of the region.

Heading east from BA2, the East Route crosses U.S. Highway 26 before meeting and paralleling an existing 69-kV transmission line across the Baker/Malheur County line into Malheur County. Just north of Eldorado Pass, the route leaves the existing 69-kV line, proceeds east across North Willow Creek, and turns south to cross the existing 69-kV line and U.S. Highway 26 approximately 2 miles west of the community of Ironside. The East Route proceeds southeast across South Willow Creek and turns due east for approximately 5 miles before angling northeast across U.S. Highway 26, just east of Rye Flat. The East Route then meets with and parallels the existing 69-kV transmission line for the next 12 miles, passing along the northern edge of Cow Valley and crossing U.S. Highway 26 three times. Approximately 2.5 miles west of the town of Brogan, the East Route leaves the existing transmission corridor and angles south, staying west of irrigated agriculture lands and east of Cottonwood Mountain. The East Route continues south passing between Hope Butte and Sugarloaf Butte, crossing the Vale Oregon Canal and the Malheur Canyon before coming to U.S. Highway 20 just west of Vines Hill. The route proceeds across the highway and over Sand Hollow to reach MA5.

Figure 3.3.11-2 graphically displays the results of the permitting difficulty, construction difficulty, and mitigation cost analysis. While the mileage summary table, Table 3.3.11-1, indicates the overall permitting difficulty would be similar for both the East Route and the West Route, the construction difficulty analysis shows the East Route to have 30 fewer miles of high construction difficulty than the West Route. Table D-11 in Appendix D indicates the West Route is 5.6 miles shorter than the East Route, crosses 12.4 fewer miles of sage-grouse Core Area 1 habitat, and crosses 22 fewer miles of private land, but does cross 2.9 miles of the visually sensitive National Forest Partial Retention lands. The East Route, which crosses 5.6 more miles of EFU-zoned lands than the West Route, does not cross National Forest visually sensitive lands and is located in the Vale District Utility Corridor for 5.3 miles and generally parallels existing transmission lines for approximately 16 miles.

As a result, the East Route, BA2-MA1-MA-2-MA5 (CAP routes S19, S9, H7, H8, S19, and S21), was recommended as more reasonable than the West Route, BA2-MA4-MA5 (CAP route C6).

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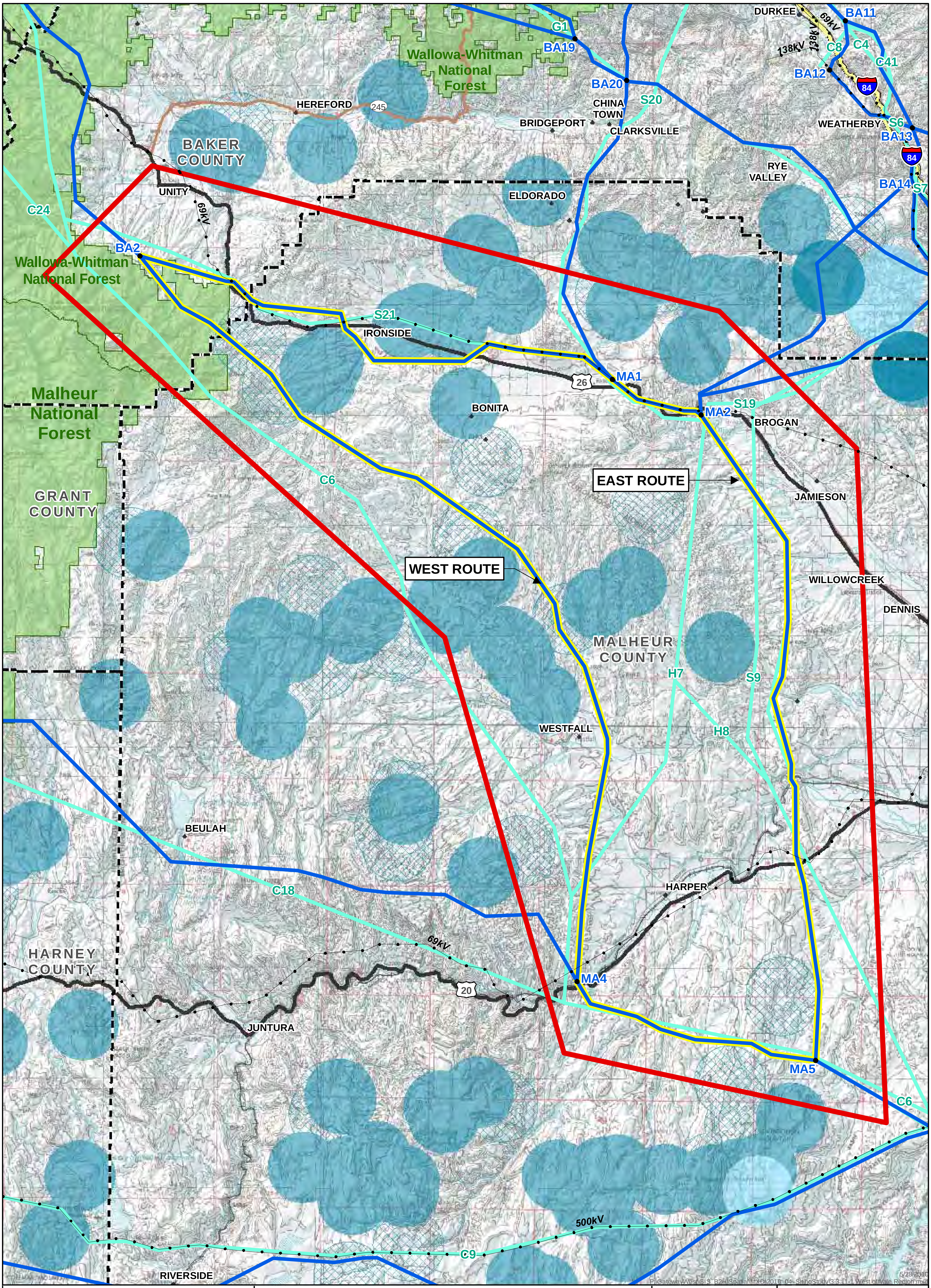

FIGURE 3.3.11-1
WEST OF VALE REGION

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

IDAHO POWER
An IDACORP Company

- Analysis Region
- Revised CAP Route
- Initial CAP Route
- Existing Transmission Line
- County Boundary
- National Forest
- Sage-grouse Occupied Lek Buffer
- Sage-grouse Occupied Lek Buffer - Able to Permit
- Sage-grouse Unoccupied Lek Buffer

0 5
Miles

LOCATION MAP
WA
MT
OR
ID
CA
NV

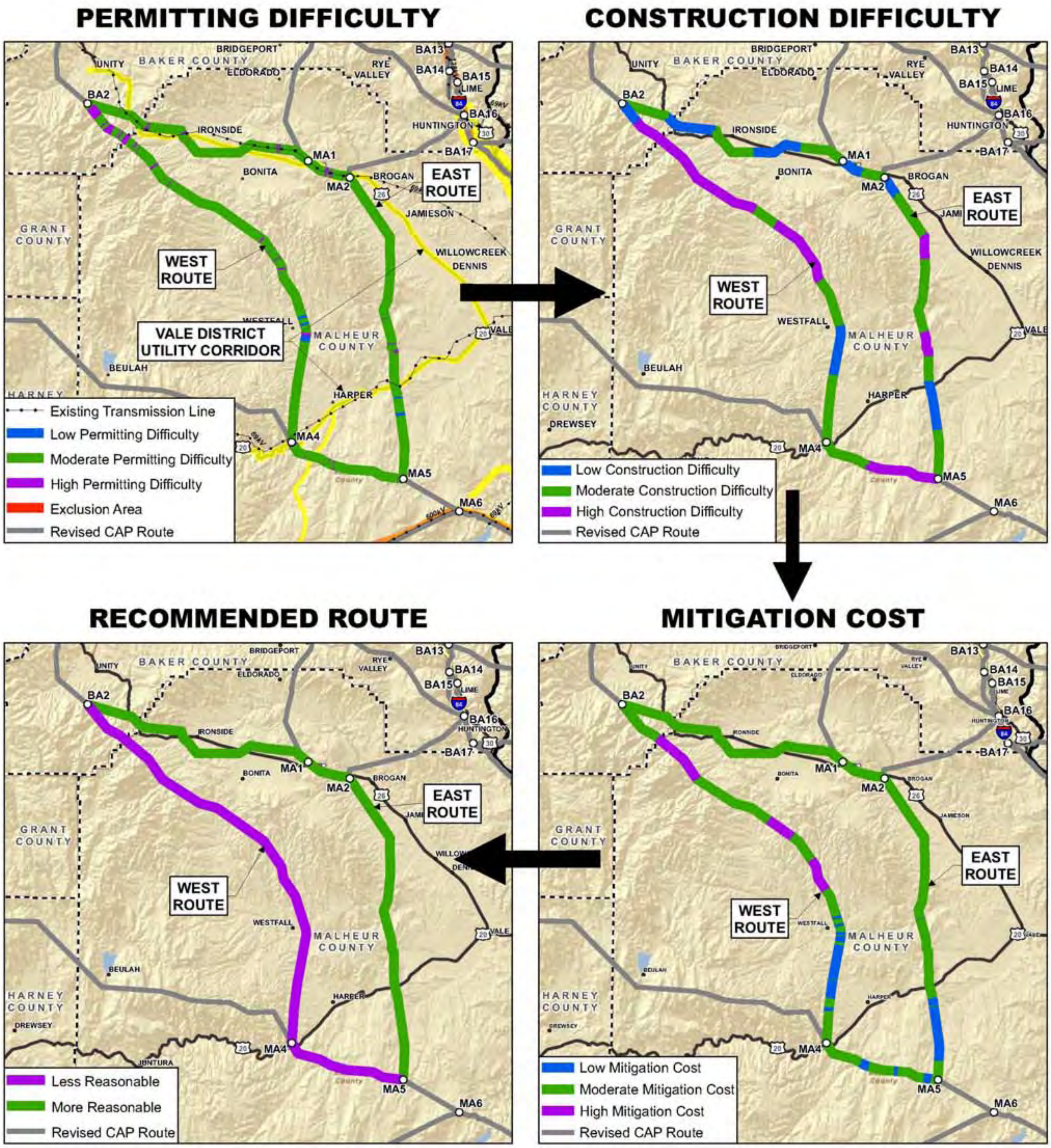

FIGURE 3.3.11-2
WEST OF VALE REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 10 20
Miles

Table 3.3.11-1 West of Vale Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	West Route (BA2-MA4-MA5)	**East Route** (BA2-MA1-MA2-MA5)
	Length in Miles	
Permitting Difficulty		
Low	1.6	0.8
Moderate	57.4	69.6
High	8.8	3.0
Exclusion	0.0	0.0
Construction Difficulty		
Low	9.0	22.8
Moderate	22.8	44.6
High	36.0	6.0
Mitigation Cost		
Low	11.8	8.0
Moderate	41.8	65.4
High	14.2	0.0

3.3.12 Weatherby Region

The Weatherby Region extends for about 8 miles between Durkee, Oregon, and Weatherby, Oregon, along I-84 in Baker County (Figure 3.3.12-1). The topography of the region is severe, with Gold Hill located in the central part of the region. The Burnt River runs through the valley along the west side of I-84 with the Union Pacific Railway.

CAP route C4, identified during the Central PAT routing session, is located on the east side of Gold Hill and I-84 within this region. The route was drawn with the intent to avoid the leafy spurge area to the west side of I-84, just north Durkee. CAP route C41 was a minor revision of C4, and was intended to maximize the distance of the line from existing residences in the area. These CAP routes were revised to avoid the intact segments of the Oregon National Historic Trail and was designated BA11-BA13, the East Route in the Weatherby Region.

The West Route within the Weatherby Region was developed from CAP routes C8 and S6. Beginning in the north, the route crosses the National Historic Oregon Trail north of Gold Hill, crosses to the west side of I-84 just north of the Ash Grove Cement plant, and then parallels the existing 138-kV transmission line south to Weatherby, where it crosses I-84 and the Oregon National Historic Trail once again before meeting the East Route at BA13.

Permitting difficulty, construction difficulty, and mitigation cost analyses were performed on the East and West Routes as shown on Figure 3.3.12-2. Table 3.3.12-1, while not indicating one route to be clearly superior, does indicate the East Route may have slightly less permitting and construction difficulties. Table D-12 in Appendix D shows the East Route is 1.4 miles shorter than the West Route and crosses 0.8 fewer miles of 1,200-foot Historic Trail Buffer Zone and 0.6 fewer mile of intact Oregon National Historic Trail segments.

For the reasons described above, it was recommended that the East Route, BA11-BA13 (CAP route C4 and C41), is more reasonable than the West Route (BA11-BA12-BA13).

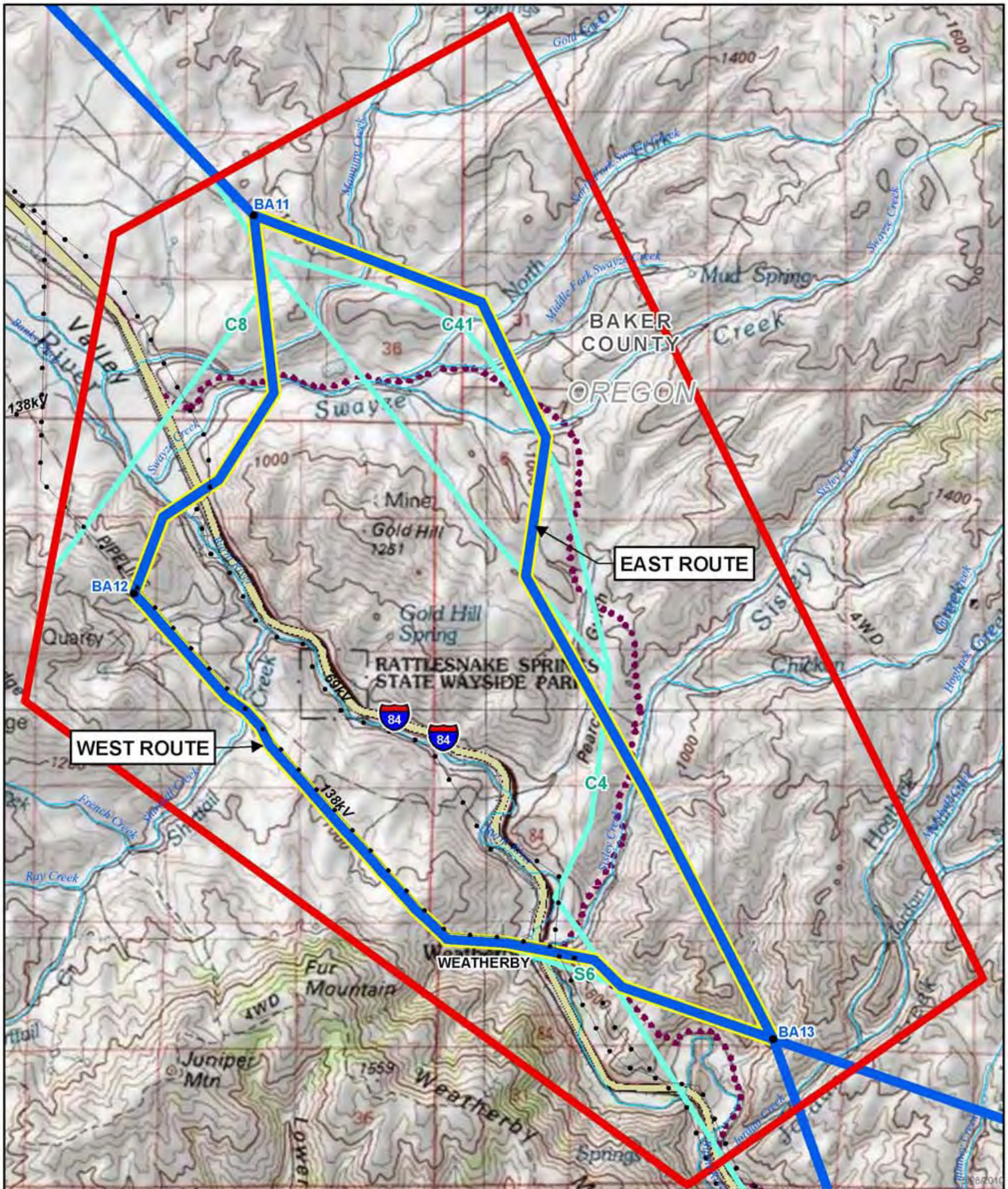

FIGURE 3.3.12-1
WEATHERBY REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

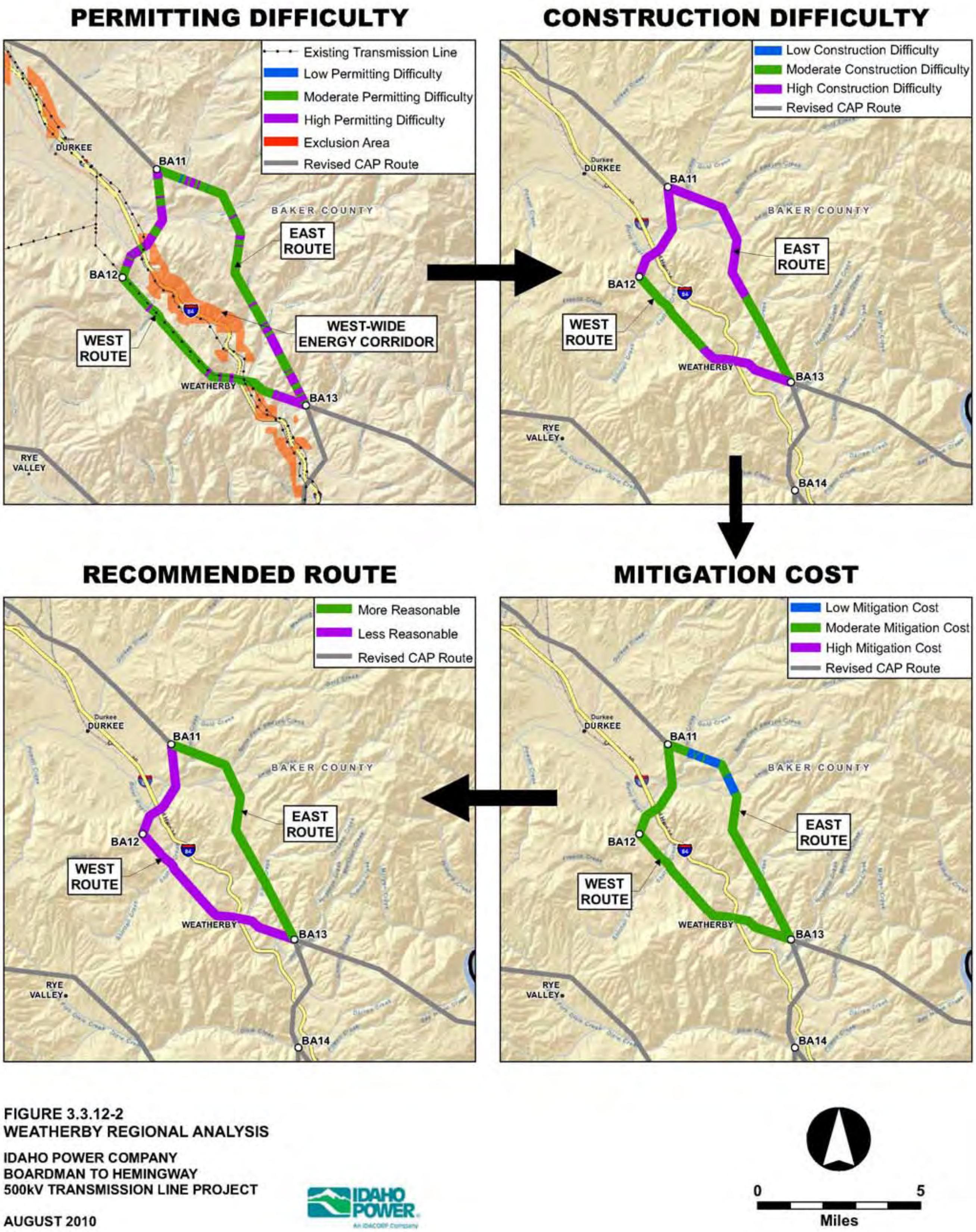

FIGURE 3.3.12-2
WEATHERBY REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

Table 3.3.12-1. Weatherby Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	West Route (BA11-BA12-BA13)	East Route (BA11-BA13)
	Length in Miles	
Permitting Difficulty		
Low	0.0	0.1
Moderate	6.1	5.5
High	3.0	2.1
Exclusion	0.0	0.0
Construction Difficulty		
Low	0.0	0.0
Moderate	3.0	3.0
High	6.1	4.7
Mitigation Cost		
Low	0.0	1.6
Moderate	9.1	6.1
High	0.0	0.0

3.3.13 Lime Region

The routing analysis within the Lime Region included two routes located on the west side of I-84, just south of the Weatherby Region, as shown on Figure 3.3.13-1. Similar to the Weatherby Region, much of this region comprises severe topography and is located on the east side of Table Rock. This is the smallest region, covering just over 5 miles in the vicinity of Lime, Oregon.

The two CAP routes developed in this area were C4 and S7 and both had the intended purpose of following existing corridors. CAP route C4 was minimally revised to parallel the west side of an existing 138-kV transmission line through the region and later was designated the West Route, BA14-BA16. CAP route S7 was intended to immediately parallel I-84 but due to the steep topography adjacent to I-84, portions of the route in this vicinity were relocated to avoid more difficult engineering and construction conditions. This route was designated the East Route, BA14-BA15-BA16.

Figure 3.3.13-2 shows the results of the permitting difficulty, construction difficulty and mitigation cost analyses along each route in the Lime Region. Table 3.3.13-1 is the summary table detailing the totals of each difficulty analysis. As this table details, the West Route has significantly fewer miles of high permitting difficulty and high construction difficulty. Additionally, Table D-13 in Appendix D shows the West Route avoids both the 1,200-foot Historic Trail Buffer Zone and the 1,200-foot Scenic Byway Buffer Zone that are crossed by the East Route and crosses 1.8 fewer miles of slopes greater than 35 percent as compared to the East Route.

Table 3.3.13-1 Lime Region Summary of Permitting and Construction Difficulty and Mitigation Cost

	West Route (BA14-BA16)	**East Route** (BA14-BA15-BA16)
	Length in Miles	
Permitting Difficulty		
Low	0.0	0.0
Moderate	5.2	2.9
High	0.7	3.1
Exclusion	0.0	0.0
Construction Difficulty		
Low	0.0	1.7
Moderate	5.9	0.0
High	0.0	4.3
Mitigation Cost		
Low	0.0	0.0
Moderate	5.9	6.0
High	0.0	0.0

The result of the Lime Regional analysis was that the West Route, BA14-BA16 (CAP route C4), was recommended as more reasonable than the East Route, BA14-BA15-BA16 (CAP route S7).

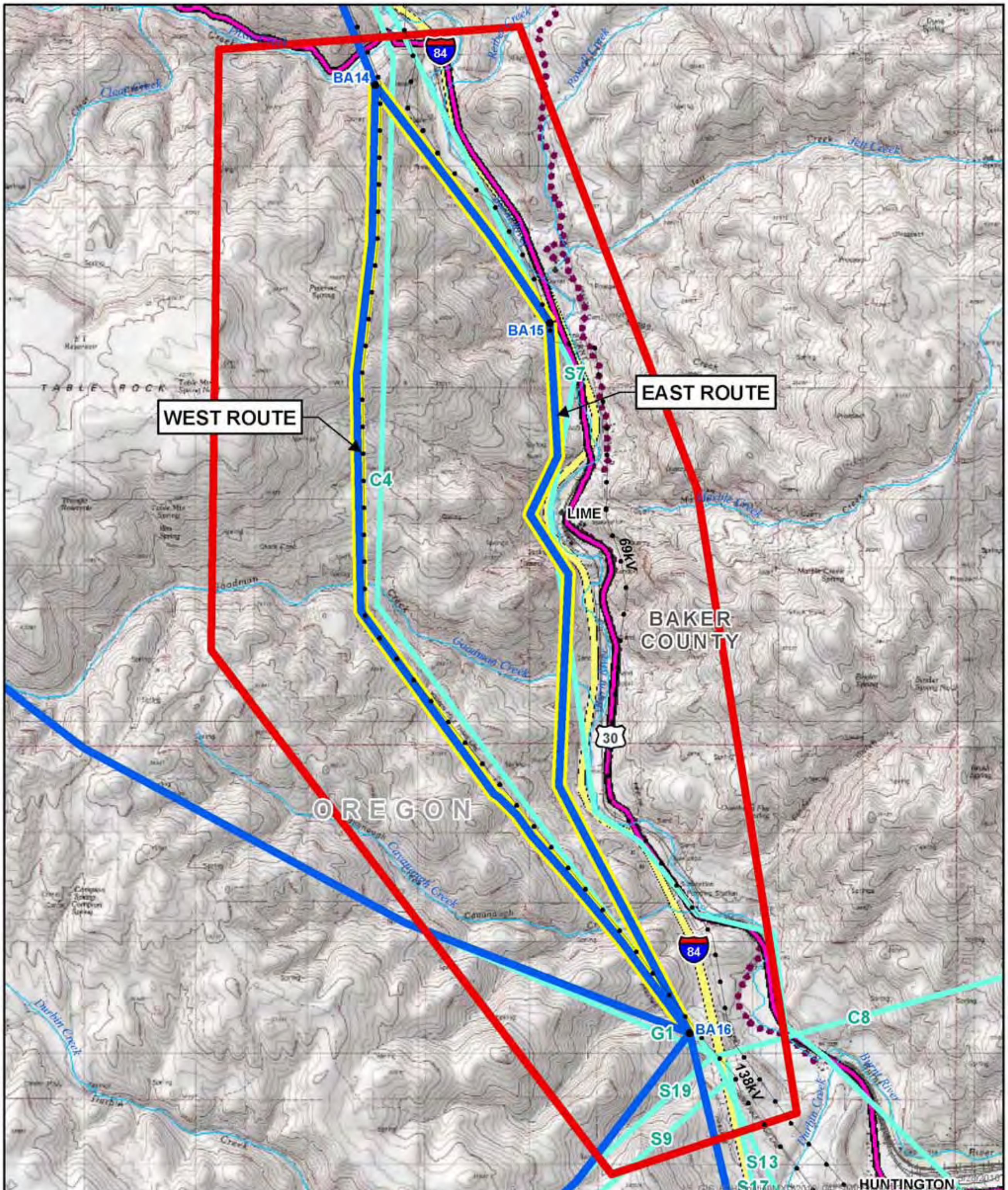

FIGURE 3.3.13-1
LIME REGION
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

- Analysis Region
- Revised CAP Route
- Initial CAP Route
- Scenic Byway Route
- Oregon Trail
- Existing Transmission Line

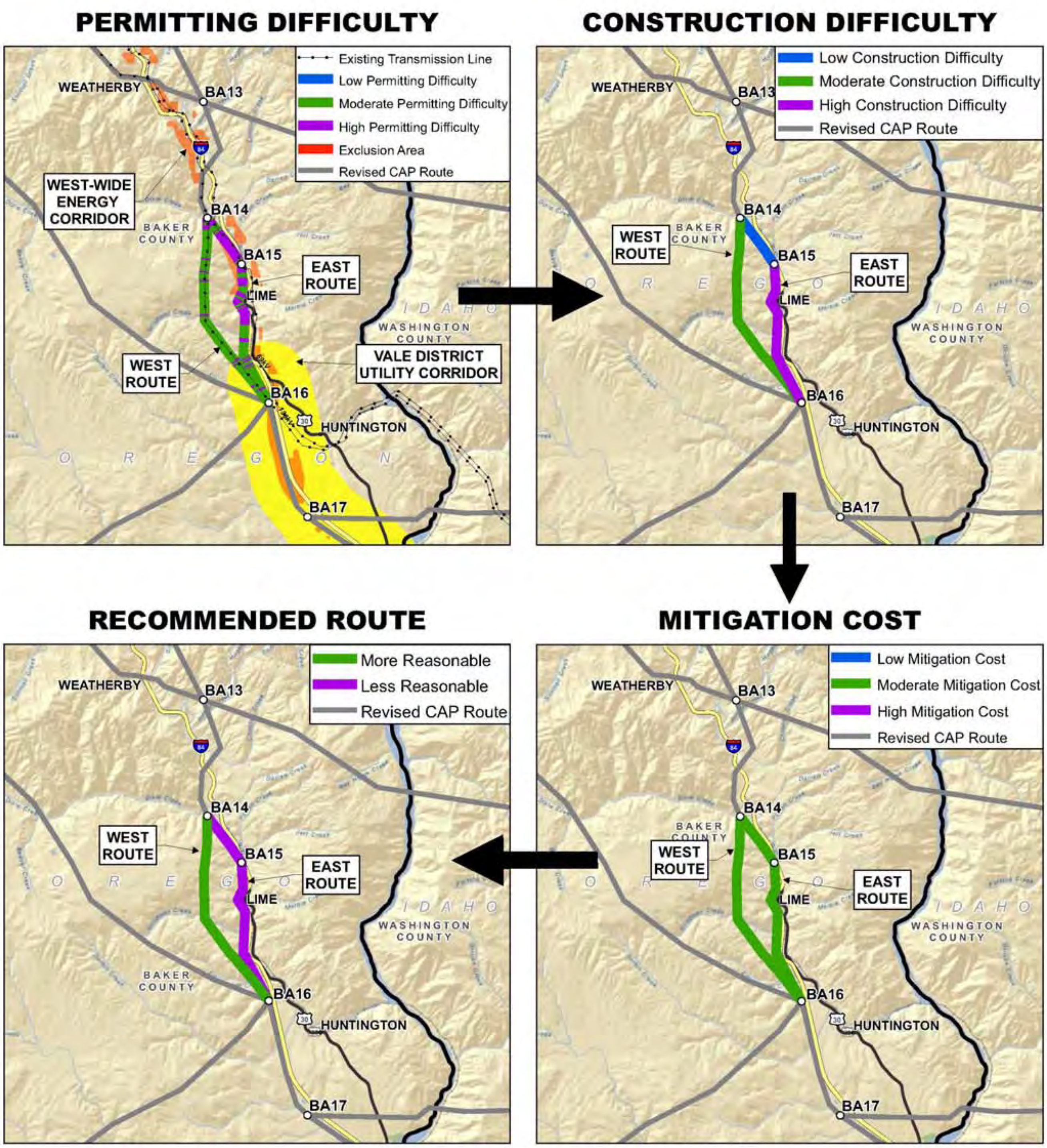

FIGURE 3.3.13-2
LIME REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 5
Miles

3.3.14 Snake River Valley Region

The Snake River Valley region extends south from point BA13 located just southeast of Weatherby in Baker County for about 90 miles to the Hemingway Substation in Owyhee County. This region includes portions of Baker and Malheur Counties in Oregon and portions of Washington, Payette, Canyon, and Owyhee Counties in Idaho. Large areas of irrigated farmland occur on both sides of the Snake River and these lands are bounded by high desert, hills, and mountains. I-84 is the main highway in this region with much associated development. In the Snake River Region, six routes were considered between point BA13, located about 1.8 miles southeast of Weatherby in Baker County, Oregon, and Hemingway Substation (Point OW2) in Owyhee County, Idaho. Initially, Routes A and B were dropped from further consideration.

Route A (BA13-BA14-BA16-BA17-MA3-MA7-OW1-OW2) is shown on Figure 3.3.14-1. This route, developed from CAP routes S30 and S17, generally follows I-84 for about 19 miles southeast and then turns south passing west of Ontario and proceeding for approximately 47 miles across the Snake River Valley where it would cross over the Mid-Point-Summer Lake 500-kV line and generally follow its southwest side back to the Hemingway Substation. This alternative route crosses 37 miles of land zoned EFU in Oregon that, with the removal of the proposed Sand Hollow Substation, can be avoided. As a result, this alternative would not meet the EFU requirements of ORS 215.275, could not be permitted, and was not recommended for further consideration.

Route B (BA13-BA14-BA16-BA17-MA3-PA2-OW2) follows I-84 south through the city of Ontario to point PA2 where it turns due south to cross the Snake River Valley. A preliminary engineering evaluation was completed for the segment of this route through Ontario. As a result of this evaluation it was determined to be not feasible for a variety of engineering and environmental factors such as four additional crossings of I-84, crossing the Ontario State Recreation Site, and two additional crossings of the Snake River requiring more substantial structures and foundations in very tight and challenging working conditions. This type of construction in city conditions has many constraints and is problematic in safety, cost, permitting, and inconveniences to local citizens. Based on this review, Route B was not recommended for further consideration.

After Routes A and B were removed from further consideration, Route C was compared to Route D and Route E was compared to Route F.

Route C (BA13-BA14-BA16-BA17-WA1-PA1-OW1-OW2) follows I-84 south to a location about 2 miles south of Huntington, Oregon, and then angles due east from point BA17 to cross the Snake River and the state line into Idaho. From point WA1, Route C continues south and east in steeper terrain north and east of Weiser, U.S. Highway 95, Payette, and the agricultural land along the east side of the Snake River. At point PA1, Route C turns south to cross the Payette River and then Highway 30 and I-84 west of New Plymouth. It then proceeds south, east of Parma and generally parallel to U.S. Highway 95 to a second crossing of the Snake River east of Homedale. It then crosses to the south side of the Mid-Point-Summer Lake 500-kV line and follows it south to the Hemingway Substation.

Route D (BA13-WA1-PA1-OW1-OW2) proceeds from point BA13 east and south across Morgan Mountain and the Snake River (State line) into Idaho. It continues east and south along the north side of Rock Creek and then turns south between Jenkins Creek and Sheep Creek until it joins Route C at point WA1. From point WA1 to the Hemingway Substation, both Route C and Route D share a common alignment as described above.

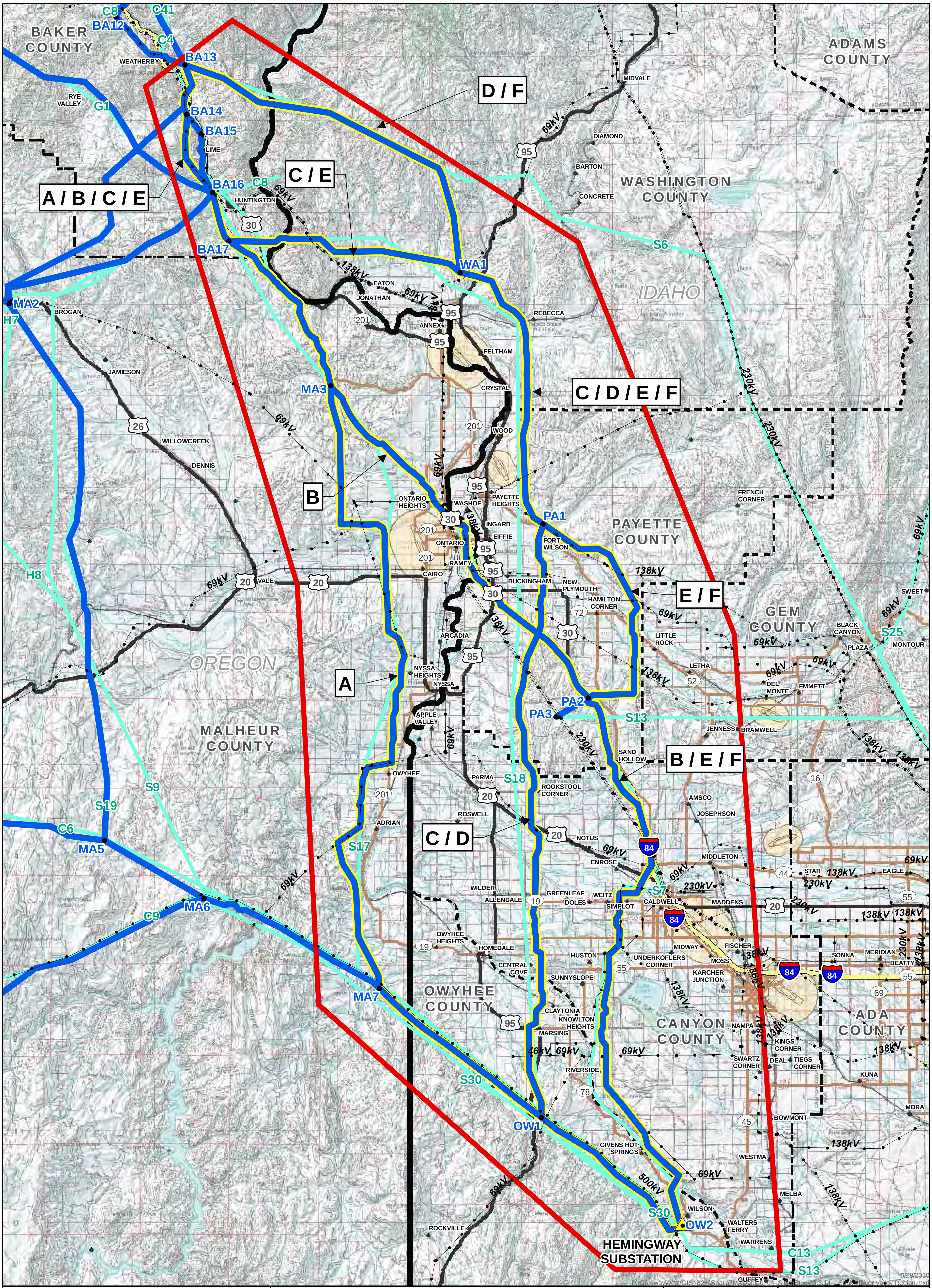

FIGURE 3.3.14-1
SNAKE RIVER VALLEY REGION

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

IDAHO POWER
An IDACORP Company

- Substation
- Analysis Region
- Revised CAP Route
- Initial CAP Route
- State Boundary
- County Boundary
- Airport - Controlled Airspace
- Existing Transmission Line

0 5
Miles

LOCATION MAP
WA MT OR ID CA NV

Figure 3.3.14-2 shows the results of the permitting difficulty, construction difficulty, and mitigation cost analyses along each route. Table 3.3.14-1 summarizes the totals of each difficulty analysis for each route while Table D-14 in Appendix D details the miles of each constraint crossed. Compared to Route C, Route D is 3.4 miles shorter and crosses less historic trail buffer, less deer and elk winter range, less big game critical winter habitat, less EFU, and less high erosion risk hazard soils. Route C crosses less sage-grouse key habitat (ID), less landslide hazard area, and fewer slopes over 25 percent, and also parallels more existing transmission lines and uses more miles of utility corridors. Overall, Routes C and D cross a similar number of miles of moderate and high permitting difficulty; however, Route D crosses 11.3 more miles of high difficulty construction.

Route E (BA13-BA14-BA16-BA17-WA1-PA1-PA2-OW2) follows I-84 south to a location about 2 miles south of Huntington, Oregon (BA17) and then angles due east to cross the Snake River and the state line into Idaho. From point WA1, Route E continues south and east in the steeper terrain north and east of Weiser, U.S. Highway 95, Payette, and the agricultural land along the east side of the Snake River. Continuing through point PA1 to PA2, this route remains on the north and east sides of the Payette River to a location just west of the Gem County line where it turns generally south and then west to cross the river and then I-84. This route then generally parallels I-84 almost to Caldwell where it angles west around the city and Lake Lowell. It continues southeast for about 12 miles along the east side of the Snake River where it crosses this river southeast of Rippee Island and then proceeds to the Hemingway Substation.

Route F (BA13-WA1-PA1-PA2-OW2) follows portions of the paths of Routes D and E. From point BA13 to WA1, the route follows the path of Route D, proceeding east and south across Morgan Mountain and the Snake River (state line) into Idaho. It continues east and south along the north side of Rock Creek and then turns south between Jenkins Creek and Sheep Creek until it joins Route E at point WA1. From WA1 to Hemingway Substation, Route F shares the same route as Route E as described above.

As shown in Appendix D, Table D-14, Route F in comparison to Route E is 3.5 miles shorter and crosses less historic trail buffer, less deer and elk winter range, less big game critical winter habitat, less Sage grouse Core Area, less EFU, and less high erosion risk hazard soils. Route E crosses less sage-grouse key habitat (ID), less landslide hazard area, and fewer slopes over 25 percent and it parallels more existing transmission lines and uses more miles of utility corridors. Overall, Route F and Route E seem similar in difficulty to permit; however, Route F appears more difficult to construct.

After completing the review of the alternative routes in the Snake River Valley Region as well as the alternative routes in the surrounding regions, it was decided that none of the six routes traversing this region should be recommended for further consideration. As shown on Figure 3.3.14-3, all of these routes would affect many farms and traverse 23.8 to 36.8 miles of irrigated farmlands. In Oregon all these routes cross some amount of EFU-zoned land. In Idaho the routes would pass in proximity to hundreds of residences and farms as well as urban and city impact areas. These are significant impacts and permitting issues that can be avoided by following routes to the west of Vale.

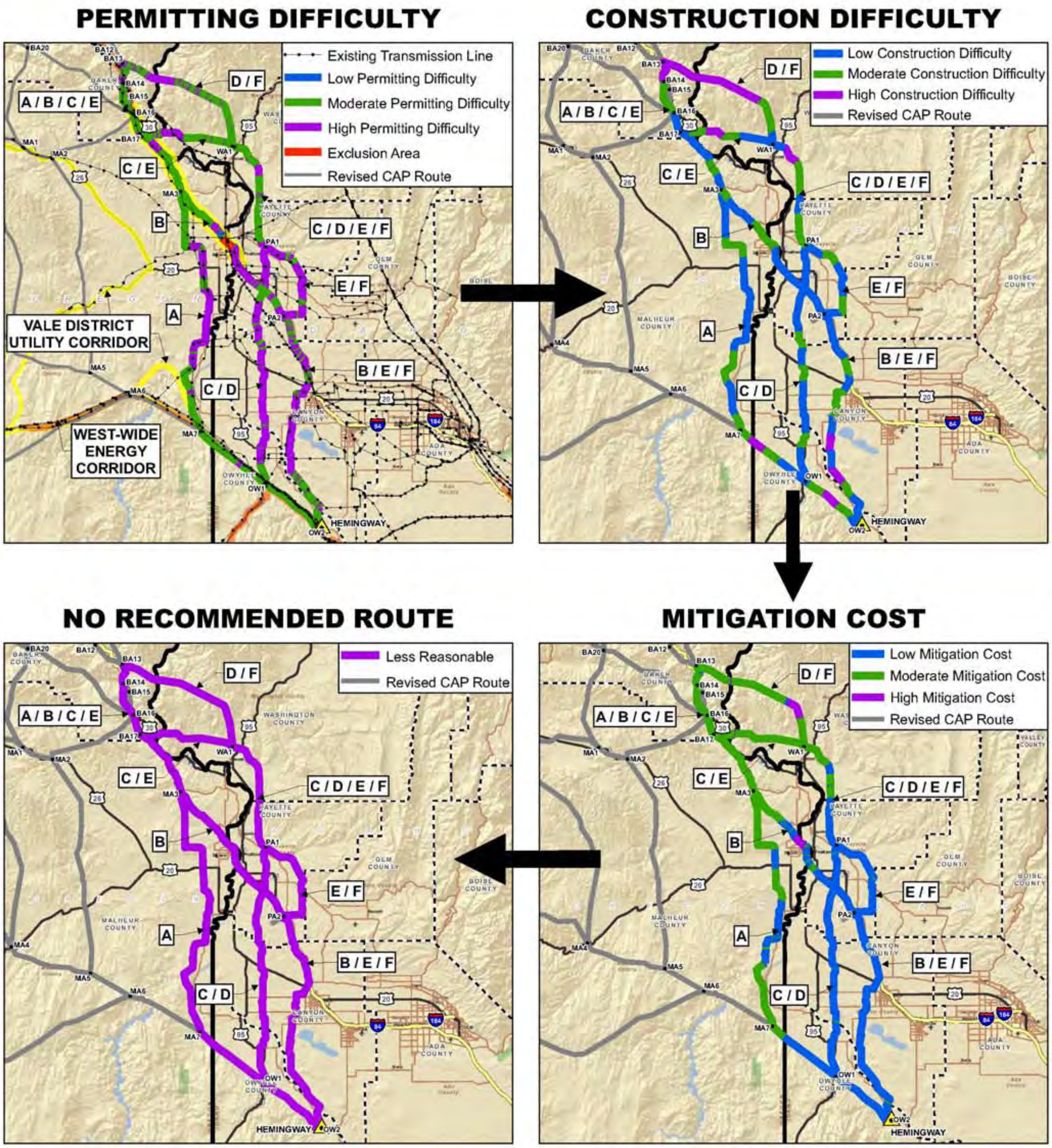

FIGURE 3.3.14-2
SNAKE RIVER VALLEY REGIONAL ANALYSIS

IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

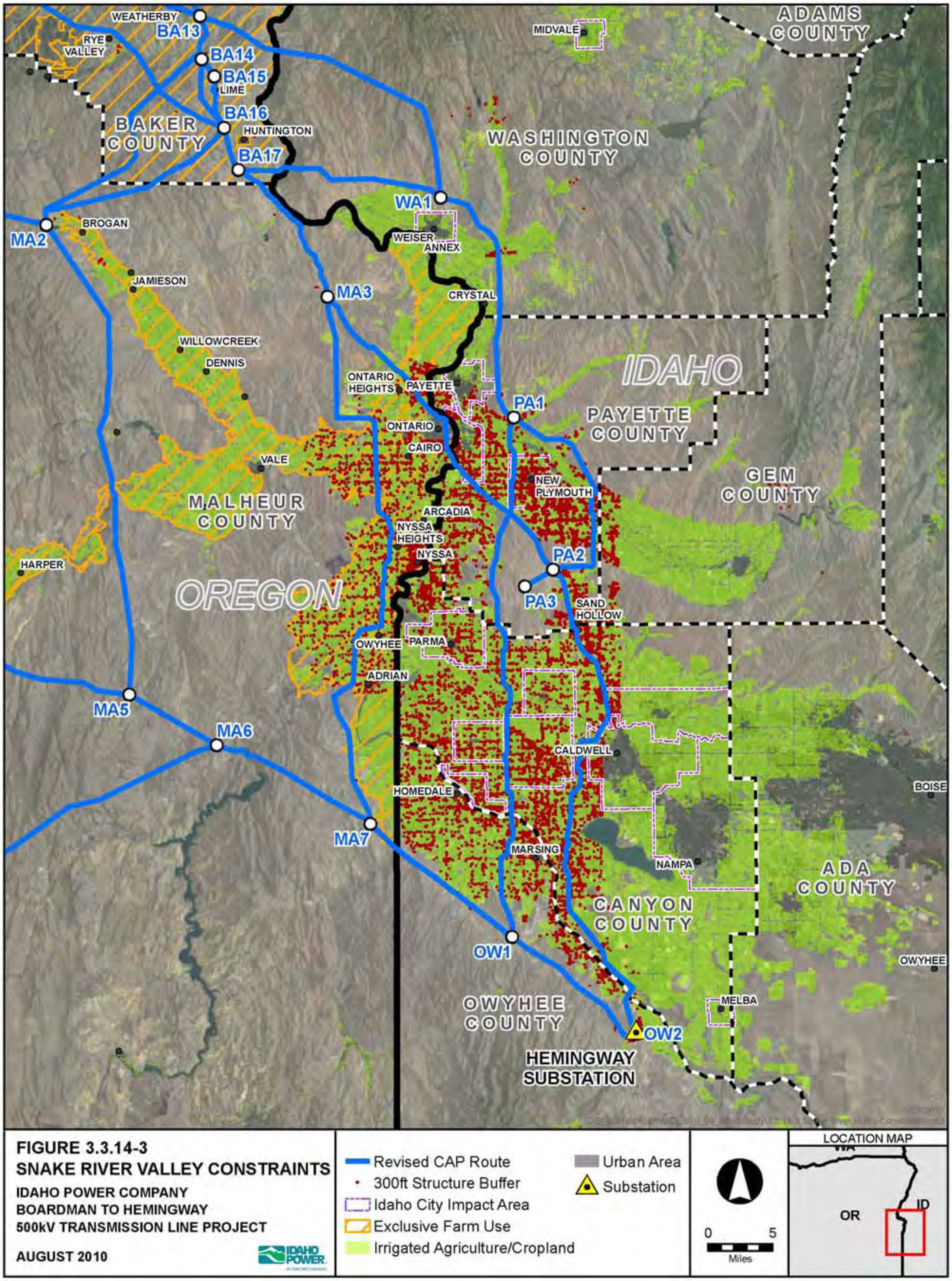

FIGURE 3.3.14-3
SNAKE RIVER VALLEY CONSTRAINTS
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

Table 3.3.14-1. Snake River Valley Mileage Summary

	A (BA13-BA14-BA16-BA17-MA3-MA7-OW1-OW2)	B (BA13-BA14-BA16-BA17-MA3-PA2-OW2)	C (BA13-BA14-BA16-BA17-WA1-PA1-OW1-OW2)	D (BA13-WA1-PA1-OW1-OW2)	E (BA13-BA14-BA16-BA17-WA1-PA1-PA2-OW2)	F (BA13-WA1-PA1-PA2-OW2)
	Length in Miles					
Permitting Difficulty						
Low	0	0.6	0.1	0.1	0.3	0.3
Moderate	67.9	45.5	55	48.6	51.7	45.3
High	31.6	48	49.3	52.2	57.5	60.5
Exclusion	0	2.2	0	0	0	0
Construction Difficulty						
Low	54.9	57.9	52.5	43.6	52	43
Moderate	35	28.8	39	33	42	36
High	9.6	9.6	12.9	24.2	15.6	27
Mitigation Cost						
Low	40.6	60.3	65.7	66	71	71.2
Moderate	59	33.8	38.5	31.1	38.5	31.1
High	0	2.2	0.1	3.8	0.1	3.8

3.4 Alternative Routes

Selection of alternative routes extending from the proposed Grassland Substation to the existing Hemingway Substation was accomplished in three steps:

- Eliminated alternative routes that do not meet project purpose and need.
- Eliminated routes blocked by many significant constraints in central portion of study area.
- Selected a more reasonable route in each region.

Initially, routes that do not meet the purpose and need of the Project as shown on Figure 3.4-1 were dropped from further consideration. For example, Alternative Routes S25 and C13 proceed east and then north in western Idaho eventually crossing into southeast Washington state and then into Oregon, terminating at the proposed Grassland Substation site. These routes are over 70 miles longer than the next longest proposed CAP route, add a third state for permitting, and would result in significantly more environmental impact and cost; they were therefore dropped from further consideration.

Next, as part of the regional analysis it was determined that siting a transmission line through the central portion of the study area as shown on Figure 3.4-2 was not viable. Forming an approximately 60-mile constraint barrier from about 3 miles north of the community of Monument in Grant County east to the western edge of the Baker Valley were the following restricted areas as identified in management plans and regulations: a State Scenic Waterway/Wild and Scenic River (North Fork of the John Day River), a State Wildlife Management Area (Bridge Creek), Scenic Byways (Blue Mountain and Elkhorn Scenic Byways), extensive USFS Roadless and Wilderness Areas, USFS Preservation and Retention Lands, and a proposed ACEC as shown on Figure 3.4-2. This constraint barrier effectively removed routes in the Blue Mountain Region from further consideration. In addition, routes through this central area would cross many miles of three National Forest lands as shown on Figure 3-4.3.

Figure 3.4-4 shows the routes in the central area dropped from further consideration. Figure 3.4-5 shows all of the routes considered in the regional analyses and identifies the routes removed from further consideration (as a direct result of the regional analyses described earlier in this section). Using the more reasonable routes resulting from the regional analyses, three complete route alternatives evolved: the Western, Central, and Eastern Routes (see Figure 3.4-6). Table 3.4-1 highlights some of the more significant differences between the three alternative routes, whereas Table D-15 in Appendix D details the constraints crossed by each route.

Figures 3.4-7, 3.4-8, and 3.4-9 present the permitting difficulty, construction difficulty, and mitigation cost analyses for the Western, Central, and Eastern Routes. Table 3.4-2 displays the mileage summaries by difficulty category for each analysis performed.

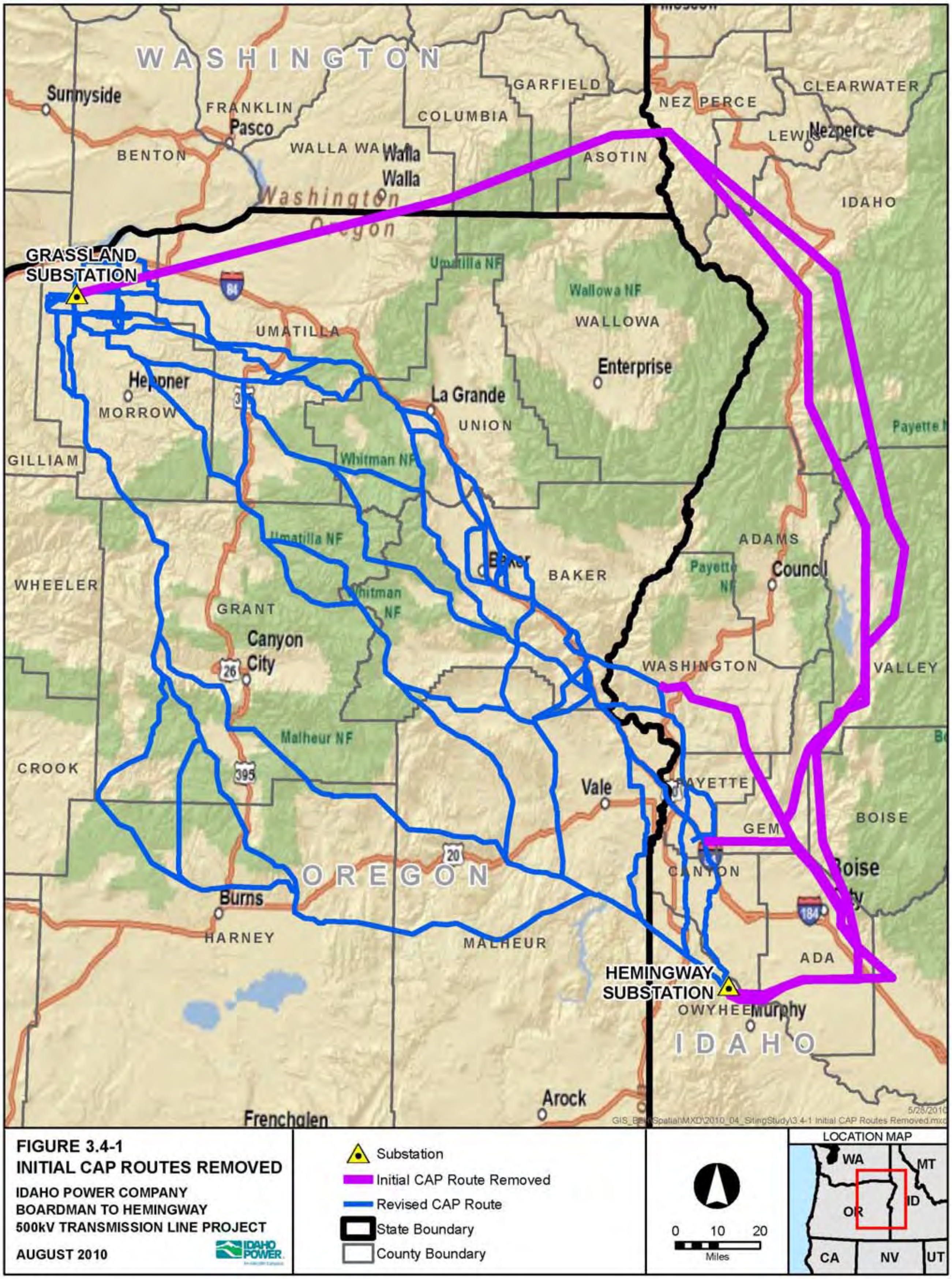

FIGURE 3.4-1
INITIAL CAP ROUTES REMOVED
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

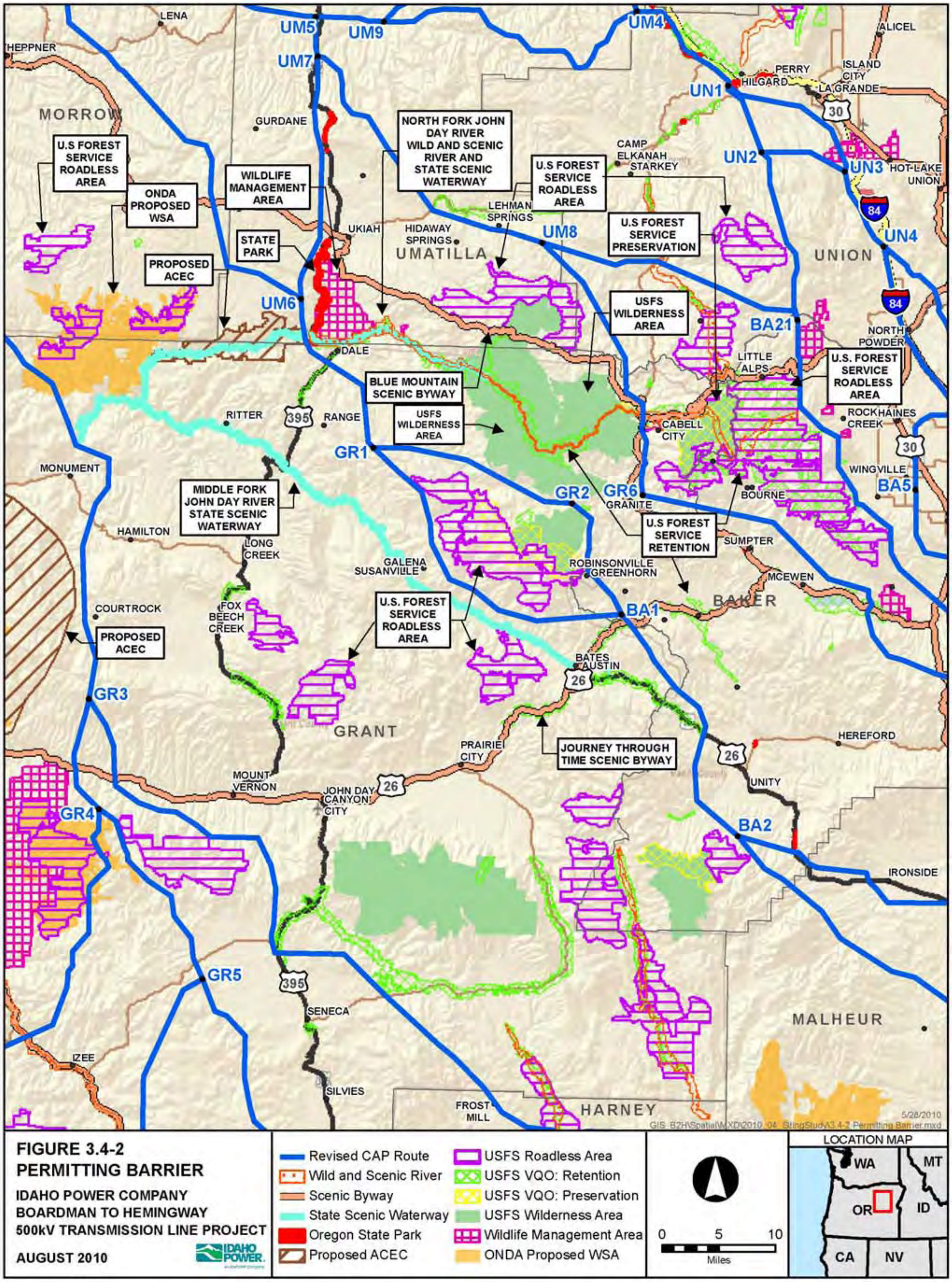

FIGURE 3.4-2
PERMITTING BARRIER
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010
Revised CAP Route
Wild and Scenic River
Scenic Byway
State Scenic Waterway
Oregon State Park
Proposed ACEC
USFS Roadless Area
USFS VQO: Retention
USFS VQO: Preservation
USFS Wilderness Area
Wildlife Management Area
ONDA Proposed WSA
0 5 10
Miles
LOCATION MAP
WA
MT
OR
ID
CA
NV
U.S FOREST SERVICE ROADLESS AREA
ONDA PROPOSED WSA
WILDLIFE MANAGEMENT AREA
PROPOSED ACEC
STATE PARK
NORTH FORK JOHN DAY RIVER WILD AND SCENIC RIVER AND STATE SCENIC WATERWAY
U.S FOREST SERVICE ROADLESS AREA
U.S FOREST SERVICE PRESERVATION
USFS WILDERNESS AREA
BLUE MOUNTAIN SCENIC BYWAY
USFS WILDERNESS AREA
U.S. FOREST SERVICE ROADLESS AREA
MIDDLE FORK JOHN DAY RIVER STATE SCENIC WATERWAY
U.S FOREST SERVICE RETENTION
U.S. FOREST SERVICE ROADLESS AREA
PROPOSED ACEC
JOURNEY THROUGH TIME SCENIC BYWAY
UM5
UM9
UM7
UM4
UN1
UN2
UN3
UN4
UM8
UM6
BA21
GR1
GR2
GR6
BA5
BA1
GR3
GR4
BA2
GR5
MORROW
UMATILLA
UNION
GRANT
BAKER
MALHEUR
HARNEY
LENA
HEPPNER
GURDANE
ALICEL
PERRY
HILGARD
ISLAND CITY
LA GRANDE
CAMP ELKANAH
STARKEY
HOT LAKE
UNION
LEHMAN SPRINGS
UKIAH
HIDAWAY SPRINGS
NORTH POWDER
LITTLE ALPS
DALE
RITTER
RANGE
CABELL CITY
ROCK CREEK
HAINES
MONUMENT
WINGVILLE
BOURNE
GRANITE
HAMILTON
LONG CREEK
SUMPTER
GALENA
SUSANVILLE
ROBINSONVILLE
GREENHORN
MCEWEN
COURTROCK
FOX
BEECH CREEK
BATES
AUSTIN
HEREFORD
PRAIRIE CITY
MOUNT VERNON
JOHN DAY
CANYON CITY
UNITY
IRONSIDE
SENECA
IZEE
SILVIES
FROST MILL
30
84
395
26
5/28/2010

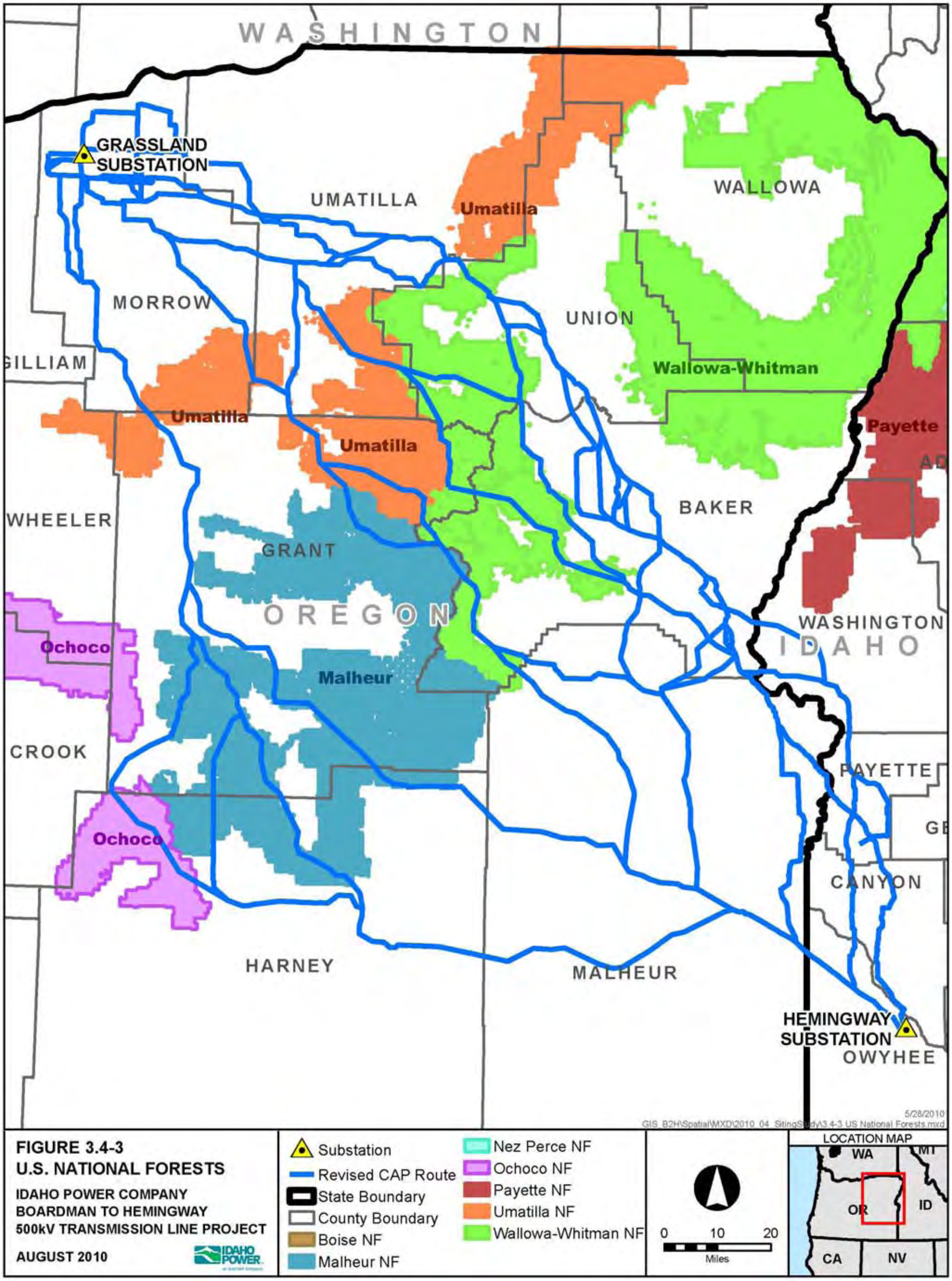

FIGURE 3.4-3
U.S. NATIONAL FORESTS
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

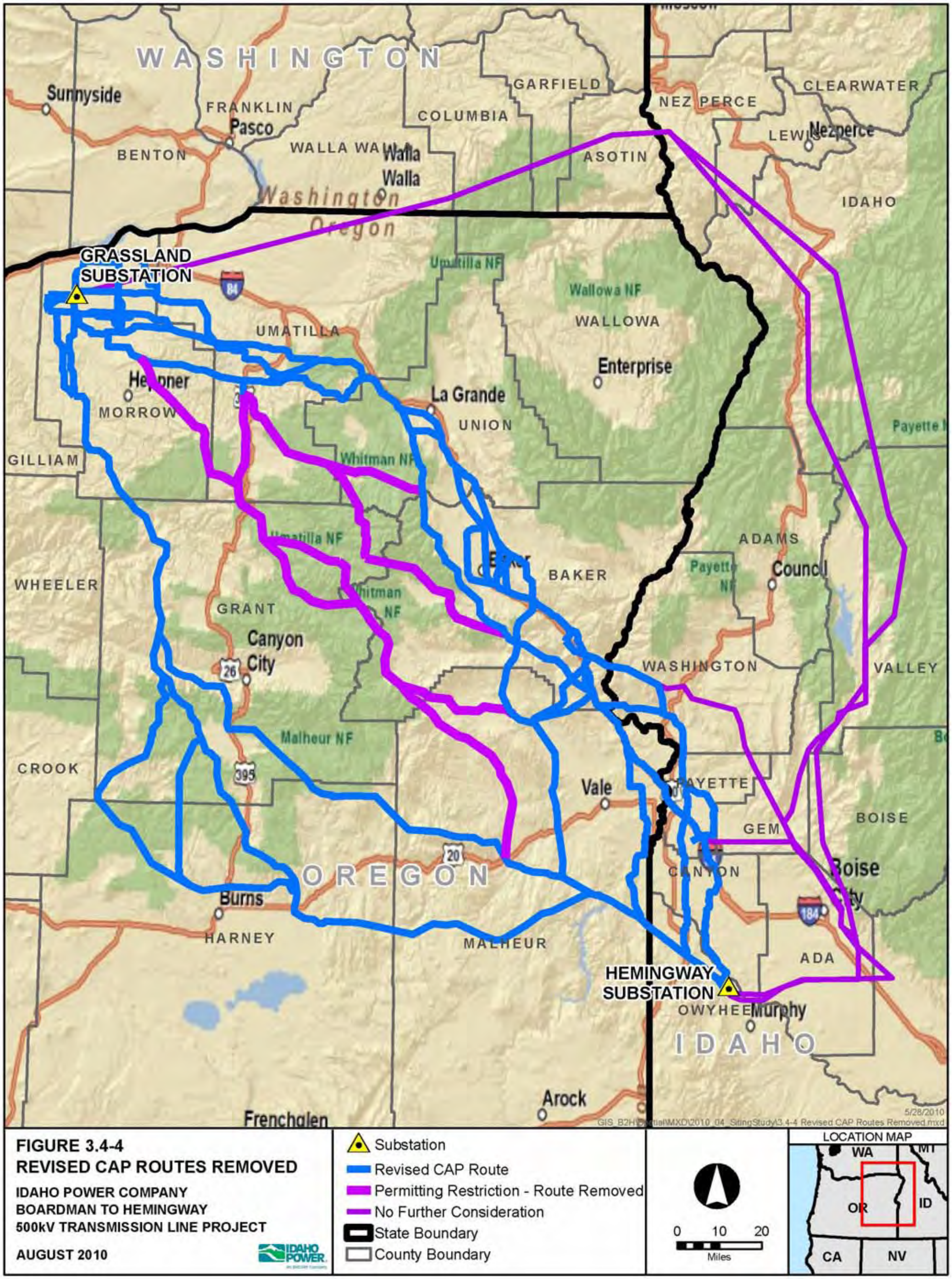

FIGURE 3.4-4
REVISED CAP ROUTES REMOVED
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

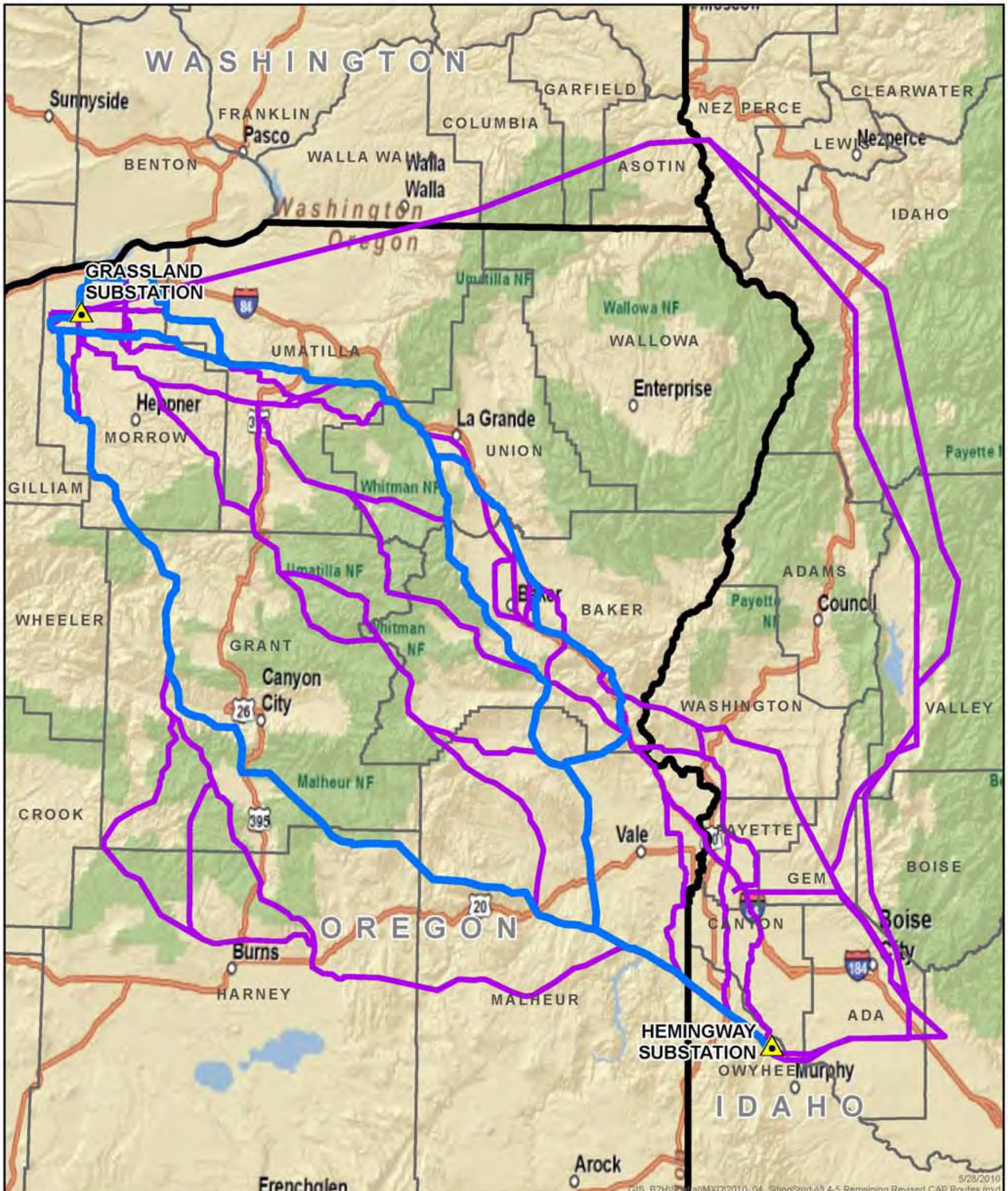

FIGURE 3.4-5
REMAINING REVISED CAP ROUTES
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

Substation
Revised CAP Route
No Further Consideration
State Boundary
County Boundary

FIGURE 3.4-6
WESTERN, CENTRAL & EASTERN ALTERNATIVES
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
AUGUST 2010

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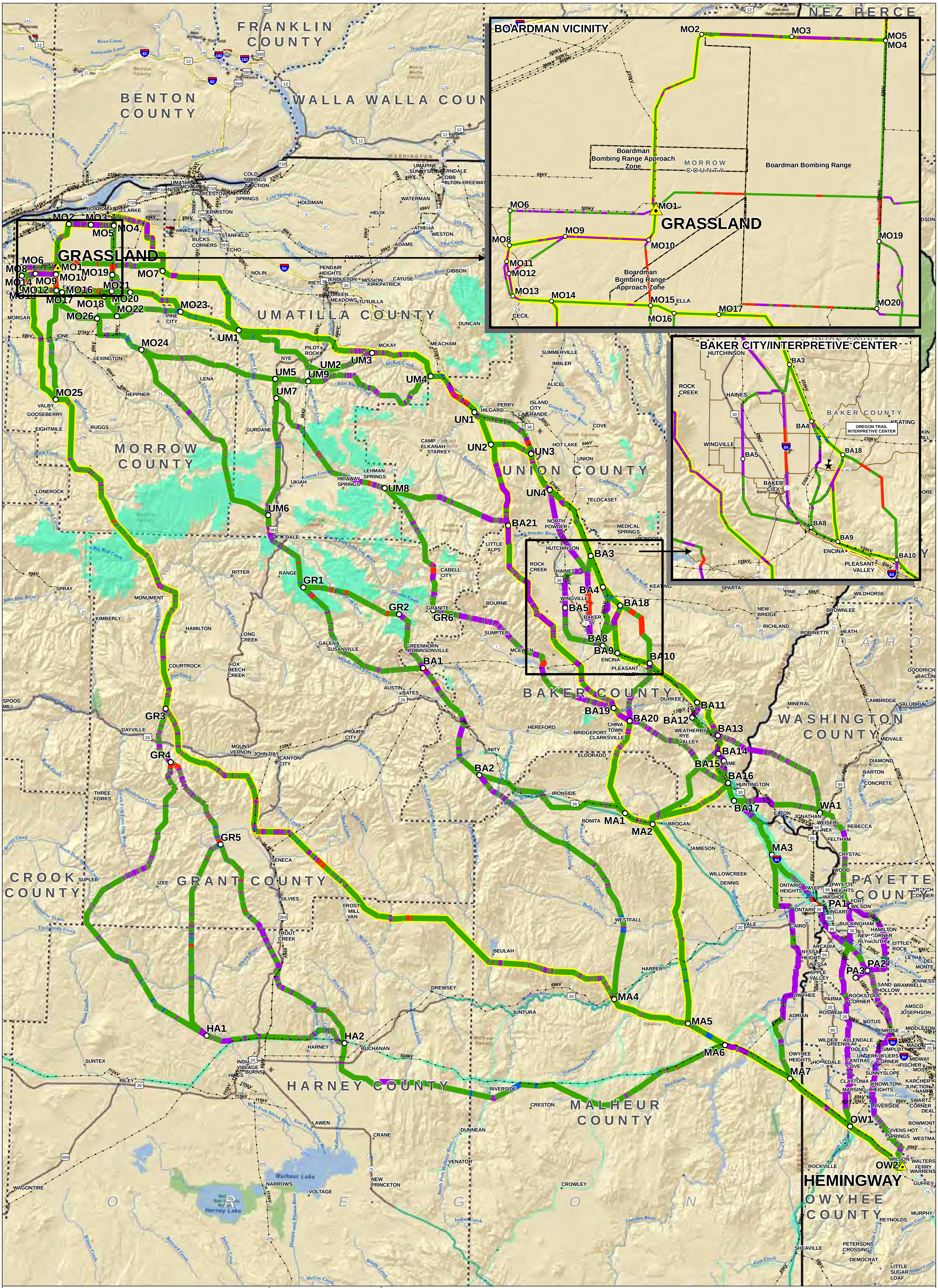

FIGURE 3.4-7
PERMITTING DIFFICULTY ANALYSIS

IDAHO POWER COMPANY
BOARDMAN - HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 5 10
Miles

- Substation
- Route Node
- Low Permitting Difficulty
- Moderate Permitting Difficulty
- High Permitting Difficulty
- Exclusion Area
- Opportunity Area*
- City/Town
- State Boundary
- County Boundary
- Stream/River
- Existing Transmission Line

*Opportunity Area includes the following features:
- National Forest Visual Quality Objective: Maximum Modification
- Within 200ft of Existing Pipeline
- Vale District Utility Corridor
- West-wide Energy Corridor
- National Forest Utility Corridor

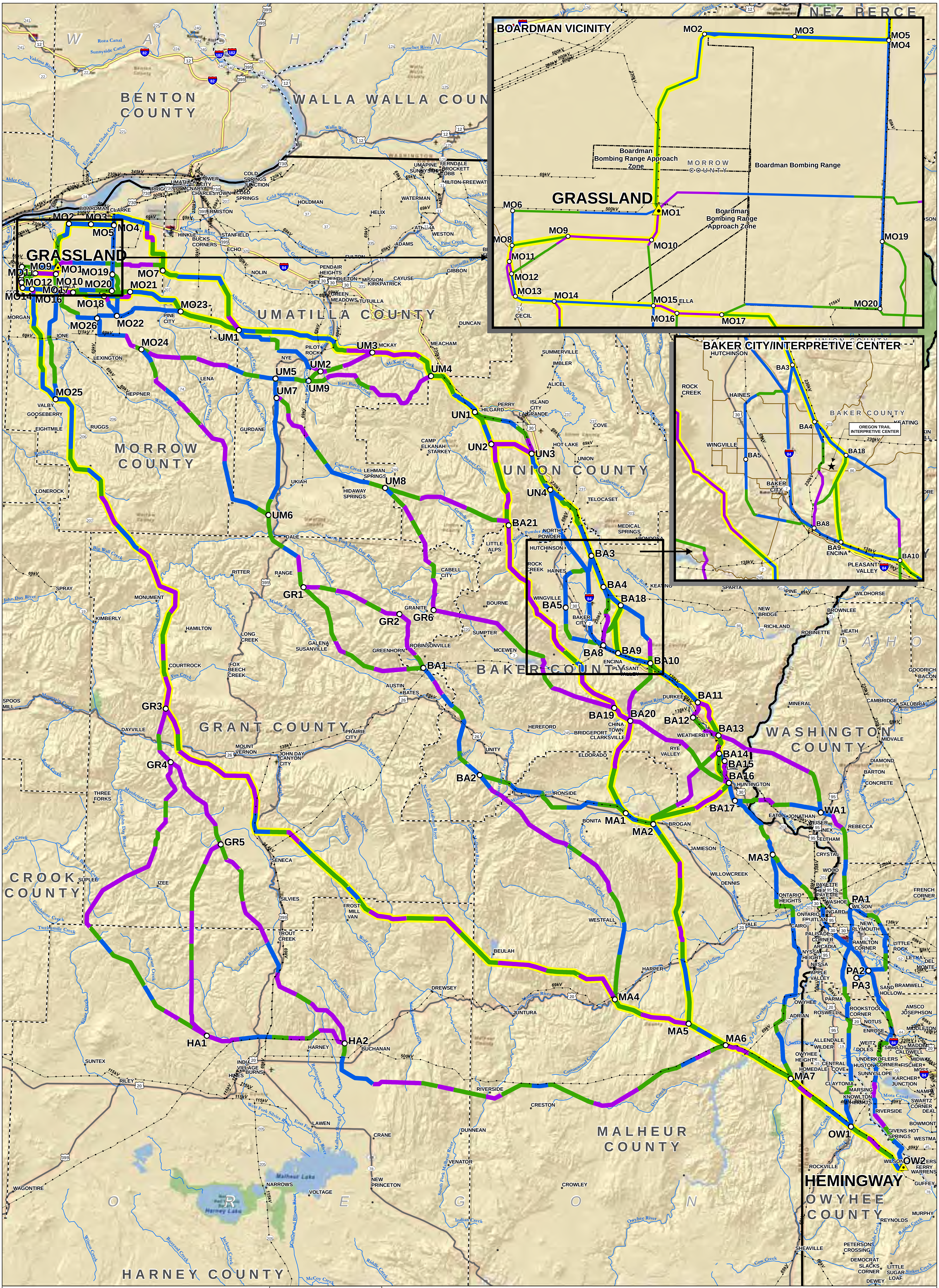

FIGURE 3.4-8
CONSTRUCTION DIFFICULTY ANALYSIS

IDAHO POWER COMPANY
BOARDMAN - HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 5 10
Miles

- Substation
- Route Node
- Low Construction Difficulty
- Moderate Construction Difficulty
- High Construction Difficulty
- City/Town
- Existing Transmission Line
- Stream/River
- State Boundary
- County Boundary

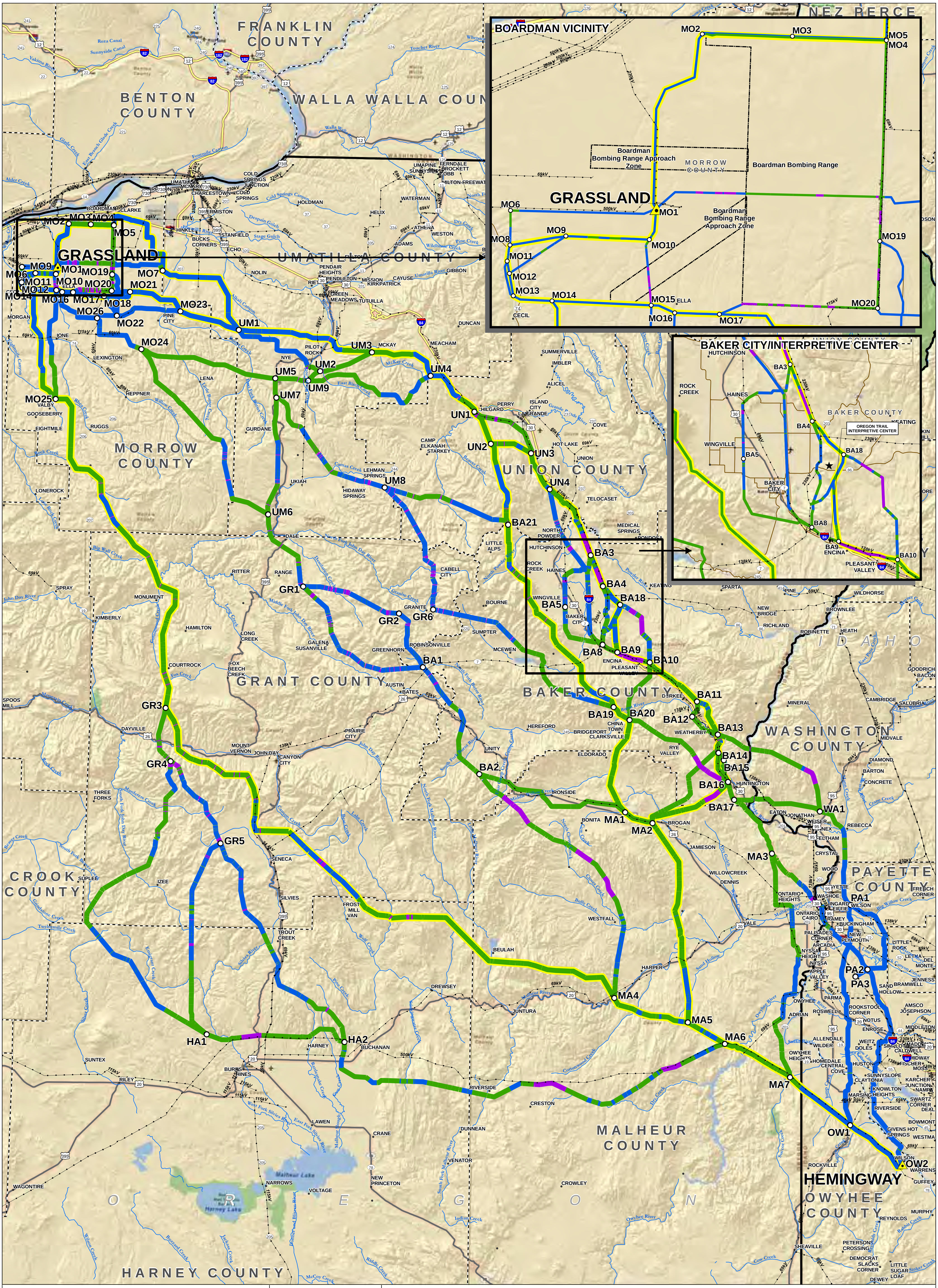

FIGURE 3.4-9
MITIGATION COST ANALYSIS

IDAHO POWER COMPANY
BOARDMAN - HEMINGWAY
500kV TRANSMISSION LINE PROJECT

AUGUST 2010

0 5 10
Miles

- Substation
- Route Node
- Low Mitigation Cost
- Moderate Mitigation Cost
- High Mitigation Cost
- City/Town
- Existing Transmission Line
- Stream/River
- State Boundary
- County Boundary

Table 3.4-1. Summary Route Comparisons

Factors	Western Route	Central Route	Eastern Route
Land Use Characteristics			
Length/Counties Traversed	275/5	282/6	299/6
Private Land	138 Miles (50)	172 Miles (61)	206 Miles (69)
Public Land	137 Miles (50)	110 Miles (39)	93 Miles (31)
Follows Existing Corridors	46 Miles	58 Miles	111 Miles
New Corridor	229 Miles	224 Miles	188 Miles
Resources			
Irrigated Cropland	10 miles	9 miles	22 miles
Forest Clearing	1,754 acres	1,763 acres	681 acres
Rugged Terrain (> 25 slopes)	59 Miles	56 Miles	35 Miles
Special Status Streams	46 Crossings	13 Crossings	8 Crossings
Restrictive FS/BLM Visual Classes	9.1 Miles	25.5 Miles	8.6 Miles
Community and Agency Concerns			
Significant Issues	Community concerns and visual impacts in the John Day Valley and from the Journey Through Time Scenic Byway	Developing areas on the West Side of Baker Valley	Proximity to the National Historic Oregon Trail and Interpretive Center
National Forests	Malheur and Umatilla (45 miles) New Corridor	Wallowa-Whitman (30 miles) New Corridor	Wallowa-Whitman but in a designated utility corridor (5 miles)
High Construction Difficulty	117.1 miles	94.8 miles	61.7 miles

Table 3.4-2. Western, Central, and Eastern Route Mileage Summaries

	Western Route	Central Route	Eastern Route
	Length In Miles		
Permitting Difficulty			
Low	3.5	5.4	6.0
Moderate	220.9	211.9	247.2
High	47.1	64.8	43.7
Exclusion	3.5	1.6	1.8
Construction Difficulty			
Low	62.9	80.2	112.5
Moderate	95.0	108.8	124.6
High	117.1	94.8	61.7
Mitigation Cost			
Low	82.6	136.1	132.6
Moderate	187.0	146.3	154.0
High	5.4	1.3	12.3

3.4.1 Western Route

The Western Route exits the proposed Grassland Substation to the south, heads west for about 6 miles, and then turns south crossing the western part of Morrow County, continuing southwest across Grant, Harney, Malheur, and Owyhee Counties to the Hemingway Substation. Table D-15 in Appendix D shows that, of the three remaining routes for further consideration, the Western Route is the shortest by about 7 to 24 miles and crosses the least private and most public land; however, it parallels the least amount of existing utility and transportation corridors (46 miles) and would require the most new ROW (229 miles).

Although the shortest alternative, the Western Route crosses about 117.1 miles of what has been designated as high difficulty construction conditions, 51.8 miles and 17.8 miles more than the Eastern and Central Routes, respectively. Compared to the Central and Eastern Routes in permitting difficulty, this alternative requires the most new corridor, parallels the least utility corridor, crosses over 30 more special status streams, requires over 1,750 acres of clearing, and would cross about 45 miles through the Malheur and Umatilla National Forests. Overall, the Western Route has 47.1 miles of high permitting difficulty, compared to 43.7 for the Eastern Route and 64.8 for the Central Route as shown in Table 3.4-2.

3.4.2 Central Route

The Central Route also exits the proposed Grassland Substation to the west and then proceeds south. However, as this route passes to the south of the Boardman Grasslands Conservation Area it angles to the east across Morrow and Umatilla Counties and then through the designated utility corridor in the Wallowa-Whitman National Forest. This alternative then turns southeast through Union County and along the west side of the Baker Valley in Baker County. It continues southeast through Malheur and Owyhee Counties into the new Hemingway Substation.

This alternative route is about 7 miles longer than the Western Route and 17 miles shorter than the Eastern Route. It parallels more existing utility and transportation corridor than the Western Route, but 53 miles less than the Eastern Route and it requires 5 miles less new corridor than the Western Route and 36 more miles of new corridor than the Eastern Route.

The Central Route crosses about 56 miles of slopes over 25 percent and would require clearing of approximately 1,760 acres about the same as the Western Route and significantly more than the Eastern Route. The evaluation of construction difficulty shows that the Central Route traverses 22.3 fewer miles of high construction difficulty than the Western Route and 33.1 more miles than the Eastern Route. Much of this difficulty would happen along the west side of the Baker Valley.

Significant permitting concerns include the 30 miles through the Wallowa-Whitman National Forests, potential visibility of the line on the west side of Baker Valley, 224 miles of new corridor, and about 1,760 acres of clearing. As shown on Table 3.4-2, this alternative route crosses more miles of high permitting difficulty than the Eastern or Western Routes.

3.4.3 Eastern Route

The Eastern Route is similar to the Central Route except that it exits the proposed Grassland Substation to the north and east around the Boardman Bombing Range and then proceeds southeastward. It joins the Central Route at the Morrow/Umatilla County line about 2 miles east of Four Corners. The two alternatives continue together to the southeast end of the Wallowa-Whitman utility corridor. At this point the Eastern Route proceeds to the southeast across Union County and then into the Baker County following the east side of the Baker Valley. The Eastern Route rejoins the Central Route in northern

Malheur County and then continues generally southeast across this county and Owyhee County to Hemingway Substation.

Although this alternative is 17 miles longer than the Central Route and 7 miles longer than the Western Route, it requires significantly less new corridor and parallels significantly more existing utility and transportation corridor. Also, this alternative crosses more than 20 fewer miles of slopes over 25 percent, requires over 1,000 less acres of clearing, and has 33 to 55 fewer miles designated as high construction difficulty (see Table 3.4-2).

The Eastern Route has the least miles designated high permitting difficulty, parallels the most existing corridor, requires the least new corridor, requires significantly less clearing, and avoids creating a new utility corridor through one or more National Forests. An important permitting issue remaining for this route is related to crossing the Oregon National Historic Trail and proximity to the National Historic Oregon Trail Interpretive Center.

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4 PROPOSED AND ALTERNATIVE ROUTES

After analysis of each of the three remaining alternatives, Idaho Power selected the Eastern Route as the Proposed Route (see Figure 4-1). Compared to the Western and Central Routes, the Eastern Route:

- Requires 36 to 41 fewer miles of new corridor;
- Parallels existing utility corridors for 53 to 65 miles more;
- Requires over 1,000 fewer acres of clearing;
- Would be significantly less difficult to construct; and
- Would not create a new 30- to 45-mile utility corridor through one or more National Forests.

In addition, compared to the Central Route the Proposed Route crosses 33.1 fewer miles designated as high construction difficulty and 21.1 fewer miles designated high permitting difficulty and will not require a plan amendment to designate a utility corridor in the Wallowa-Whitman National Forest. The Western Route would have a similar degree of permitting difficulty as the Proposed Route, but would require plan amendments for utility corridors crossing the Malheur and Umatilla National Forests and would traverse 55.1 more miles designated high construction difficulty.

Idaho Power transmission line engineers reviewed the Proposed Route for constructability, making changes to minimize construction difficulty. In addition, the route was modified in the Burnt River Region (as described in Section 3.3.10) after spring 2010 aerial surveys discovered new active sage-grouse leks. As additional data are collected, more detailed engineering is developed, and additional public input is received, Idaho Power expects further changes to the Proposed Route.

4.1 Proposed Route Description by County

4.1.1 Segment 1—Morrow County

The majority of this northernmost 36.2-mile segment crosses irrigated agricultural land and poplar tree farms owned by private individuals, except for the 8.1-mile segment that crosses the Boardman Bombing Range owned by the Department of Defense. The line passes to the south and east of the city of Boardman and follows I-84 for about 6 miles.

Segment 1 begins at the proposed Grassland Substation, which is the northern terminus of the B2H Project (see Figure 4.1.1-1 and Appendix E, Maps 1 to 7). The proposed substation site is located west of the Boardman Power Plant and south of the city of Boardman in northern Morrow County. The Proposed Route exits the Grassland Substation site to the northwest, crossing and then paralleling the west side of an unpaved and unnamed road and the Bonneville Power Administration (BPA) Boardman-Dalreed PACW 230-kV line for about 1.6 miles. In the segment between mileposts (MPs) 1.8 and 2.8, the proposed 500-kV line parallels an existing 230-kV line and the west side of Tower Road and crosses the approach zone to the Boardman Bombing Range. At MP 3.7 the existing 230-kV line angles to the west and the Proposed Route will cross over this wood-pole H-frame line.

At about MPs 4.8 and 5.4 the Proposed Route crosses an unpaved and unnamed road in a location where the road curves northeast to avoid several irrigation pivots. The route then parallels the northwest side of this road for approximately 1.2 miles before crossing Tower Road and paralleling its east side for about

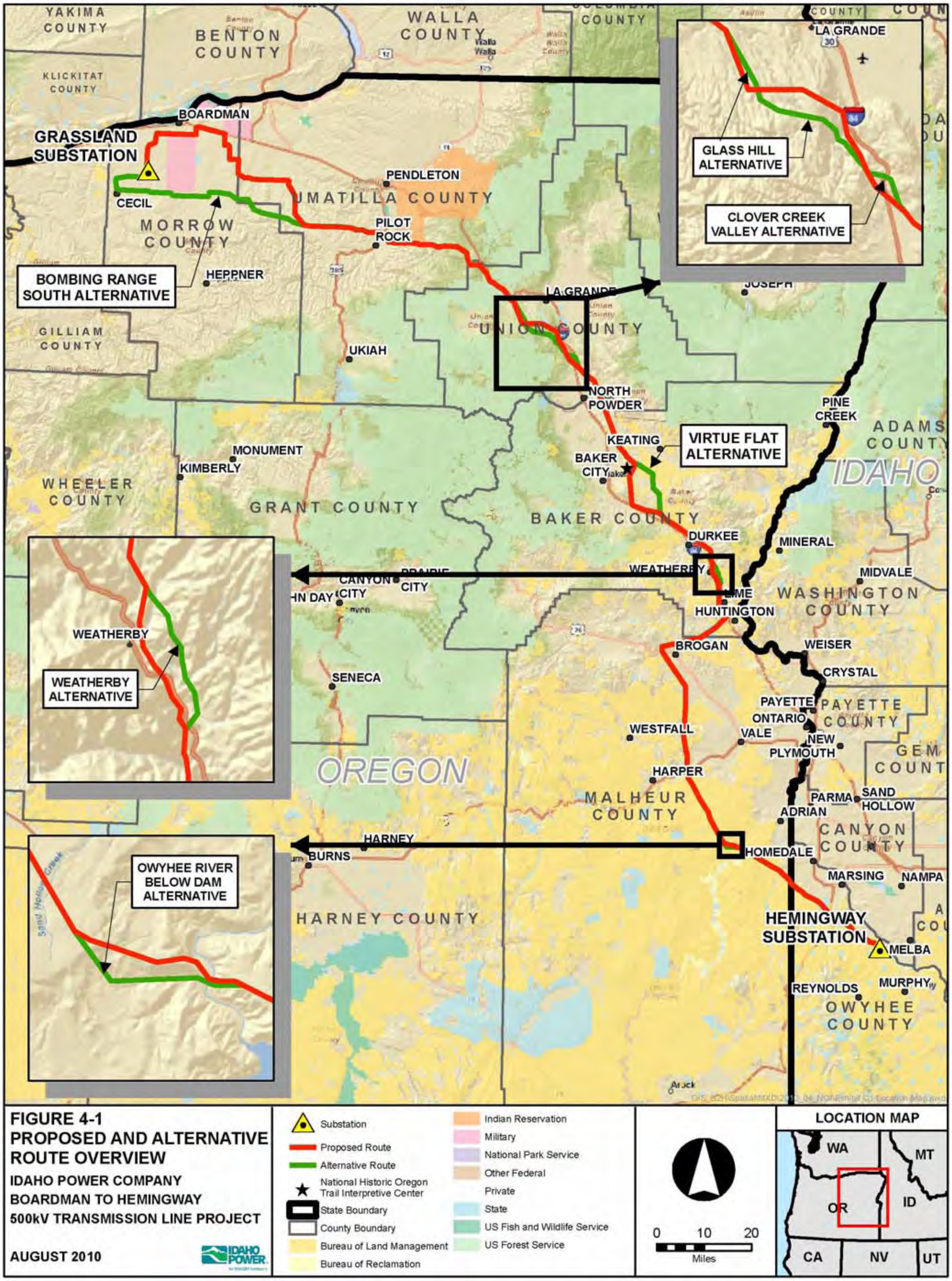


FIGURE 4-1
PROPOSED AND ALTERNATIVE ROUTE OVERVIEW
IDAHO POWER COMPANY
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT
AUGUST 2010

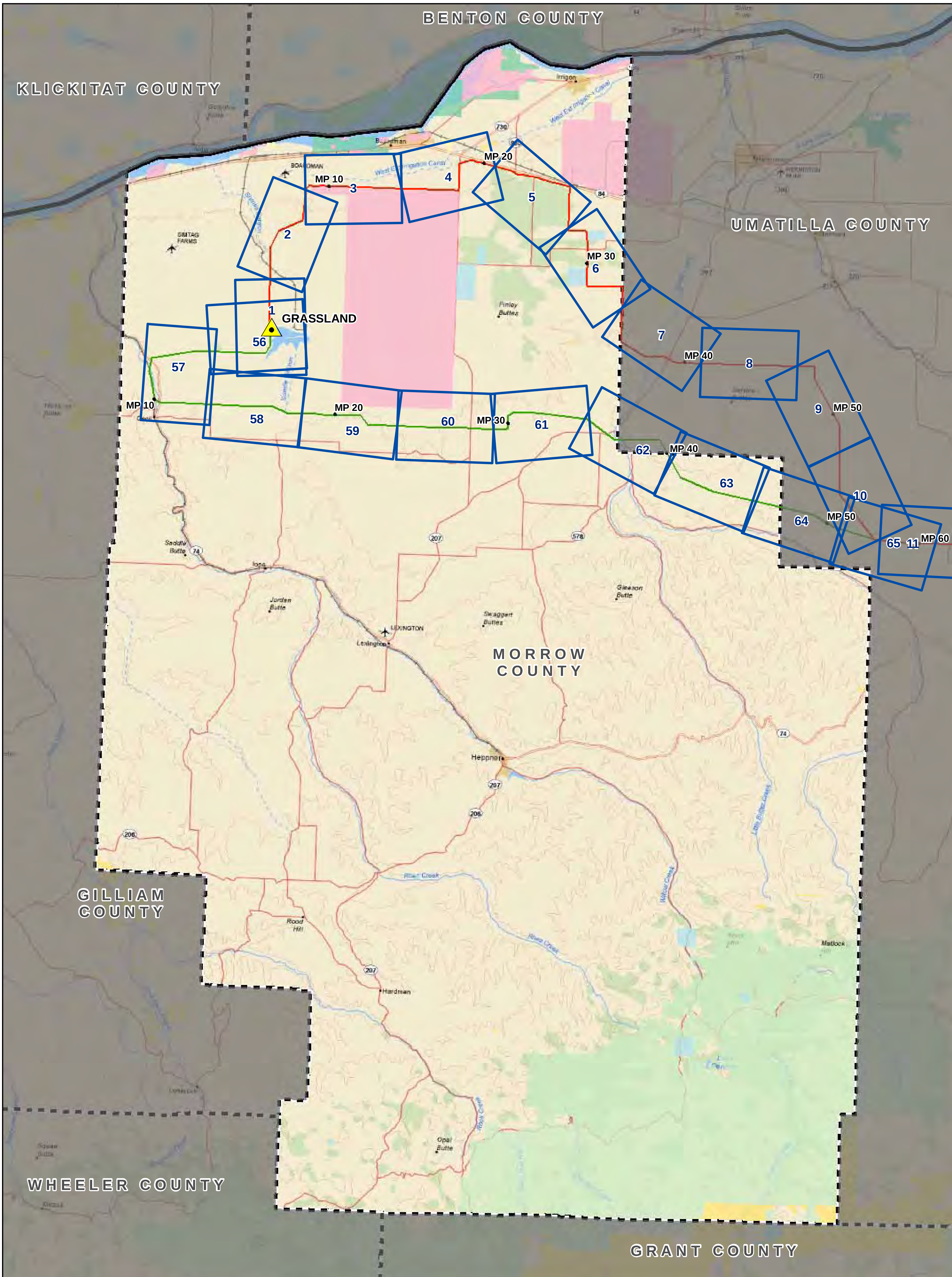


FIGURE 4.1.1-1
SEGMENT 1-MORROW COUNTY, OR

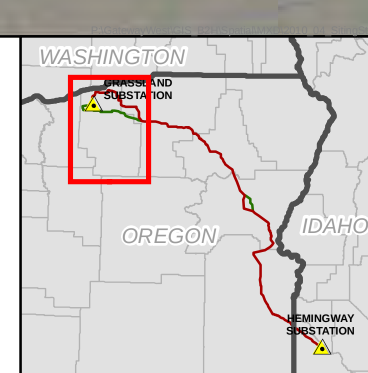
BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

IDAHO POWER
An IDACORP Company

0 5
Miles

Appendix E Map Sheet
Substation
Ten Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
Bureau of Land Management
Bureau of Reclamation
Indian Reservation
Military
National Park Service
Other Federal
Private
State
US Fish and Wildlife Service
US Forest Service



2 miles. At MP 8.6 it turns northeast, crossing into the Boardman Bombing Range at MP 9.0 and paralleling the south side of its northern boundary for 8.1 miles to its eastern boundary.

After crossing the Boardman Bombing Range, the Proposed Route turns almost due north and parallels the west side of Bombing Range Road and a BPA 115-kV line for about 1.5 miles. At MP 18.6 on the south side of Wilson Road the route angles northeast crossing Bombing Range Road, the BPA 115-kV line and the Umatilla Electric Cooperative Association 69-kV line to join the south side of I-84 at MP 19.3. The route parallels I-84 for 5.6 miles to MP 24.9 where it turns south following the border of a poplar tree farm. At MP 36.2 the Proposed Route turns southeast into Umatilla County, passing south of a wind farm and north of Echo Wind Farm.

As described in greater detail in Section 4.2, Idaho Power has included an alternative for this first segment of the Proposed Route called the “Bombing Range South Alternative.”

4.1.2 Segment 2—Umatilla County

Segment 2 of the Proposed Route is approximately 61 miles long and crosses only privately owned land. The Proposed Route (see Figure 4.1.2-1 and Appendix E, Maps 7 to 18) crosses into Umatilla County about 5.0 miles north of Butter Creek Junction and almost immediately crosses the Oregon National Historic Trail. It then continues generally southeast for about 1.6 miles before angling east and descending into and crossing Butter Creek (MP 38.2) and State Route 207 (MP 39.1). On the east side of State Route 207 this route continues eastward for 8.0 miles and passes along the north side of Service Buttes. At MP 47.1 the route turns due south to MP 47.8 where it angles southeast, crossing Alkali Canyon twice. It then turns due south on the south side of the canyon at MP 50.7 and angles southeast at MP 54.5 to continue across Spikes Gulch and Slusher Canyon.

From MP 57.6, the Proposed Route proceeds nearly due east, crossing Slusher Canyon and Alkali Canyon once more. The route continues in this general direction for about 16.7 miles where it turns slightly southeast and crosses Birch Creek (MP 74.3) and U.S. Route 395 (MP 74.5) about 2.9 miles northeast of Pilot Rock. The route continues southeast and at MP 77.0 it turns east paralleling about 0.5 mile to the south of the Umatilla Indian Reservation boundary for approximately 6.7 miles. The route crosses Little McKay Creek at MP 77.0 and then McKay Creek at about MP 84.7, about 0.7 mile south of McKay, and continues east.

At MP 91.3 the Proposed Route turns southeast after crossing Red Spring Canyon. The route continues about 5.3 miles to MP 96.5 where it turns due east passing along the southern boundary of a Umatilla National Forest Service land parcel and entering Union County at approximately MP 97.2.

As described in greater detail in Section 4.2, Idaho Power’s “Bombing Range South Alternative” provides an alternative route for the beginning of Segment 2 in Umatilla County.

4.1.3 Segment 3—Union County

Figure 4.1.3-1 and Appendix E, Maps 18 to 25, show the location of the Proposed Route in Union County. The Proposed Route crosses Union County for 40.2 miles, with 6.3 miles in the Wallowa-Whitman National Forest Utility Corridor, 0.7 mile across the Vale District of the BLM, and the rest on privately owned lands.

After entering Union County, the Proposed Route continues east for 1.3 miles crossing an existing railroad, the Blue Mountain Forest Wayside, Old U.S. Highway 30, and Summit Road twice before turning southeast at MP 98.4. At this location the Proposed Route begins running parallel, (offset approximately 1,200 feet) to the south and west sides of an existing BPA 230-kV line. About 2.0 miles farther, the Proposed Route leaves the existing transmission line and continues southeast along the east side of Railroad Canyon, which it crosses at MP 103.5. Proceeding southeast, the route crosses National Forest Development (NFD) 21 Road (MP 104.4) and the existing BPA 230-kV line (MP 104.9) mentioned earlier. In the 8.8-mile section from MP 98.4 to 107.2, the Proposed Route is 0.25 mile to 0.75 mile southwest of I-84 with 6.3 miles in the existing Wallowa-Whitman National Forest utility Route. Idaho Power's application to the USFS for a Special Use Permit includes this 6.3-mile segment.

At MP 106.9 the Proposed Route angles southeast and crosses the existing 230-kV line a second time at MP 107.4. About 0.5 mile farther it turns to cross the Grande Ronde River and State Route 244 approximately one mile south of I-84. At about 0.9 mile southeast of State Route 244 the route angles to parallel a ridge on the east side of Whiskey Creek and crosses Whiskey Creek Road at about MP 111.4. The route continues parallel to the ridges to MP 114.4 where it angles due east for 4.3 miles crossing Little Graves Creek, Graves Creek, Little Rock Creek, and Rock Creek. On the north side of Glass Hill (MP 118.7) the Proposed Route angles southeast, crossing Glass Hill Road and Sheep Creek. The route continues for 3.5 miles to MP 122.2 where it again angles almost due south to cross Ladd Creek and Ladd Canyon Road (about MP 123.6).

On the south side of Ladd Creek and Ladd Canyon Road, the route continues for about 6.1 miles on the west side of I-84 until it crosses this highway and Ladd Canyon-North Powder Road at approximately MP 129.7. On the east side of I-84 the route crosses Heber Road and the Oregon National Historic Trail and then continues southeast on the northeast side of Clover Creek Valley, generally parallel to an existing Idaho Power 230-kV line and offset from that line to the southwest by more than 2,500 feet. At MP 133.4 the Proposed Route crosses Jimmy Creek Road and at approximately MP 134.6 it crosses the northern end of Jimmy Creek Reservoir.

The route continues southeast, maintaining at least a 1,500-foot offset from the existing 230-kV line, and crosses State Route 237 at MP 136.0. About 1.4 miles farther southeast it crosses the Powder River and the Union County/Baker County line into Baker County at about MP 137.4.

As described in greater detail in Section 4.2, Idaho Power has included two alternatives for short segments of the proposed Route through Union County: the Glass Hill Alternative and the Clover Creek Valley Alternative.

4.1.4 Segment 4—Baker County

The Proposed Route crosses Baker County for 68.2 miles as shown on Figure 4.1.4-1 and Appendix E, Maps 25 to 37. Approximately 16.0 miles of Segment 4 cross BLM-managed lands in the Vale District and about 3.0 miles cross state and local government property.

Once across the Powder River, the Proposed Route continues southeast and is generally offset 1,500 feet west of the existing Idaho Power 230-kV line for about 13.2 miles to MP 150.6. In this segment the terrain is hilly and the Proposed Route passes across the west side of Riverdale Hill and the east side of Magpie Peak.

From MP 150.6 the Proposed Route angles more southeasterly crossing over the existing 230-kV line at MP 151.3 and State Route 203 at about MP 152.0. At MP 155.2 the proposed 500-kV line turns southwest and crosses State Route 86, Ruckles Creek Road, and the Oregon National Historic Trail before proceeding to the first ridgeline. At its closest, this segment of the Proposed Route is 1.1 mile east of the National Historic Oregon Trail Interpretive Center (Center) and 0.4 mile from the Flagstaff ACEC

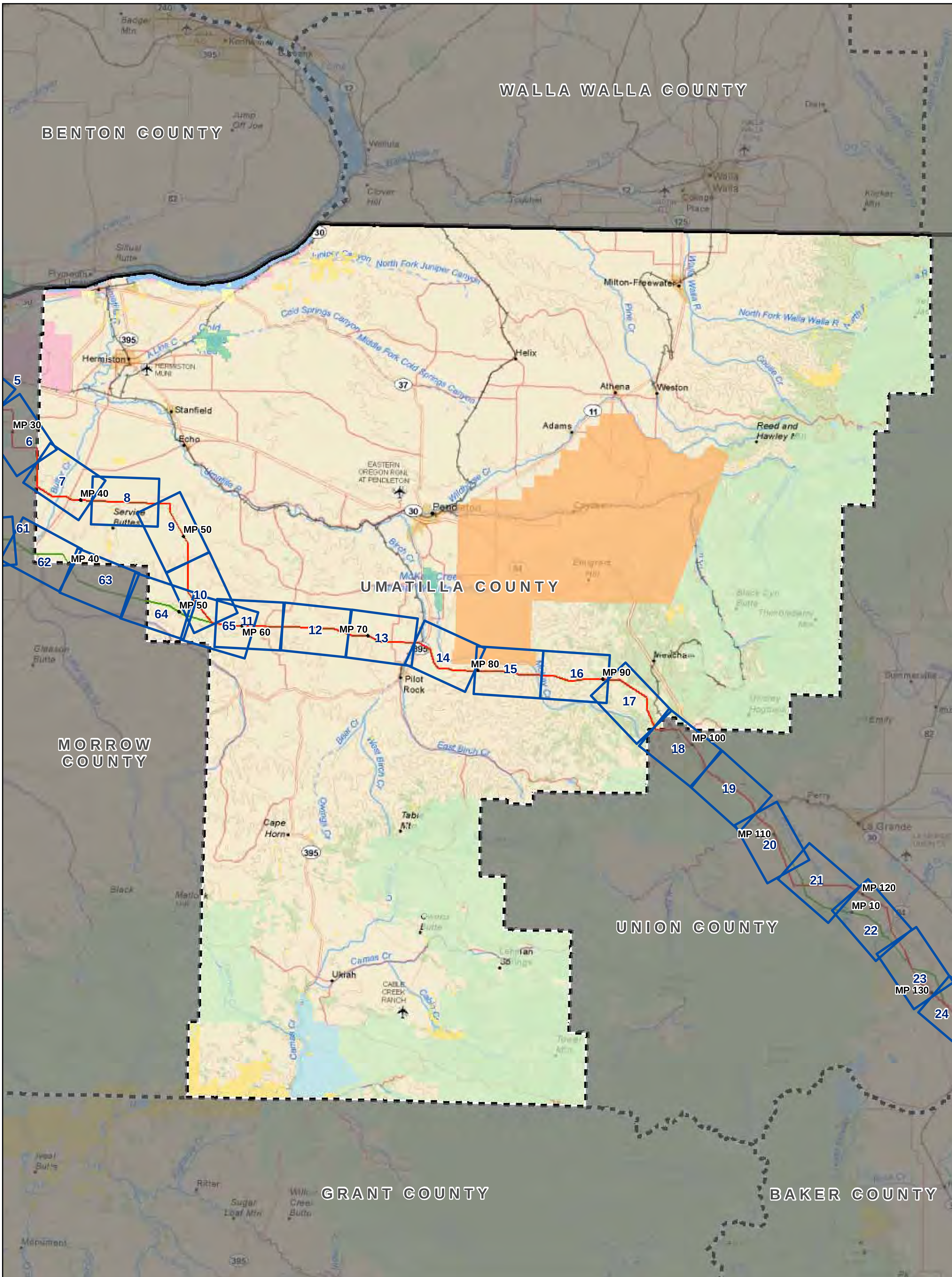


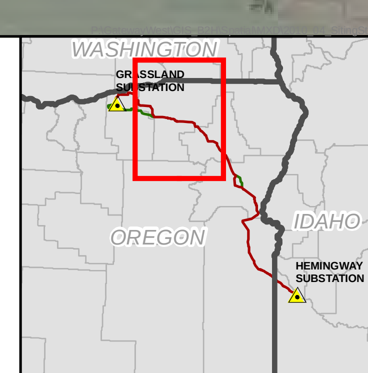
FIGURE 4.1.2-1
SEGMENT 2-UMATILLA COUNTY, OR

BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

0 5
Miles

- Appendix E Map Sheet
- Substation
- Ten Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- Bureau of Land Management
- Bureau of Reclamation
- Indian Reservation
- Military
- National Park Service
- Other Federal
- Private
- State
- US Fish and Wildlife Service
- US Forest Service



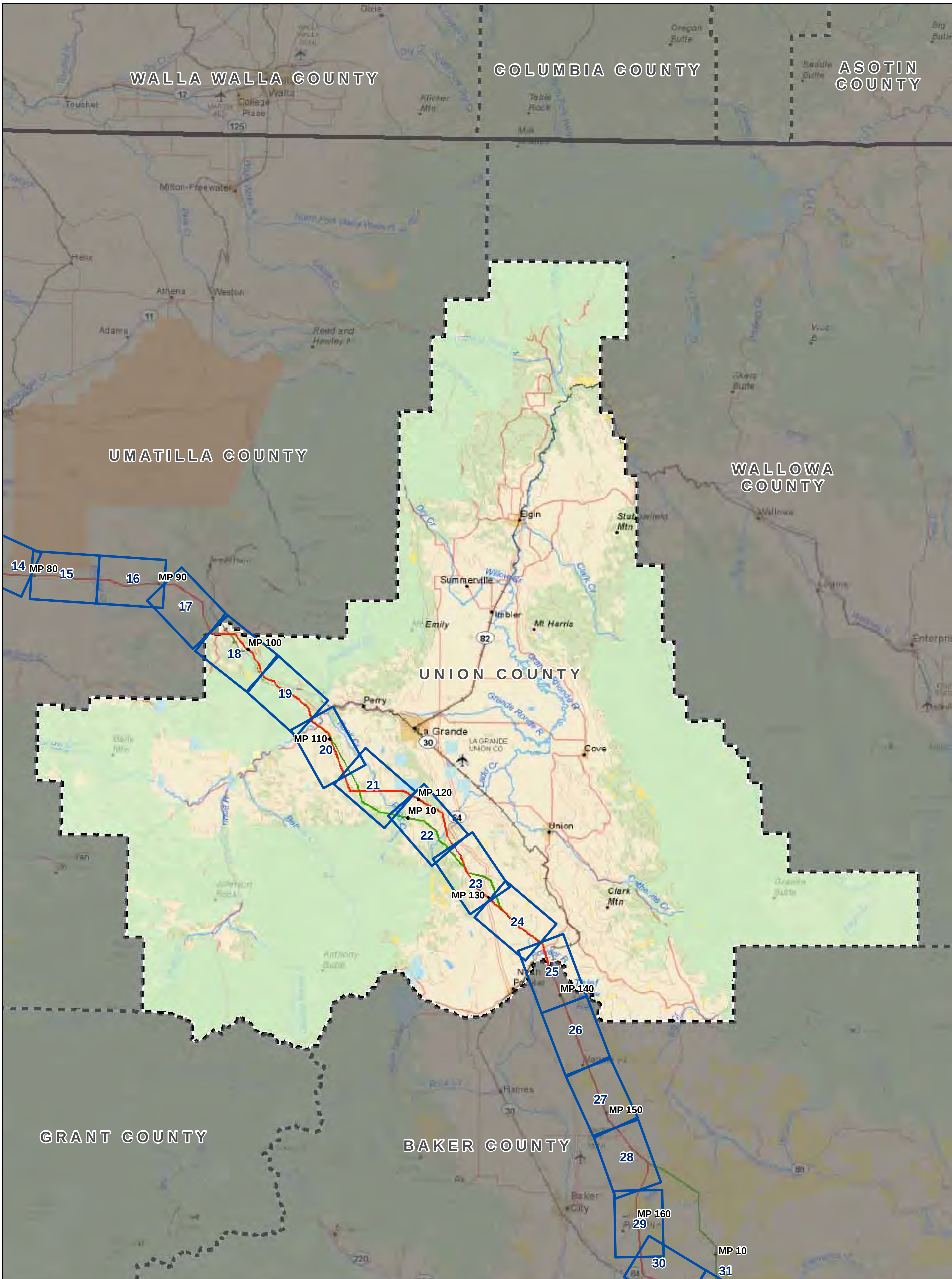


FIGURE 4.1.3-1
SEGMENT 3-UNION COUNTY, OR

BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

IDAHO POWER
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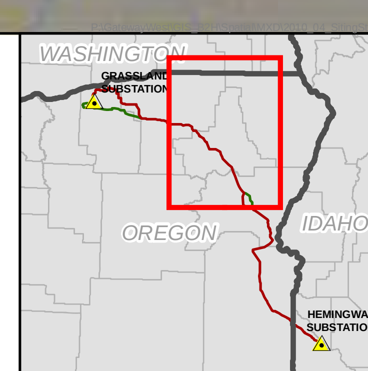
Miles

Appendix E Map Sheet	Bureau of Reclamation
Substation	Indian Reservation
Ten Mile Marker	Military
Proposed Route	National Park Service
Alternative Route	Other Federal
State Boundary	Private
County Boundary	State
Bureau of Land Management	US Fish and Wildlife Service
	US Forest Service



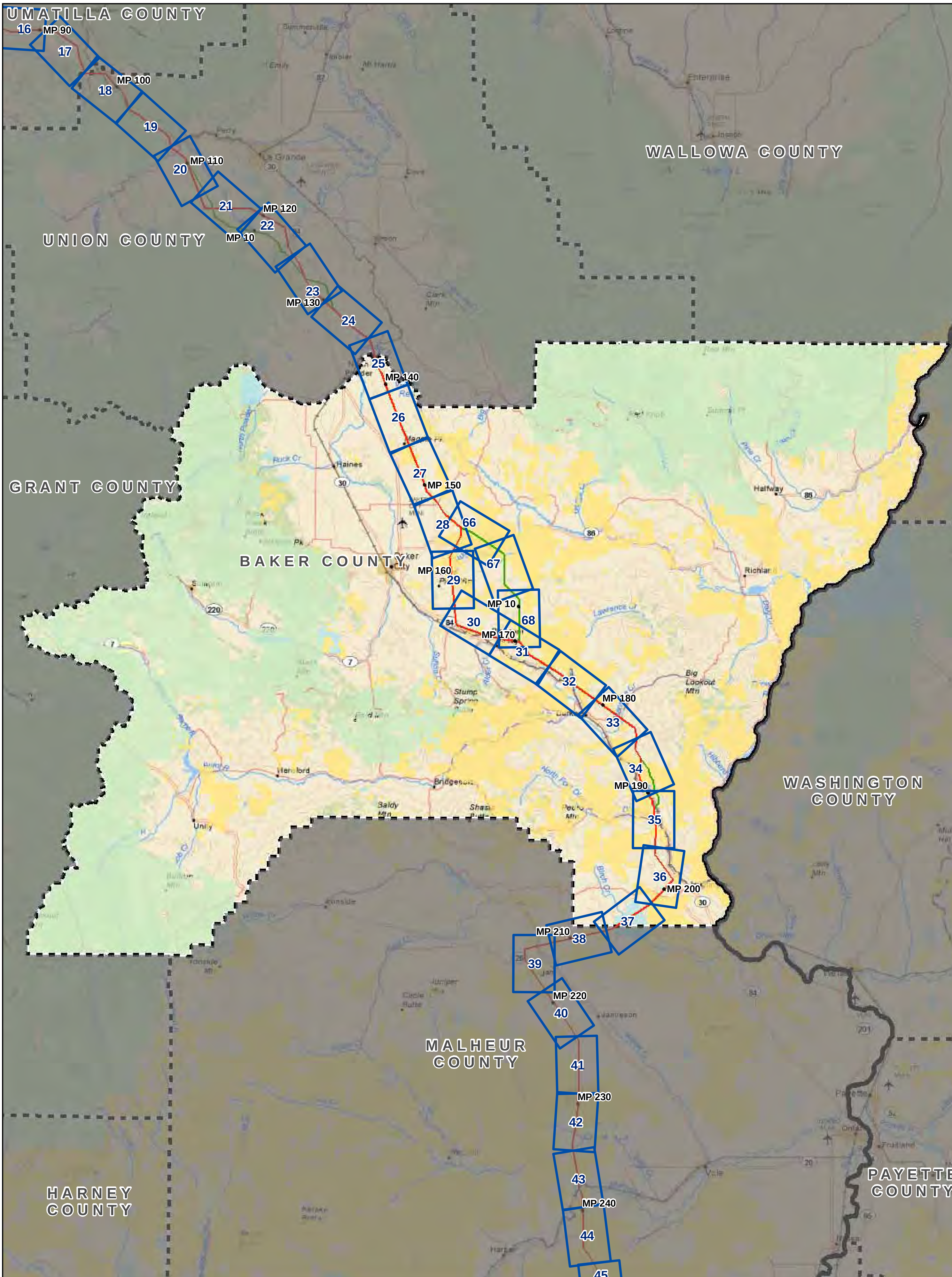


FIGURE 4.1.4-1
SEGMENT 4-BAKER COUNTY, OR

BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

IDAHO POWER

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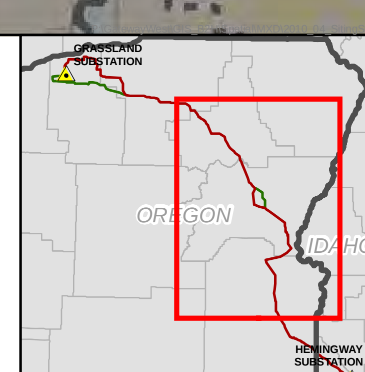
Miles

- Appendix E Map Sheet
- Substation
- Ten Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- Bureau of Land Management
- Bureau of Reclamation
- Indian Reservation
- Military
- National Park Service
- Other Federal
- Private
- State
- US Fish and Wildlife Service
- US Forest Service



boundary which includes the Center. It continues southwest across to MP 158.1 where it turns south and proceeds approximately 6.1 miles to MP 164.2. It then crosses an existing 69-kV line and an existing 138-kV transmission line just northeast east of I-84 and about 4.5 miles southeast of Baker City.

The Proposed Route remains generally in the same route with the existing 138-kV and 69-kV facilities on the northeast side of I-84 for about 2.5 miles and then crosses the 69-kV line (MP 167.1) and 138-kV line (MP 169.1) while passing to the north and east of Pleasant Valley. After crossing the Oregon National Historic Trail at MP 170.0, the Proposed Route continues southeast, passing northeast of the community of Durkee. The proposed 500-kV line will cross Hindman Road and Lawrence (Pritchard) Creek at about MP 176.6, Iron Mountain Road at MP 177.9, Durkee Creek at MP 178.8, Vandecar Road at MP 178.9, and Manning Basin Road at MP 181.7.

The route continues southeast across Manning Creek and North Fork Swayze Creek until MP 183.7, where the route angles south and crosses the Oregon National Historic Trail at MP 184.3. The route continues south, passing east of Gold Hill and crossing the Oregon National Historic Trail a second and third time at MP 188.2 and MP 188.5 before joining with the existing 69-kV and 138-kV Route at MP 188.6, near the community of Weatherby. At MP 189.6 the route crosses the existing 138-kV and 69-kV facilities before crossing I-84 and Burnt River at MP 189.7 and 189.8. The route then proceeds south passing along the east side of the Weatherby Mountains while parallel to the west side of the existing 138-kV line.

At the southern end of the Weatherby Mountains, the Proposed Route crosses Dixie Creek and Dixie Creek Road at about MP 192.8 and passes east of Table Rock while continuing to follow the west side of the existing 138-kV line. At MP 198.7, after crossing Cavanaugh Creek, the Proposed Route leaves the 138-kV line and proceeds southwest approximately 0.3 mile west of I-84.

In proceeding southwest the Proposed Route passes northwest of Lost Tom Mountain and crosses Malheur Reservoir Road and Durbin Creek at about MP 200.7. The route passes southeast of Limestone Butte, north of Little Valley, and continues southwest across Birch Creek before entering Malheur County at MP 205.6.

As described in greater detail in Section 4.2, Idaho Power has included two alternatives for short segments of the proposed Route through Baker County: the Virtue Flat Alternative and the Weatherby Alternative.

4.1.5 Segment 5—Malheur County

The Proposed Route crosses 70.7 miles of northeast Malheur County as shown on Figure 4.1.5-1 and in Appendix E, Maps 37 to 51. In addition to 23.4 miles across privately owned land, 46.8 miles of Segment 5 cross BLM-managed land and 0.5 mile of the route is across Bureau of Reclamation land.

Entering Malheur County at MP 205.6, the route angles southwest, crossing to the north of Matthew Gulch. Continuing southwest, the route crosses Phipps Creek at MP 207.2, an unnamed road at MP 207.4, followed by the West Fork Phipps Creek at MP 208.1, before proceeding across another unnamed road to Becker Creek at about MP 212.1. Traversing a steep canyon between MPs 212.8 and 213.3, the Proposed Route crosses Willow Creek Road and Willow Creek before angling due south at about MP 214.2. Heading south, the route crosses US Route 26 just after MP 215.0 and Canyon Creek at MP 215.1. On the south side of U.S. Route 26, the transmission line route angles southeast (MP 215.5) and continues in this direction for 8.5 miles passing west of Pole Creek Reservoir and approximately 1.8 miles west of the community of Brogan.

At MP 224.0, the route angles south, passing east of Morrison Reservoir and between Hope Butte and Sugarloaf Butte. Passing west of the Bully Creek Reservoir, the route crosses Cottonwood Creek at MP 232.7, approximately 1.0 mile northwest of its confluence with Bully Creek. At MP 233.8 the Proposed Route turns southeast crossing Bully Creek at MP 234.0, the Vale Oregon Canal at MP 237.2, the Malheur River and Malheur Canyon at MP 237.7 and the Union Pacific Railroad at MP 237.9. Approximately 4.5 miles farther south at MP 242.4, the Proposed Route crosses U.S. Route 20 before angling southeast at MP 243.5.

For the next 15.7 miles the route continues southeasterly across Malheur County, crossing Sand Hollow and passing southwest of Sagebrush Gulch. At MP 259.2, the line crosses the existing Summer Lake to Midpoint 500-kV line and Grassy Mountain. At about MP 261.3 the route begins its descent down to the Owyhee River, which it crosses at about MP 262.3, approximately 1.5 miles north and west of the Owyhee Dam.

After crossing the Owyhee River the Proposed Route proceeds easterly before turning southeast at MP 262.7 where it parallels the existing Summer Lake to Midpoint 500-kV line at a minimum offset distance of about 1,500 feet. The route continues southeast parallel to the existing 500-kV line crossing Long Draw, North Alkali Creek, and Succor Creek. At MP 276.3 the Proposed Route leaves Malheur County, Oregon, and enters Owyhee County, Idaho.

As described in greater detail in Section 4.2, Idaho Power has included one alternative for a short segment of the proposed Route through Malheur County: the Owyhee River Below Dam Alternative.

4.1.6 Segment 6—Owyhee County

The Proposed Route enters Owyhee County south of Graveyard Point and southwest of Rattlesnake Butte, and continues southeast generally parallel and offset to the southwest of the Summer Lake to Midpoint 500-kV line in the hills and desert bordering the Snake River Valley. Figure 4.1.6-1 and Appendix E, Maps 51 to 68 show the location of the 23.5-mile Proposed Route in Owyhee County, 17.3 miles of which are located on BLM-managed land.

The route passes northeast of Flat Top Butte before crossing Poison Creek at MP 281.9 and continuing to the northeast side of the South Canal. It then crosses Jump Creek Road at MP 283.3 and U.S. Route 95 at MP 287.0. Continuing southeast, the Proposed Route passes to the south of Elephant Butte and across Squaw Creek before crossing Coyote Grade Road at MP 291.1. At MP 297.2, the route angles east crossing the 500-kV line at MP 297.6 where it turns south, crossing Wilson Creek Road at MP 299.1. The route then crosses Reynolds Creek at MP 299.4, turns southwest, and enters the Hemingway Substation at MP 299.8.

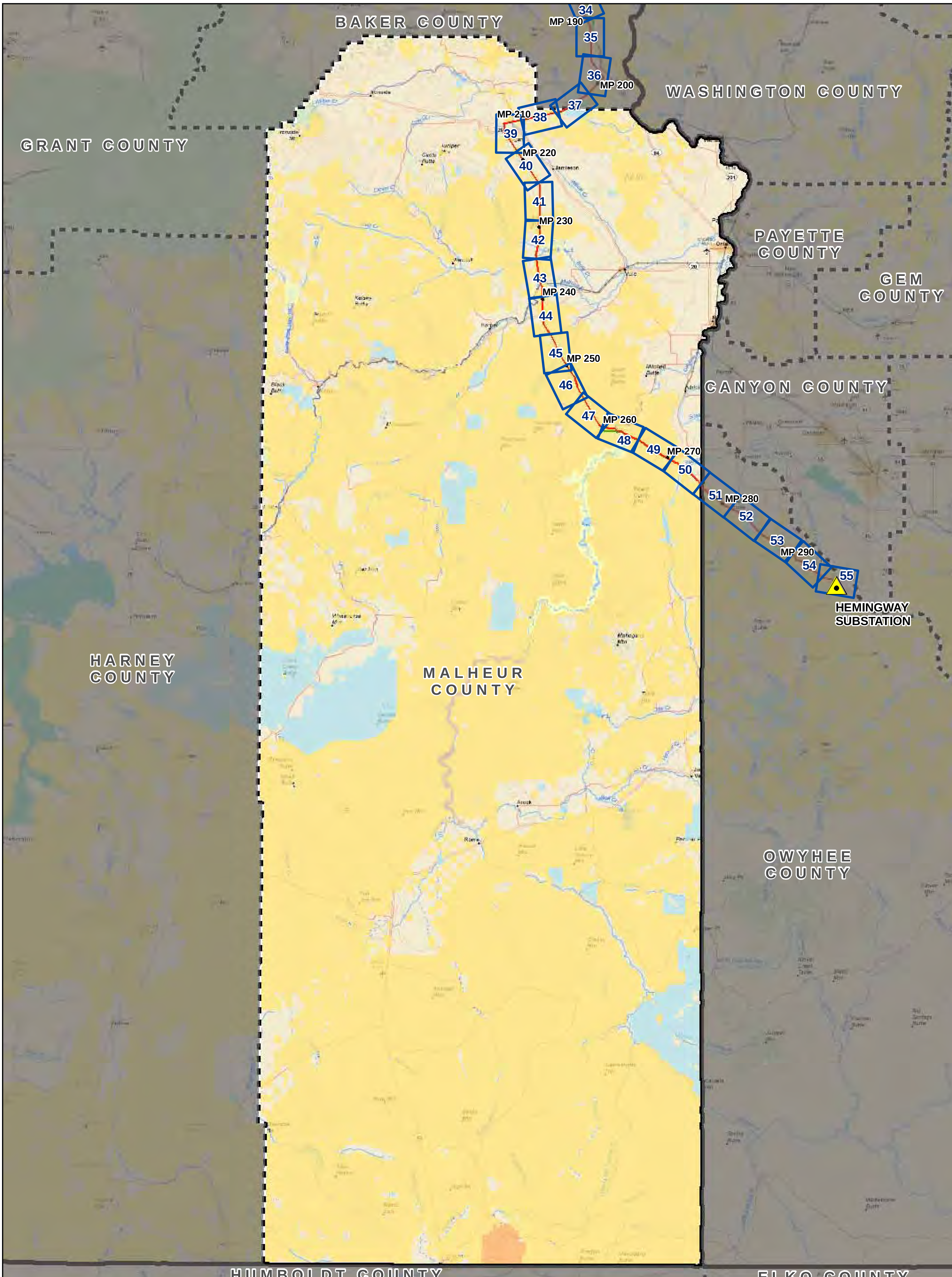


FIGURE 4.1.5-1
SEGMENT 5-MALHEUR COUNTY, OR

BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

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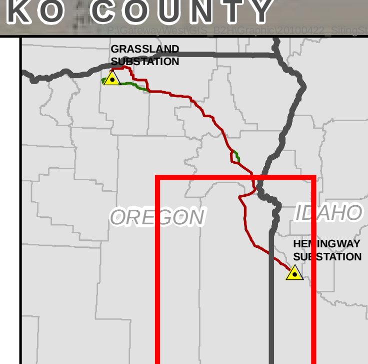
Appendix E Map Sheet	Bureau of Reclamation
Substation	Indian Reservation
Ten Mile Marker	Military
Proposed Route	National Park Service
Alternative Route	Other Federal
State Boundary	Private
County Boundary	State
Bureau of Land Management	US Fish and Wildlife Service
	US Forest Service



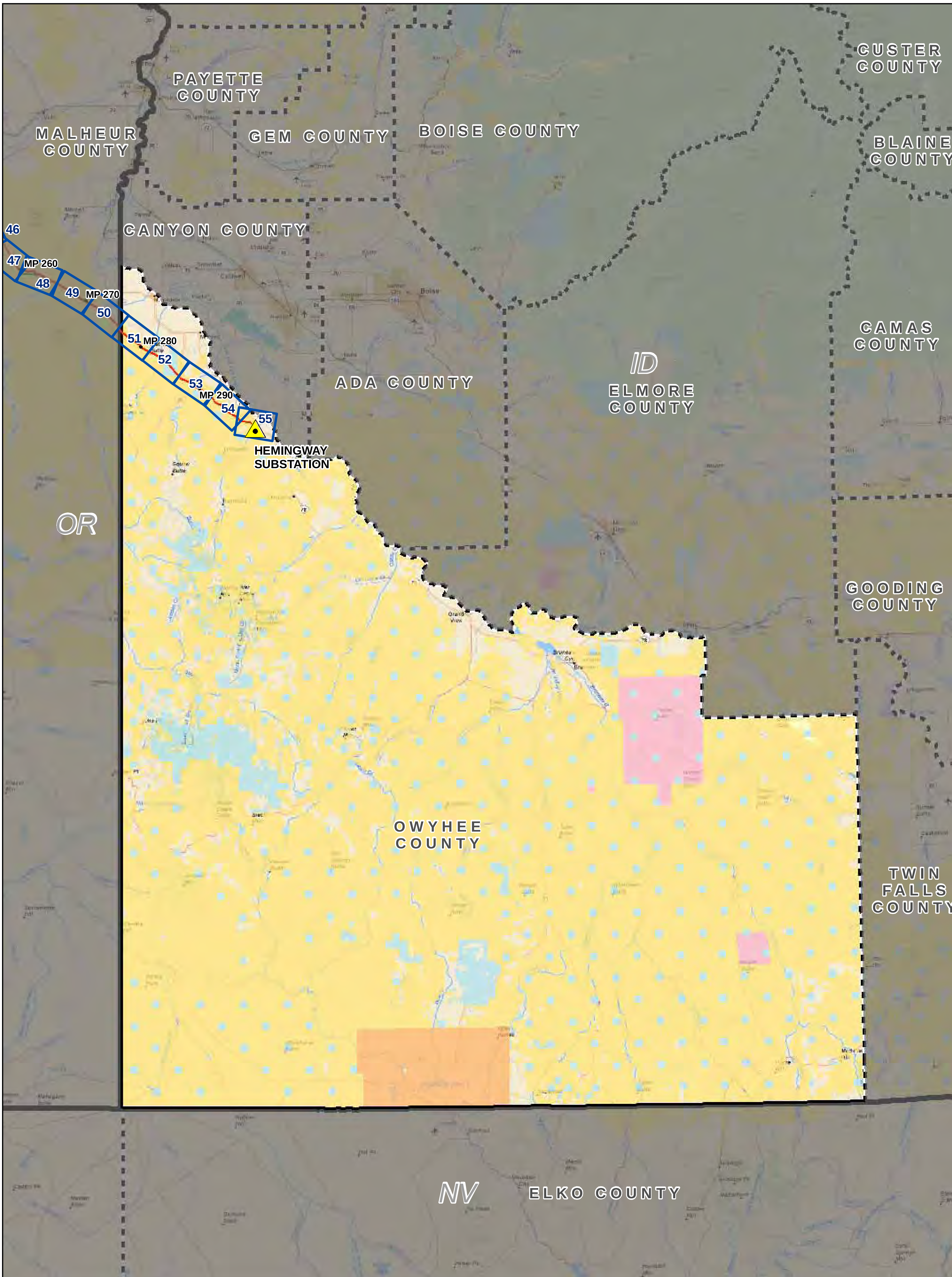


FIGURE 4.1.6-1
SEGMENT 6-OWYHEE COUNTY, ID

BOARDMAN TO HEMINGWAY
500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

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- Appendix E Map Sheet
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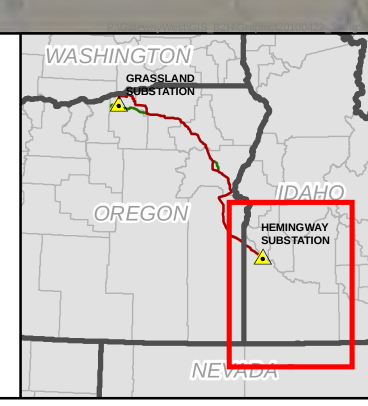
- County Boundary
- Bureau of Land Management
- Bureau of Reclamation
- Indian Reservation
- Military
- National Park Service
- Other Federal
- Private
- State
- US Fish and Wildlife Service
- US Forest Service



4.2 FEASIBLE ALTERNATIVE SEGMENTS FOR DETAILED EVALUATION

Seven alternatives for portions of the Proposed Route were developed by Idaho Power for further study and consideration. Idaho Power determined that these particular segments warranted further consideration and they are discussed briefly below. The locations of these alternatives are shown on Figure 4-1, by county on Figures 4.1.1-1 through 4.1.6-1, and in Appendix E.

4.2.1 Bombing Range South Alternative

The Bombing Range South Alternative (shown on Figure 4.1.1-1 and Appendix E, Maps 56 to 65) has been proposed to be a feasible alternative because it avoids several potentially problematic areas, such as the Boardman Bombing Range property, irrigated agriculture, and/or ODFW Category 1 Habitat for Washington ground squirrels. The U.S. Navy, which manages the range, is currently evaluating the use of the north edge of the property for the proposed 500-kV transmission line. The Bombing Range South Alternative avoids the Bombing Range property but also has a difficult approach from the south and west to the Grassland Substation (the northern terminus of the B2H Project) and could add several miles to the Project.

The Bombing Range South Alternative exits the Grassland Substation to the south and angles southwest across an unnamed road (MP 1.1). The route then heads west offset approximately 1,500 feet and parallel to the northern boundary of the Boardman Conservation Area for about 3.8 miles to MP 5.3, crossing three unnamed roads. The alternative route then turns slightly south and continues west before again angling south at MP 7.7 near the Boardman Conservation Area boundary.

The route continues along the western edge of the Willow Creek Valley, following the now abandoned Union Pacific Railroad from MP 8.4 to MP 10.0, before crossing State Highway 74 about 0.9 mile north of the community of Cecil. At MP 10.4 the alternative proceeds due east crossing Schoolhouse Canyon at about MP 11.0, Immigrant Road at about MP 13.2, Squaw Butte at MP 14.5, and both the Oregon National Historic Trail and Fourmile Canyon at MP 15.0. At MP 16.5 the alternative proceeds southeast crossing Ella Road and Sixmile Canyon and passing approximately 0.4 mile south of the community of Ella, Oregon. The route continues east from MP 17.3 parallel to the southern boundary of the Boardman Conservation Area and the Boardman Bombing Range from MPs 20.3 to about MP 26.6.

The route passes to the south of Butter Creek Junction before leaving Morrow County and entering Umatilla County at MP 36.9. At MP 40.0, the alternative leaves Umatilla County and heads south back into Morrow County.

Continuing southeasterly in Morrow County, the route crosses NFD Road 827 at MP 43.5 and then heads back across the county line into Umatilla County at approximately MP 47.3. The alternative then angles south to cross Slusher Canyon and an unnamed road at MP 49.4, before continuing 3.3 miles to join with the Proposed Route at its MP 57.6.

The Bombing Range South Alternative is 52.7 miles long as compared to the corresponding segment of the Proposed Route, which is 57.6 miles long. .

4.2.2 Glass Hill Alternative

The Glass Hill Alternative (Figure 4.1.3-1 and Appendix E, Maps 20 to 23), stretching 16.8 miles, is located southwest of the city of La Grande, Oregon, in Union County. The Glass Hill Alternative was added because it avoids an Eastern Oregon University Rebarrow Research Forest at the northern end of

Glass Hill. In addition, the Glass Hill Alternative was reviewed by an engineering team to minimize route construction difficulty through the very severe topography throughout this area.

The Glass Hill Alternative departs from the Proposed Route at MP 109.5 approximately 1.0 mile south of State Highway 244 in Union County, Oregon. Following ridgelines to the east of the Proposed Route, the alternative proceeds southeast across Mill Canyon Road at MP 1.5 and across Little Graves Creek at approximately MP 2.0 before turning south toward Elk Mountain and crossing the Proposed Route at the alternative's MP 5.3 (Proposed Route MP 115.1). From MP 6.0 the alternative proceeds east across the foothills of Elk Mountain, crossing Graves Creek at MP 6.8, Little Rock Creek at MP 7.3, and Rock Creek at MP 9.2. Traversing a canyon at MP 9.5, the alternative proceeds up the western slope of Glass Hill, crossing Glass Hill Road at MP 9.9 before reaching the top of Glass Hill at about MP 10.4. The alternative begins its descent down the eastern slope of Glass Hill, crossing several switchbacks and severe terrain as it angles southeasterly toward Ladd Canyon and I-84. Crossing Ladd Canyon Road and Ladd Creek at MP 13.2, the alternative continues southeasterly for approximately the next 3.6 miles, across the foothills of Baldy Mountain, until joining with the Proposed Route at its MP 127.4.

The Glass Hill Alternative is 16.8 miles long as compared the corresponding segment of the Proposed Route, which is 17.9 miles long.

4.2.3 Clover Creek Valley Alternative

The Clover Creek Valley Alternative, shown in Figure 4.1.3-1 and in Appendix E, Maps 23 and 24, was carried forward to avoid crossing the northern end of the Clover Creek Valley, which is actively farmed and zoned Exclusive Farm Use. The Clover Creek Valley Alternative, while avoiding the farmland by crossing to the north of the valley, does require two crossings of an existing 230-kV line within a stretch of 2.7 miles.

The Clover Creek Valley Alternative angles east away from the Proposed Route at MP 127.4, crossing over the existing Idaho Power 230-kV transmission line at MP 0.5 before turning southeast to cross to the east side of I-84 at MP 1.4, where it is offset north and east approximately 1,400 feet from the existing 230-kV line. Proceeding south, the alternative crosses the existing 230-kV line a second time at MP 3.2 and continues for approximately 1.4 miles before joining with the Proposed Route at its MP 131.7.

The Clover Creek Alternative is 4.7 miles long as compared the corresponding segment of the Proposed Route, which is 4.2 miles long.

4.2.4 Virtue Flat Alternative

The Virtue Flat Alternative, shown in Figure 4.1.4-1 and in Appendix E Maps 66 to 68, is located in central Baker County, east of Baker City and the National Historic Oregon Trail Interpretive Center. Idaho Power recognizes this alterative crosses a 2-mile active sage-grouse lek buffer zone considered ODFW Category 1 Habitat; however, there is local citizen interest in locating the route farther from the National Historic Oregon Trail Interpretive Center. Idaho Power believes evaluation of the Virtue Flat Alternative in conjunction with the Proposed Route would allow for an analysis and balancing of recognized resource issues. As a result, this alternative is being carried forward for further detailed study.

The Virtue Flat Alternative angles east away from the Proposed Route at MP 155.2, approximately 1.8 miles northeast of the National Historic Oregon Trail Interpretive Center. Proceeding southeast, the alternative angles through steep terrain before crossing Keating Cutoff Road at about MP 2.1 and State Highway 86 at MP 2.4. At approximately MP 4.5, this alternative turns south, crossing Ruckles Creek and Ruckles Creek Road between MP 5.0 and MP 5.1, an unnamed road at about MP 5.7 and First Creek Road at MP 6.7. The alternative angles southeast at MP 7.5 for approximately 1.7 miles before turning due south and continuing for 4 miles through significant topography until joining with the Proposed Route at MP 170.4, approximately 2.0 miles northeast of Pleasant Valley.

The Virtue Flat Alternative is 13.3 miles long as compared the corresponding segment of the Proposed Route, which is 15.2 miles long.

4.2.5 Weatherby Alternative

The Weatherby Alternative, shown in Figure 4.1.4-1 and in Appendix E, Maps 34 and 35, is located east of I-84 and the Burnt River in Baker County, Oregon. The Weatherby Alternative is being carried forward in the event that the corresponding section of the Proposed Route proves infeasible due to potential construction or other issues along I-84. However, the alternative crosses severe terrain and may face significant construction difficulties as well.

The Weatherby Alternative departs from the Proposed Route at MP 186.7 and immediately crosses the Oregon National Historic Trail, Sisley Creek Road, and Sisley Creek at approximately MP 0.4. Traversing Gold Cliff Gulch at MP 0.8, the alternative turns south and travels along severe slopes for about 2.5 miles. After angling southeasterly at MP 1.7 the alternative crosses Quartz Gulch at MP 2.3 and follows it south for approximately the next 0.5 mile. The alternative crosses Jordan Creek and an unnamed road at MP 3.3 before crossing Lookout Mountain Road and proceeding south across the Oregon National Historic Trail at MP 4.4. Just east of Dixie, the alternative angles to the southwest, across an existing 69-kV transmission line at MP 4.8 followed by the Burnt River, I-84, and an existing 138-kV transmission line between MP 4.8 and MP 5.0 before joining with the Proposed Route at its MP 191.6.

The Weatherby Alternative is 5.1 miles long as compared the corresponding segment of the Proposed Route, which is 4.9 miles long.

4.2.6 Owyhee River Below Dam Alternative

The Owyhee River Below Dam Alternative, located in Malheur County, Oregon, is shown in Figure G4.1.5-1 and in Appendix E, Maps 47 to 48. This alternative, from an engineering viewpoint, provides advantages in constructability. However, while both the Proposed Route and the alternative cross a designated environmentally sensitive landscape called the Owyhee Below Dam ACEC, the alternative crosses and bisects a larger intact portion of the area than the Proposed Route does.

Leaving from the Proposed Route at MP 259.2, just south of the existing Summer Lake to Midpoint 500-kV transmission line, the Owyhee River Below Dam Alternative heads southeast for approximately 1.2 miles where it angles due east. At MP 3.0 the alternative angles southeast across Haystack Rock Road, the Owyhee River, and Owyhee Lake Road between MP 3.0 and MP 3.2, approximately 1.4 miles north of the Owyhee Dam. East of the river, the alternative crosses an unnamed road at MP 3.5 before joining with the Proposed Route at its MP 262.9.

The Owyhee River Below Dam Alternative is 3.9 miles long as compared the corresponding segment of the Proposed Route, which is 3.7 miles long.

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5 REFERENCES

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APPENDIX A

Constraints and Opportunities

Table A-1. Constraints and Opportunities

	Resource Type	Constraint/Opportunity	Source
1	Cultural Resources	Burns District Archaeological Site	BLM Field Offices
2	Cultural Resources	Vale District Cultural Site	BLM Field Offices
3	Cultural Resources	Cemetery	USGS
4	Cultural Resources	Historic Trail/Oregon Trail	BLM
5	Cultural Resources	National Register Historic Place	NRHP
6	Cultural Resources	Intact Oregon National Historic Trail Segment (OR BLM)	BLM
7	Cultural Resources	Oregon National Historic Trail Brochure - Trailrut	NPS/BLM/USFS National Parks and Monuments brochure
8	Cultural Resources	Oregon National Historic Trail Visitor's Center	USGS/Aerial Image
9	Cultural Resources	Native American Traditional Use Areas	BLM Field Office
10	Visual Resources	Viewshed Area (Baker County)	Baker County, OR Planning Department
11	Visual Resources	Devine Scenic Corridor (Burns District)	BLM Field Office
12	Visual Resources	Nationally Designated Scenic Byway	NSBP
13	Visual Resources	National Forest Visual Quality Objective: Maximum Modification	USFS
14	Visual Resources	National Forest Visual Quality Objective: Modification	USFS
15	Visual Resources	National Forest Visual Quality Objective: Partial Retention	USFS
16	Visual Resources	National Forest Visual Quality Objective: Retention	USFS
17	Visual Resources	National Forest Visual Quality Objective: Preservation	USFS
18	Visual Resources	BLM Visual Resource Management Class 1	BLM Field Offices
19	Visual Resources	BLM Visual Resource Management Class 2	BLM Field Offices
20	Visual Resources	BLM Visual Resource Management Class 3	BLM Field Offices
21	Visual Resources	BLM Visual Resource Management Class 4	BLM Field Offices

Table A-1. Constraints and Opportunities (continued)

	Resource Type	Constraint/Opportunity	Source
22	Fish and Wildlife	ODFW Conservation Opportunity Area	ODFW
23	Fish and Wildlife	IDFG Focal Area	IDFG
24	Fish and Wildlife	ODFW Big Game Deer Winter Range	ODFW
25	Fish and Wildlife	ODFW Big Game Elk Winter Range	ODFW
26	Fish and Wildlife	IDFG Big Game Crucial Winter Range	IDFG
27	Fish and Wildlife	Pronghorn Antelope Habitat (Boise District, ID)	BLM Field Office
28	Fish and Wildlife	Prineville District Fish Restoration Area	BLM Field Office
29	Fish and Wildlife	Prineville District Wildlife Habitat Seasonal Closure Area	BLM Field Office
30	Fish and Wildlife	Washington Ground Squirrel 785ft Habitat Buffer	TNC
31	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	ODFW
32	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	ODFW
33	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	ODFW
34	Fish and Wildlife	Sage-grouse Key Habitat Area (Idaho)	BLM
35	Fish and Wildlife	Sage-grouse Restoration Habitat Type 1: Perennial Grasslands (Idaho)	BLM
36	Fish and Wildlife	Sage-grouse Restoration Habitat Type 2: Annual Grass Understories (Idaho)	BLM
37	Fish and Wildlife	Within 2-mile Idaho Sage-grouse Lek Buffer (Unknown)	BLM
38	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied)	ODFW
39	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied but able to Permit)	ODFW
40	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	ODFW
41	Fish and Wildlife	Special Status Stream: Bull Trout	USFWS
42	Fish and Wildlife	Special Status Stream: Chinook Salmon	StreamNet
43	Fish and Wildlife	Special Status Stream: Coho Salmon	StreamNet
44	Fish and Wildlife	Special Status Stream: Cutthroat Trout	StreamNet

Table A-1. Constraints and Opportunities (continued)

	Resource Type	Constraint/Opportunity	Source
45	Fish and Wildlife	Special Status Stream: Red Band Trout	StreamNet
46	Fish and Wildlife	Special Status Stream: Steelhead	StreamNet
47	Fish and Wildlife	Wild Horse and Burro Area (OR BLM)	BLM
48	Land Use	Area of Critical Environmental Concern	BLM
49	Land Use	Airport/Airstrips	USGS
50	Land Use	Community Parks	IDPR
51	Land Use	Fish Hatcheries	ODFW
52	Land Use	Hospitals	OR Geospatial Enterprise Office
53	Land Use	Dairy Farms	ID Dept. of Agriculture, ID Dept. of Environmental Quality
54	Land Use	Recreation Sites	USGS, BLM, IDPR
55	Land Use	Wind Turbines	Morrow County, OR Planning Department; Aerial Image
56	Land Use	BLM Wild and Scenic River: Recreation	BLM
57	Land Use	BLM Wild and Scenic River: Suitable Lands (Prineville District, OR)	BLM
58	Land Use	Burns District Off-Highway Vehicle: Seasonal Closure	BLM Field Office
59	Land Use	Burns District ROW Avoidance Corridor	BLM Field Office
60	Land Use	City Impact Area - Idaho	ID County Comprehensive Plans
61	Land Use	Confederated Tribes of the Umatilla Indian Reservation	Umatilla County, OR Department of Land Use Planning
62	Land Use	Cropland/Irrigated Agriculture	USDA/NRCS
63	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	DLCD
64	Land Use	Forested Land: Private	NLCD
65	Land Use	Forested Land: Public	NLCD
66	Land Use	Grazing Allotment - ID	BLM
67	Land Use	Grazing/Pasture - OR	BLM
68	Land Use	Lands with Wilderness Characteristics (OR BLM)	BLM
69	Land Use	Morrow County Park	Morrow County, OR Planning Department
70	Land Use	National Forest Old Growth Forest Stand	USFS
71	Land Use	National Forest: Special Interest Area	USFS
72	Land Use	Naval Weapons System Training Facility	DoD

Table A-1. Constraints and Opportunities (continued)

	Resource Type	Constraint/Opportunity	Source
73	Land Use	North Powder Valley	USGS
74	Land Use	Noxious Weeds (OR BLM)	BLM
75	Land Use	ODFW Wildlife Management Area	ODFW
76	Land Use	Oregon State Park	ORPD
77	Land Use	Prineville District Lands Proposed for Acquisition by the BLM	BLM Field Office
78	Land Use	Prineville District Noxious Weeds	BLM Field Office
79	Land Use	Prineville District Off-Highway Vehicle: Limited Use	BLM Field Office
80	Land Use	Prineville District Proposed Area of Critical Environmental Concern	BLM Field Office
81	Land Use	Prineville District Special Recreation Management Area	BLM Field Office
82	Land Use	Proposed Wilderness Study Area (ONDA)	ONDA
83	Land Use	Proposed Wind Farm Boundary (Burns District, OR)	BLM Field Office
84	Land Use	Recreation Area (OR BLM)	BLM
85	Land Use	Restricted Airspace - Airport	URS Corporation
86	Land Use	Special Recreation Management Area (Malheur RA, Vale District, OR)	BLM Field Offices
87	Land Use	The Nature Conservancy: Portfolio	TNC
88	Land Use	The Nature Conservancy: Preserve	TNC
89	Land Use	Urban Area	ESRI Streetmap
90	Land Use	Urban Growth Boundary - Oregon	ODOT, OR Employment Dept., DLCD, OR Geospatial Enterprise Office
91	Land Use	Vale District Off-Highway Vehicle: Limited to Designated Routes	BLM Field Office
92	Land Use	Vale District Off-Highway Vehicle: Limited to Existing Routes	BLM Field Office
93	Land Use	Virtue Flat OHV	BLM Field Office
94	Land Use	Wind Farm Boundary	Morrow County, OR Planning Department
95	Ownership	Bureau of Land Management	BLM
96	Ownership	Bureau of Reclamation	BLM
97	Ownership	Military Land	BLM
98	Ownership	Other Federal Land	BLM
99	Ownership	Private	BLM
100	Ownership	State Land	BLM
101	Ownership	U.S. Forest Service	BLM
102	Ownership	Water	BLM
103	Geological Resources	Erosion Hazard: High (Prineville District, OR)	BLM Field Office
104	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co., OR data n/a)	NRCS
105	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co., OR data n/a)	NRCS

Table A-1. Constraints and Opportunities (continued)

	Resource Type	Constraint/Opportunity	Source
106	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co., OR data n/a)	NRCS
107	Geological Resources	Idaho Landslide Susceptibility: Moderate	USGS
108	Geological Resources	Idaho Landslide Susceptibility: Low	USGS
109	Geological Resources	Fault Lines	USGS
110	Geological Resources	U.S. Geological Survey Active Mining Area	USGS
111	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	NRCS, SSURGO
112	Geological Resources	Oregon Landslide Feature: Fan	SLIDO v1
113	Geological Resources	Oregon Landslide Feature: Landslide	SLIDO v1
114	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	SLIDO v1
115	Slope	Slope 0-15	USGS
116	Slope	Slope 15-25	USGS
117	Slope	Slope 25-35	USGS
118	Slope	Slope >35	USGS
119	Water and Wetlands	Floodplain: 500-yr Flood Zone	FEMA
120	Water and Wetlands	Floodplain: Area Not Mapped	FEMA
121	Water and Wetlands	Floodplain: Not in Flood Zone	FEMA
122	Water and Wetlands	Floodplain: Zone A	FEMA
123	Water and Wetlands	Floodplain: Zone ANI	FEMA
124	Water and Wetlands	National Wetland Inventory	NWI
125	Water and Wetlands	Oregon Watershed Restoration Inventory Project Areas	OWRI
126	Water and Wetlands	Snake River	ESRI Streetmap
127	Water and Wetlands	Oregon State Scenic Waterway	ORPD
128	Other Features	Existing Pipeline	Penwell
129	Other Features	Vale District Utility Corridor	BLM Field Office
130	Other Features	West-wide Energy Corridor	Argonne National Laboratory – DOE

Table A-1. Constraints and Opportunities (continued)

	Resource Type	Constraint/Opportunity	Source
131	Other Features	National Forest Utility Corridor	USFS
132	Oregon Statewide Zoning	Oregon Statewide Zoning: Agriculture	DLCD
133	Oregon Statewide Zoning	Oregon Statewide Zoning: Forest	DLCD
134	Oregon Statewide Zoning	Oregon Statewide Zoning: Rural Commercial	DLCD
135	Oregon Statewide Zoning	Oregon Statewide Zoning: Rural Industrial	DLCD
136	Oregon Statewide Zoning	Oregon Statewide Zoning: Rural Residential	DLCD
137	Oregon Statewide Zoning	Oregon Statewide Zoning: Agriculture (Range)	DLCD
138	Oregon Statewide Zoning	Oregon Statewide Zoning: Urban	DLCD
139	Morrow County, OR Zoning	Morrow County: Exclusive Farm Use	Morrow County, OR Planning Department
140	Morrow County, OR Zoning	Morrow County: Forest Use	Morrow County, OR Planning Department
141	Morrow County, OR Zoning	Morrow County: General Industrial	Morrow County, OR Planning Department
142	Morrow County, OR Zoning	Morrow County: Public Use	Morrow County, OR Planning Department
143	Morrow County, OR Zoning	Morrow County: Space Age Industrial	Morrow County, OR Planning Department
144	Morrow County, OR Zoning	Morrow County: STR	Morrow County, OR Planning Department
145	Union County, OR Zoning	Union County: Agriculture Grazing A-2	Union County, OR Planning Department
146	Union County, OR Zoning	Union County: Exclusive Farm Use A-1	Union County, OR Planning Department

Table A-1. Constraints and Opportunities (continued)

	Resource Type	Constraint/Opportunity	Source
147	Union County, OR Zoning	Union County: Timber Grazing A-4	Union County, OR Planning Department
148	Baker County, OR Zoning	Baker County: Airport Overlay	Baker County, OR Planning Department
149	Baker County, OR Zoning	Baker County: Exclusive Farm Use	Baker County, OR Planning Department
150	Baker County, OR Zoning	Baker County: Industrial	Baker County, OR Planning Department
151	Baker County, OR Zoning	Baker County: Mining Extraction	Baker County, OR Planning Department
152	Baker County, OR Zoning	Baker County: Primary Forest	Baker County, OR Planning Department
153	Baker County, OR Zoning	Baker County: Recreation/Residential RR1	Baker County, OR Planning Department
154	Baker County, OR Zoning	Baker County: Recreation/Residential RR5	Baker County, OR Planning Department
155	Baker County, OR Zoning	Baker County: Timber Grazing	Baker County, OR Planning Department
156	Baker County, OR Zoning	Baker County: Watershed Overlay	Baker County, OR Planning Department
157	Harney County, OR Zoning	Harney County: Farm & Ranch Use - 160 AC	Harney County, OR GIS Department
158	Harney County, OR Zoning	Harney County: Farm & Ranch Use - 80 AC	Harney County, OR GIS Department
159	Harney County, OR Zoning	Harney County: Forest Use	Harney County, OR GIS Department
160	Washington County, ID Zoning	Washington County: Agricultural Area	Washington County, ID Comprehensive Plan
161	Washington County, ID Zoning	Washington County: Residential Area	Washington County, ID Comprehensive Plan

Table A-1. Constraints and Opportunities (continued)

	Resource Type	Constraint/Opportunity	Source
162	Payette County, ID Zoning	Payette County: Agriculture 1	Payette County, ID Comprehensive Plan
163	Payette County, ID Zoning	Payette County: Agriculture 2	Payette County, ID Comprehensive Plan
164	Payette County, ID Zoning	Payette County: Commercial	Payette County, ID Comprehensive Plan
165	Payette County, ID Zoning	Payette County: Government	Payette County, ID Comprehensive Plan
166	Payette County, ID Zoning	Payette County: Greenway	Payette County, ID Comprehensive Plan
167	Payette County, ID Zoning	Payette County: Industrial	Payette County, ID Comprehensive Plan
168	Payette County, ID Zoning	Payette County: Mixed Agriculture	Payette County, ID Comprehensive Plan
169	Payette County, ID Zoning	Payette County: Rural Residential	Payette County, ID Comprehensive Plan

Notes:
BLM – Bureau of Land Management
DoD – Department of Defense
DOE – Department of Energy
DLCD – Department of Land Conservation and Development
FEMA – Federal Emergency Management Agency
IDFG – Idaho Department of Fish and Game
IDPR – Idaho Department of Parks and Recreation
NLCD –National Land Cover Database
NPS – National Park Service
NRCS – Natural Resources Conservation Service
NRHP – National Register of Historic Places
NSBP – National Scenic Byway Program
NWI – National Wetlands Inventory
ODOT – Oregon Department of Transportation
ONDA – Oregon Natural Desert Association
ORPD – Oregon Parks and Recreation Department
OWRI – Oregon Watershed Restoration Inventory
SLIDO –Statewide Landslide Information Database of Oregon
SSURGO –Soil Survey Geographic Database
USDA – U.S. Department of Agriculture
USFWS – U.S. Fish and Wildlife Service
USGS – U.S. Geological Survey

APPENDIX B

Community Criteria

Definitions

Placement Opportunities – Project Advisory Teams identified areas for the transmission line that would be preferred by the communities.

Avoidance Areas – Project Advisory Teams identified areas that are important to the communities. The communities recommend avoiding these areas when siting the transmission line.

North Project Advisory Area

Placement Opportunities	Avoidance Areas
Existing energy corridors	Irrigated farmland
West-wide energy corridor	Bisecting fields
Public land (federal and state)	Aerial spraying activity areas
Transportation & rail corridors	Scenic viewsheds
Across the bombing range	Areas that have potential for residential and/or business development
Co-locate with wind farms	Urban growth boundaries
Private property (owned by people who want the line on their land)	Areas of tourism
	Historic landmarks
	Narrow valleys with agricultural operations
	Private resource land (i.e., timber)
	Sensitive wildlife areas (i.e., sage-grouse leks)
	Water resources and wetlands
	Schools
	City impact areas
	Private residences
	Confined animal feeding operations

Central Project Advisory Area

Placement Opportunities	Avoidance Areas
Existing energy corridors	Exclusive Farm Use (EFU) land
West-wide energy corridor	Irrigated farmland
Public land (federal and state)	Bisecting fields
Transportation & rail corridors	Aerial spraying activity areas
	Rangeland
	Scenic viewsheds
	Areas that have potential for residential and/or business development
	Areas of tourism (specifically the Oregon Trail Interpretive Center)
	Historic landmarks (specifically the Oregon Trail)
	Narrow valleys with agricultural operations
	Private resource land (i.e., timber)
	Sensitive wildlife areas (i.e., sage-grouse leks)
	Water resources and wetlands

Central Project Advisory Area

Placement Opportunities	Avoidance Areas
	Schools
	Private residences
	Medical facilities
	Airports
	Developed areas for recreation (Wolf Creek, parks)
	South La Grande
	Powder River Valley
	Designated scenic highway routes
	High priority noxious weed sites
	Below Thief Valley
	Howard Meadows area

South Project Advisory Area

Placement Opportunities	Avoidance Areas
Existing energy corridors	EFU land in Oregon
West-wide energy corridor	Prime farmland in Idaho
Public land (federal and state)	Irrigated farmland
Transportation & rail corridors	Bisecting fields
	Aerial spraying activity areas
	Private rangeland
	Scenic viewsheds
	Areas that have potential for residential and/or business development
	Urban growth boundaries
	Areas of tourism
	Historic landmarks
	Narrow valleys with agricultural operations
	Private resource land (i.e., timber)
	Sensitive wildlife areas (i.e., sage-grouse leks)
	Water resources and wetlands
	Schools
	City impact areas
	Private residences
	Confined animal feeding operations

Grant County Project Advisory Area

Placement Opportunities	Avoidance Areas
Existing energy corridors	Undeveloped areas
I-84 corridor	Wilderness areas
Direct route between Boardman and Hemingway	Rural areas
	Roadless areas
	Designated wild and scenic rivers - Riparian areas (strips of land that border creeks, rivers or other bodies of water.)
	Critical watershed enhancement and restoration areas
	Scenic areas - The cedar grove - The fossil beds - Viewsheds
	Recreation areas
	Wildlife habitats - Big game winter range - Sage-grouse leks - Threatened and endangered species
	Forest land and old growth
	Private property
	EFU land

Harney County Project Advisory Area

Placement Opportunities	Avoidance Areas
Existing energy corridors	Wildlife habitats - Sage-grouse leks
I-84 corridor	Undeveloped areas
Areas with potential for wind power	Wilderness areas
Direct route between Boardman and Hemingway	Riparian areas (strips of land that border creeks, rivers or other bodies of water.)
	EFU land
	Private land
	Forests and timberland
	Roadless areas

APPENDIX C

Constraints Crossed – Permitting Difficulty Overview

Table C-1. Constraints Crossed – Permitting Difficulty Overview

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]
1	Cultural Resources	Burns District Archaeological Site	Avoidance High	
2	Cultural Resources	Vale District Cultural Site	Avoidance High	
3	Cultural Resources	Within 500ft of Cemetery	Avoidance Mod	
4	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod	
5	Cultural Resources	Within .5mi National Register Historic Place Buffer	Avoidance High	
6	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High	
7	Cultural Resources	Oregon Trail Brochure - Trailrut	Avoidance High	
8	Visual Resources	Viewshed Area (Baker County)	Avoidance High	CC
9	Visual Resources	Devine Scenic Corridor (Burns District)	Avoidance Mod	
10	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC
11	Visual Resources	National Forest Visual Quality Objective: Maximum Modification	Opportunity	
12	Visual Resources	National Forest Visual Quality Objective: Modification	Avoidance Mod	
13	Visual Resources	National Forest Visual Quality Objective: Partial Retention	Avoidance High	
14	Visual Resources	National Forest Visual Quality Objective: Retention	Exclusion	CC
15	Visual Resources	National Forest Visual Quality Objective: Preservation	Exclusion	CC
16	Visual Resources	BLM Visual Resource Management Class 2	Avoidance High	CC
17	Visual Resources	BLM Visual Resource Management Class 3	Avoidance Mod	
18	Visual Resources	BLM Visual Resource Management Class 4	Avoidance Low	
19	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low	
20	Fish and Wildlife	IDFG Focal Area	Avoidance Low	
21	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC
22	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC
23	Fish and Wildlife	IDFG Big Game Crucial Winter Range	Avoidance Mod	CC
24	Fish and Wildlife	Pronghorn Antelope Habitat (Boise District, ID)	Avoidance Mod	CC
25	Fish and Wildlife	Prineville District Fish Restoration Area	Avoidance Mod	
26	Fish and Wildlife	Prineville District Wildlife Habitat Seasonal Closure Area	Avoidance Mod	
27	Fish and Wildlife	Washington Ground Squirrel 785ft Buffer	Exclusion	
28	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod	
29	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low	
30	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low	
31	Fish and Wildlife	Sage-grouse Key Habitat Area (ID BLM)	Avoidance Mod	CC
32	Fish and Wildlife	Sage-grouse Restoration Habitat Type 1: Perennial Grasslands (ID BLM)	Avoidance Low	CC
33	Fish and Wildlife	Sage-grouse Restoration Habitat Type 2: Annual Grass Understories (ID BLM)	Avoidance Low	
34	Fish and Wildlife	Within 2-mile Idaho Sage-grouse Lek Buffer (Unknown)	Exclusion	
35	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied)	Exclusion	CC
36	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied but Permittable)	Avoidance Mod	CC
37	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	Avoidance Low	
38	Fish and Wildlife	Within 300ft Special Status Stream: Bull Trout	Avoidance Mod	CC
39	Fish and Wildlife	Within 300-ft Special Status Stream: Chinook Salmon	Avoidance Mod	CC
40	Fish and Wildlife	Within 300-ft Special Status Stream: Coho Salmon	Avoidance Mod	CC
41	Fish and Wildlife	Within 300-ft Special Status Stream: Cutthroat Trout	Avoidance Mod	CC

Table C-1. Constraints Crossed - Permitting Difficulty Overview (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]
42	Fish and Wildlife	Within 300-ft Special Status Stream: Red Band Trout	Avoidance Mod	CC
43	Fish and Wildlife	Within 300-ft Special Status Stream: Steelhead	Avoidance Mod	CC
44	Fish and Wildlife	Wild Horse and Burro Area (OR BLM)	Avoidance Low	
45	Land Use	Burns District ROW Avoidance Corridor	Avoidance High	
46	Land Use	North Powder Valley	Avoidance Low	CC
47	Land Use	Cropland/Irrigated Agriculture	Avoidance High	
48	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High	
49	Land Use	Grazing Allotment - ID	Avoidance Low	
50	Land Use	Grazing/Pasture - OR	Avoidance Low	
51	Land Use	City Impact Area - Idaho	Avoidance High	
52	Land Use	Urban Growth Boundary - Oregon	Avoidance High	CC
53	Land Use	Urban Area	Avoidance High	CC
54	Land Use	Naval Weapons System Training Facility	Avoidance Mod	CC
55	Land Use	Restricted Airspace - Airport	Exclusion	
56	Land Use	Forested Land: Private	Avoidance Mod	
57	Land Use	Forested Land: Public	Avoidance Mod	
58	Land Use	National Forest Old Growth Forest Stand	Exclusion	CC
59	Land Use	National Forest: Special Interest Area	Avoidance Mod	
60	Land Use	Area of Critical Environmental Concern	Avoidance High	
61	Land Use	Prineville District Proposed Area of Critical Environmental Concern	Avoidance High	
62	Land Use	Prineville District Lands Proposed for Acquisition by the BLM	Avoidance Low	
63	Land Use	Prineville District Noxious Weeds	Avoidance Low	
64	Land Use	Noxious Weeds (OR BLM)	Avoidance Low	
65	Land Use	Prineville District Off-Highway Vehicle: Limited Use	Avoidance Low	
66	Land Use	Burns District Off-Highway Vehicle: Seasonal Closure	Avoidance Low	
67	Land Use	Vale District Off-Highway Vehicle: Limited to Designated Routes	Avoidance Low	
68	Land Use	Vale District Off-Highway Vehicle: Limited to Existing Routes	Avoidance Low	
69	Land Use	Oregon State Park	Exclusion	
70	Land Use	Morrow County Park	Exclusion	
71	Land Use	Virtue Flat OHV Park	Avoidance Mod	
72	Land Use	Recreation Area (OR BLM)	Avoidance High	
73	Land Use	Special Recreation Management Area (Malheur RA, Vale District, OR)	Avoidance Mod	CC
74	Land Use	Prineville District Special Recreation Management Area	Avoidance Mod	
75	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod	
76	Land Use	The Nature Conservancy: Preserve	Exclusion	
77	Land Use	Proposed Wind Farm Boundary (Burns District, OR)	Avoidance High	
78	Land Use	Wind Farm Boundary	Avoidance High	
79	Land Use	Wind Turbine 1,200-ft Buffer Zone	Avoidance High	
80	Land Use	ODFW Wildlife Management Area	Exclusion	
81	Land Use	BLM Wild and Scenic River: Recreation	Avoidance High	
82	Land Use	BLM Wild and Scenic River: Suitable Lands (Prineville District, OR)	Avoidance Mod	
83	Land Use	Proposed Wilderness Study Area (ONDA)	Avoidance Low	
84	Land Use	Lands with Wilderness Characteristics (OR BLM)	Avoidance Mod	

Table C-1. Constraints Crossed - Permitting Difficulty Overview (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]
85	Land Use	Confederated Tribes of the Umatilla Indian Reservation	Exclusion	
86	Ownership	Bureau of Land Management	Avoidance Low	CC
87	Ownership	Bureau of Reclamation	Avoidance Low	CC
88	Ownership	Military Land	Avoidance Low	CC
89	Ownership	Other Federal Land	Avoidance Low	CC
90	Ownership	Private	Avoidance Low	CC
91	Ownership	State Land	Avoidance Low	CC
92	Ownership	U.S. Forest Service	Avoidance Low	CC
93	Ownership	Water	Avoidance High	
94	Geological Resources	Erosion Hazard: High (Prineville District, OR)	Avoidance Mod	
95	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co., OR data n/a)	Avoidance Mod	
96	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co., OR data n/a)	Avoidance Mod	
97	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co., OR data n/a)	Avoidance Low	
98	Geological Resources	Idaho Landslide Susceptibility: Moderate	Avoidance Mod	
99	Geological Resources	Idaho Landslide Susceptibility: Low	Avoidance Low	
100	Geological Resources	Within 500ft of Fault Line	Avoidance Low	
101	Geological Resources	U.S. Geological Survey Active Mining Area	Avoidance High	
102	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC
103	Geological Resources	Oregon Landslide Feature: Fan	Avoidance Mod	
104	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod	
105	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod	
106	Slope	Slope 0-15	Opportunity	
107	Slope	Slope 15-25	Avoidance Low	
108	Slope	Slope 25-35	Avoidance Mod	
109	Slope	Slope >35	Avoidance High	
110	Water and Wetlands	Floodplain: 500-yr Flood Zone	Avoidance Low	
111	Water and Wetlands	Floodplain: Area Not Mapped	Avoidance Low	
112	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low	
113	Water and Wetlands	Floodplain: Zone A	Avoidance Mod	
114	Water and Wetlands	Floodplain: Zone ANI	Avoidance Mod	
115	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC
116	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft Buffer of linear feature)	Avoidance Mod	
117	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft of site location)	Avoidance High	
118	Water and Wetlands	Oregon Watershed Restoration Inventory Project Area	Avoidance Low	
119	Water and Wetlands	Snake River	Avoidance High	
120	Water and Wetlands	Oregon State Scenic Waterway	Exclusion	
121	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC
122	Other Features	Vale District Utility Corridor	Opportunity	
123	Other Features	West-wide Energy Corridor	Opportunity	CC
124	Other Features	National Forest Utility Corridor	Opportunity	CC

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

APPENDIX D

Constraints Crossed – Data Tables

Table D-1. Boardman Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	NORTH ROUTE (MO1-MO2-MO4-MO5-MO7-UM1)	CENTRAL ROUTE (MO1-MO10-MO9-MO8-MO11-MO12-MO13-MO14-MO15-MO16-MO17-MO18-MO21-MO23-UM1)	SOUTH ROUTE (MO1-MO10-MO9-MO8-MO11-MO12-MO13-MO14-MO15-MO16-MO26-MO22-MO23-UM1)
					LENGTH IN MILES		
				TOTAL LENGTH	**57.3**	**52.7**	**54.6**
1	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		0.5	0.7	0.7
2	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		-	0.3	0.3
3	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	-	1.0	1.0
4	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		13.1	20.7	16.2
5	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		0.5	0.2	0.2
6	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		31.8	18.6	17.9
7	Land Use	Cropland/Irrigated Agriculture	Avoidance High		14.6	8.3	7.8
8	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		57.3	52.7	54.6
9	Land Use	Naval Weapons System Training Facility	Avoidance Mod	CC	9.1	-	-
10	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		37.6	34.6	34.6
11	Land Use	Wind Farm Boundary	Avoidance High		-	1.3	1.3
12	Land Use	Wind Turbine 1200ft Buffer Zone	Avoidance High		-	0.3	0.3
13	Ownership	Military Land	Avoidance Low	CC	8.1	-	-
14	Ownership	Private	Avoidance Low	CC	49.2	52.7	54.6
15	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		18.3	38.2	40.0
16	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		16.9	11.1	11.5
17	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		22.1	3.2	3.0
18	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.2	-	0.2

Table D-2. Morgan-Ione Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (MO14-MO25)	EAST ROUTE (MO14-MO15-MO25)
					Length in Miles	
			TOTAL LENGTH		**21.9**	**25.2**
1	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		0.5	0.7
2	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		0.5	0.3
3	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	0.5	0.5
4	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		2.2	6.2
5	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	5.8	8.2
6	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		5.5	5.2
7	Land Use	Cropland/Irrigated Agriculture	Avoidance High		0.2	0.2
8	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		21.9	25.2
9	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		9.2	13.9
10	Ownership	Private	Avoidance Low	CC	21.9	25.2
11	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		19.2	22.7
12	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		0.5	0.3
13	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		2.3	2.2
14	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.2	0.2
15	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	19.5	23.0
16	Slope	Slope 0-15%	Opportunity		17.3	21.1
17	Slope	Slope 15-25%	Avoidance Low		3.1	2.5
18	Slope	Slope 25-35%	Avoidance Mod		1.2	1.3
19	Slope	Slope >35%	Avoidance High		0.3	0.3
20	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low		21.6	25.0
21	Water and Wetlands	Floodplain: Zone A	Avoidance Mod		0.3	0.2
22	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.1	-
23	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft of site location)	Avoidance High		-	0.2
24	Water and Wetlands	Oregon Watershed Restoration Inventory Project Area	Avoidance Low		0.1	1.6
25	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC	0.1	0.1

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1 Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-3. Umatilla National Forest Data Table

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (MO24-UM6)	EAST ROUTE (MO24-UM5-UM7-UM6)
					Length in Miles	
				TOTAL LENGTH	**41.3**	**50.7**
1	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	0.5	0.5
2	Visual Resources	National Forest Visual Quality Objective: Maximum Modification	Opportunity		10.5	0.3
3	Visual Resources	National Forest Visual Quality Objective: Modification	Avoidance Mod		1.1	-
4	Visual Resources	National Forest Visual Quality Objective: Partial Retention	Avoidance High		0.2	0.3
5	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		-	26.7
6	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	28.6	42.9
7	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	13.6	15.4
8	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		24.2	42.2
9	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low		16.2	5.0
10	Fish and Wildlife	Within 300ft Special Status Stream: Red Band Trout	Avoidance Mod	CC	0.7	0.2
11	Fish and Wildlife	Within 300ft Special Status Stream: Steelhead	Avoidance Mod	CC	0.2	0.5
12	Land Use	Cropland/Irrigated Agriculture	Avoidance High		1.0	0.3
13	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		20.9	35.1
14	Land Use	Grazing/Pasture - OR	Avoidance Low		2.7	8.7
15	Land Use	Forested Land: Private	Avoidance Mod		5.0	4.9
16	Land Use	Forested Land: Public	Avoidance Mod		9.9	0.2
17	Land Use	National Forest Old Growth Forest Stand[3/]	Exclusion	CC	0.6	-
18	Land Use	Prineville District Lands Proposed for Acquisition by the BLM	Avoidance Low		1.2	-
19	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		0.6	0.8
20	Ownership	Private	Avoidance Low	CC	29.8	50.1
21	Ownership	U.S. Forest Service	Avoidance Low	CC	11.5	0.6
22	Geological Resources	Erosion Hazard: High (Prineville District, OR)	Avoidance Mod		-	1.0
23	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		2.1	14.2
24	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		12.4	13.8

Table D-3. Umatilla National Forest Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (MO24-UM6)	EAST ROUTE (MO24-UM5-UM7-UM6)
					Length in Miles	
				TOTAL LENGTH	**41.3**	**50.7**
25	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		10.6	13.1
26	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.1	0.6
27	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	24.3	31.0
28	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod		0.3	-
29	Slope	Slope 0-15%	Opportunity		26.7	29.7
30	Slope	Slope 15-25%	Avoidance Low		9.4	11.2
31	Slope	Slope 25-35%	Avoidance Mod		4.1	7.1
32	Slope	Slope >35%	Avoidance High		1.1	2.8
33	Water and Wetlands	Floodplain: Area Not Mapped	Avoidance Low		16.9	32.6
34	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low		24.1	17.9
35	Water and Wetlands	Floodplain: Zone A	Avoidance Mod		0.3	0.3
36	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.4	0.1
37	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft Buffer of linear feature)	Avoidance Mod		1.3	0.6
38	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft of site location)	Avoidance High		0.1	-

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1 Table 3.1-1.
2/ Rows designated with "CC" indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.
3/ Old-growth Forest Areas will be avoided during micro-siting.

Table D-4. Pilot Rock Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	SOUTH ROUTE (UM1-UM2-UM3)	NORTH ROUTE (UM1-UM3)
					Length in Miles	
				TOTAL LENGTH	**29.3**	**25.6**
1	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		10.3	11.1
2	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	12.9	5.5
3	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	6.4	5.5
4	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		25.2	17.5
5	Fish and Wildlife	Within 300ft Special Status Stream: Coho Salmon	Avoidance Mod	CC	-	0.1 (1 crossing)
6	Fish and Wildlife	Within 300ft Special Status Stream: Steelhead	Avoidance Mod	CC	0.3 (2 crossings)	0.1 (1 crossing)
7	Land Use	Cropland/Irrigated Agriculture	Avoidance High		0.1	-
8	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		29.3	25.8
9	Land Use	Forested Land: Private	Avoidance Mod		0.1	-
10	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		10.1	7.5
11	Ownership	Private	Avoidance Low	CC	29.3	25.8
12	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		9.3	13.7
13	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		15.9	10.5
14	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		4.1	1.5
15	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.6	0.2
16	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	23.8	22.5
17	Slope	Slope 0-15%	Opportunity		19.2	18.5
18	Slope	Slope 15-25%	Avoidance Low		4.4	3.2
19	Slope	Slope 25-35%	Avoidance Mod		3.7	1.9
20	Slope	Slope >35%	Avoidance High		2.1	2.1
21	Water and Wetlands	Floodplain: Area Not Mapped	Avoidance Low		29.3	20.1
22	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low		-	5.6
23	Water and Wetlands	Floodplain: Zone A	Avoidance Mod		-	0.1
24	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	-	-

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with "CC" indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-5. West of National Forest Utility Corridor Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	NORTH ROUTE (MO16-MO17-MO18-MO21-MO23-UM1-UM3-UM4)	SOUTH ROUTE (MO16-MO26-MO24-UM5-UM9-UM4)
					Length in Miles	
				TOTAL LENGTH	**74.3**	**81.0**
1	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		20.7	21.3
2	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	8.8	48.7
3	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	13.1	13.5
4	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		33.4	51.2
5	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low		4.5	4.3
6	Fish and Wildlife	Within 300ft Special Status Stream: Coho Salmon	Avoidance Mod	CC	0.1	-
7	Fish and Wildlife	Within 300ft Special Status Stream: Steelhead	Avoidance Mod	CC	0.1	0.3
8	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		66.8	67.2
9	Land Use	Forested Land: Private	Avoidance Mod		6.3	6.0
10	Land Use	Forested Land: Public	Avoidance Mod		-	0.1
11	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		30.1	17.2
12	Ownership	Bureau of Land Management	Avoidance Low	CC	-	0.1
13	Ownership	Private	Avoidance Low	CC	74.3	80.8
14	Ownership	U.S. Forest Service	Avoidance Low	CC	-	0.1
15	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		42.8	32.2
16	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		16.3	14.8
17	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		7.6	22.0
18	Geological Resources	Within 500ft of Fault Line	Avoidance Low		1.0	1.1
19	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	64.6	56.1
20	Geological Resources	Oregon Landslide Feature: Fan	Avoidance Mod		4.6	-
21	Slope	Slope 0-15%	Opportunity		57.4	48.0
22	Slope	Slope 15-25%	Avoidance Low		8.6	15.2
23	Slope	Slope 25-35%	Avoidance Mod		4.0	11.5

Table D-5. West of National Forest Utility Corridor (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	NORTH ROUTE (MO16-MO17-MO18-MO21-MO23-UM1-UM3-UM4)	SOUTH ROUTE (MO16-MO26-MO24-UM5-UM9-UM4)
					Length in Miles	
				TOTAL LENGTH	**74.3**	**81.0**
24	Slope	Slope >35%	Avoidance High		4.4	6.2
25	Water and Wetlands	Floodplain: Area Not Mapped	Avoidance Low		41.5	38.8
26	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low		32.2	41.5
27	Water and Wetlands	Floodplain: Zone A	Avoidance Mod		0.7	0.6
28	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.1	-
29	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft Buffer of linear feature)	Avoidance Mod		-	0.3
30	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC	0.1	0.1
31	Other Features	Parallel to Existing Transmission Line	Opportunity		-	4.2

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-6. Blue Mountain Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	NORTH ROUTE (GR1-GR2-BA1)	SOUTH ROUTE (GR1-BA1)
					Length in Miles	
				TOTAL LENGTH	**30.2**	**30.1**
1	Visual Resources	National Forest Visual Quality Objective: Maximum Modification	Opportunity		10.3	6.2
2	Visual Resources	National Forest Visual Quality Objective: Modification	Avoidance Mod		17.3	2.1
3	Visual Resources	National Forest Visual Quality Objective: Partial Retention	Avoidance High		3.5	-
4	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		12.9	14.0
5	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	-	4.5
6	Fish and Wildlife	Prineville District Fish Restoration Area	Avoidance Mod		4.3	4.7
7	Fish and Wildlife	Prineville District Wildlife Habitat Seasonal Closure Area	Avoidance Mod		-	2.7
8	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low		29.9	30.1
9	Fish and Wildlife	Within 300ft Special Status Stream: Bull Trout	Avoidance Mod	CC	0.3 (2 crossings)	0.5 (3 crossings)
10	Fish and Wildlife	Within 300ft Special Status Stream: Chinook Salmon	Avoidance Mod	CC	0.2 (1 crossing)	0.4 (3 crossings)
11	Fish and Wildlife	Within 300ft Special Status Stream: Cutthroat Trout	Avoidance Mod	CC	0.5 (3 crossings)	-
12	Fish and Wildlife	Within 300ft Special Status Stream: Red Band Trout	Avoidance Mod	CC	1.4 (11 crossings)	2.1 (15 crossings)
13	Fish and Wildlife	Within 300ft Special Status Stream: Steelhead	Avoidance Mod	CC	1.5 (11 crossings)	2.0 (15 crossings)
14	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		0.4	5.7
15	Land Use	Forested Land: Private	Avoidance Mod		0.6	-
16	Land Use	Forested Land: Public	Avoidance Mod		26.7	21.1
17	Land Use	National Forest Old Growth Forest Stand[3/]	Exclusion	CC	2.0	0.7
18	Land Use	National Forest: Special Interest Area	Avoidance Mod		17.0	-
19	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		5.8	15.2
20	Ownership	Private	Avoidance Low	CC	0.6	-
21	Ownership	U.S. Forest Service	Avoidance Low	CC	29.6	30.1
22	Geological Resources	Erosion Hazard: High (Prineville District, OR)	Avoidance Mod		8.6	6.4

Table D-6. Blue Mountain Data Table (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	NORTH ROUTE (GR1-GR2-BA1) Length in Miles	SOUTH ROUTE (GR1-BA1) Length in Miles
				TOTAL LENGTH	**30.2**	**30.1**
23	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.5	-
24	Geological Resources	U.S. Geological Survey Active Mining Area	Avoidance High		0.1	-
25	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		4.9	5.9
26	Slope	Slope 0-15%	Opportunity		9.8	12.5
27	Slope	Slope 15-25%	Avoidance Low		11.7	9.7
28	Slope	Slope 25-35%	Avoidance Mod		6.4	4.8
29	Slope	Slope >35%	Avoidance High		2.3	3.1
30	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	-	-
31	Water and Wetlands	Oregon Watershed Restoration Inventory Project Area	Avoidance Low		-	13.3

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with "CC" indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.
3/ Old-growth Forest Areas will be avoided during micro-siting.

Table D-7. Onion Creek Data Table

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	EAST ROUTE (UM8-BA21-BA19)	WEST ROUTE (UM8-GR6-BA19)
					Length in Miles	
			TOTAL LENGTH		**66.6**	**66.6**
1	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	1.2	6.0
2	Visual Resources	National Forest Visual Quality Objective: Maximum Modification	Opportunity		2.4	1.7
3	Visual Resources	National Forest Visual Quality Objective: Modification	Avoidance Mod		18.5	43.5
4	Visual Resources	National Forest Visual Quality Objective: Partial Retention	Avoidance High		12.7	11.2
5	Visual Resources	National Forest Visual Quality Objective: Retention	Exclusion	CC	-	2.5
6	Visual Resources	National Forest Visual Quality Objective: Preservation	Exclusion	CC	-	0.1
7	Visual Resources	BLM Visual Resource Management Class 2 (Baker RMP)	Avoidance High		1.0	-
8	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		17.1	8.7
9	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	36.2	8.5
10	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	42.1	12.7
11	Fish and Wildlife	Prineville District Fish Restoration Area	Avoidance Mod		-	3.3
12	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		1.6	-
13	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		9.5	3.6
14	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low		53.7	56.3
15	Fish and Wildlife	Within 300ft Special Status Stream: Bull Trout	Avoidance Mod	CC	1.2 (4 crossings)	2.4 (5 crossings)
16	Fish and Wildlife	Within 300ft Special Status Stream: Chinook Salmon	Avoidance Mod	CC	0.3 (2 crossings)	0.2 (2 crossings)
17	Fish and Wildlife	Within 300ft Special Status Stream: Red Band Trout	Avoidance Mod	CC	-	1.1 (8 crossings)
18	Fish and Wildlife	Within 300ft Special Status Stream: Steelhead	Avoidance Mod	CC	0.7 (5 crossings)	2.6 (15 crossings)
19	Land Use	Cropland/Irrigated Agriculture	Avoidance High		0.5	1.1
20	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		8.3	-
21	Land Use	Grazing/Pasture - OR	Avoidance Low		11.6	2.6
22	Land Use	Forested Land: Private	Avoidance Mod		17.6	4.9

Table D-7. Onion Creek Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	EAST ROUTE (UM8-BA21-BA19)	WEST ROUTE (UM8-GR6-BA19)
					Length in Miles	
				TOTAL LENGTH	**66.6**	**66.6**
23	Land Use	Forested Land: Public	Avoidance Mod		33.5	49.1
24	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		27.1	19.2
25	Land Use	BLM Wild and Scenic River: Recreation	Avoidance High		0.7	1.2
26	Ownership	Bureau of Land Management	Avoidance Low	CC	3.3	0.4
27	Ownership	Private	Avoidance Low	CC	27.8	7.0
28	Ownership	U.S. Forest Service	Avoidance Low	CC	35.5	59.1
29	Geological Resources	Erosion Hazard: High (Prineville District, OR)	Avoidance Mod		-	6.5
30	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		3.3	0.2
31	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		6.8	1.6
32	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.9	2.4
33	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	23.5	10.6
34	Geological Resources	Oregon Landslide Feature: Fan	Avoidance Mod		0.5	0.7
35	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		4.4	4.0
36	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod		5.3	6.1
37	Slope	Slope 0-15%	Opportunity		19.9	23.2
38	Slope	Slope 15-25%	Avoidance Low		16.5	16.5
39	Slope	Slope 25-35%	Avoidance Mod		12.9	12.0
40	Slope	Slope >35%	Avoidance High		17.4	14.8
41	Water and Wetlands	Floodplain: Area Not Mapped	Avoidance Low		1.8	2.4
42	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low		21.8	11.8
43	Water and Wetlands	Floodplain: Zone A	Avoidance Mod		0.2	-
44	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.5	0.3

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with "CC" indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-8. Interpretive Center Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA4-BA8-BA9-BA10 + 230-kV ReRoute)	CENTRAL ROUTE (BA4-BA18-BA9-BA10)	EAST ROUTE (BA4-BA18-BA10)
					Length in Miles		
				TOTAL LENGTH	***500kV* - 20.6** ***230kV* - 10.2**	**19.8**	**17.9**
1	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		1.6	1.1	-
2	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		1.1	0.5	-
3	Cultural Resources	Oregon Trail Brochure - Trailrut	Avoidance High		0.5	0.5	-
4	Visual Resources	Viewshed Area (Baker County)	Avoidance High	CC	8.2	4.9	-
5	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	2.0	1.0	1.1
6	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		5.1	0.5	0.5
7	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	10.5	7.0	0.5
8	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		15.3	9.4	5.9
9	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		15.6	10.4	12.1
10	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied)	Exclusion	CC	-	-	4.6
11	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied but Permittable)	Avoidance Mod	CC	3.5	3.5	-
12	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	Avoidance Low		1.4	1.4	-
13	Land Use	Cropland/Irrigated Agriculture	Avoidance High		1.8	0.1	0.1
14	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		30.8	19.8	17.9
15	Land Use	Grazing/Pasture - OR	Avoidance Low		21.1	14.8	16.3
16	Land Use	Virtue Flat OHV Park	Avoidance Mod		0.1	0.1	2.7
17	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		1.9	1.9	3.6
18	Ownership	Bureau of Land Management	Avoidance Low	CC	3.8	4.2	5.6
19	Ownership	Private	Avoidance Low	CC	27.0	15.6	12.4
20	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		0.5	0.5	0.5
21	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		24.2	15.9	15.7

Table D-8. Interpretive Center Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA4-BA8-BA9-BA10 + 230kV ReRoute)	CENTRAL ROUTE (BA4-BA18-BA9-BA10)	EAST ROUTE (BA4-BA18-BA10)
					Length in Miles		
				TOTAL LENGTH	***500kV* - 20.6** ***230kV* - 10.2**	**19.8**	**17.9**
22	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		6.0	3.4	1.7
23	Geological Resources	Within 500ft of Fault Line	Avoidance Low		1.9	1.7	0.9
24	Geological Resources	U.S. Geological Survey Active Mining Area	Avoidance High		0.2	0.1	-
25	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	23.3	15.8	16.2
26	Slope	Slope 0-15%	Opportunity		21.4	14.2	13.7
27	Slope	Slope 15-25%	Avoidance Low		7.0	3.8	3.1
28	Slope	Slope 25-35%	Avoidance Mod		1.9	1.5	0.9
28	Slope	Slope >35%	Avoidance High		0.6	0.3	0.2
30	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.2	0.1	-
31	Other Features	Parallel to Existing Transmission Line	Opportunity		17.5	9.2	2.9

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-9. Southwest Region Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (GR3-GR4-HA1-HA2-MA6)	B (GR3-GR4-GR5-HA1-HA2-MA6)	C (GR3-GR4-GR5-HA2-MA6)	D (GR3-MA4-MA5-MA6)
					Length in Miles			
				TOTAL LENGTH	**186.6**	**174.6**	**156.2**	**132.9**
1	Cultural Resources	Burns District Archaeological Site	Avoidance High		-	0.1	-	0.1
2	Cultural Resources	Vale District Cultural Site	Exclusion		0.4	0.4	0.4	-
3	Visual Resources	Devine Scenic Corridor (Burns District)	Avoidance Mod		-	-	0.4	-
4	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	1.5	0.5	0.5	0.5
5	Visual Resources	National Forest Visual Quality Objective: Partial Retention	Avoidance High		0.5	0.1	7.1	5.3
6	Visual Resources	National Forest Visual Quality Objective: Retention	Exclusion	CC	-	-	-	0.2
7	Visual Resources	BLM Visual Resource Management Class 3 - John Day Basin	Avoidance Mod		-	-	-	0.5
8	Visual Resources	BLM Visual Resource Management Class 4 - John Day Basin	Avoidance Low		0.5	0.6	0.6	-
9	Visual Resources	BLM Visual Resource Management Class 2 - OR	Avoidance High	CC	0.4	0.4	0.4	-
10	Visual Resources	BLM Visual Resource Management Class 3 - OR	Avoidance Mod		3.3	3.3	3.3	4.9
11	Visual Resources	BLM Visual Resource Management Class 4 - OR	Avoidance Low		34.4	34.4	34.4	40.0
12	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		31.8	6.7	6.4	7.3
13	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	65.7	52.2	23.6	38.8
14	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	78.5	59.1	40.1	73.2
15	Fish and Wildlife	Prineville District Fish Restoration Area	Avoidance Mod		1.8	3.7	4.2	1.3

Table D-9. Southwest Region Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (GR3-GR4-HA1-HA2-MA6)	B (GR3-GR4-GR5-HA1-HA2-MA6)	C (GR3-GR4-GR5-HA2-MA6)	D (GR3-MA4-MA5-MA6)
					Length in Miles			
				TOTAL LENGTH	**186.6**	**174.6**	**156.2**	**132.9**
16	Fish and Wildlife	Prineville District Wildlife Habitat Seasonal Closure Area	Avoidance Mod		36.4	16.9	13.6	27.9
17	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		59.9	59.4	45.4	25.0
18	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		59.9	54.2	43.8	55.5
19	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Mod		51.5	49.4	60.9	46.3
20	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied but Permittable)	Avoidance Mod	CC	7.3	7.3	3.6	-
21	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	Avoidance Low		6.1	6.1	6.1	-
22	Fish and Wildlife	Within 300ft Special Status Stream: Bull Trout	Avoidance Mod	CC	0.1 (1 crossing)	0.1 (1 crossing)	0.1 (1 crossing)	0.3 (2 crossings)
23	Fish and Wildlife	Within 300ft Special Status Stream: Chinook Salmon	Avoidance Mod	CC	0.1 (1 crossing)	0.1 (1 crossing)	0.1 (1 crossing)	0.1 (1 crossing)
24	Fish and Wildlife	Within 300ft Special Status Stream: Cutthroat Trout	Avoidance Mod	CC	-	0.3 (2 crossings)	0.3 (2 crossings)	0.5 (4 crossings)
25	Fish and Wildlife	Within 300ft Special Status Stream: Red Band Trout	Avoidance Mod	CC	3.8 (19 crossings)	3.2 (22 crossings)	3.4 (23 crossings)	1.0 (8 crossings)
26	Fish and Wildlife	Within 300ft Special Status Stream: Steelhead	Avoidance Mod	CC	1.0 (7 crossings)	1.1 (7 crossings)	1.1 (7 crossings)	1.1 (9 crossings)
27	Fish and Wildlife	Wild Horse and Burro Area (OR BLM)	Avoidance Low		34.6	16.7	16.7	5.3
28	Land Use	Burns District ROW Avoidance Corridor	Avoidance High		1.7	1.7	1.7	-
29	Land Use	Cropland/Irrigated Agriculture	Avoidance High		2.2	1.6	1.1	1.1

Table D-9. Southwest Region Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (GR3-GR4-HA1-HA2-MA6)	B (GR3-GR4-GR5-HA1-HA2-MA6)	C (GR3-GR4-GR5-HA2-MA6)	D (GR3-MA4-MA5-MA6)
					Length in Miles			
				TOTAL LENGTH	**186.6**	**174.6**	**156.2**	**132.9**
30	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		26.3	10.4	10.8	22.3
31	Land Use	Grazing/Pasture - OR	Avoidance Low		122.5	123.5	90.3	63.9
32	Land Use	Forested Land: Private	Avoidance Mod		5.4	4.5	6.1	7.4
33	Land Use	Forested Land: Public	Avoidance Mod		38.1	37.1	48.3	33.4
34	Land Use	National Forest Old Growth Forest Stand***	Exclusion	CC	0.8	3.5	3.2	2.7
35	Land Use	Area of Critical Environmental Concern	Avoidance High		0.4	0.4	0.4	-
36	Land Use	Prineville District Lands Proposed for Acquisition by the BLM	Avoidance Low		4.5	-	-	-
37	Land Use	Prineville District Noxious Weeds	Avoidance Low		1.4	0.9	0.9	1.4
38	Land Use	Noxious Weeds (OR BLM)	Avoidance Low		1.3	1.3	0.7	-
39	Land Use	Burns District Off-Highway Vehicle: Seasonal Closure	Avoidance Low		7.8	11.4	-	-
40	Land Use	Vale District Off-Highway Vehicle: Limited to Designated Routes	Avoidance Low		0.4	0.4	0.4	-
41	Land Use	Vale District Off-Highway Vehicle: Limited to Existing Routes	Avoidance Low		-	-	-	3.0
42	Land Use	Recreation Area (OR BLM)	Avoidance High		2.9	3.1	-	-
43	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		25.5	24.9	31.7	21.5
44	Land Use	Proposed Wind Farm Boundary (Burns District, OR)	Avoidance High		2.6	2.6	2.6	-
45	Land Use	BLM Wild and Scenic River: Recreation	Avoidance High		0.4	-	-	-

Table D-9. Southwest Region Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (GR3-GR4-HA1-HA2-MA6)	B (GR3-GR4-GR5-HA1-HA2-MA6)	C (GR3-GR4-GR5-HA2-MA6)	D (GR3-MA4-MA5-MA6)
					Length in Miles			
				TOTAL LENGTH	**186.6**	**174.6**	**156.2**	**132.9**
46	Land Use	Proposed Wilderness Study Area (ONDA)	Avoidance Mod		33.2	29.0	28.6	40.0
47	Land Use	Lands with Wilderness Characteristics (OR BLM)	Avoidance Mod		-	-	-	1.3
48	Ownership	Bureau of Land Management	Avoidance Low	CC	82.9	88.3	62.0	50.8
49	Ownership	Bureau of Reclamation	Avoidance Low	CC	-	-	-	0.3
50	Ownership	Private	Avoidance Low	CC	56.6	41.5	38.2	41.4
51	Ownership	State Land	Avoidance Low	CC	3.7	4.1	4.2	2.0
52	Ownership	U.S. Forest Service	Avoidance Low	CC	43.5	40.7	52.0	38.4
53	Geological Resources	Erosion Hazard: High (Prineville District, OR)	Avoidance Mod		16.2	18.7	17.2	15.6
54	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		3.0	3.0	3.0	-
55	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		11.8	12.1	10.3	0.1
56	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		48.5	52.0	22.2	11.3
57	Geological Resources	Within 500ft of Fault Line	Avoidance Low		12.3	9.9	8.6	10.2
58	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	57.1	59.7	33.6	5.9
59	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		12.3	11.7	10.3	6.2
60	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod		5.6	2.2	4.9	4.5
61	Slope	Slope 0-15%	Opportunity		115.7	105.0	92.5	62.2
62	Slope	Slope 15-25%	Avoidance Low		36.7	34.0	32.7	35.6
63	Slope	Slope 25-35%	Avoidance Mod		18.8	20.2	17.7	21.5
64	Slope	Slope >35%	Avoidance High		15.3	15.4	13.4	13.6

Table D-9. Southwest Region Data Table (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (GR3-GR4-HA1-HA2-MA6)	B (GR3-GR4-GR5-HA1-HA2-MA6)	C (GR3-GR4-GR5-HA2-MA6)	D (GR3-MA4-MA5-MA6)
					Length in Miles			
				TOTAL LENGTH	**186.6**	**174.6**	**156.2**	**132.9**
65	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.4	0.4	-	-
66	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft Buffer of linear feature)	Avoidance Mod		0.2	-	-	-
67	Water and Wetlands	Oregon Watershed Restoration Inventory Project Area	Avoidance Low		0.5	0.5	0.7	0.2
68	Other Features	Vale District Utility Corridor	Opportunity		14.8	14.8	14.8	1.3
69	Other Features	West-wide Energy Corridor	Opportunity	CC	22.1	22.1	11.8	0.8
70	Other Features	Parallel to Existing Transmission Line	Opportunity		35.7	35.7	19.2	6.3

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.
3/ Old-growth Forest Areas will be avoided during micro-siting.

Table D-10. Burnt River Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA10-BA20-MA1-MA2)	EAST ROUTE (BA10-BA11-BA13-MA2)
					Length in Miles	
				TOTAL LENGTH	**36.1**	**41.9**
1	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		1.0	2.6
2	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		1.0	-
3	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	0.5	0.6
4	Visual Resources	BLM Visual Resource Management Class 4	Avoidance Low		1.1	1.7
5	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		0.7	1.3
6	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	15.3	33.4
7	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	31.0	19.4
8	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		10.5	11.8
9	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		18.0	23.4
10	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low		2.3	-
11	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	Avoidance Low		-	4.0
12	Land Use	Cropland/Irrigated Agriculture	Avoidance High		0.4	0.3
13	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		16.4	35.7
14	Land Use	Grazing/Pasture - OR	Avoidance Low		31.4	35.3
15	Land Use	Forested Land: Private	Avoidance Mod		2.1	-
16	Land Use	Forested Land: Public	Avoidance Mod		1.4	-
17	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		0.6	-
18	Ownership	Bureau of Land Management	Avoidance Low	CC	10.2	13.5
19	Ownership	Private	Avoidance Low	CC	25.9	28.4
20	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		-	5.1
21	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		1.2	17.3
22	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		14.8	13.3
23	Geological Resources	Within 500ft of Fault Line	Avoidance Low		2.3	0.4
24	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	13.0	23.3

Table D-10. Burnt River Data Table (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty 1/	Community Criteria 2/	WEST ROUTE (BA10-BA20-MA1-MA2)	EAST ROUTE (BA10-BA11-BA13-MA2)
					Length in Miles	
				TOTAL LENGTH	**36.1**	**41.9**
25	Geological Resources	Oregon Landslide Feature: Fan	Avoidance Mod		0.2	-
26	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		-	1.2
27	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod		2.0	1.4
28	Slope	Slope 0-15%	Opportunity		15.9	20.4
29	Slope	Slope 15-25%	Avoidance Low		7.7	11.0
30	Slope	Slope 25-35%	Avoidance Mod		6.3	5.3
31	Slope	Slope >35%	Avoidance High		6.3	5.3
32	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.3	0.3
33	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft Buffer of linear feature)	Avoidance Mod		0.2	-
34	Water and Wetlands	Oregon Watershed Restoration Inventory Project Area	Avoidance Low		-	0.1
35	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC	0.1	0.1
36	Other Features	Vale District Utility Corridor	Opportunity		3.0	0.4
37	Other Features	West-wide Energy Corridor	Opportunity	CC	0.4	0.0
38	Other Features	Parallel to Existing Transmission Line	Opportunity		7.2	3.2

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with "CC" indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-11. West of Vale Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA2-MA4-MA5)	EAST ROUTE (BA2-MA1-MA2-MA5)
					Length in Miles	
				TOTAL LENGTH	**67.8**	**73.4**
1	Visual Resources	National Forest Visual Quality Objective: Modification	Avoidance Mod		3.2	1.1
2	Visual Resources	National Forest Visual Quality Objective: Partial Retention	Avoidance High		2.9	-
3	Visual Resources	BLM Visual Resource Management Class 3 - OR	Avoidance Mod		1.2	3.4
4	Visual Resources	BLM Visual Resource Management Class 4 - OR	Avoidance Low		35.2	21.4
5	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		14.6	-
6	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	9.0	26.8
7	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	36.3	34.2
8	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		23.3	35.7
9	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		37.5	34.3
10	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low		3.0	-
11	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	Avoidance Low		14.2	-
12	Fish and Wildlife	Wild Horse and Burro Area (OR BLM)	Avoidance Low		4.4	-
13	Land Use	Cropland/Irrigated Agriculture	Avoidance High		0.5	0.3
14	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		0.7	6.3
15	Land Use	Grazing/Pasture - OR	Avoidance Low		61.1	48.9
16	Land Use	Forested Land: Private	Avoidance Mod		2.1	0.3
17	Land Use	Forested Land: Public	Avoidance Mod		1.6	-
18	Land Use	Vale District Off-Highway Vehicle: Limited to Existing Routes	Avoidance Low		3.0	-

Table D-11. West of Vale Data Table (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA2-MA4-MA5)	EAST ROUTE (BA2-MA1-MA2-MA5)
					Length in Miles	
				TOTAL LENGTH	**67.8**	**73.4**
19	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		22.2	0.9
20	Land Use	Proposed Wilderness Study Area (ONDA)	Avoidance Mod		22.2	9.4
21	Ownership	Bureau of Land Management	Avoidance Low	CC	36.4	24.8
22	Ownership	Bureau of Reclamation	Avoidance Low	CC	0.3	0.3
23	Ownership	Private	Avoidance Low	CC	25.6	47.6
24	Ownership	State Land	Avoidance Low	CC	1.7	-
25	Ownership	U.S. Forest Service	Avoidance Low	CC	4.0	0.8
26	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		0.1	2.6
27	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		0.3	3.0
28	Geological Resources	Within 500ft of Fault Line	Avoidance Low		1.1	4.5
29	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	0.3	3.7
30	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		-	0.6
31	Slope	Slope 0-15%	Opportunity		39.1	54.1
32	Slope	Slope 15-25%	Avoidance Low		16.7	12.7
33	Slope	Slope 25-35%	Avoidance Mod		8.0	4.7
34	Slope	Slope >35%	Avoidance High		4.1	1.9
35	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.1	0.5
36	Other Features	Vale District Utility Corridor	Opportunity		0.6	5.3
37	Other Features	Parallel to Existing Transmission Line	Opportunity		-	16.4

1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-12. Weatherby Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA11-BA12-BA13)	EAST ROUTE (BA11-BA13)
					Length in Miles	
				TOTAL LENGTH	**9.1**	**7.7**
1	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		2.3	1.5
2	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		0.6	-
3	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		2.2	-
4	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	9.1	5.6
5	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	2.7	-
6	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		0.1	0.4
7	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		6.5	4.9
8	Land Use	Cropland/Irrigated Agriculture	Avoidance High		0.3	-
9	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		8.0	7.7
10	Land Use	Grazing/Pasture - OR	Avoidance Low		7.7	6.1
11	Land Use	Forested Land: Private	Avoidance Mod		-	-
12	Land Use	Forested Land: Public	Avoidance Mod		-	-
13	Ownership	Bureau of Land Management	Avoidance Low	CC	2.2	2.7
14	Ownership	Private	Avoidance Low	CC	6.9	5.0
15	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		-	1.9
16	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		2.9	2.9
17	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		6.2	2.9
18	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.2	0.4
19	Geological Resources	U.S. Geological Survey Active Mining Area	Avoidance High		0.2	-
20	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	5.6	5.4
21	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod		0.9	0.2
22	Slope	Slope 0-15%	Opportunity		2.8	2.2
23	Slope	Slope 15-25%	Avoidance Low		2.8	2.3
24	Slope	Slope 25-35%	Avoidance Mod		1.3	1.5
25	Slope	Slope >35%	Avoidance High		2.2	1.7

Table D-12. Weatherby Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA11-BA12-BA13)	EAST ROUTE (BA11-BA13)
					Length in Miles	
				TOTAL LENGTH	**9.1**	**7.7**
26	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.2	-
27	Water and Wetlands	Oregon Watershed Restoration Inventory Project Area	Avoidance Low		0.4	0.1
28	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC	0.3	-
29	Other Features	West-wide Energy Corridor	Opportunity	CC	0.4	-
30	Other Features	Parallel to Existing Transmission Line	Opportunity		6.0	-

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1 Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-13. Lime Data Table

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	WEST ROUTE (BA14-BA16)	EAST ROUTE (BA14-BA15-BA16)
					Length in Miles	
				TOTAL LENGTH	**6.0**	**5.9**
1	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		-	1.6
2	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		-	0.4
3	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	-	3.1
4	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		-	4.9
5	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	6.0	4.9
6	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	6.0	5.5
7	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		5.3	3.2
8	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		6.0	5.1
9	Land Use	Grazing/Pasture - OR	Avoidance Low		5.3	4.1
10	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		5.7	5.8
11	Ownership	Bureau of Land Management	Avoidance Low	CC	0.7	1.2
12	Ownership	Private	Avoidance Low	CC	5.2	4.7
13	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		0.5	0.3
14	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		1.8	2.2
15	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		3.6	3.4
16	Geological Resources	Within 500ft of Fault Line	Avoidance Low		0.5	0.2
17	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	4.9	4.1
18	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		0.7	0.6
19	Slope	Slope 0-15%	Opportunity		1.3	0.7
20	Slope	Slope 15-25%	Avoidance Low		2.7	1.3
21	Slope	Slope 25-35%	Avoidance Mod		1.3	1.4
22	Slope	Slope >35%	Avoidance High		0.7	2.5
23	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	-	-
24	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC	0.5	0.1
25	Other Features	Vale District Utility Corridor	Opportunity		1.6	1.7
26	Other Features	West-wide Energy Corridor	Opportunity	CC	0.0	1.2
27	Other Features	Parallel to Existing Transmission Line	Opportunity		6.0	1.8

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1, Table 3.1-1.
2/ Rows designated with "CC" indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-14. Snake River Valley Data Table

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (BA13-BA14-BA16-BA17-MA3-MA7-OW1-OW2)	B (BA13-BA14-BA16-BA17-MA3-PA2-OW2)	C (BA13-BA14-BA16-BA17-WA1-PA1-OW1-OW2)	D (BA13-WA1-PA1-OW1-OW2)	E (BA13-BA14-BA16-BA17-WA1-PA1-PA2-OW2)	F (BA13-WA1-PA1-PA2-OW2)
					Length in Miles					
				TOTAL LENGTH	**99.6**	**96.3**	**104.3**	**100.8**	**109.5**	**106**
1	Cultural Resources	Within 500ft of Cemetery	Avoidance Mod		0.2	-	-	-	-	-
2	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		4.5	5.9	2.1	1.0	3.1	1.9
3	Cultural Resources	Within .5mi National Register Historic Place Buffer	Avoidance High		0.8	-	-	-	-	-
4	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		2.3	2.3	-	-	-	-
5	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	0.5	3.0	1.2	1.2	3.0	3.0
6	Visual Resources	BLM Visual Resource Management Class 2	Avoidance High		-	-	7.2	8.0	13.3	14.1
7	Visual Resources	BLM Visual Resource Management Class 3	Avoidance Mod		3.3	29.0	15.3	25.9	24.9	35.5
8	Visual Resources	BLM Visual Resource Management Class 4	Avoidance Low		31.0	27.4	64.9	62.9	54.4	52.4
9	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		3.0	1.5	1.5	-	1.5	-
10	Fish and Wildlife	IDFG Focal Area	Avoidance Low		11.0	2.6	42.8	51.4	40.5	49.1
11	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	58.3	32.3	16.5	4.0	16.5	4.0
12	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	25.7	25.6	11.3	4.2	11.3	4.2
13	Fish and Wildlife	IDFG Big Game Crucial Winter Range	Avoidance Mod	CC	-	-	19.9	18.9	19.9	18.9
14	Fish and Wildlife	Pronghorn Antelope Habitat (Boise District, ID)	Avoidance Mod	CC	23.8	3.1	22.7	22.7	3.1	3.1

Table D-14. Snake River Valley Data Table (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (BA13-BA14-BA16-BA17-MA3-MA7-OW1-OW2)	B (BA13-BA14-BA16-BA17-MA3-PA2-OW2)	C (BA13-BA14-BA16-BA17-WA1-PA1-OW1-OW2)	D (BA13-WA1-PA1-OW1-OW2)	E (BA13-BA14-BA16-BA17-WA1-PA1-PA2-OW2)	F (BA13-WA1-PA1-PA2-OW2)
					Length in Miles					
				TOTAL LENGTH	**99.6**	**96.3**	**104.3**	**100.8**	**109.5**	**106**
15	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		9.8	6.5	3.1	-	3.1	-
16	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		36.9	19.8	9.9	5.1	9.9	5.1
17	Fish and Wildlife	Sage-grouse Key Habitat Area (ID BLM)	Avoidance Mod	CC	-	-	4.4	10.9	4.4	10.9
18	Fish and Wildlife	Sage-grouse Restoration Habitat Type 1: Perennial Grasslands (ID BLM)	Avoidance Low	CC	-	-	1.5	2.5	1.5	2.5
19	Fish and Wildlife	Sage-grouse Restoration Habitat Type 2: Annual Grass Understories (ID BLM)	Avoidance Low		-	-	12.0	12.8	12.0	12.8
20	Fish and Wildlife	Within 2-mile Idaho Sage-grouse Lek Buffer (Unknown)	Exclusion		-	2.2	-	-	-	-
21	Fish and Wildlife	Within 300ft Special Status Stream: Bull Trout	Avoidance Mod	CC	-	-	0.1	0.1	0.1	0.1
22	Land Use	Cropland/Irrigated Agriculture	Avoidance High		23.6	36.8	29.5	28.4	33.8	32.7
23	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		37.4	21.2	16.9	6.6	16.9	6.6
24	Land Use	Grazing Allotment - ID	Avoidance Low		20.1	10.5	41.8	49.2	28.2	35.6
25	Land Use	Grazing/Pasture - OR	Avoidance Low		29.5	22.2	11.7	6.4	11.7	6.4

Table D-14. Snake River Valley Data Table (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (BA13-BA14-BA16-BA17-MA3-MA7-OW1-OW2)	B (BA13-BA14-BA16-BA17-MA3-PA2-OW2)	C (BA13-BA14-BA16-BA17-WA1-PA1-OW1-OW2)	D (BA13-WA1-PA1-OW1-OW2)	E (BA13-BA14-BA16-BA17-WA1-PA1-PA2-OW2)	F (BA13-WA1-PA1-PA2-OW2)
					Length in Miles					
				TOTAL LENGTH	**99.6**	**96.3**	**104.3**	**100.8**	**109.5**	**106**
26	Land Use	City Impact Area - Idaho	Avoidance High		-	3.9	9.7	9.7	2.6	2.6
27	Land Use	Urban Growth Boundary - Oregon	Avoidance High	CC	-	2.3	-	-	-	-
28	Land Use	Urban Area	Avoidance High	CC	-	1.7	-	-	-	-
29	Land Use	Forested Land: Private	Avoidance Mod		-	-	-	0.1	-	0.1
30	Land Use	Forested Land: Public	Avoidance Mod		-	-	-	-	-	-
31	Land Use	Area of Critical Environmental Concern	Avoidance High		-	3.4	7.3	7.3	4.4	4.4
32	Land Use	Vale District Off-Highway Vehicle: Limited to Existing Routes	Avoidance Low		15.8	4.2	-	-	-	-
33	Land Use	Oregon State Park	Exclusion		-	0.3	-	-	-	-
34	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		38.8	21.0	34.8	30.0	28.5	23.8
35	*Ownership*	*Bureau of Land Management - OR*	*Avoidance Low*	*CC*	*15.2*	*7.5*	*4.0*	*4.8*	*4.0*	*4.8*
36	*Ownership*	*Bureau of Land Management - ID*	*Avoidance Low*	*CC*	*16.9*	*8.8*	*27.0*	*28.4*	*14.0*	*15.5*
37	Ownership			**Bureau of Land Management Total**	**32.1**	**16.3**	**31.0**	**33.2**	**18.1**	**20.2**
38	*Ownership*	*Bureau of Reclamation - OR*	*Avoidance Low*	*CC*	-	*0.3*	-	-	-	-
39	*Ownership*	*Bureau of Reclamation - ID*	*Avoidance Low*	*CC*	*0.1*	*0.1*	*0.2*	*0.2*	*0.1*	*0.1*
40	Ownership			**Bureau of Reclamation Total**	**0.1**	**0.5**	**0.2**	**0.2**	**0.1**	**0.1**
41	*Ownership*	*Private - OR*	*Avoidance Low*	*CC*	*60.5*	*34.7*	*12.8*	*1.7*	*12.8*	*1.7*

Table D-14. Snake River Valley Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (BA13-BA14-BA16-BA17-MA3-MA7-OW1-OW2)	B (BA13-BA14-BA16-BA17-MA3-PA2-OW2)	C (BA13-BA14-BA16-BA17-WA1-PA1-OW1-OW2)	D (BA13-WA1-PA1-OW1-OW2)	E (BA13-BA14-BA16-BA17-WA1-PA1-PA2-OW2)	F (BA13-WA1-PA1-PA2-OW2)
					Length in Miles					
				TOTAL LENGTH	**99.6**	**96.3**	**104.3**	**100.8**	**109.5**	**106**
42	*Ownership*	*Private - ID*	*Avoidance Low*	*CC*	*3.8*	*43.3*	*59.6*	*65.0*	*76.1*	*81.4*
43	Ownership			**Private Land Total**	**64.3**	**78.0**	**72.4**	**66.7**	**88.9**	**83.1**
44	Ownership	Other Federal Land	Avoidance Low	CC	-	-	-	-	-	-
45	Ownership	State Land - ID	Avoidance Low	CC	3.0	0.6	0.6	0.6	2.0	2.0
46	Ownership	Water	Avoidance High		-	-	-	-	-	-
47	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		12.9	31.7	35.5	30.7	41.1	36.3
48	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		22.8	30.2	33.4	31.4	39.0	37.0
49	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		22.7	13.3	34.2	36.8	28.0	30.5
50	Geological Resources	Idaho Landslide Susceptibility: Moderate	Avoidance Mod		-	8.0	-	-	8.0	8.0
51	Geological Resources	Idaho Landslide Susceptibility: Low	Avoidance Low		23.8	45.1	87.5	94.3	84.7	91.5
52	Geological Resources	Within 500ft of Fault Line	Avoidance Low		2.2	0.5	2.1	1.5	1.4	0.9
53	Geological Resources	U.S. Geological Survey Active Mining Area	Avoidance High		0.2	0.1	0.1	0.1	0.1	0.1
54	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	34.5	55.8	55.5	47.1	62.8	54.5
55	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		0.7	0.7	0.7	0.7	0.7	0.7

Table D-14. Snake River Valley Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	A (BA13-BA14-BA16-BA17-MA3-MA7-OW1-OW2)	B (BA13-BA14-BA16-BA17-MA3-PA2-OW2)	C (BA13-BA14-BA16-BA17-WA1-PA1-OW1-OW2)	D (BA13-WA1-PA1-OW1-OW2)	E (BA13-BA14-BA16-BA17-WA1-PA1-PA2-OW2)	F (BA13-WA1-PA1-PA2-OW2)
					Length in Miles					
				TOTAL LENGTH	**99.6**	**96.3**	**104.3**	**100.8**	**109.5**	**106**
56	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod		-	-	-	0.6	-	0.6
57	Slope	Slope 0-15%	Opportunity		71.7	75.1	72.2	65.3	76.0	69.1
58	Slope	Slope 15-25%	Avoidance Low		17.0	11.8	17.7	15.1	17.3	14.7
59	Slope	Slope 25-35%	Avoidance Mod		6.6	5.2	8.0	10.9	8.8	11.7
60	Slope	Slope >35%	Avoidance High		4.3	4.2	6.5	9.6	7.5	10.6
61	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low		-	16.1	47.3	54.1	53.8	60.6
62	Water and Wetlands	Floodplain: Zone A	Avoidance Mod		-	0.4	2.0	2.0	2.3	2.3
63	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.7	2.9	1.3	1.3	1.4	1.4
64	Water and Wetlands	Snake River	Avoidance High		-	0.9	0.4	0.5	0.3	0.4
65	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC	1.2	2.8	1.2	0.3	1.2	0.3
66	Other Features	Vale District Utility Corridor	Opportunity		24.7	35.5	7.5	-	7.5	-
67	Other Features	West-wide Energy Corridor	Opportunity	CC	16.2	6.1	10.5	7.9	2.6	-
68	Other Features	Parallel to Existing Transmission Line	Opportunity		50.4	33.3	25.0	14.8	34.0	23.8

Notes:
1 For explanation of Permitting Difficulty categories, see Section 3.1 Table 3.1-1.
2/ Rows designated with "CC" indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

Table D-15. Western, Central, and Eastern Route Data Table

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	Western Route	Central Route	Eastern Route
					Length in Miles		
			TOTAL LENGTH		**275.1**	**281.9**	**298.8**
1	Cultural Resources	Burns District Archaeological Site	Avoidance High		0.1	-	-
2	Cultural Resources	Within 1200ft Historic Trail Buffer	Avoidance Mod		0.5	0.7	5.1
3	Cultural Resources	Within .5mi National Register Historic Place Buffer	Avoidance High		0.8	0.8	0.8
4	Cultural Resources	Intact Oregon Trail Segment (OR BLM)	Avoidance High		0.5	0.3	0.5
5	Cultural Resources	Oregon Trail Brochure - Trailrut	Avoidance High		-	-	0.5
6	Visual Resources	Viewshed Area (Baker County)	Avoidance High		-	-	4.9
7	Visual Resources	Within 1200ft Nationally Designated Scenic Byway	Avoidance Mod	CC	2.0	2.7	2.0
8	Visual Resources	National Forest Visual Quality Objective: Maximum Modification	Opportunity		5.3	-	-
9	Visual Resources	National Forest Visual Quality Objective: Modification	Avoidance Mod		-	7.7	0.4
10	Visual Resources	National Forest Visual Quality Objective: Partial Retention	Avoidance High		5.3	20.5	3.6
11	Visual Resources	National Forest Visual Quality Objective: Retention	Exclusion	CC	0.2	1.4	1.4
12	Visual Resources	BLM Visual Resource Management Class 2	Avoidance High	CC	3.6	3.6	3.6
13	Visual Resources	BLM Visual Resource Management Class 3	Avoidance Mod		4.9	4.7	4.7
14	Visual Resources	BLM Visual Resource Management Class 4	Avoidance Low		48.4	35.7	36.3
15	Fish and Wildlife	ODFW Conservation Opportunity Area	Avoidance Low		22.4	40.1	36.3
16	Fish and Wildlife	IDFG Focal Area	Avoidance Low		11.0	11.0	11.0
17	Fish and Wildlife	ODFW Big Game Deer Winter Range	Avoidance Mod	CC	104.9	101.9	114.7
18	Fish and Wildlife	ODFW Big Game Elk Winter Range	Avoidance Mod	CC	105.4	92.9	68.6
19	Fish and Wildlife	Pronghorn Antelope Habitat (Boise District, ID)	Avoidance Mod	CC	23.8	23.8	23.8
20	Fish and Wildlife	Prineville District Fish Restoration Area	Avoidance Mod		2.1	-	-

Table D-15. Western, Central, and Eastern Route Data Table (continued)

	Resource Group	Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	Western Route	Central Route	Eastern Route
					Length in Miles		
				TOTAL LENGTH	**275.1**	**281.9**	**298.8**
21	Fish and Wildlife	Prineville District Wildlife Habitat Seasonal Closure Area	Avoidance Mod		49.0	-	-
22	Fish and Wildlife	Sage-grouse Core Area 1: Sagebrush Habitat (Oregon)	Avoidance Mod		28.2	37.1	56.9
23	Fish and Wildlife	Sage-grouse Core Area 2: Potential Habitat (Oregon)	Avoidance Low		117.6	105.6	148.9
24	Fish and Wildlife	Sage-grouse Core Area 3: Non-Sagebrush Shrublands and Grasslands (Oregon)	Avoidance Low		65.6	59.2	17.8
25	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Occupied but Permittable)	Avoidance Mod	CC	-	-	10.0
26	Fish and Wildlife	Within 2-mile Oregon Sage-grouse Lek Buffer (Unoccupied)	Avoidance Low		-	-	5.4
27	Fish and Wildlife	Within 300ft Special Status Stream: Bull Trout	Avoidance Mod	CC	0.4 (3 crossings)	1.0 (8 crossings)	0.1 (1 crossing)
28	Fish and Wildlife	Within 300ft Special Status Stream: Chinook Salmon	Avoidance Mod	CC	0.2 (2 crossings)	0.1 (1 crossing)	0.1 (1 crossing)
29	Fish and Wildlife	Within 300ft Special Status Stream: Coho Salmon	Avoidance Mod	CC	-	0.1 (1 crossing)	0.1 (1 crossing)
30	Fish and Wildlife	Within 300ft Special Status Stream: Cutthroat Trout	Avoidance Mod	CC	0.5 (4 crossings)	-	-
31	Fish and Wildlife	Within 300ft Special Status Stream: Red Band Trout	Avoidance Mod	CC	2.5 (19 crossings)	-	-
32	Fish and Wildlife	Within 300ft Special Status Stream: Steelhead	Avoidance Mod	CC	2.4 (18 crossings)	0.4 (3 crossings)	0.6 (5 crossings)
33	Fish and Wildlife	Wild Horse and Burro Area (OR BLM)	Avoidance Low		5.3	-	-
34	Land Use	Cropland/Irrigated Agriculture	Avoidance High		9.8	9.2	17.8
35	Land Use	Exclusive Farm Use Zone/Multiple Use Range Zone	Avoidance High		105.5	103.3	162.9
36	Land Use	Grazing Allotment - ID	Avoidance Low		20.1	20.1	20.1
37	Land Use	Grazing/Pasture - OR	Avoidance Low		92.5	90.7	114.3
38	Land Use	Naval Weapons System Training Facility	Avoidance Mod	CC	-	-	9.1
39	Land Use	Forested Land: Private	Avoidance Mod		19.5	29.3	17.9
40	Land Use	Forested Land: Public	Avoidance Mod		38.4	28.9	4.3

Table D-15. Western, Central, and Eastern Route Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	Western Route	Central Route	Eastern Route
					Length in Miles		
				TOTAL LENGTH	**275.1**	**281.9**	**298.8**
41	Land Use	National Forest Old Growth Forest Stand	Exclusion	CC	2.7	-	-
42	Land Use	Area of Critical Environmental Concern	Avoidance High		3.7	3.7	3.7
43	Land Use	Prineville District Lands Proposed for Acquisition by the BLM	Avoidance Low		12.5	-	-
44	Land Use	Prineville District Noxious Weeds	Avoidance Low		2.7	-	-
45	Land Use	Prineville District Off-Highway Vehicle: Limited Use	Avoidance Low		3.2	-	-
46	Land Use	Vale District Off-Highway Vehicle: Limited to Designated Routes	Avoidance Low		5.4	5.4	5.4
47	Land Use	Vale District Off-Highway Vehicle: Limited to Existing Routes	Avoidance Low		11.6	8.6	8.6
48	Land Use	Oregon State Park	Exclusion		-	0.2	0.2
49	Land Use	Morrow County Park	Exclusion		0.5	-	-
50	Land Use	Virtue Flat OHV Park	Avoidance Mod		-	-	0.1
51	Land Use	Special Recreation Management Area (Malheur RA, Vale District, OR)	Avoidance Mod	CC	3.7	3.7	3.7
52	Land Use	Prineville District Special Recreation Management Area	Avoidance Mod		4.9	-	-
53	Land Use	The Nature Conservancy: Portfolio	Avoidance Mod		75.5	83.6	86.1
54	Land Use	Wind Farm Boundary	Avoidance High		1.3	1.3	-
55	Land Use	Wind Turbine 1200ft Buffer Zone			0.3	0.3	-
56	Land Use	Proposed Wilderness Study Area (ONDA)	Avoidance Mod		45.4	15.0	15.0
57	Land Use	Lands with Wilderness Characteristics (OR BLM)	Avoidance Mod		5.0	-	-
58	Ownership	Bureau of Land Management	Avoidance Low	CC	67.6	54.3	63.6
59	Ownership	Bureau of Reclamation	Avoidance Low	CC	0.3	0.3	0.3
60	Ownership	Military Land	Avoidance Low	CC	-	-	8.1
61	Ownership	Private	Avoidance Low	CC	137.6	173.6	197.6
62	Ownership	State Land	Avoidance Low	CC	2.2	-	0.1
63	Ownership	U.S. Forest Service	Avoidance Low	CC	43.5	29.9	5.4
64	Geological Resources	Erosion Hazard: High (Prineville District, OR)	Avoidance Mod		24.4	-	-
65	Geological Resources	Erosion Hazard: High (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		31.9	53.4	39.3

Table D-15. Western, Central, and Eastern Route Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	Western Route	Central Route	Eastern Route
					Length in Miles		
				TOTAL LENGTH	**275.1**	**281.9**	**298.8**
66	Geological Resources	Erosion Hazard: Moderate (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Mod		22.9	39.3	88.9
67	Geological Resources	Erosion Hazard: Low (NRCS Soil Data - Grant Co, OR data n/a)	Avoidance Low		37.6	41.7	75.2
68	Geological Resources	Idaho Landslide Susceptibility: Low	Avoidance Low		23.8	23.8	23.8
69	Geological Resources	Within 500ft of Fault Line	Avoidance Low		13.6	11.5	13.6
70	Geological Resources	U.S. Geological Survey Active Mining Area	Avoidance High		0.2	-	0.1
71	Geological Resources	Prime Farmland/Arable Land: Soils Class 1-4	Avoidance Mod	CC	62.7	125.9	155.7
72	Geological Resources	Oregon Landslide Feature: Fan	Avoidance Mod		-	5.3	-
73	Geological Resources	Oregon Landslide Feature: Landslide	Avoidance Mod		11.4	5.7	4.2
74	Geological Resources	Oregon Landslide Feature: Talus-Colluvium	Avoidance Mod		5.5	3.2	1.4
75	Slope	Slope 0-15%	Opportunity		152.3	177.0	215.7
76	Slope	Slope 15-25%	Avoidance Low		63.8	48.8	48.3
77	Slope	Slope 25-35%	Avoidance Mod		35.4	28.1	19.8
78	Slope	Slope >35%	Avoidance High		23.5	28.0	14.9
79	Water and Wetlands	Floodplain: Area Not Mapped	Avoidance Low		3.6	41.5	54.0
80	Water and Wetlands	Floodplain: Not in Flood Zone	Avoidance Low		60.6	82.3	83.2
81	Water and Wetlands	Floodplain: Zone A	Avoidance Mod		0.7	1.2	0.3
82	Water and Wetlands	National Wetland Inventory	Avoidance Mod	CC	0.4	0.7	0.7
83	Water and Wetlands	Oregon Watershed Restoration Inventory Project (within 500ft Buffer of linear feature)	Avoidance Mod		0.5	-	-
84	Water and Wetlands	Oregon Watershed Restoration Inventory Project Area	Avoidance Low		3.0	-	2.2
85	Other Features	Within 200ft of Existing Pipeline	Opportunity	CC	0.1	1.2	1.7

Table D-15. Western, Central, and Eastern Route Data Table (continued)

Resource Group		Regulatory Criteria Description	Permitting Difficulty[1/]	Community Criteria[2/]	Western Route	Central Route	Eastern Route
					Length in Miles		
				TOTAL LENGTH	**275.1**	**281.9**	**298.8**
86	Other Features	Vale District Utility Corridor	Opportunity		3.1	5.9	3.4
87	Other Features	West-wide Energy Corridor	Opportunity	CC	19.9	19.9	19.9
88	Other Features	National Forest Utility Corridor	Opportunity	CC	-	5.4	5.4
89	Other Features	Parallel to Existing Transmission Line	Opportunity		46.3	58.4	105.0

Notes:
1/ For explanation of Permitting Difficulty categories, see Section 3.1 Table 3.1-1.
2/ Rows designated with “CC” indicate Community Criteria. These are the criteria the PATs wanted to be considered in the analysis.

APPENDIX E

1:24,000 Topographic Maps

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

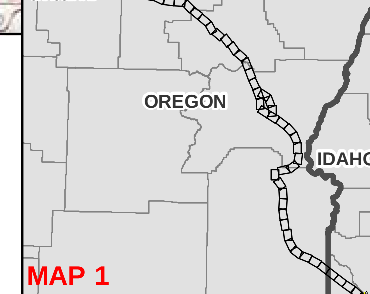
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 1 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

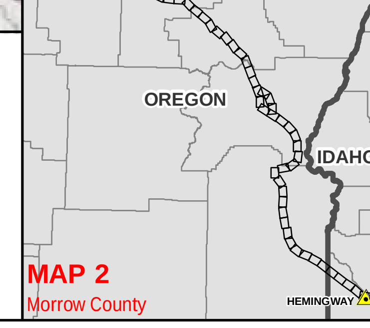
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

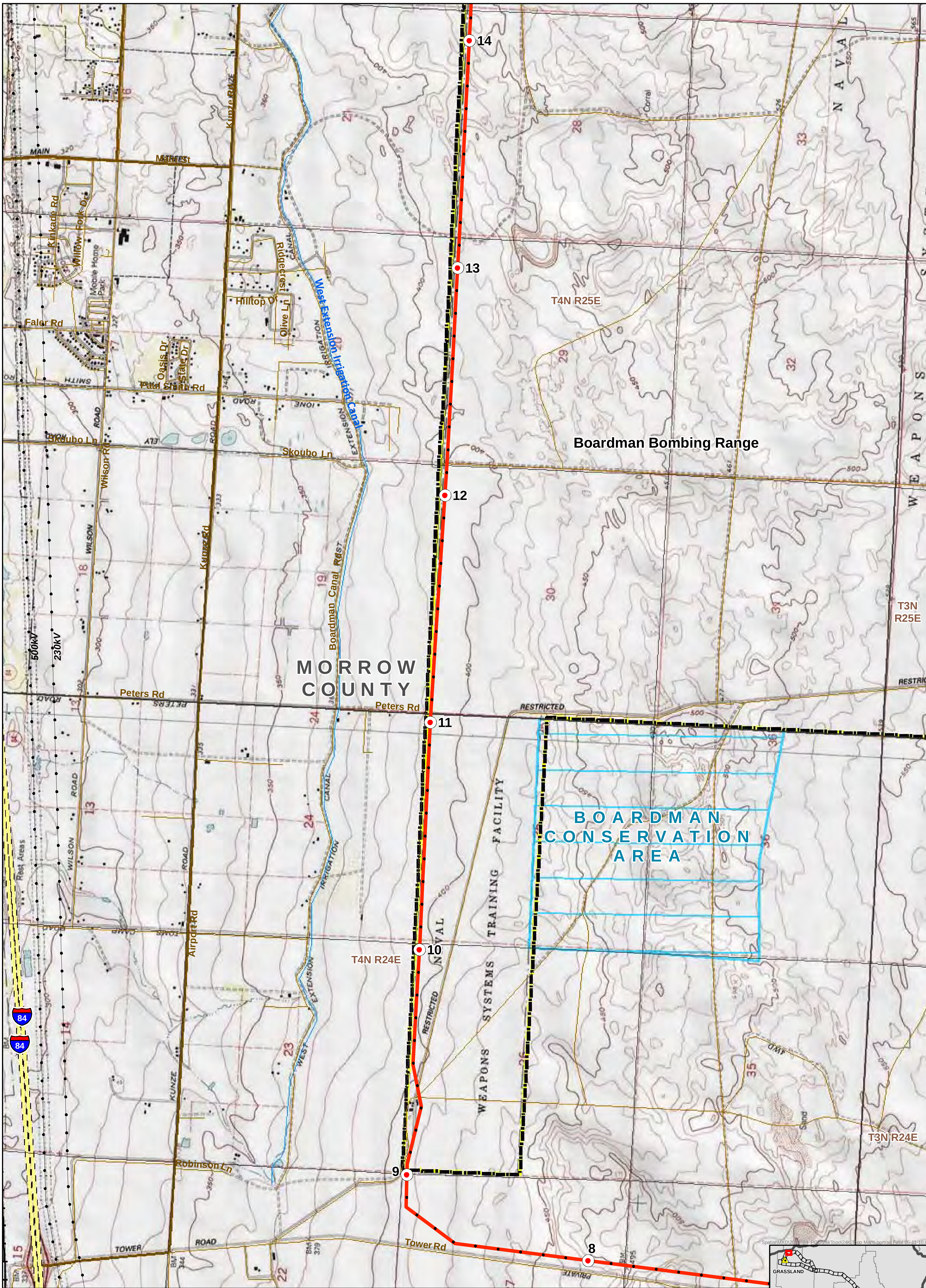
APPENDIX E
MAP 2 OF 68

0 — 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 2
Morrow County



DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route

IDAHO POWER

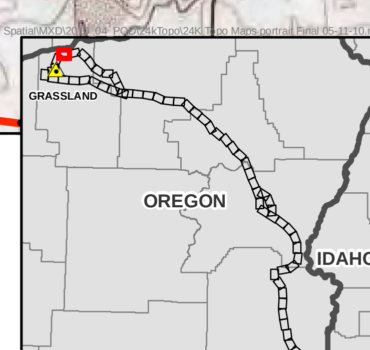
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT OREGON-IDAHO

AUGUST 2010

APPENDIX E MAP 3 OF 68

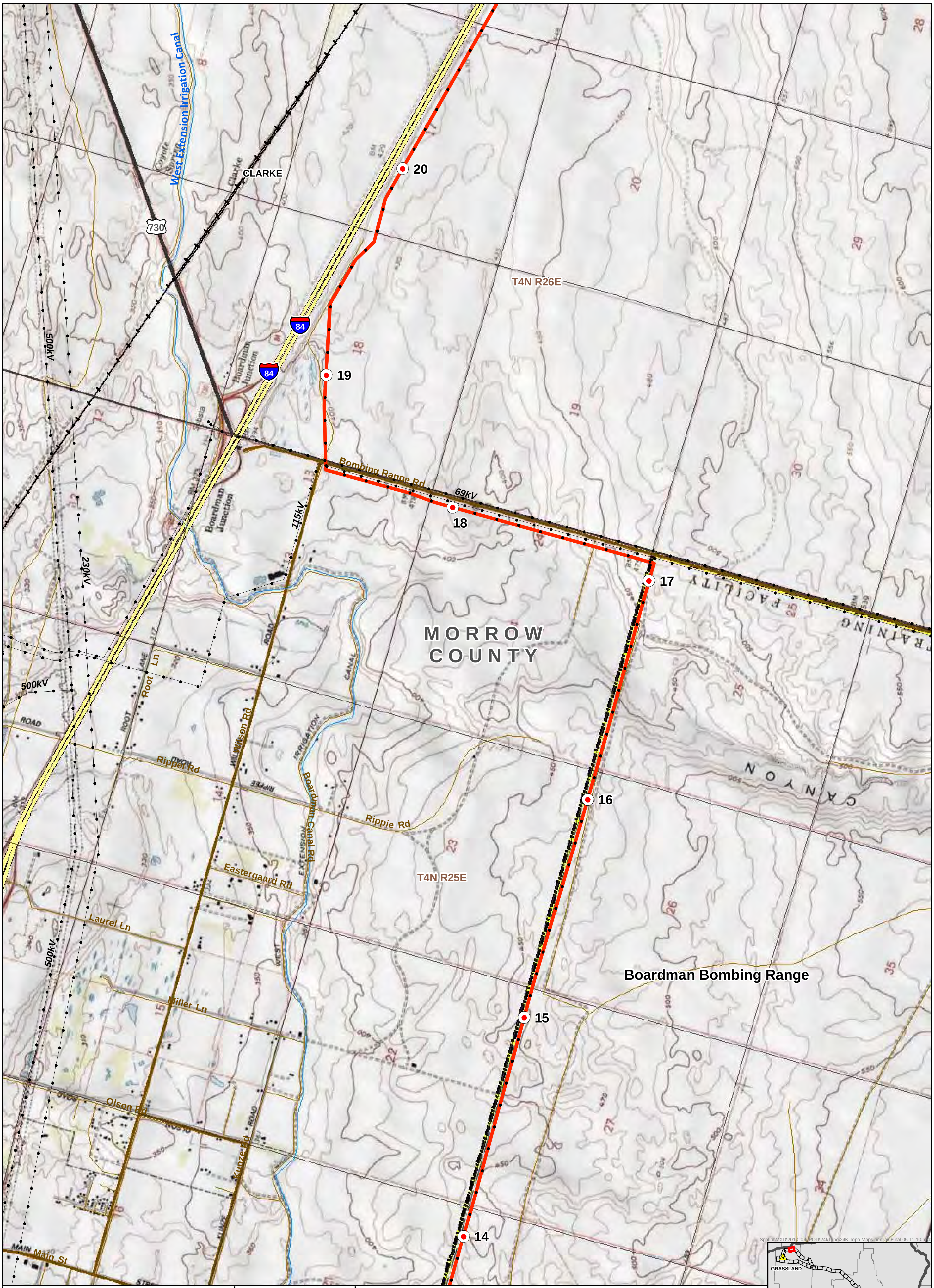
0 2,000 Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 3

Morrow County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

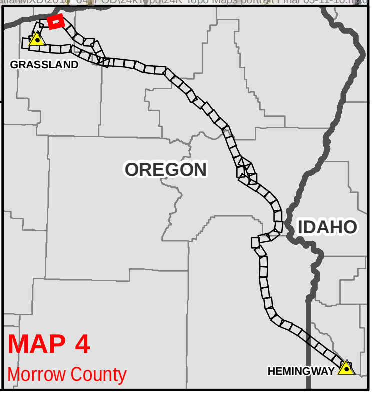
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 4 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

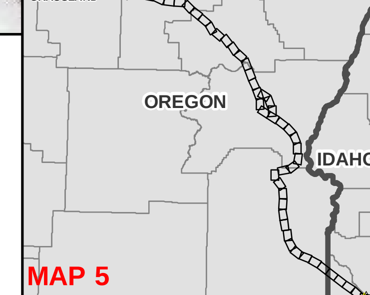
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

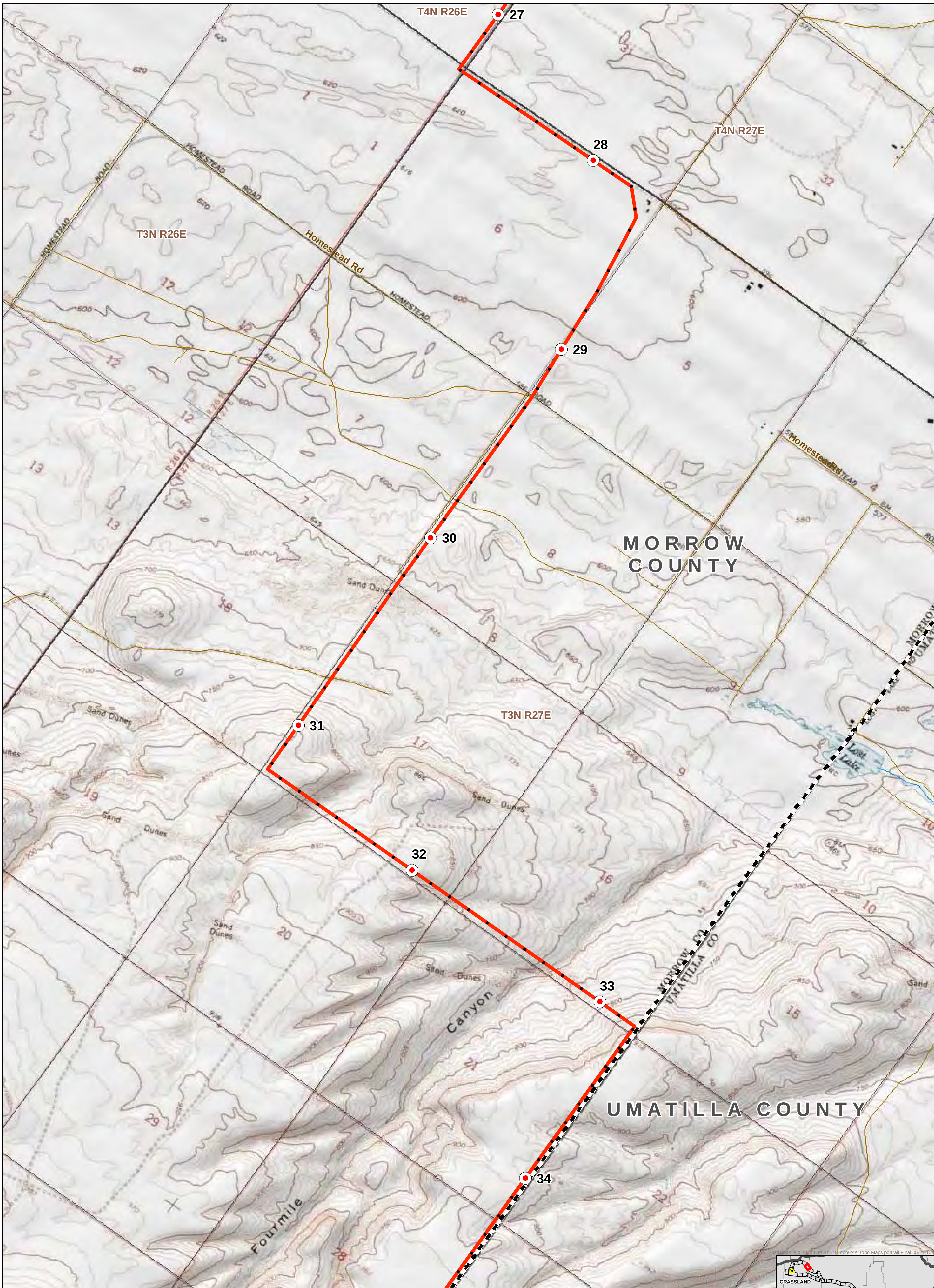
AUGUST 2010

APPENDIX E
MAP 5 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

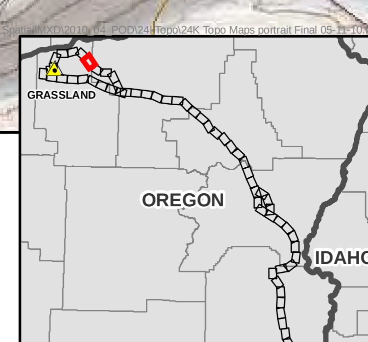
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

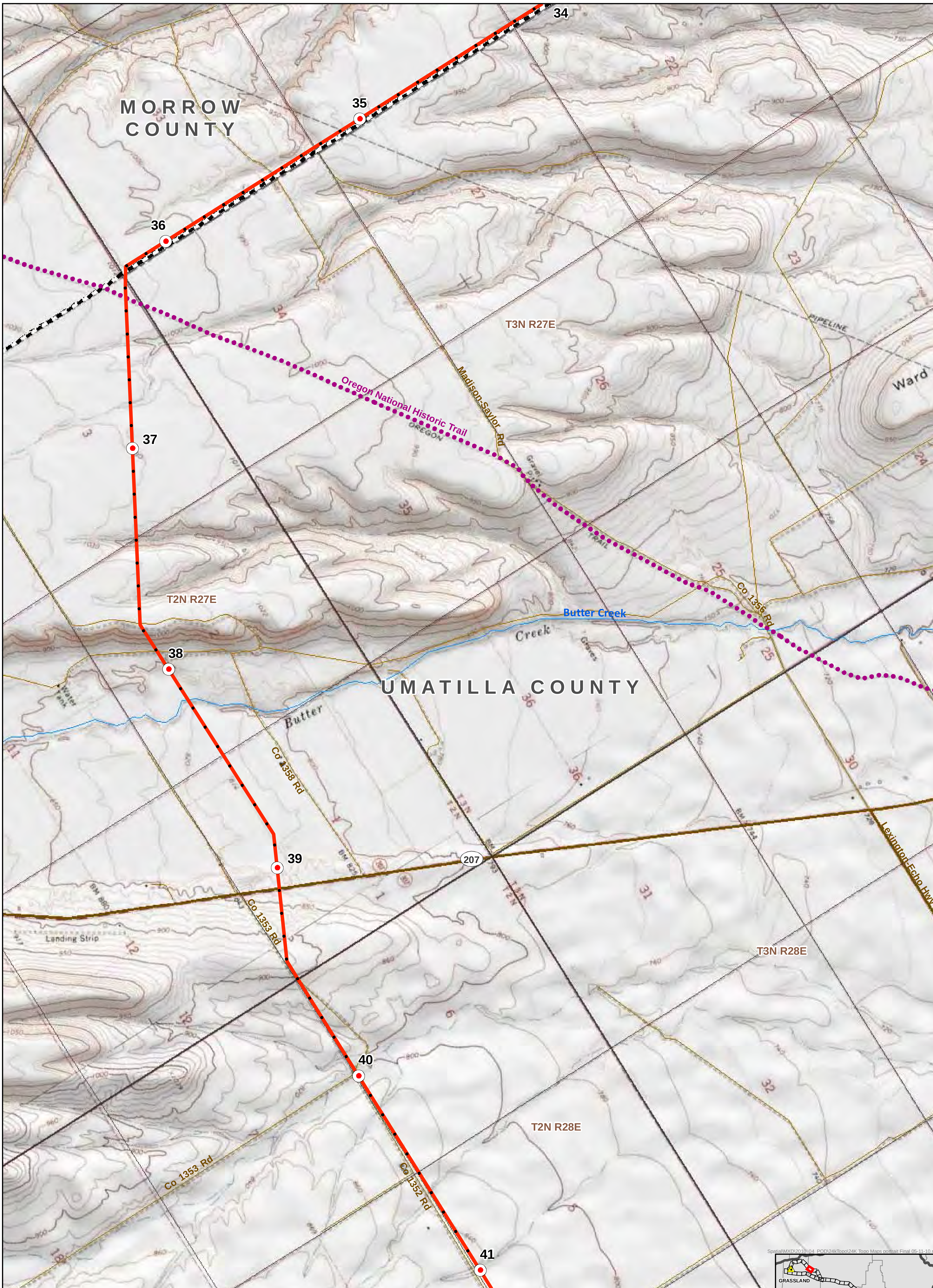
APPENDIX E
MAP 6 OF 68

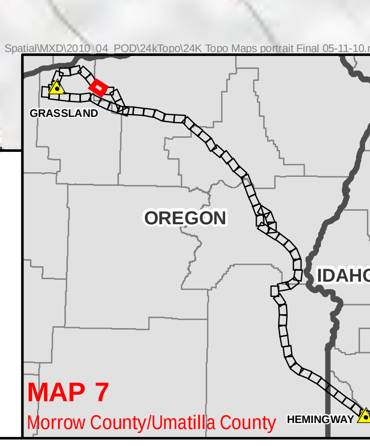
0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 6
Morrow County/Umatilla County





MAP 7

Morrow County/Umatilla County

DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route

BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 7 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

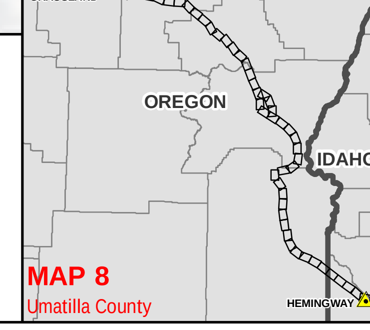
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

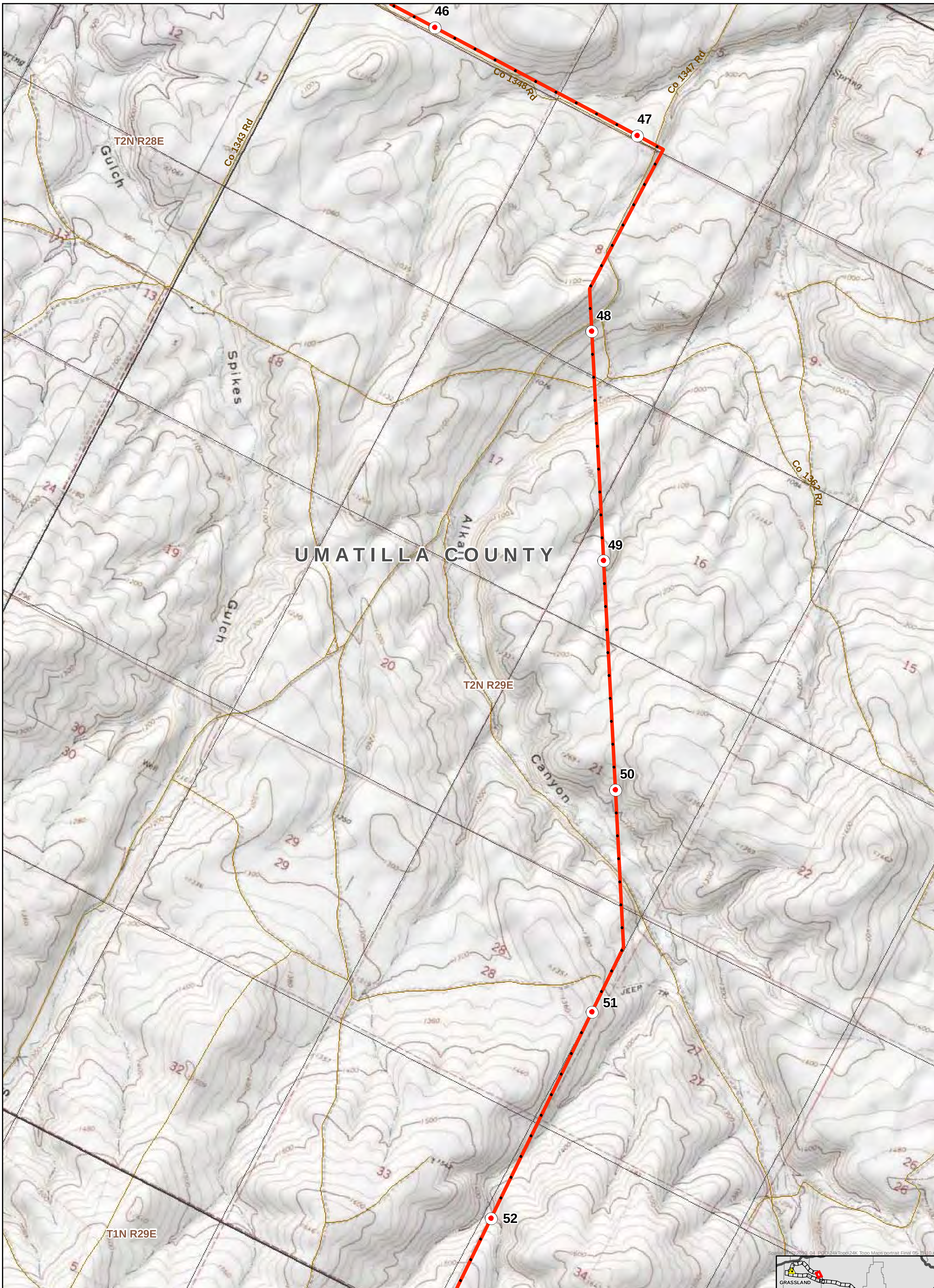
AUGUST 2010

APPENDIX E
MAP 8 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

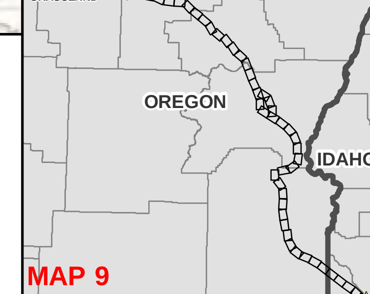
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 9 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

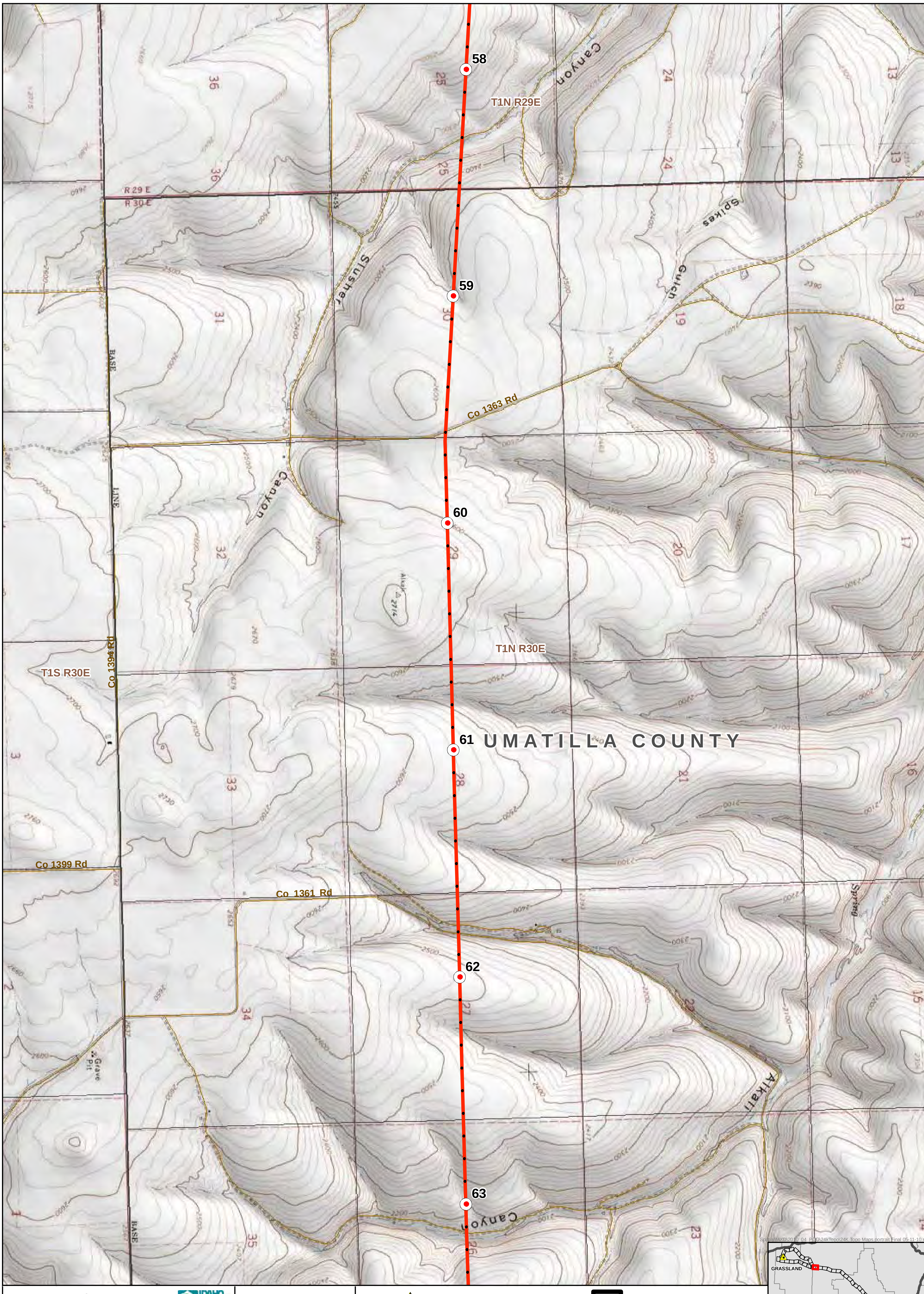
AUGUST 2010

APPENDIX E
MAP 10 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road

MAP 10
Umatilla County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

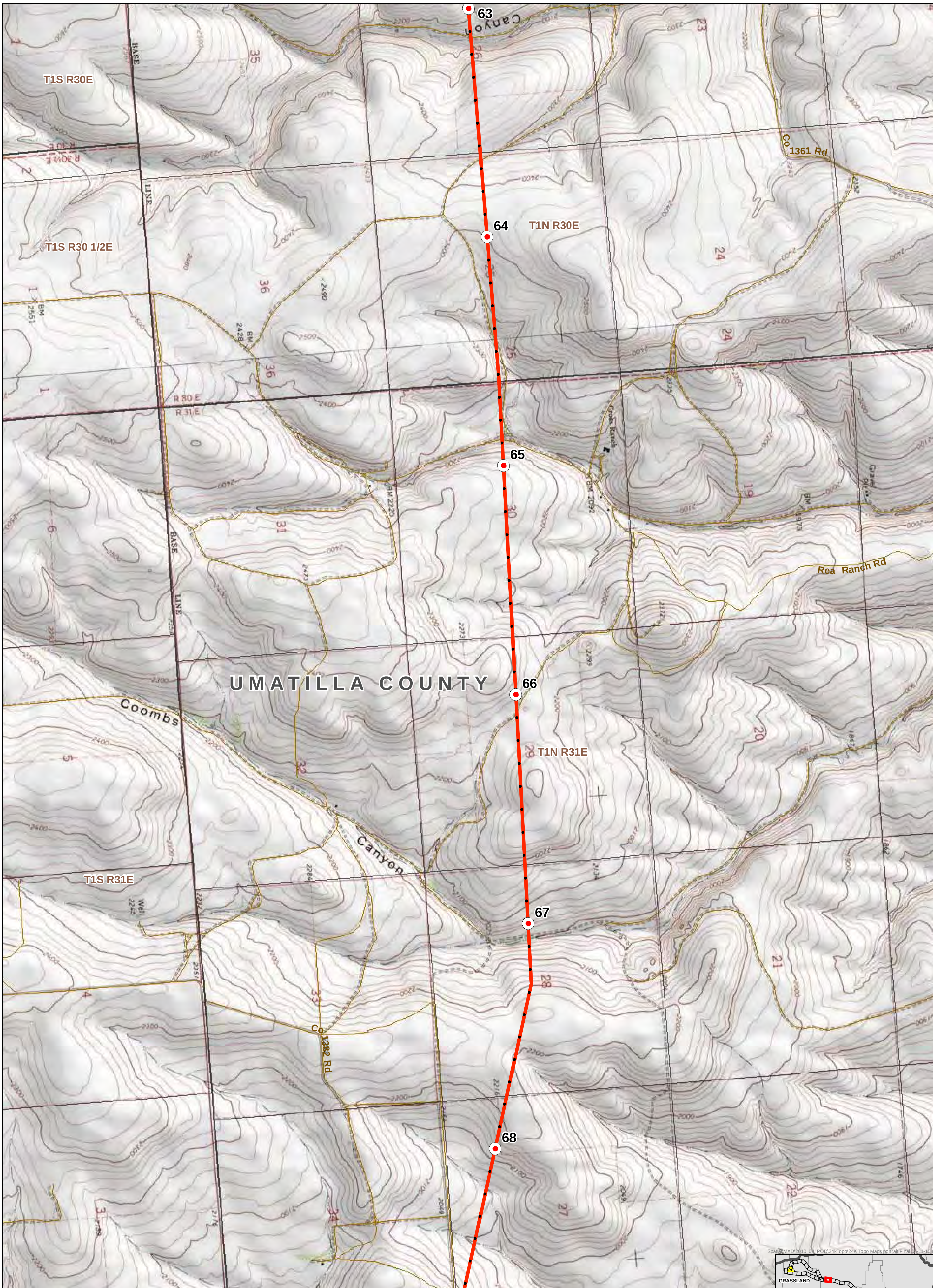
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 11 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

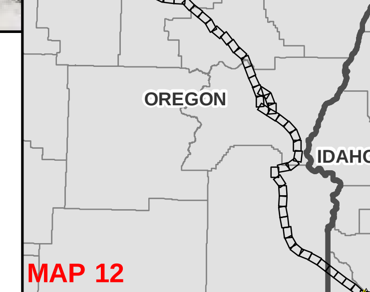
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 12 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 12
Umatilla County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

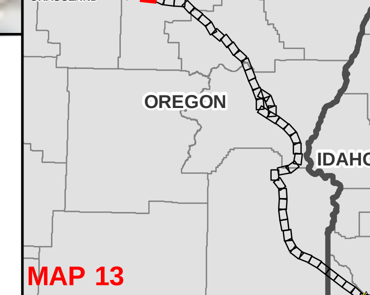
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

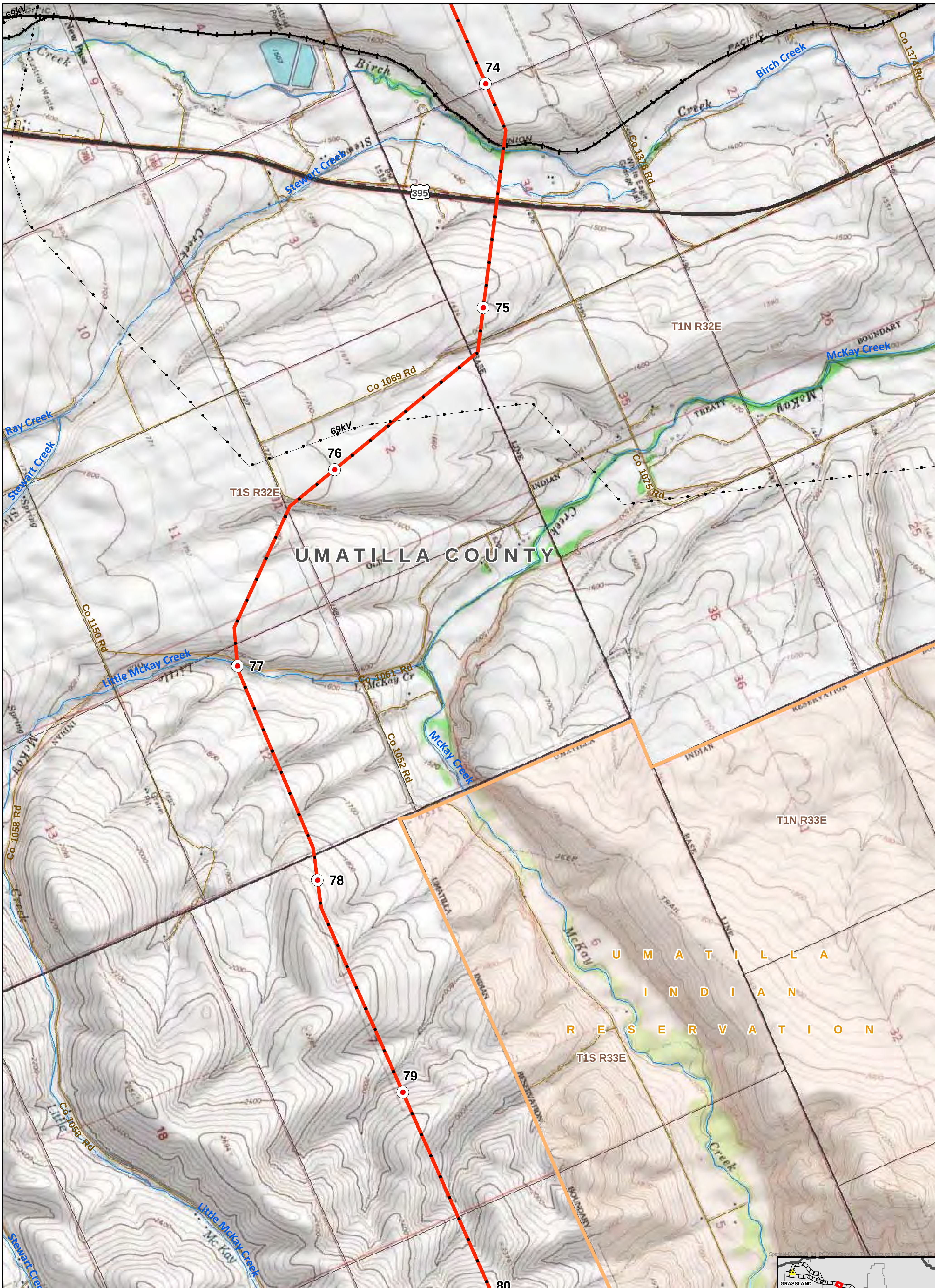
AUGUST 2010

APPENDIX E
MAP 13 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

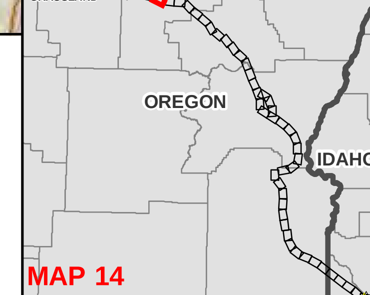
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

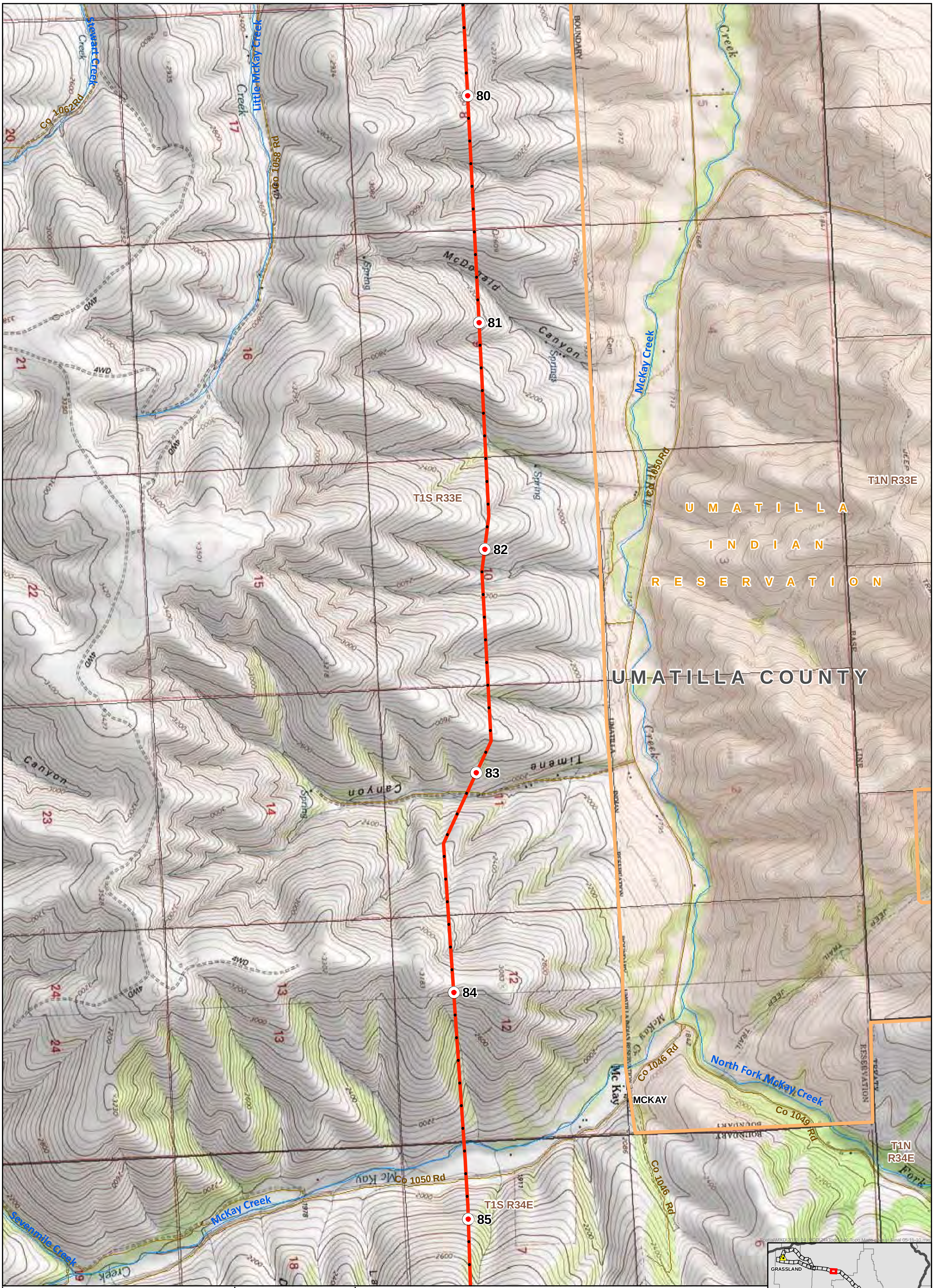
AUGUST 2010

APPENDIX E
MAP 14 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

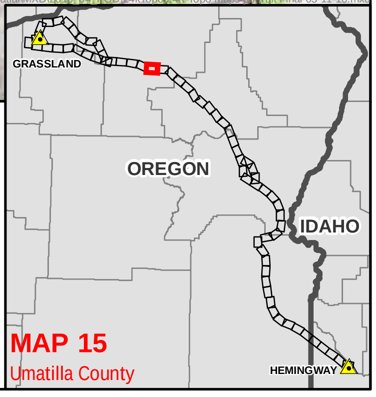
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

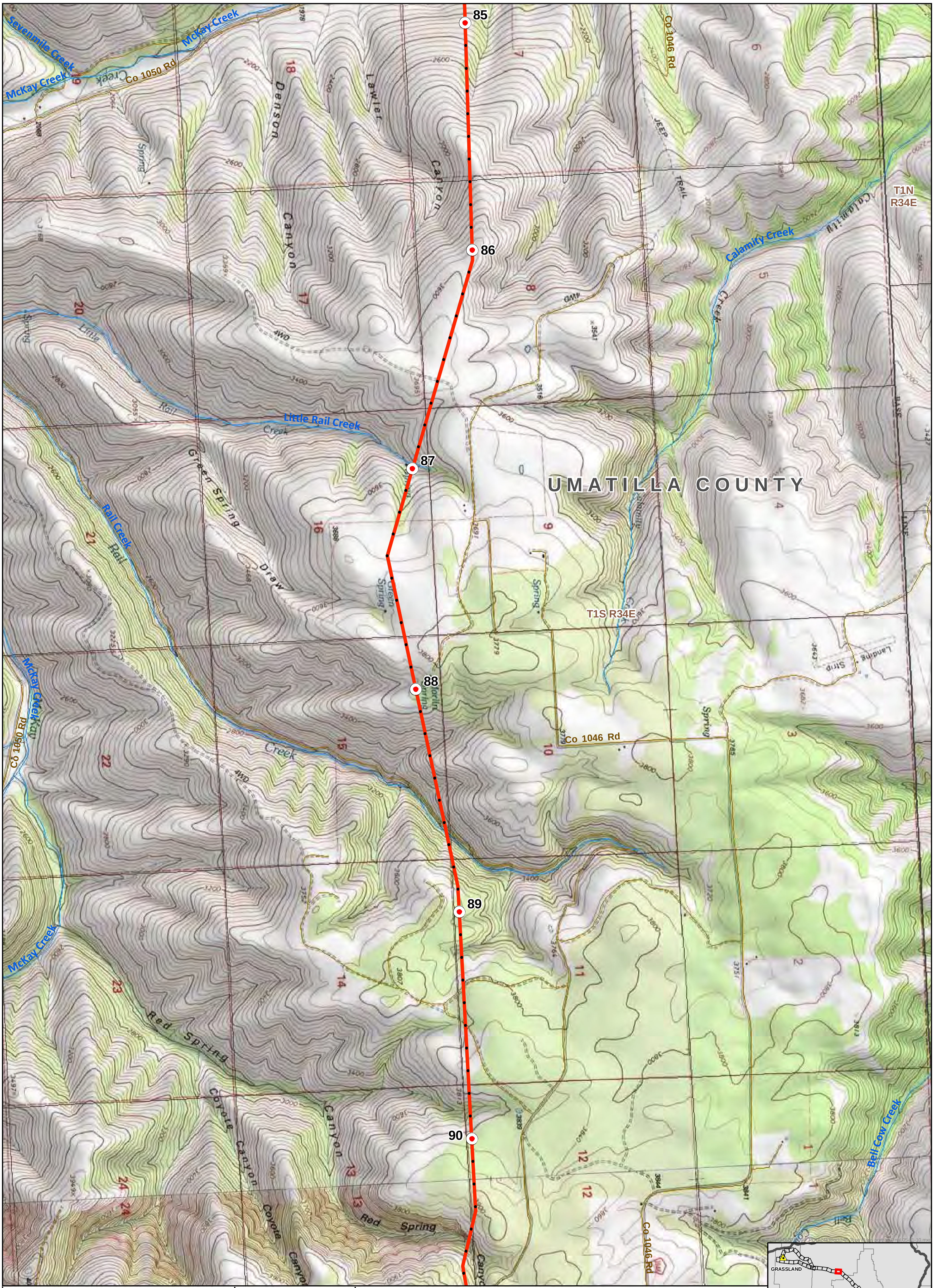
AUGUST 2010

APPENDIX E
MAP 15 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

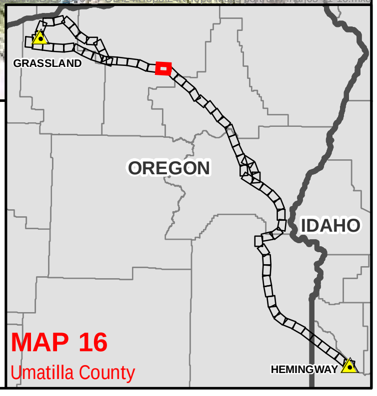
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

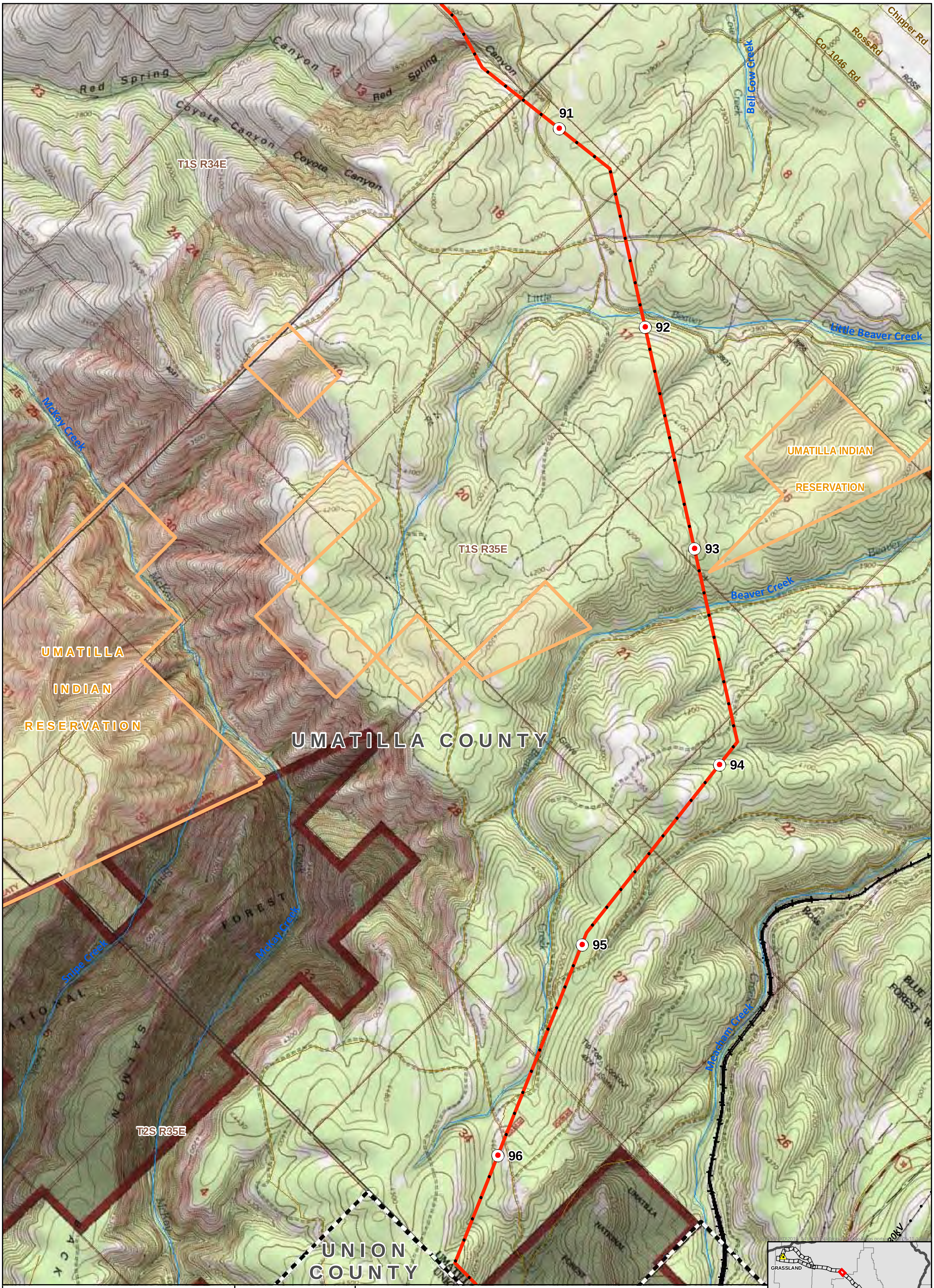
APPENDIX E
MAP 16 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 16
Umatilla County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

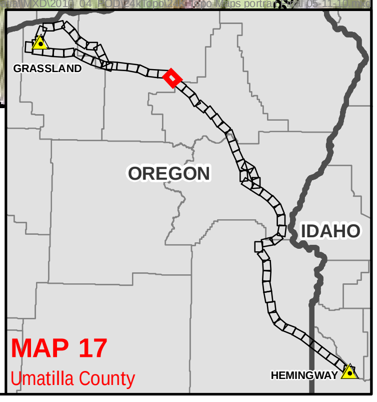
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

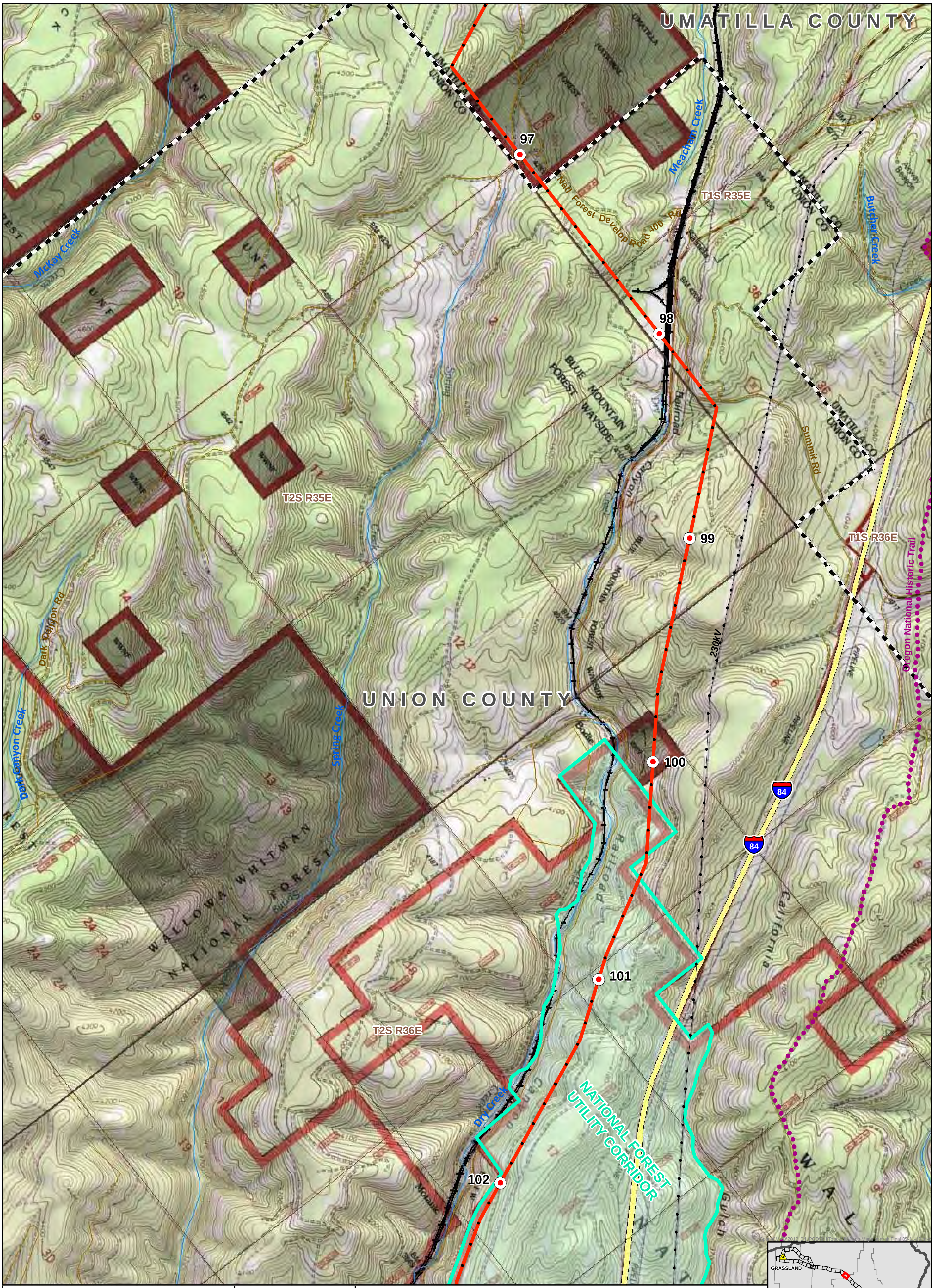
AUGUST 2010

APPENDIX E
MAP 17 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

IDAHO POWER

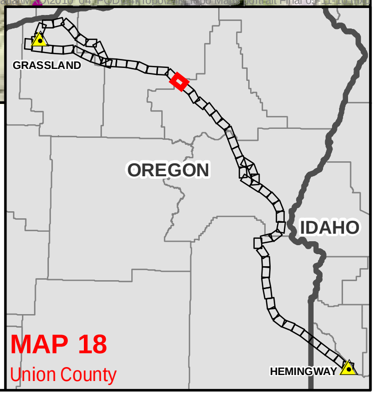
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

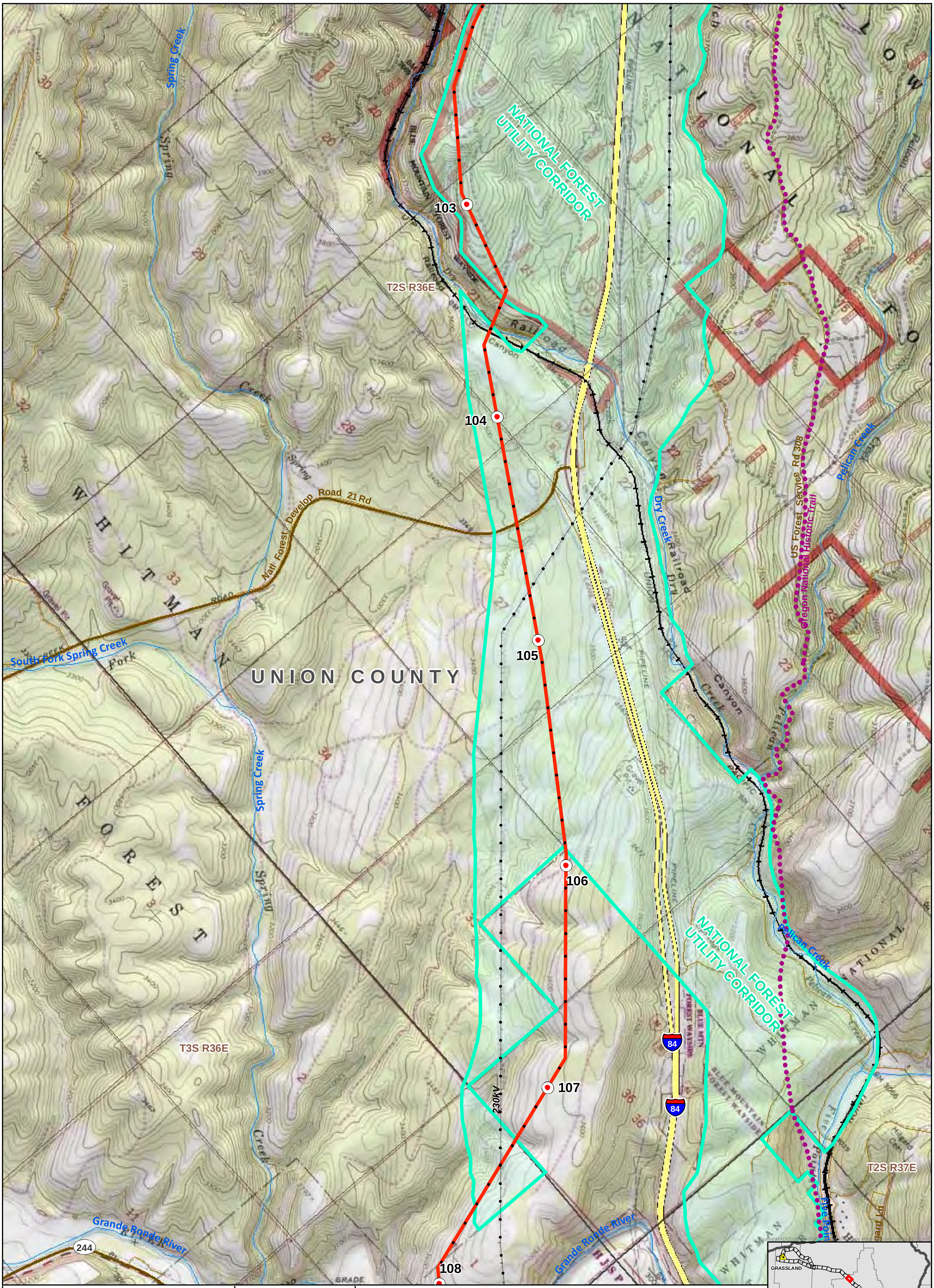
AUGUST 2010

APPENDIX E
MAP 18 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

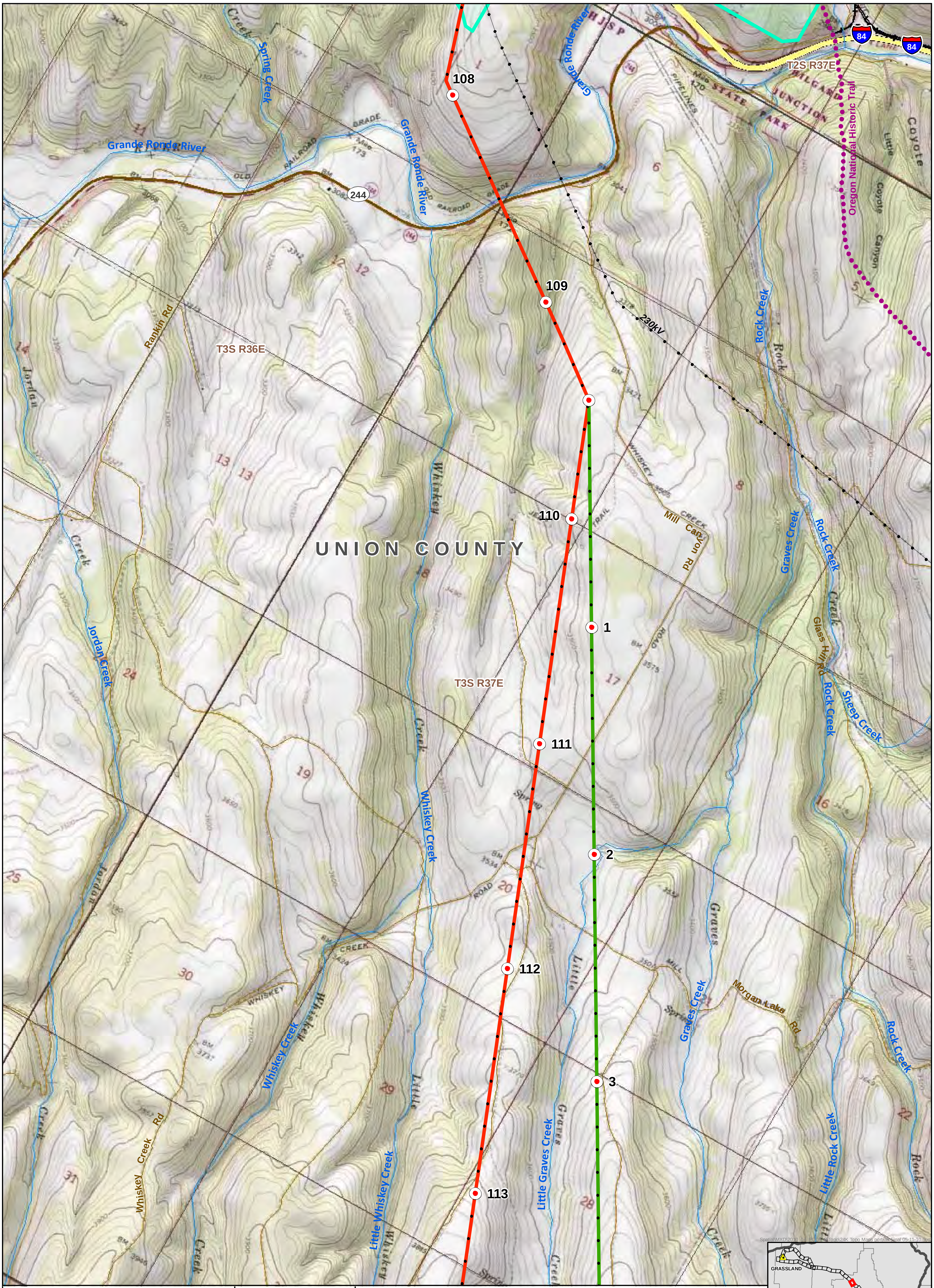
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO
AUGUST 2010

APPENDIX E
MAP 19 OF 68

0 — 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road

GRASSLAND
OREGON
IDAHO
HEMINGWAY
MAP 19
Union County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route & Glass Hill Alternative

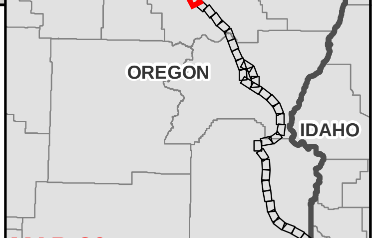
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

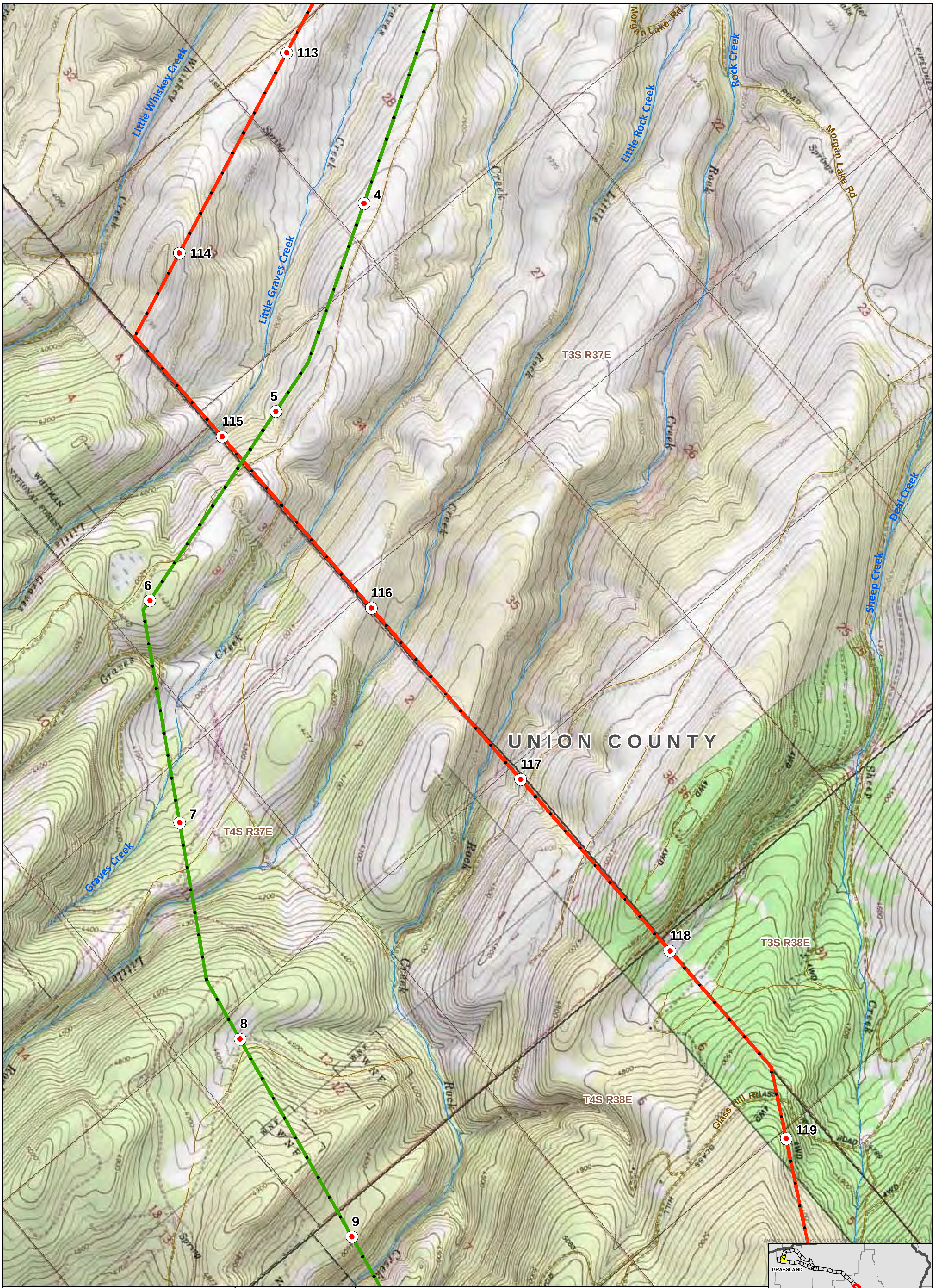
APPENDIX E
MAP 20 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 20
Union County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route & Glass Hill Alternative

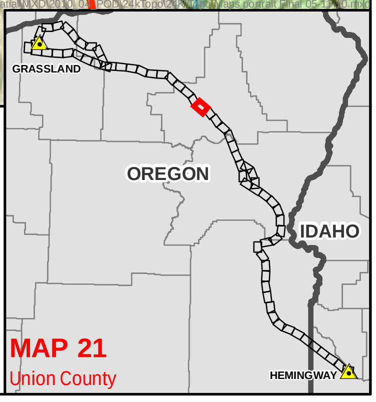
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

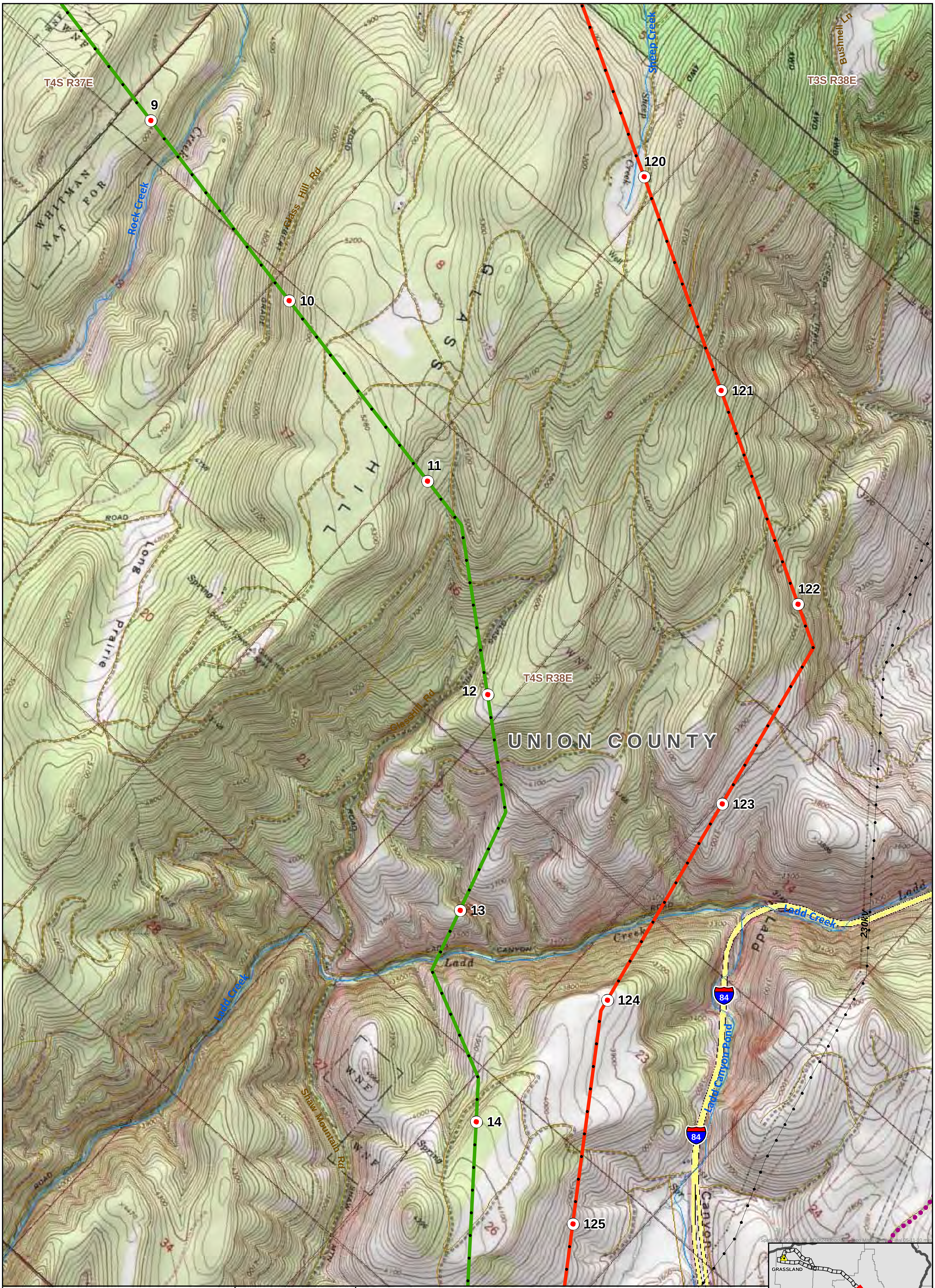
AUGUST 2010

APPENDIX E
MAP 21 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route & Glass Hill Alternative

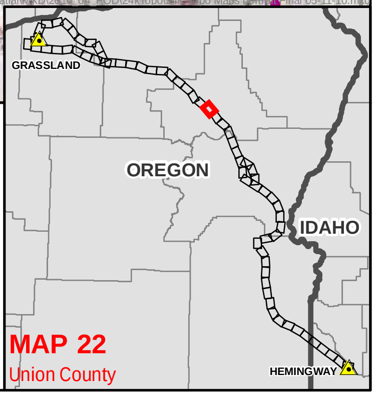
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

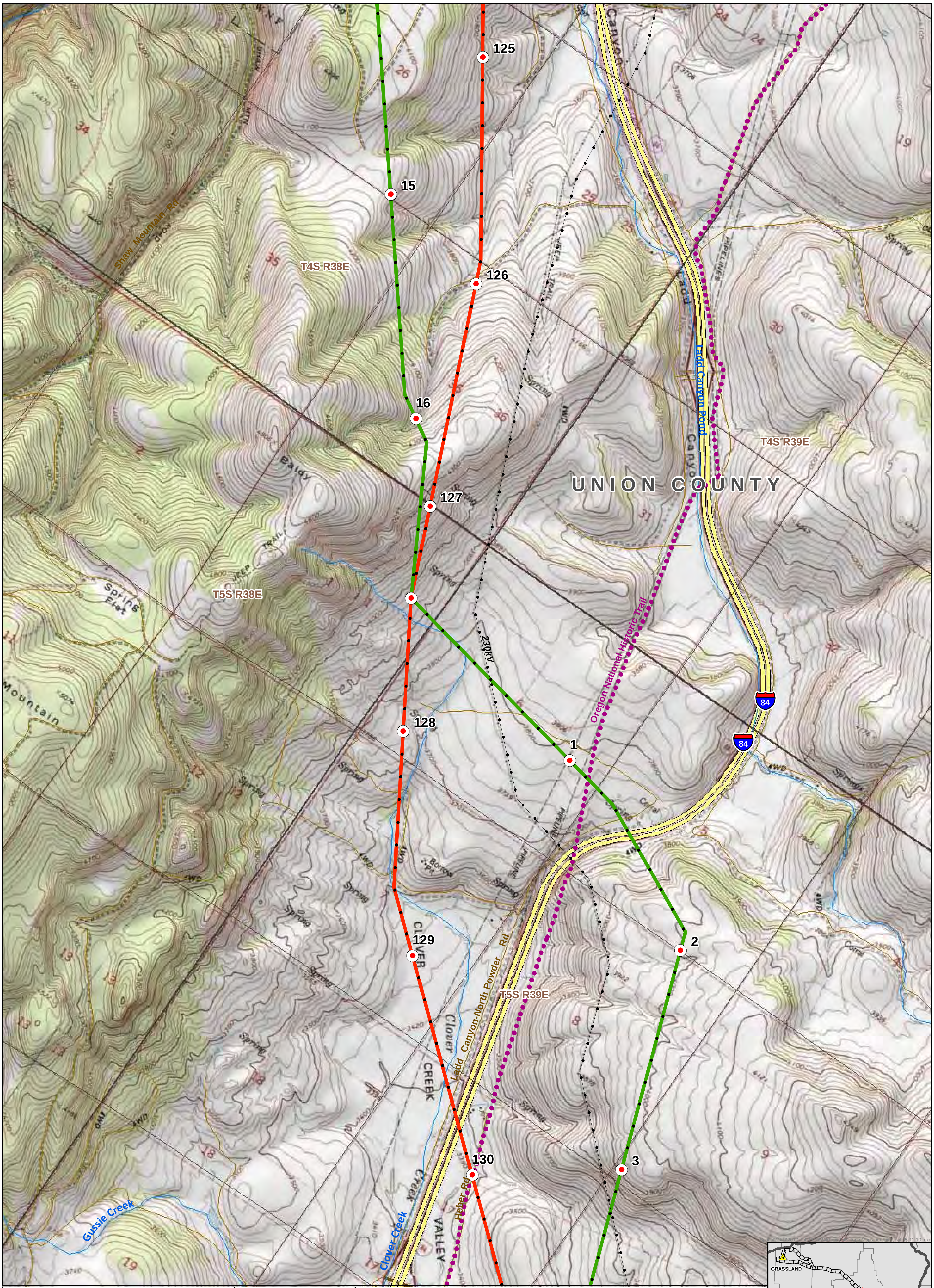
APPENDIX E
MAP 22 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 22
Union County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route,
Glass Hill & Clover Creek Valley Alternative

IDAHO POWER

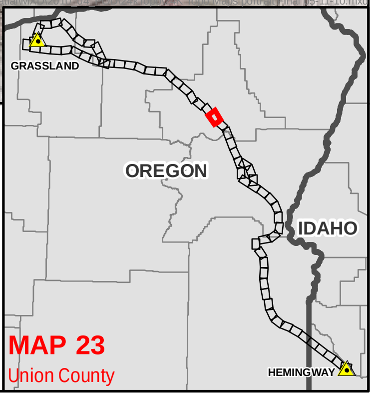
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

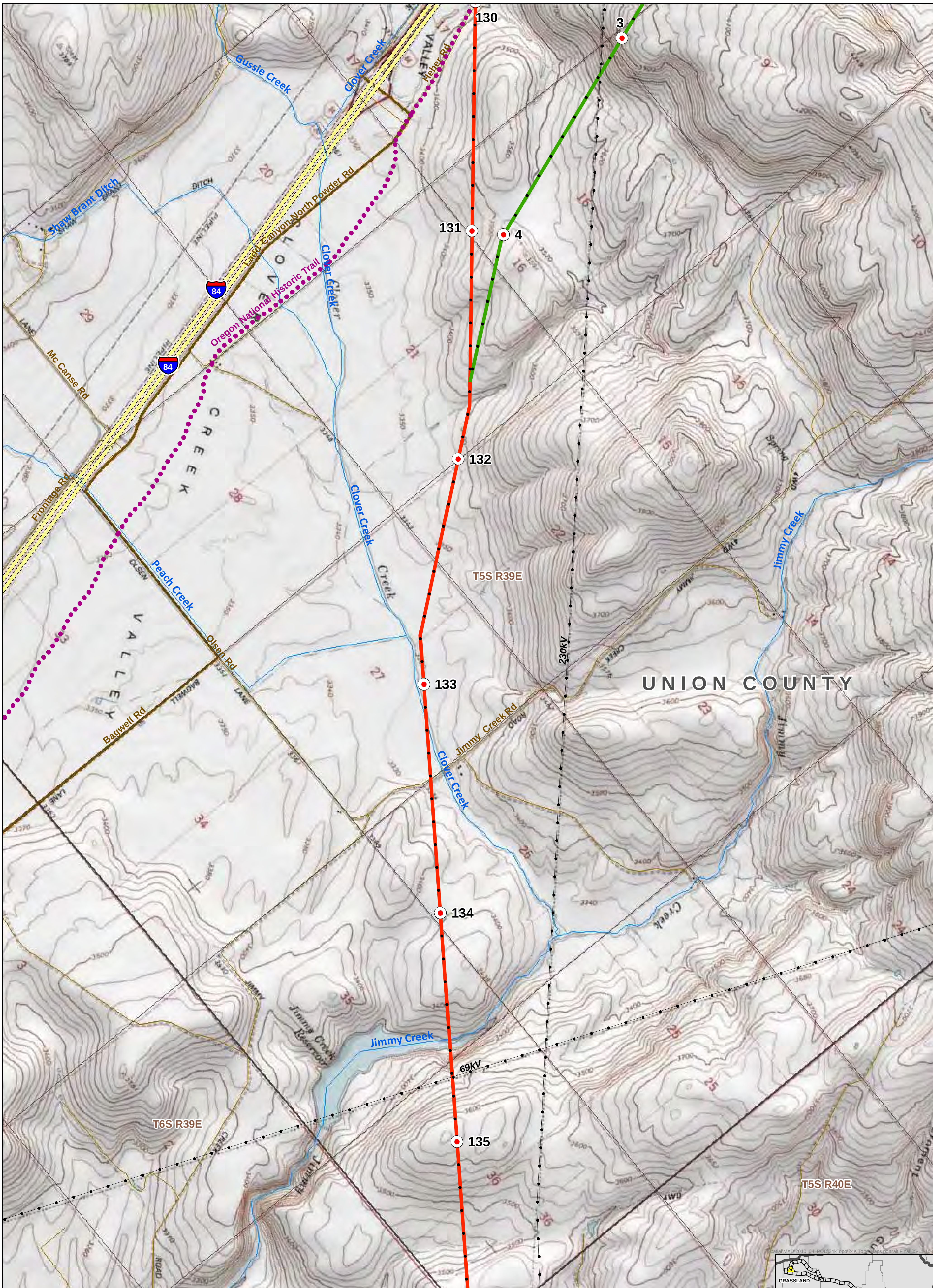
APPENDIX E
MAP 23 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 23
Union County



DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route &
Clover Creek Valley Alternative

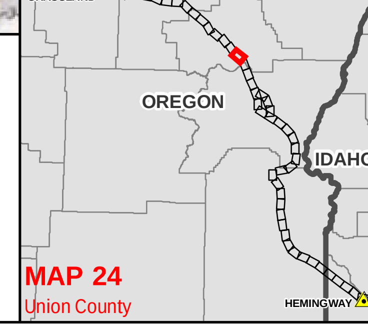
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

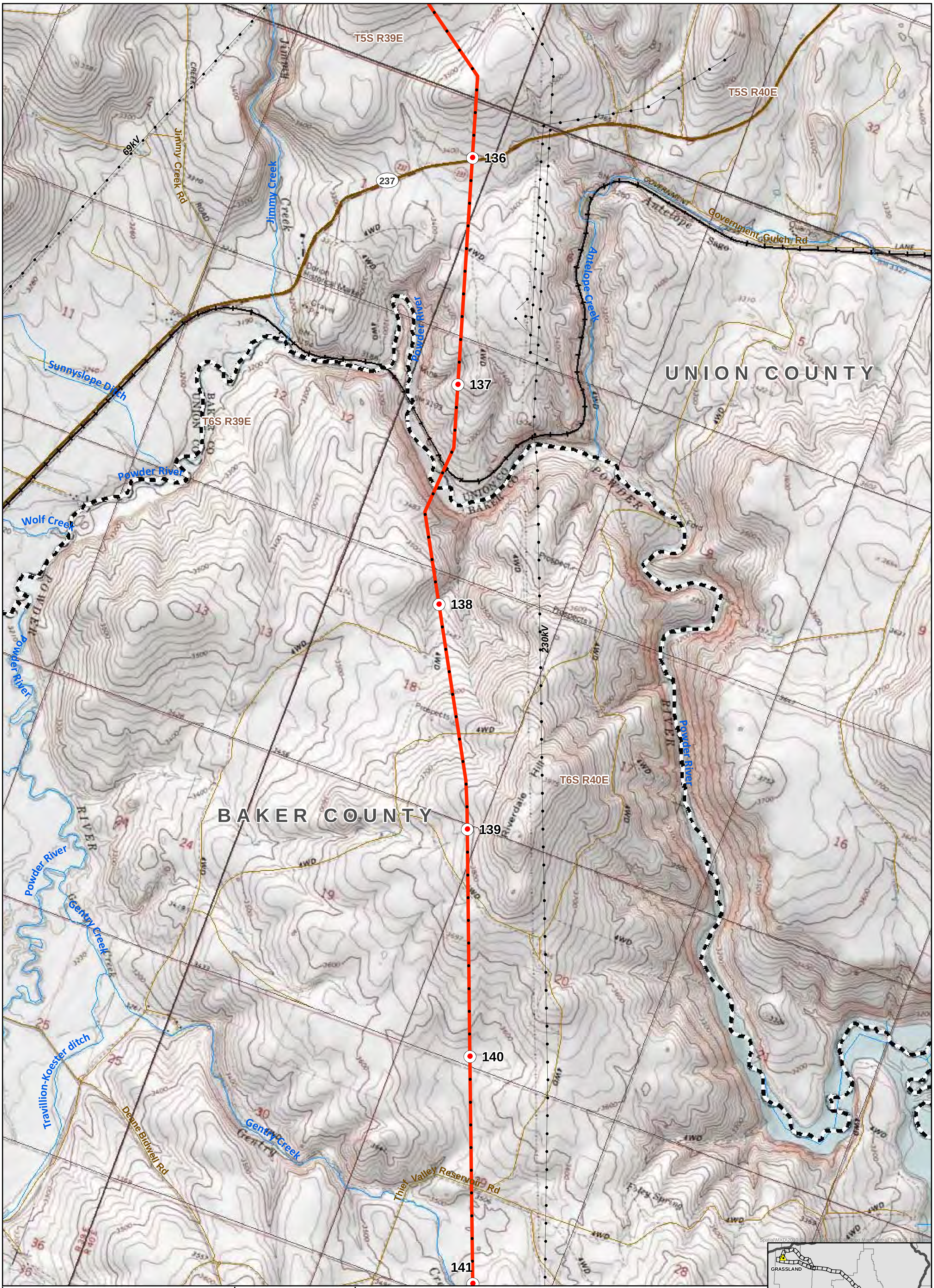
AUGUST 2010

APPENDIX E
MAP 24 OF 68

0 — 2,000
Feet

Substation	State Boundary
Existing Transmission Line	County Boundary
Mile Marker	River/Stream
Tenth Mile Marker	Township/Range Boundary
Proposed Route	Section Line
Alternative Route	County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

IDAHO POWER

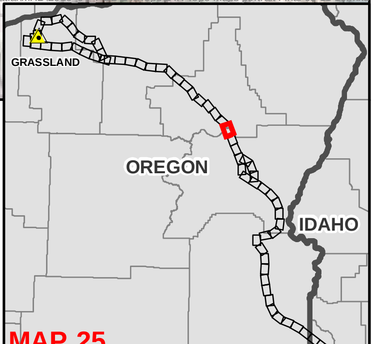
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

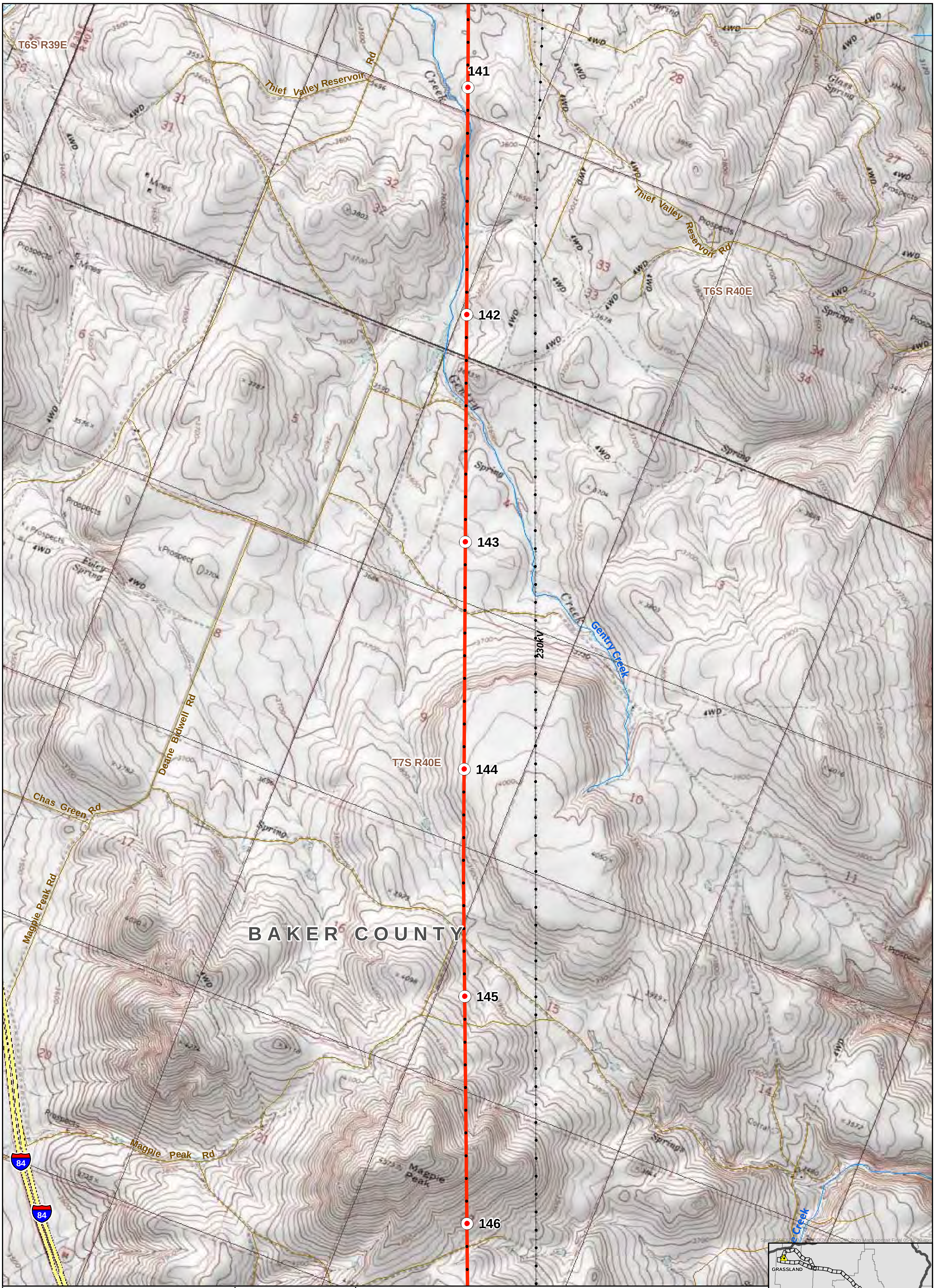
APPENDIX E
MAP 25 OF 68

0 2,000
Feet

Substation	State Boundary
Existing Transmission Line	County Boundary
Mile Marker	River/Stream
Tenth Mile Marker	Township/Range Boundary
Proposed Route	Section Line
Alternative Route	County Road



MAP 25
Union County/Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

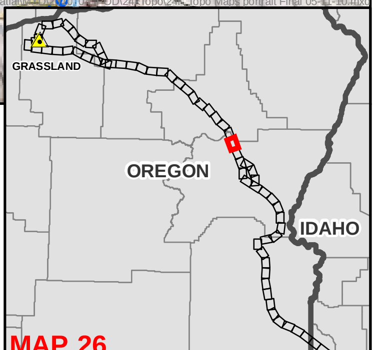
APPENDIX E
MAP 26 OF 68

IDAHO POWER

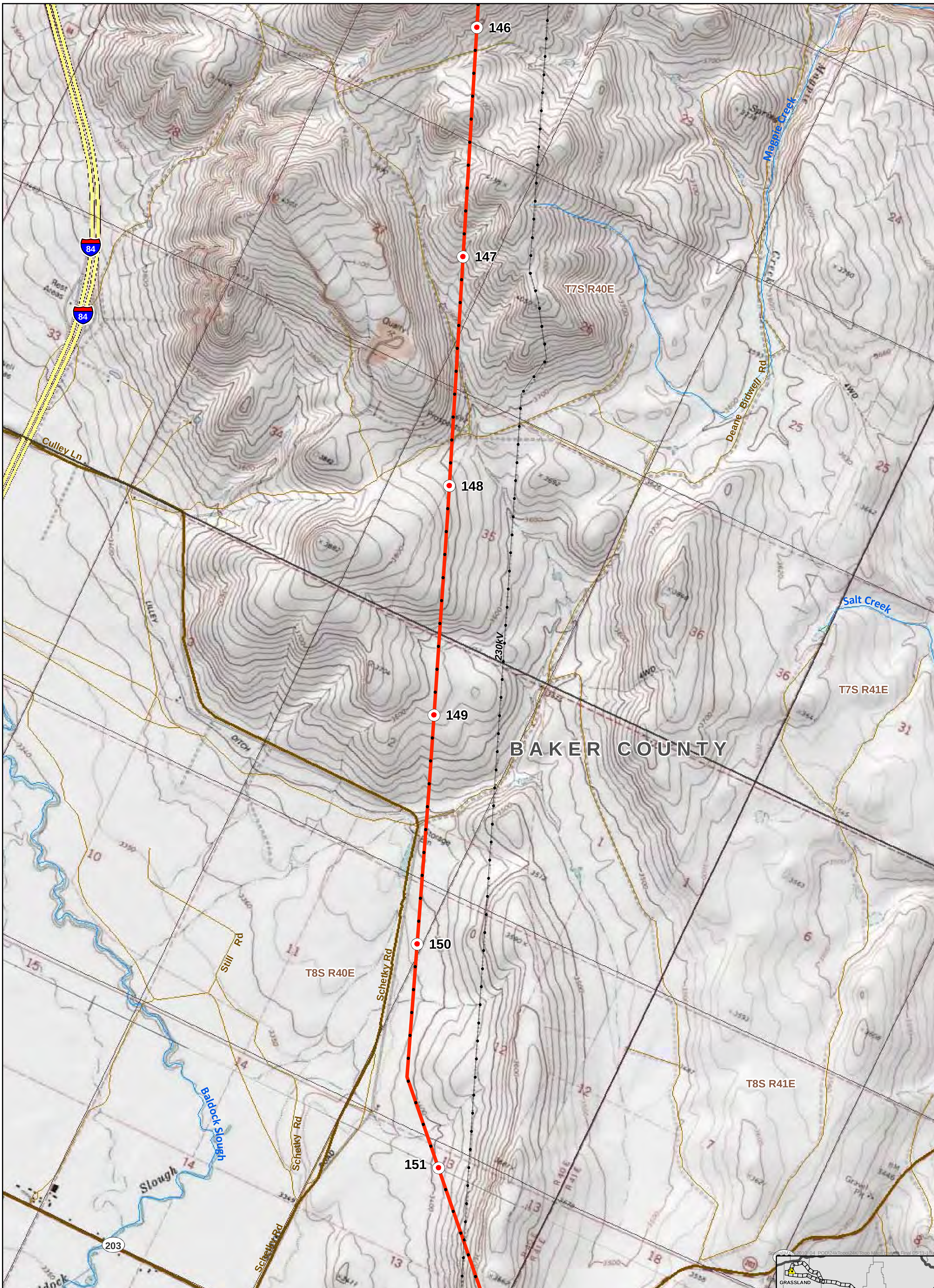
0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route

State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 26
Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 27 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road

MAP 27
Baker County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

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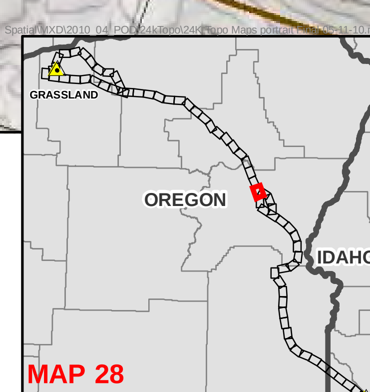
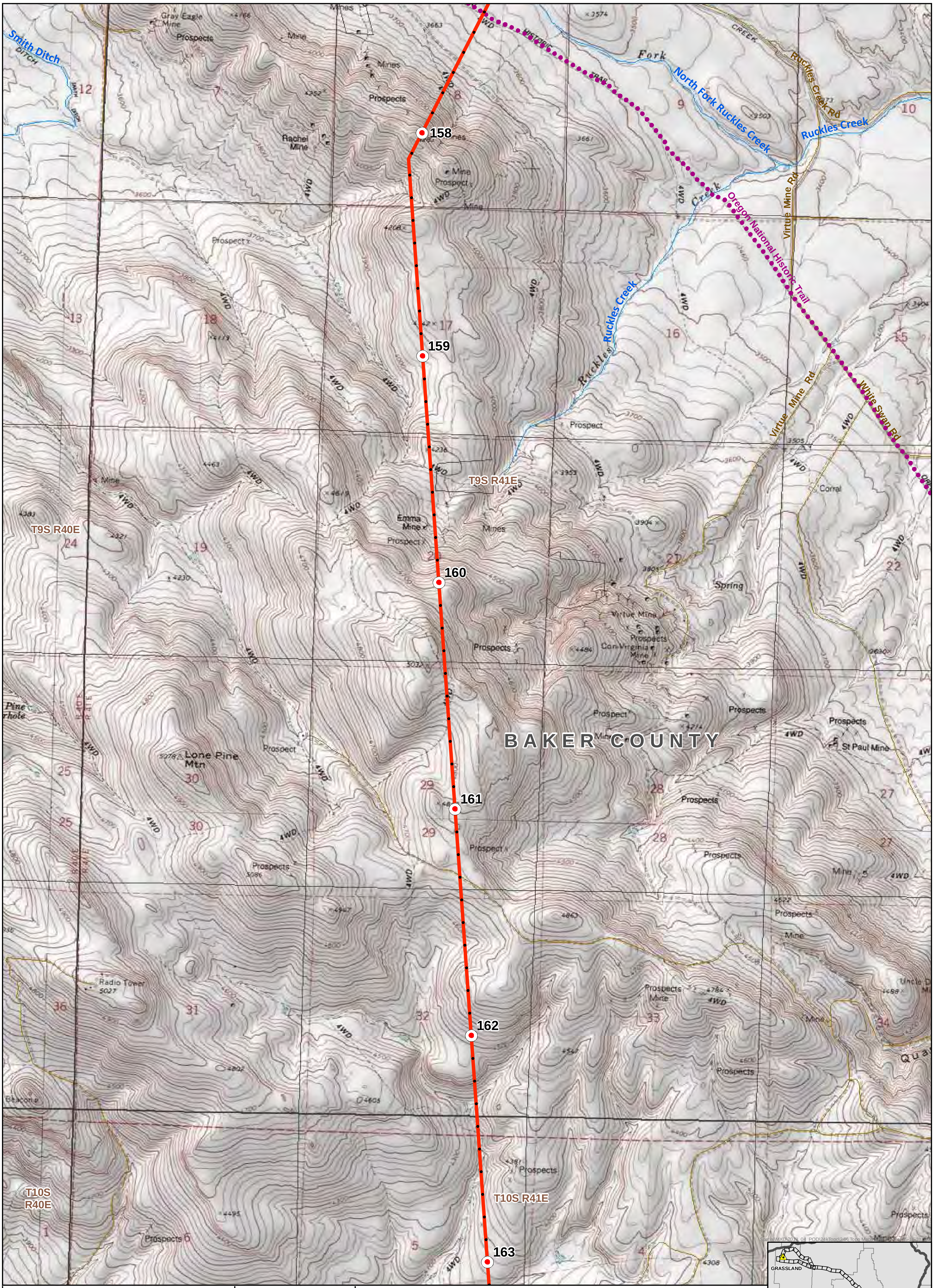
APPENDIX E
MAP 28 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

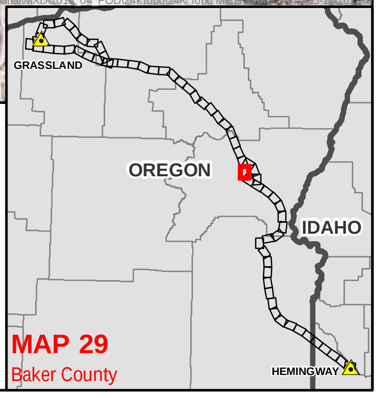
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

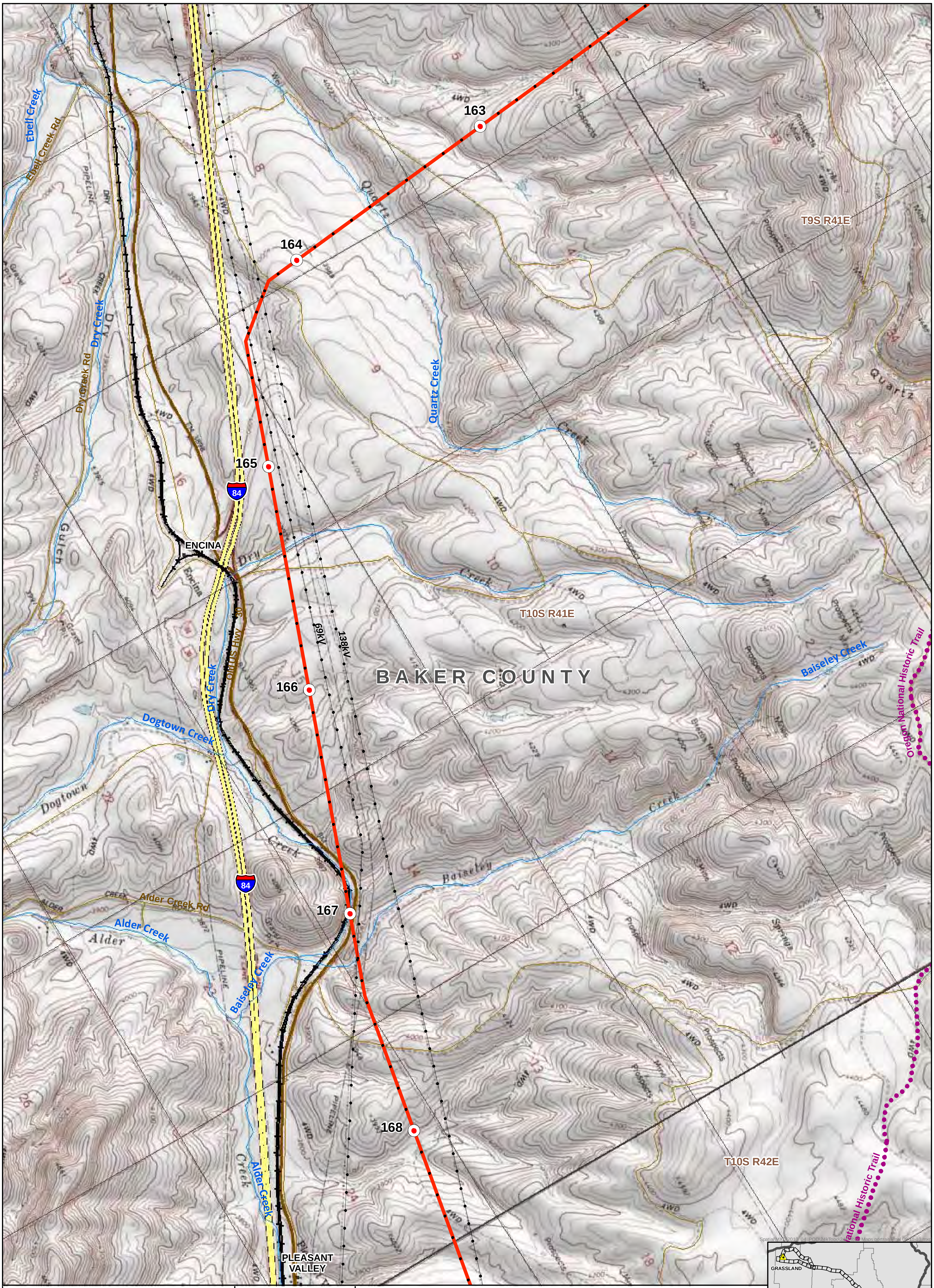
APPENDIX E
MAP 29 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 29
Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

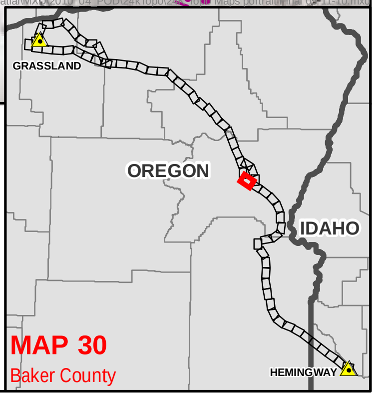
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

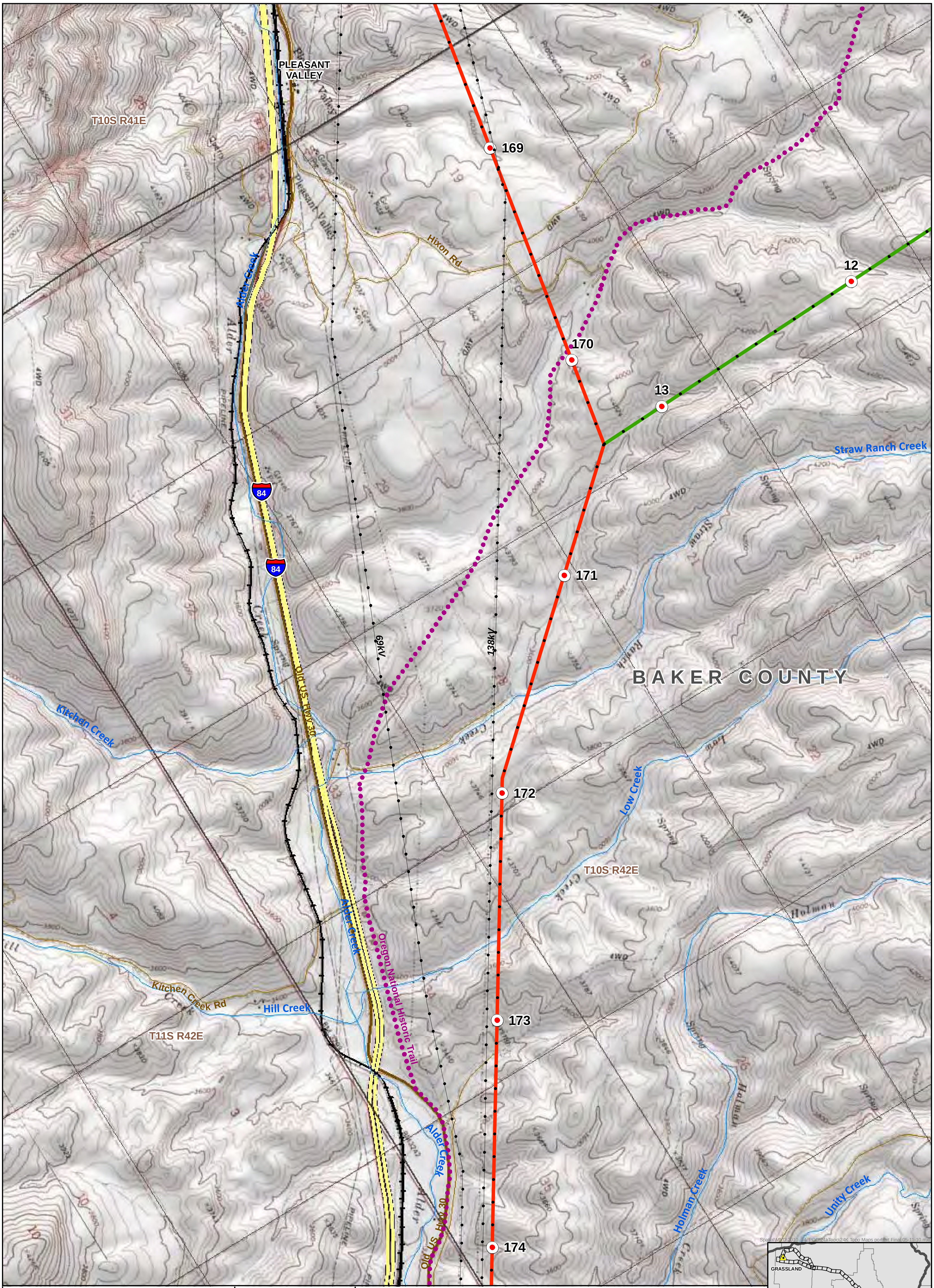
APPENDIX E
MAP 30 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 30
Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

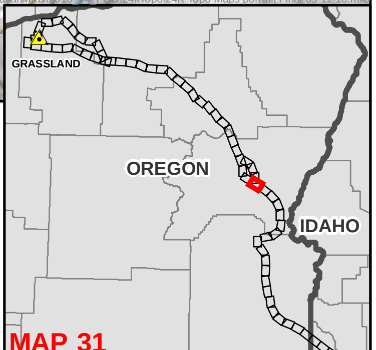
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

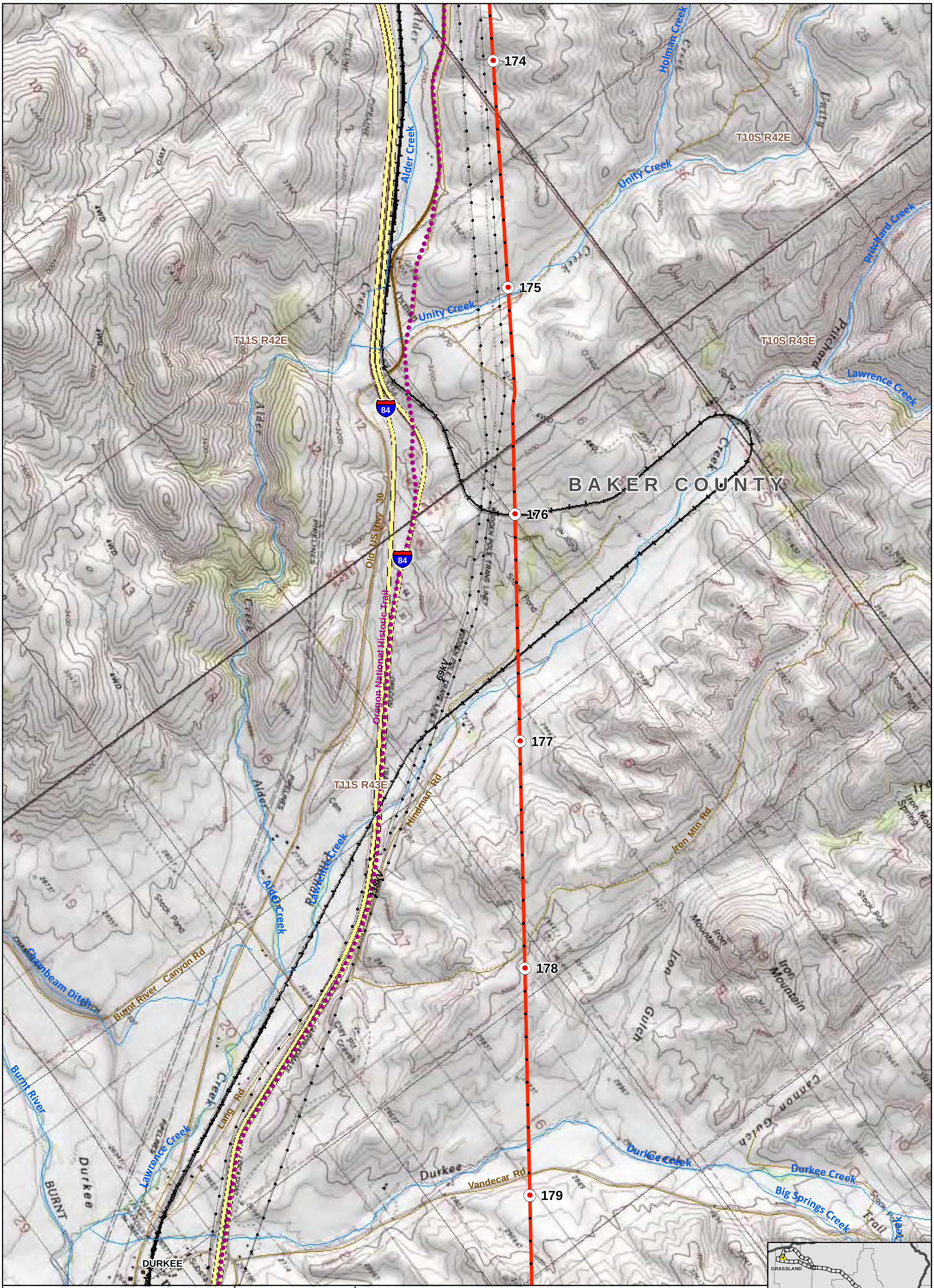
APPENDIX E
MAP 31 OF 68

0 — 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 31
Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

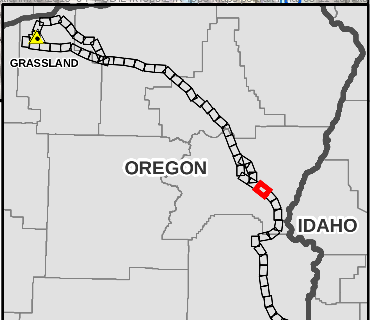
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

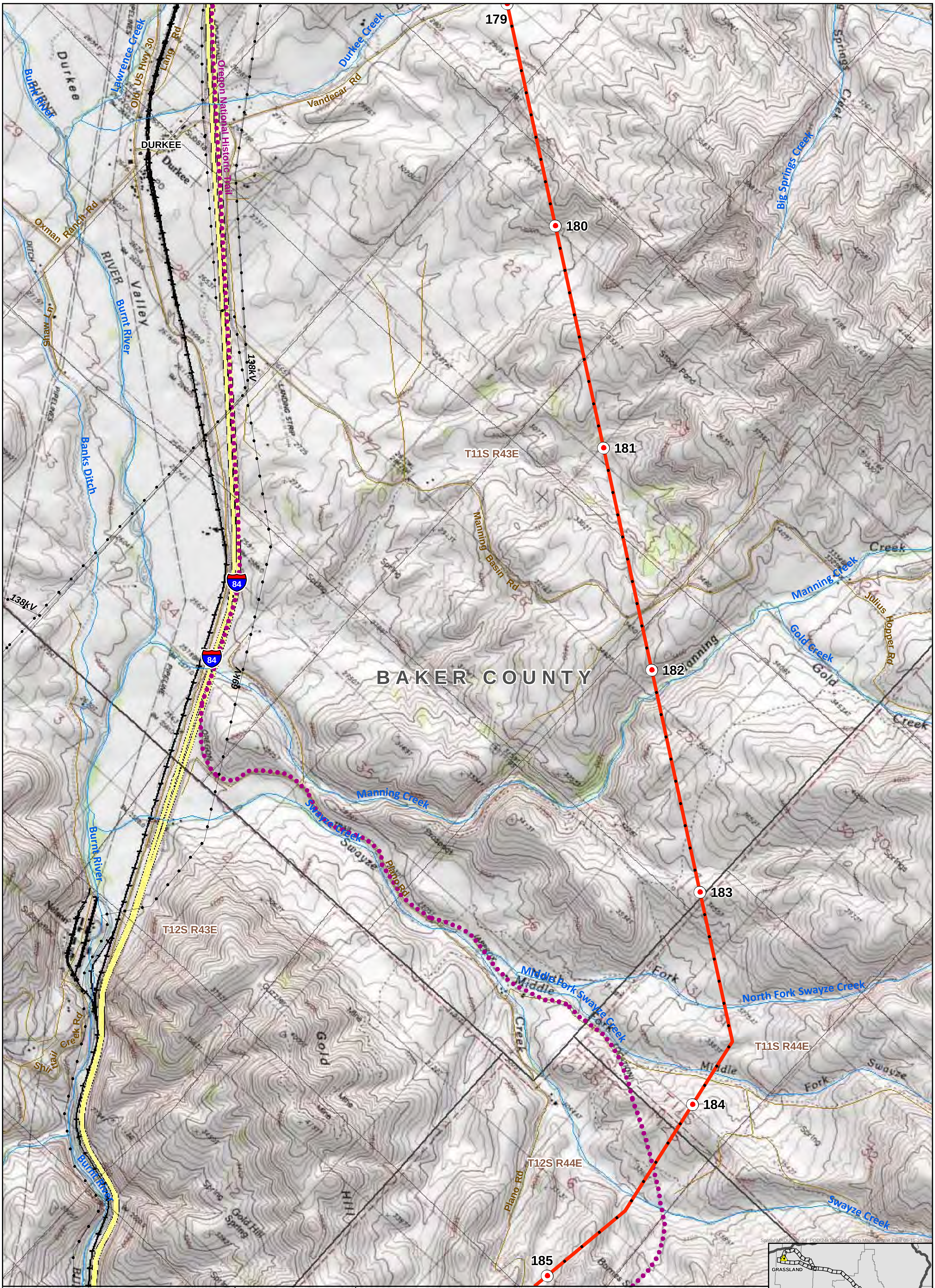
APPENDIX E
MAP 32 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 32
Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

IDAHO POWER

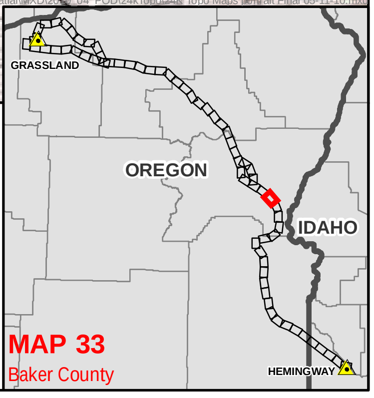
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

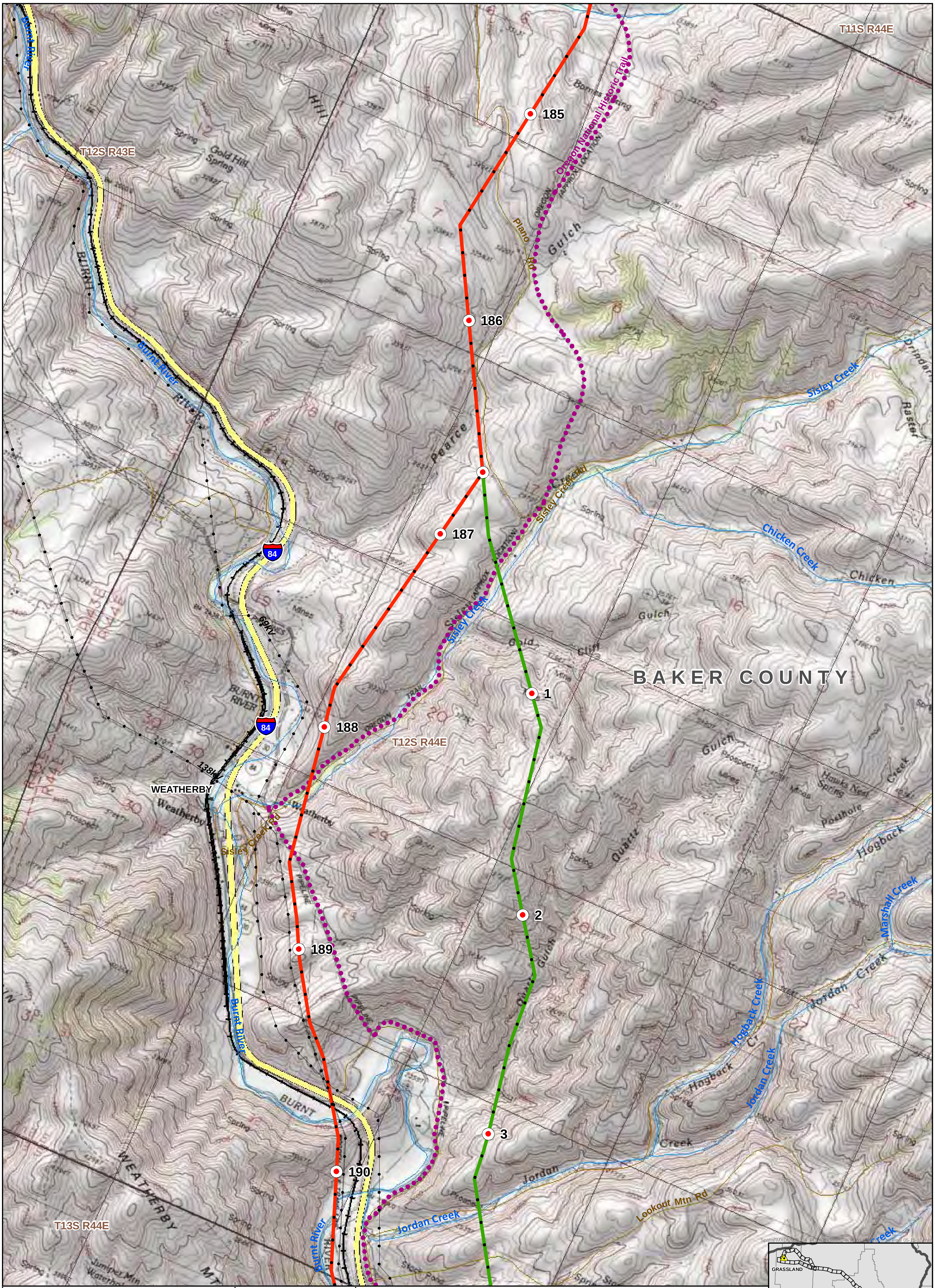
AUGUST 2010

APPENDIX E
MAP 33 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route & Weatherby Alternative

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

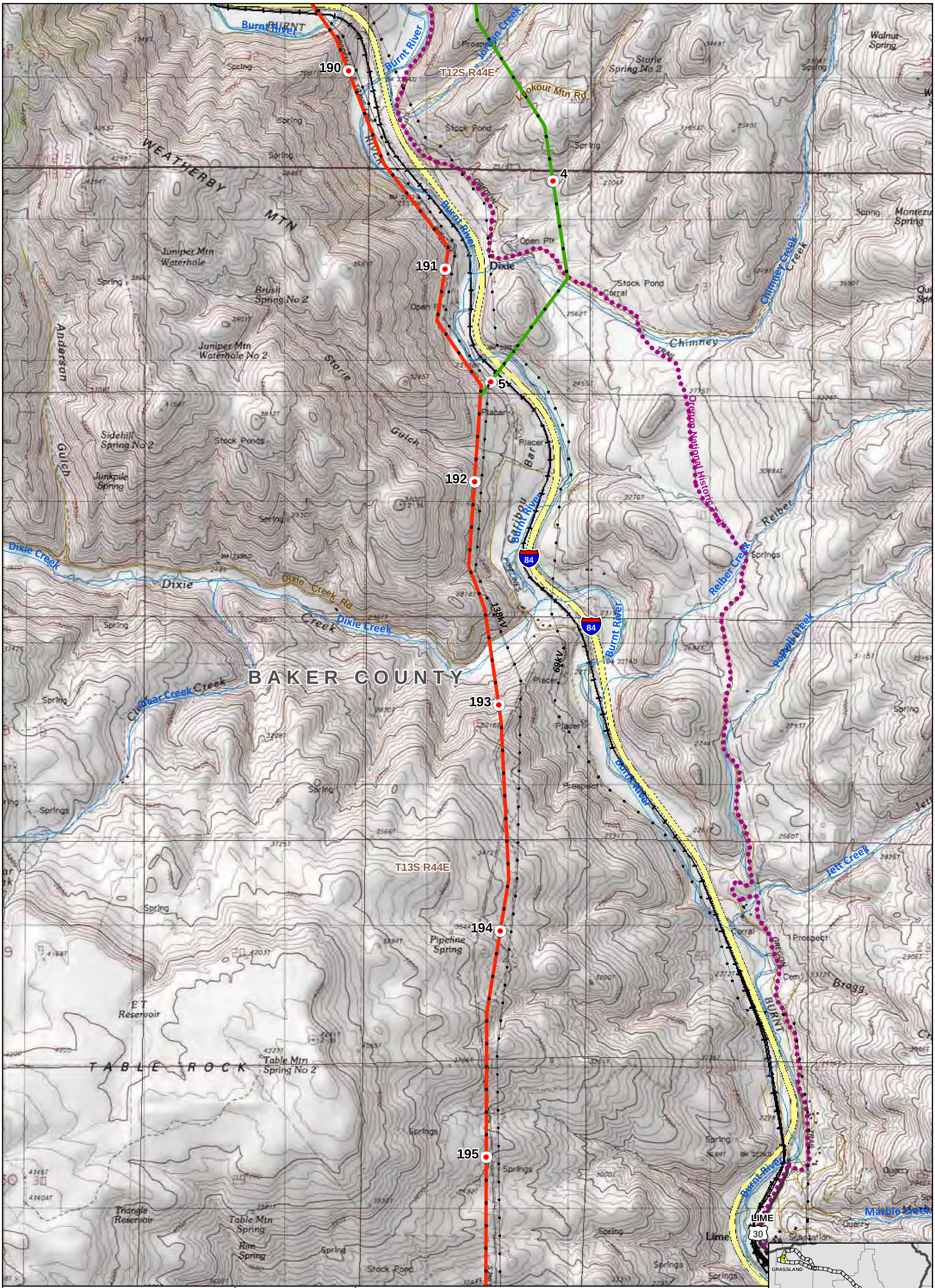
AUGUST 2010

APPENDIX E
MAP 34 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road

MAP 34
Baker County



DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route & Weatherby Alternative

BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT

OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 35 OF 68

0 — 2,000

Feet

Substation

Existing Transmission Line

Mile Marker

Tenth Mile Marker

Proposed Route

Alternative Route

State Boundary

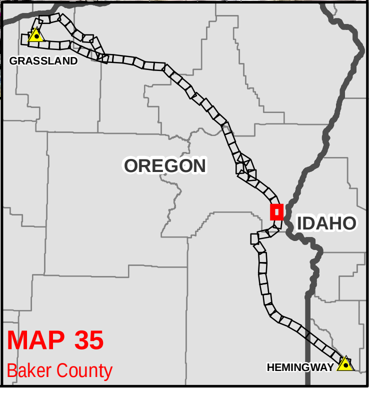
County Boundary

River/Stream

Township/Range Boundary

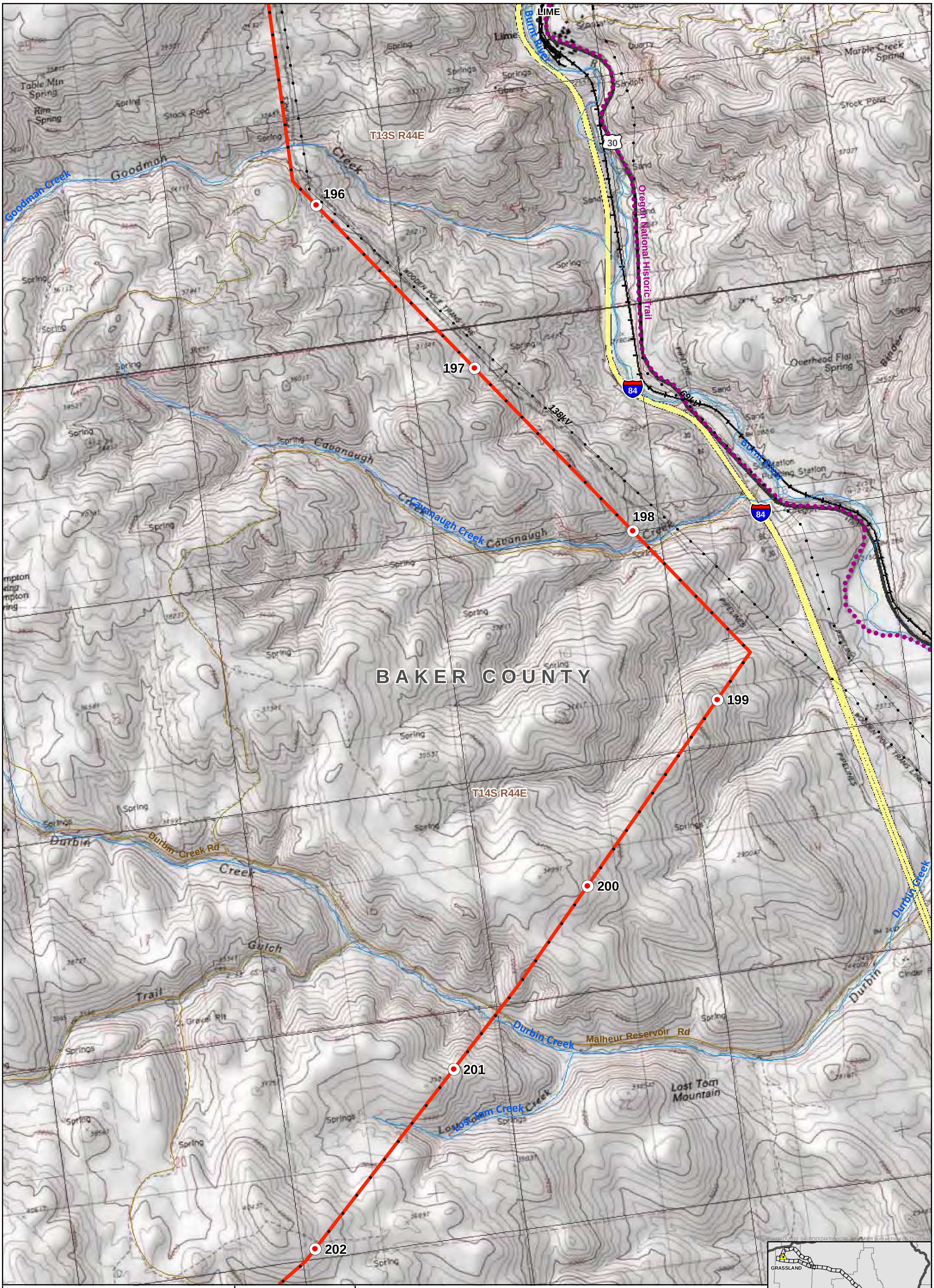
Section Line

County Road



MAP 35

Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

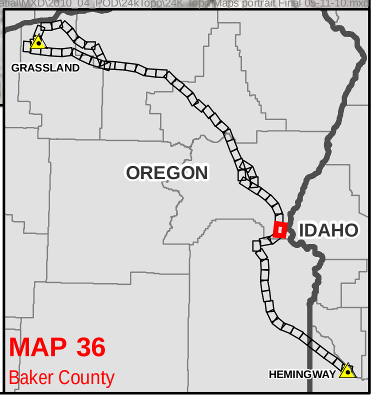
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 36 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 36
Baker County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

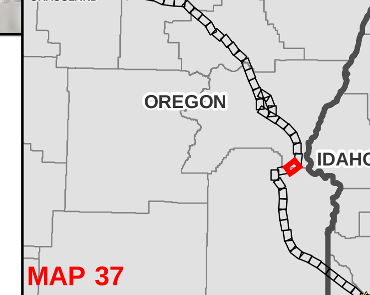
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 37 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

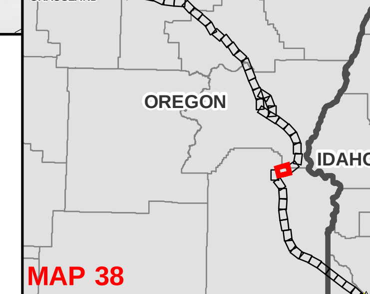
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

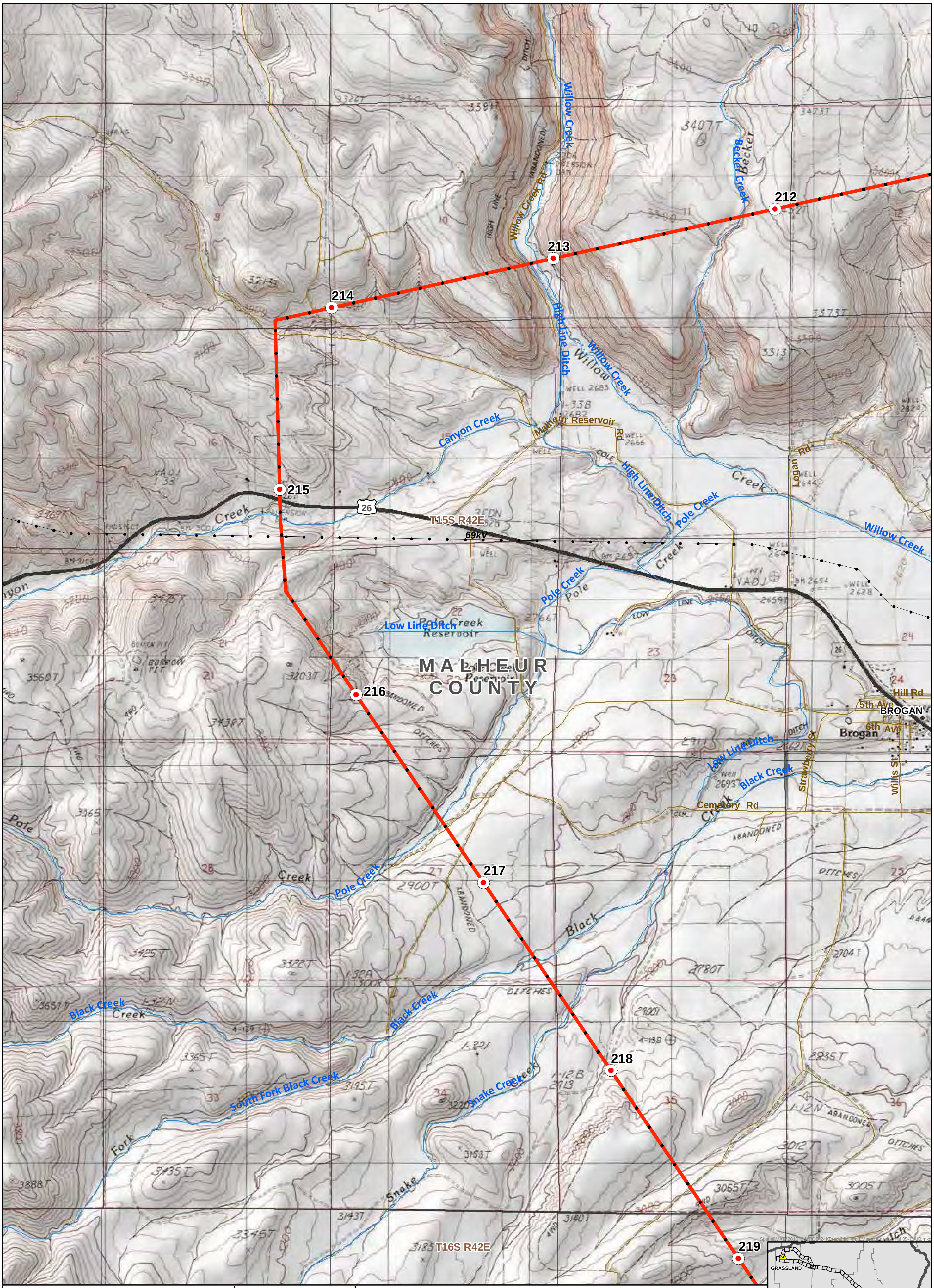
AUGUST 2010

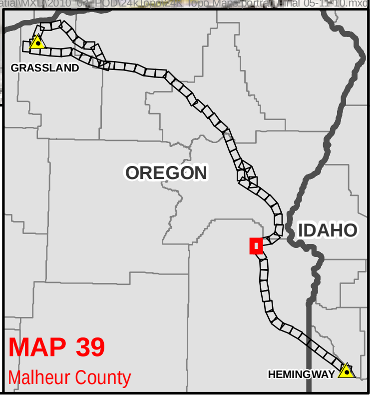
APPENDIX E
MAP 38 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road







DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

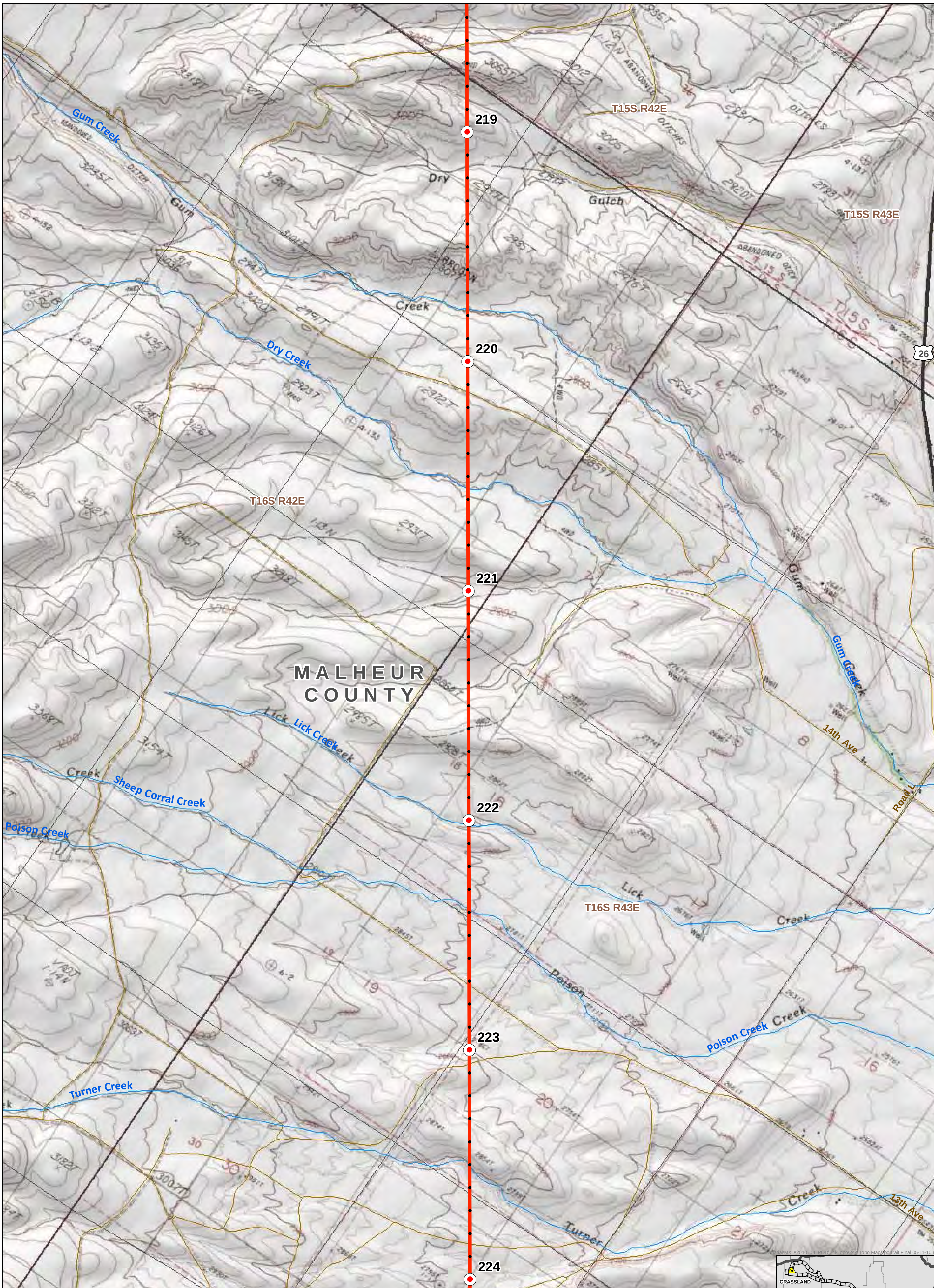
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 39 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

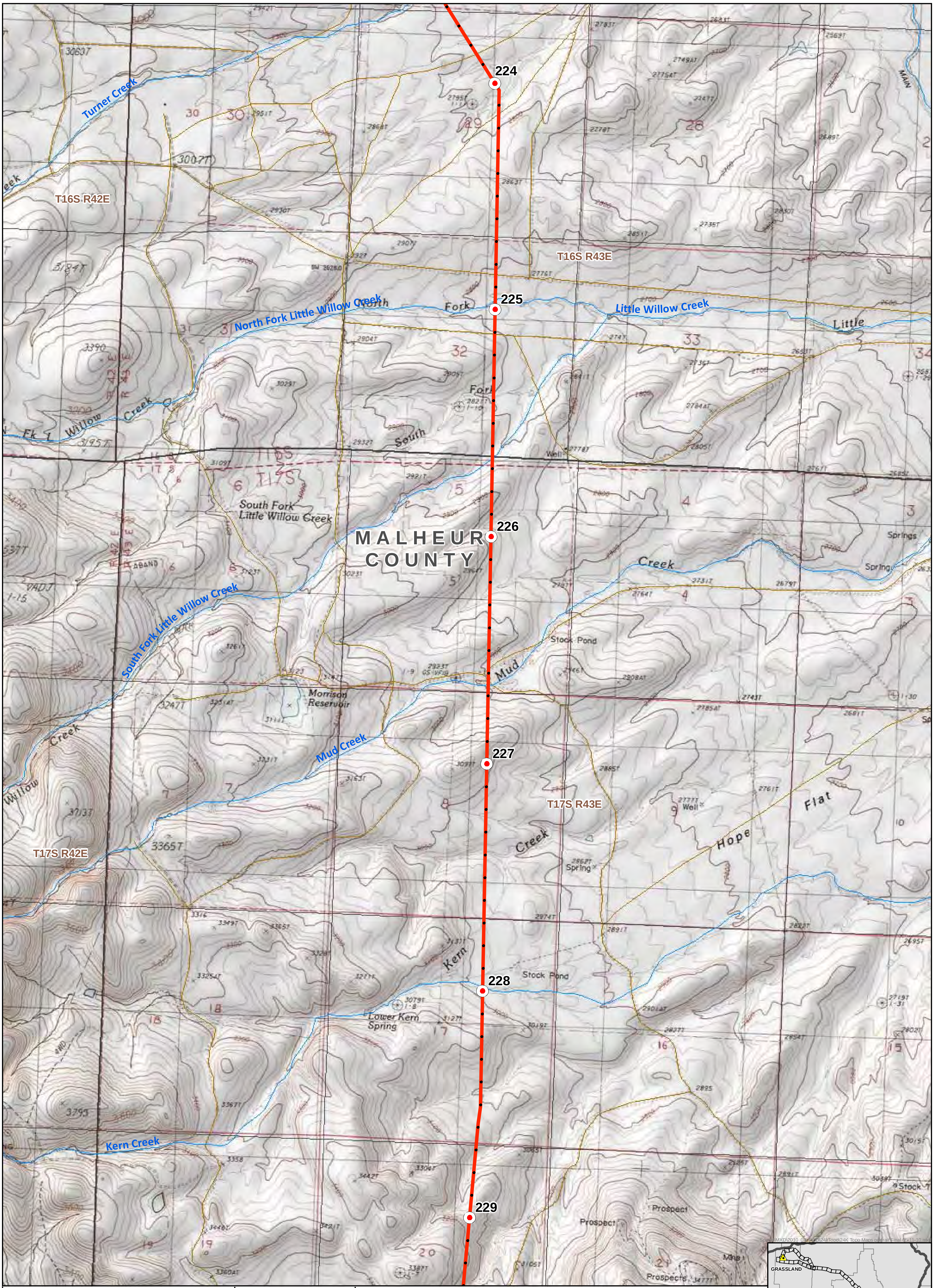
AUGUST 2010

APPENDIX E
MAP 40 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road

MAP 40
Malheur County



DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route

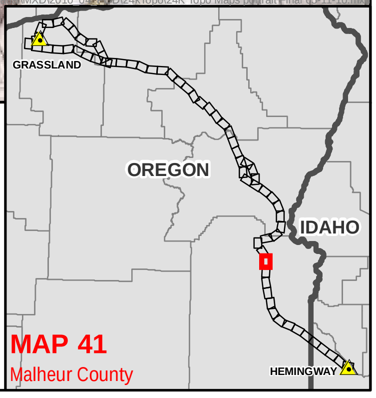
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

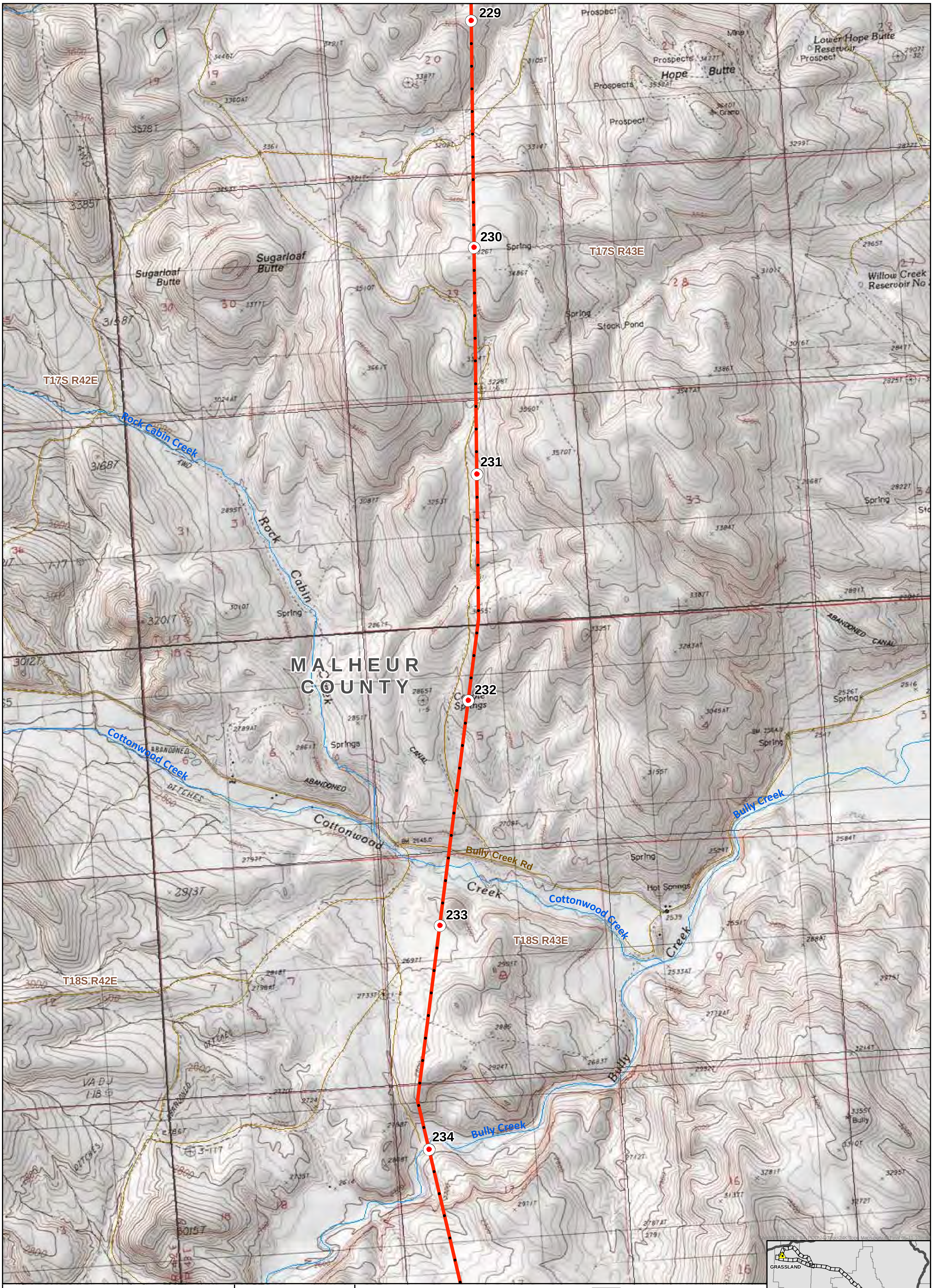
AUGUST 2010

APPENDIX E
MAP 41 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route

IDAHO POWER

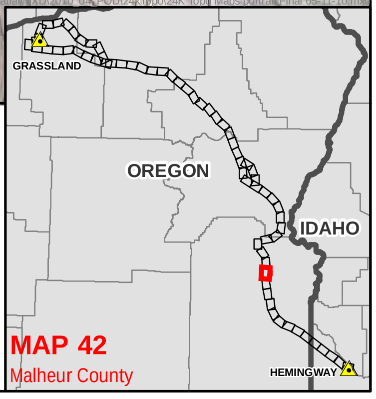
BOARDMAN TO HEMINGWAY 500kV TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

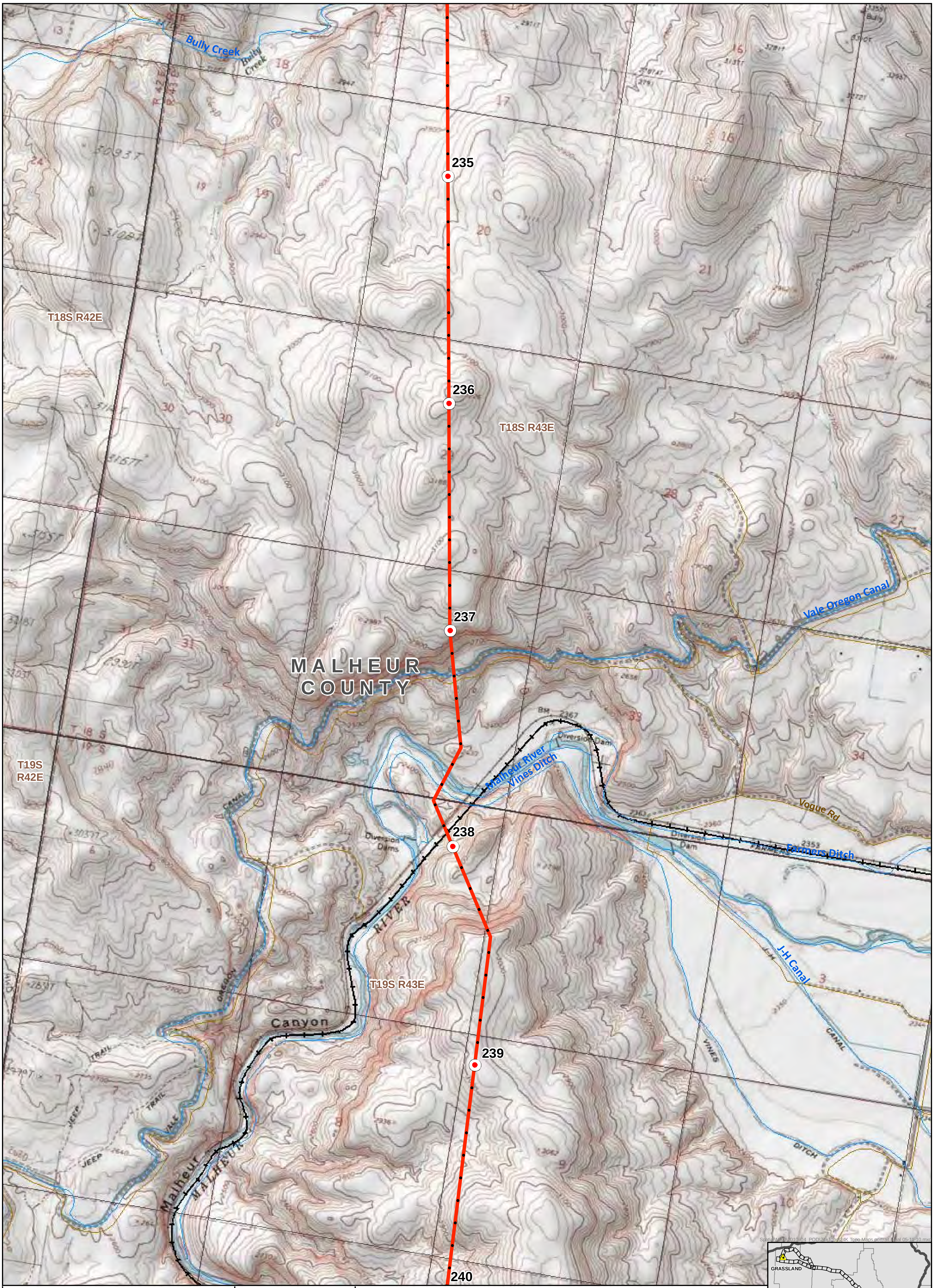
APPENDIX E
MAP 42 OF 68

0 2,000
Feet

Substation	State Boundary
Existing Transmission Line	County Boundary
Mile Marker	River/Stream
Tenth Mile Marker	Township/Range Boundary
Proposed Route	Section Line
Alternative Route	County Road



MAP 42
Malheur County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

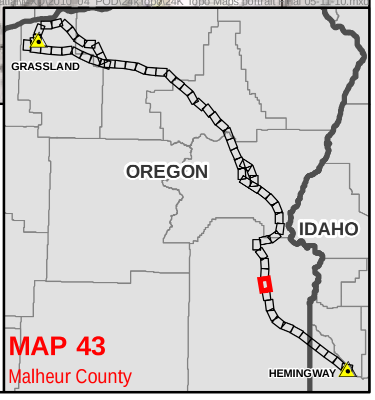
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 43 OF 68

0 2,000
Feet

Legend	
Substation	State Boundary
Existing Transmission Line	County Boundary
Mile Marker	River/Stream
Tenth Mile Marker	Township/Range Boundary
Proposed Route	Section Line
Alternative Route	County Road



MAP 43
Malheur County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

IDAHO POWER

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

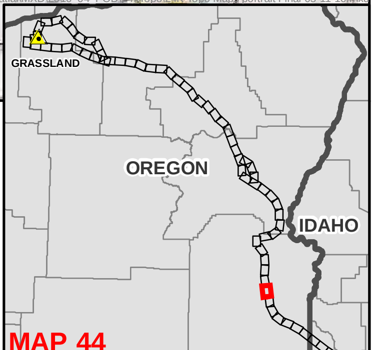
AUGUST 2010

APPENDIX E
MAP 44 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route

State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 44
Malheur County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

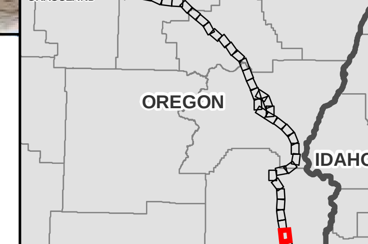
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

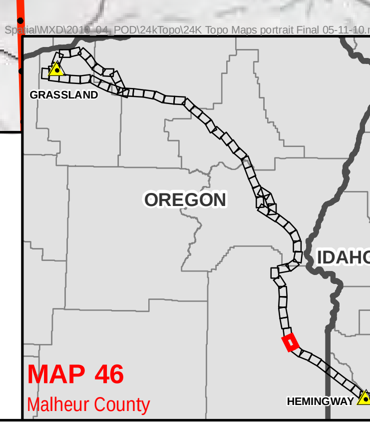
APPENDIX E
MAP 45 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 45
Malheur County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 46 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route &
Owyhee River Below Dam Alternative

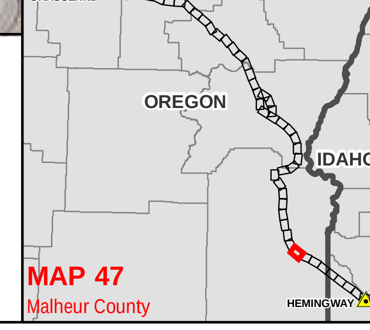
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

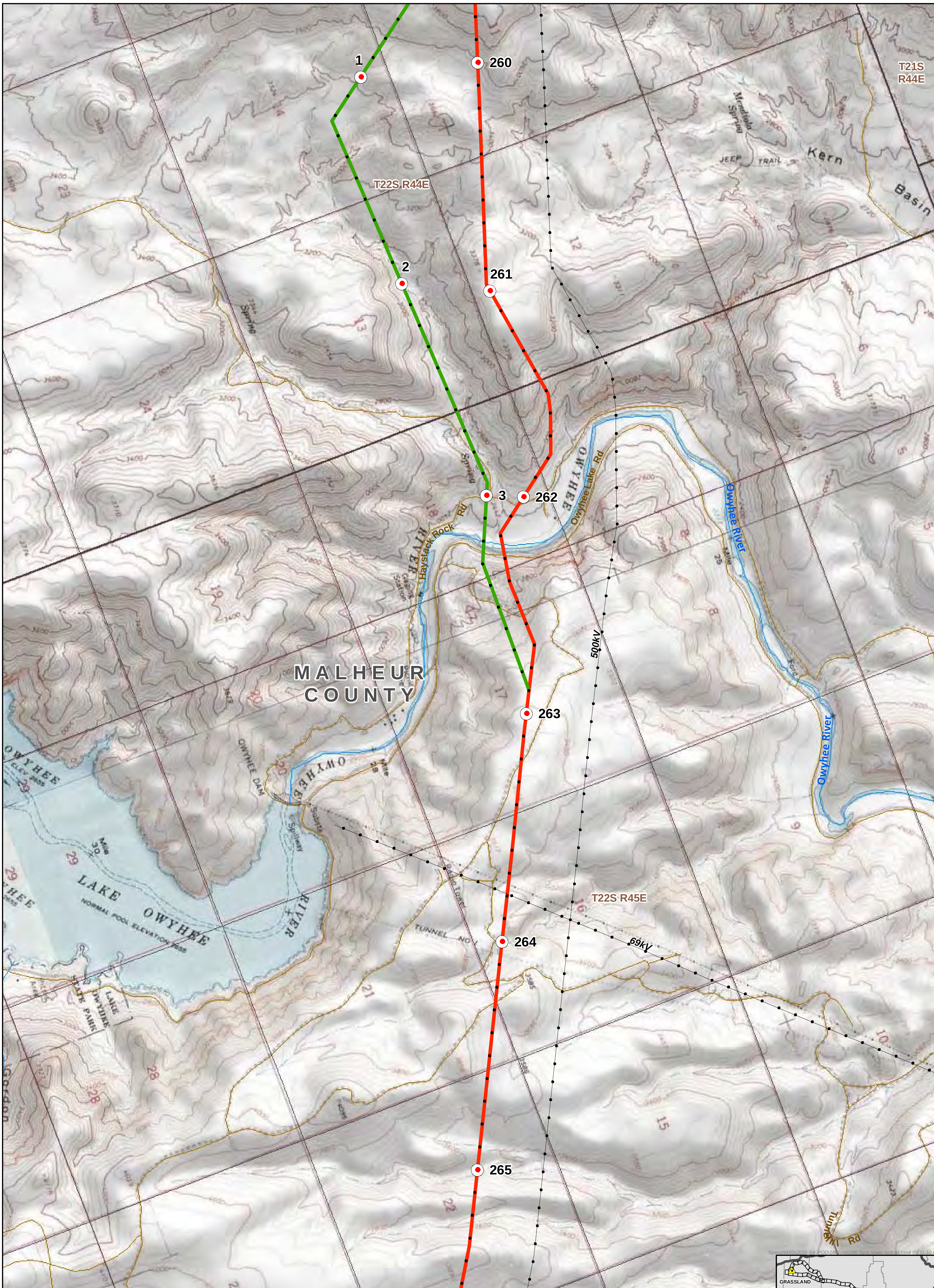
AUGUST 2010

APPENDIX E
MAP 47 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route &
Owyhee River Below Dam Alternative

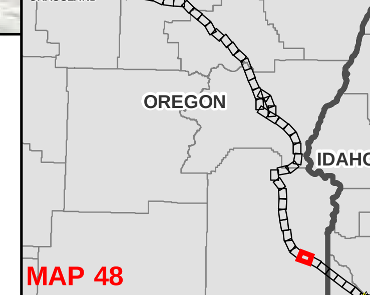
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

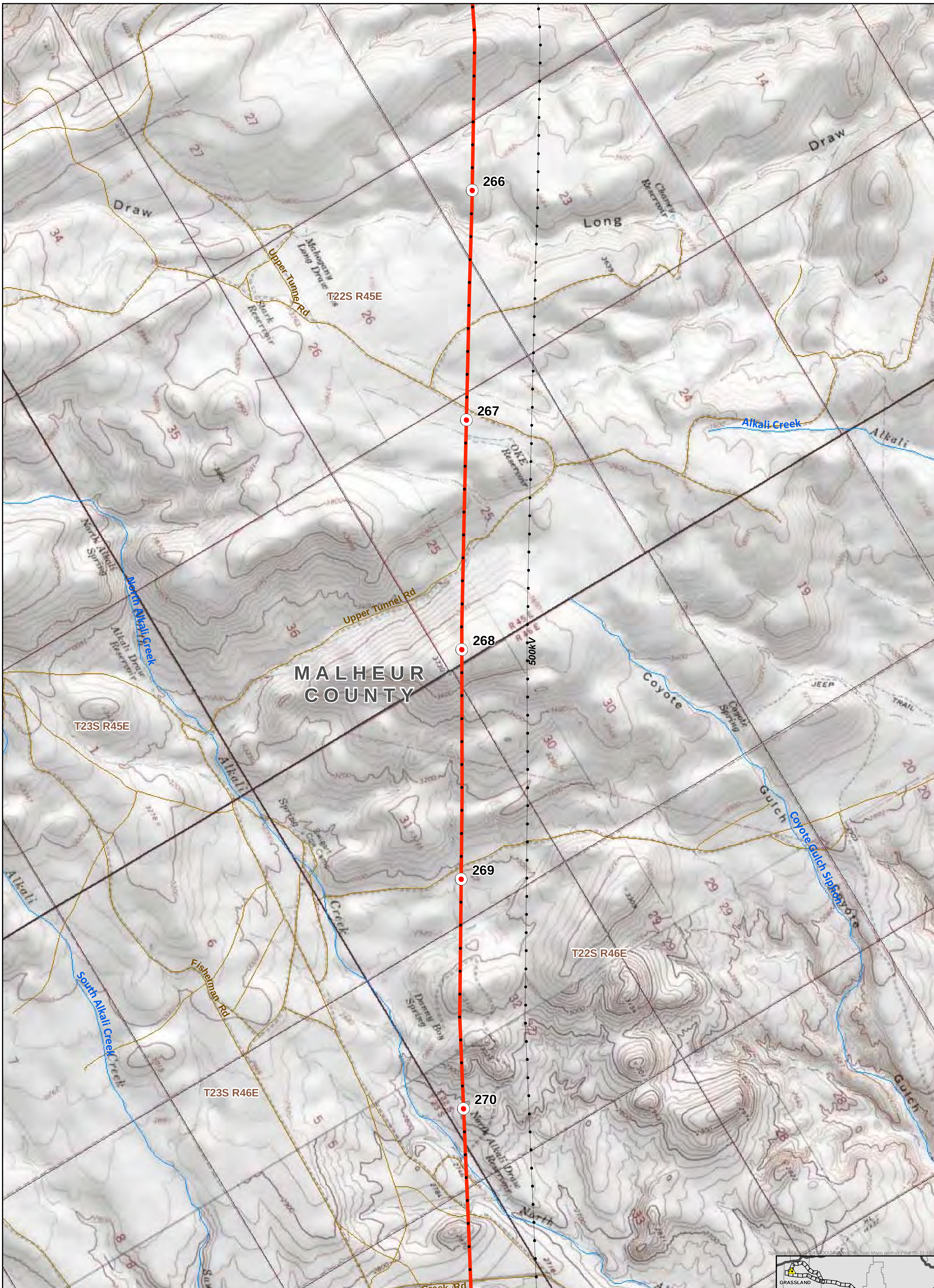
APPENDIX E
MAP 48 OF 68

0 2,000
Feet

Substation	State Boundary
Existing Transmission Line	County Boundary
Mile Marker	River/Stream
Tenth Mile Marker	Township/Range Boundary
Proposed Route	Section Line
Alternative Route	County Road



MAP 48
Malheur County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

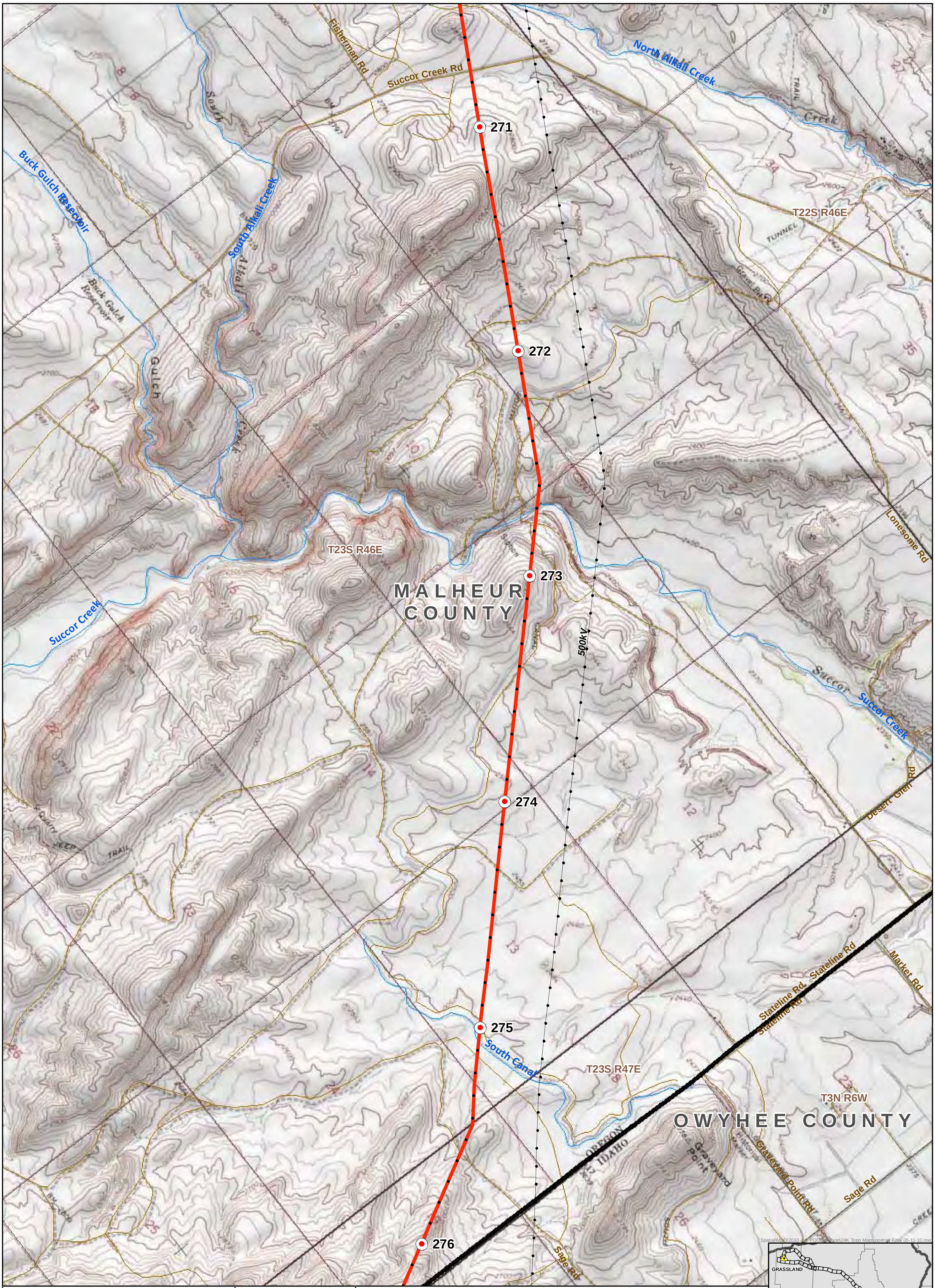
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 49 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

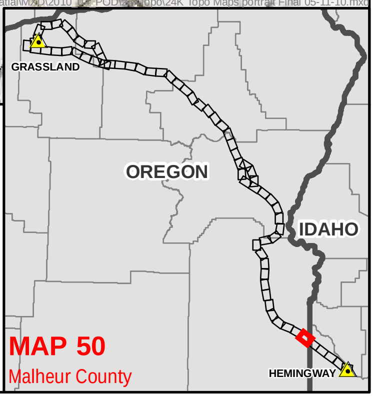
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

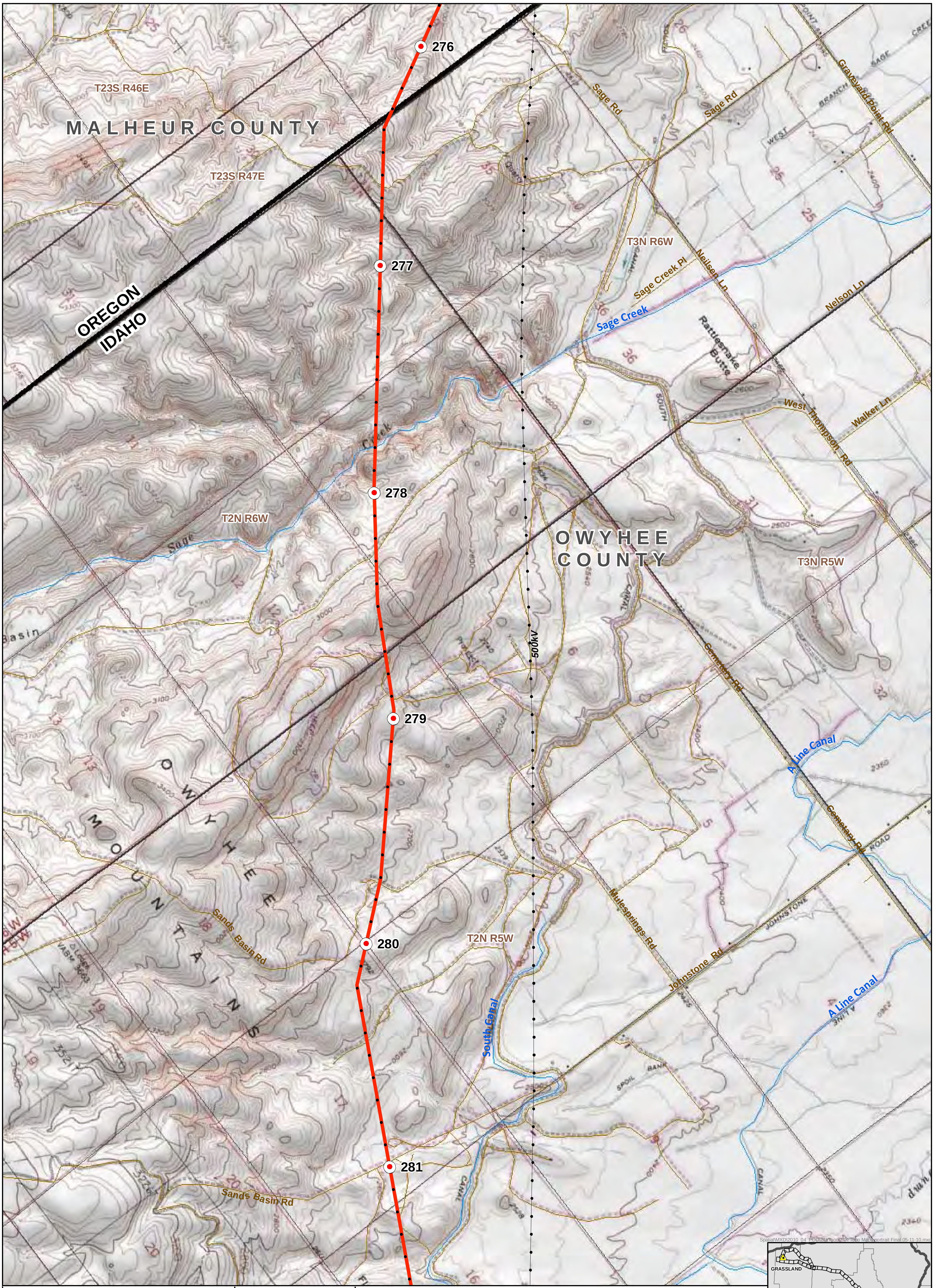
AUGUST 2010

APPENDIX E
MAP 50 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route

IDAHO POWER

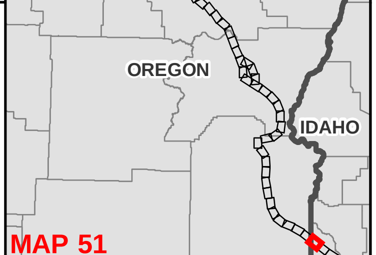
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

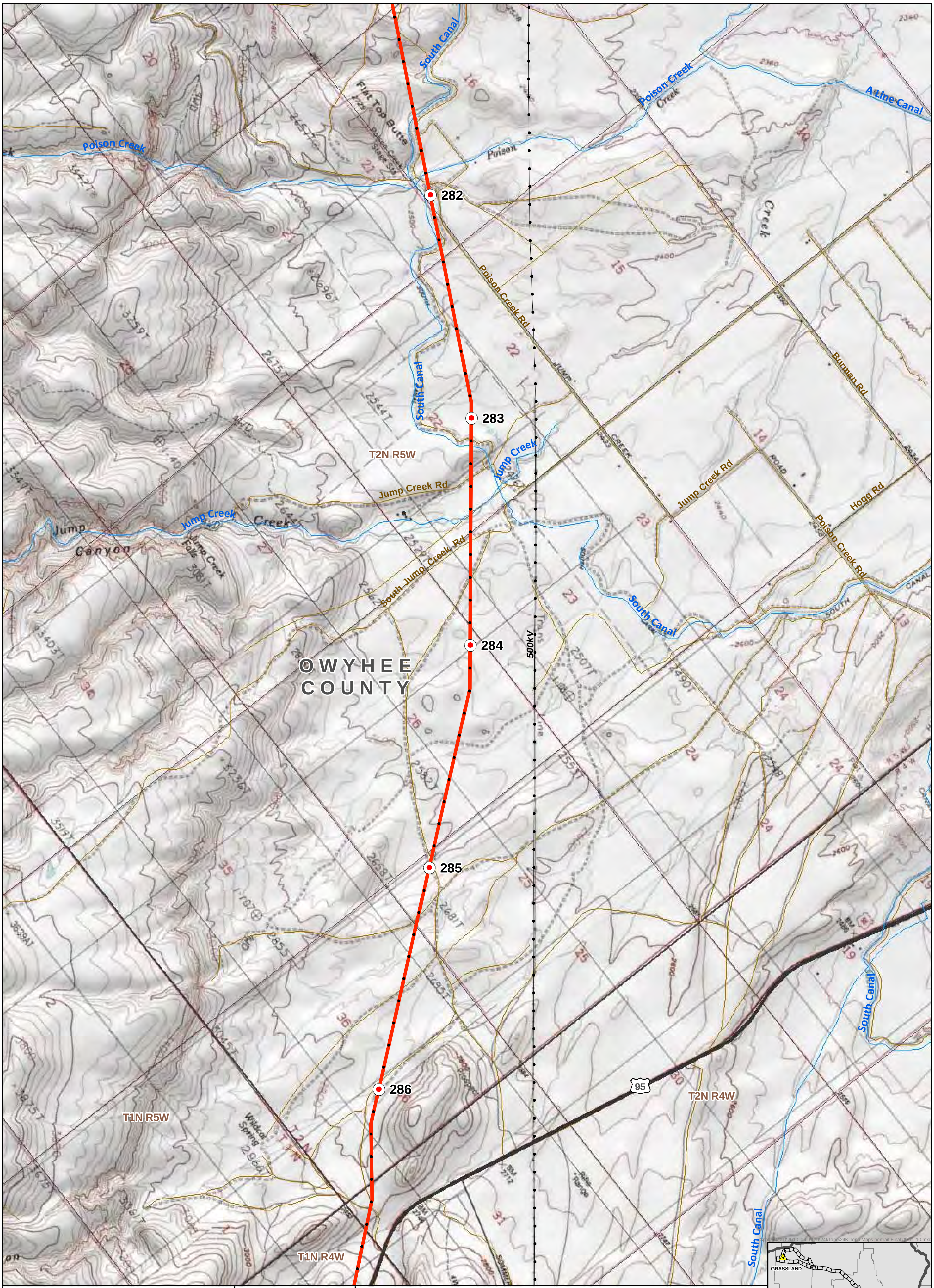
APPENDIX E
MAP 51 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 51
Owyhee County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

IDAHO POWER

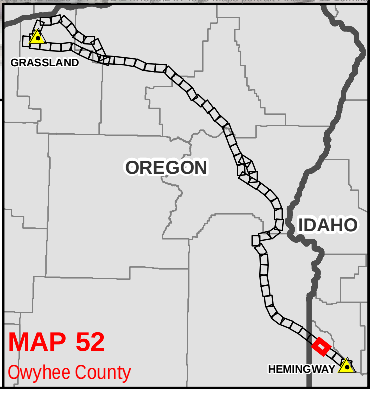
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 52 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 52
Owyhee County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

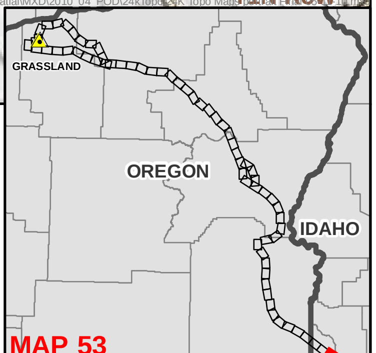
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

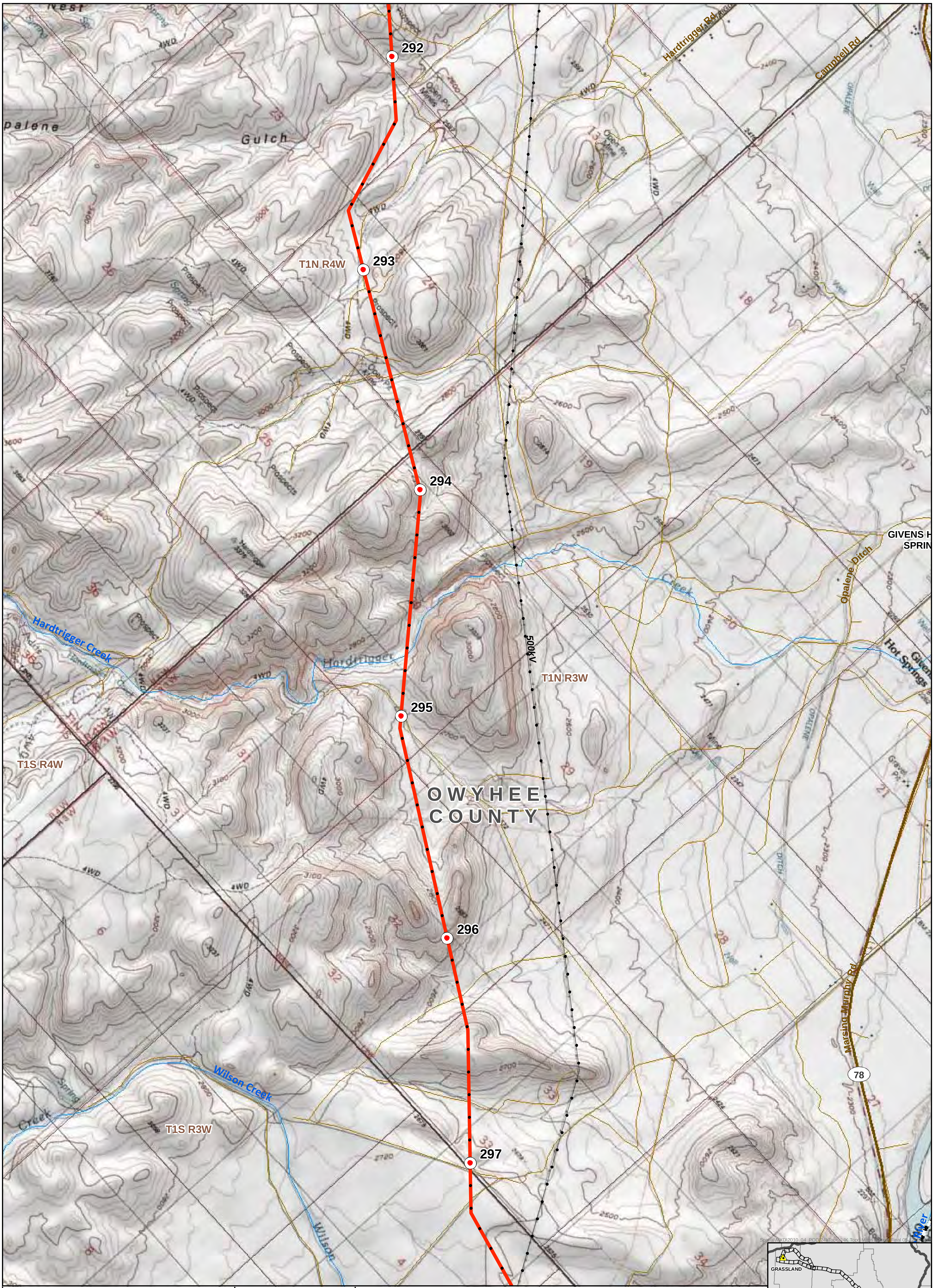
APPENDIX E
MAP 53 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 53
Owyhee County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Proposed Route

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

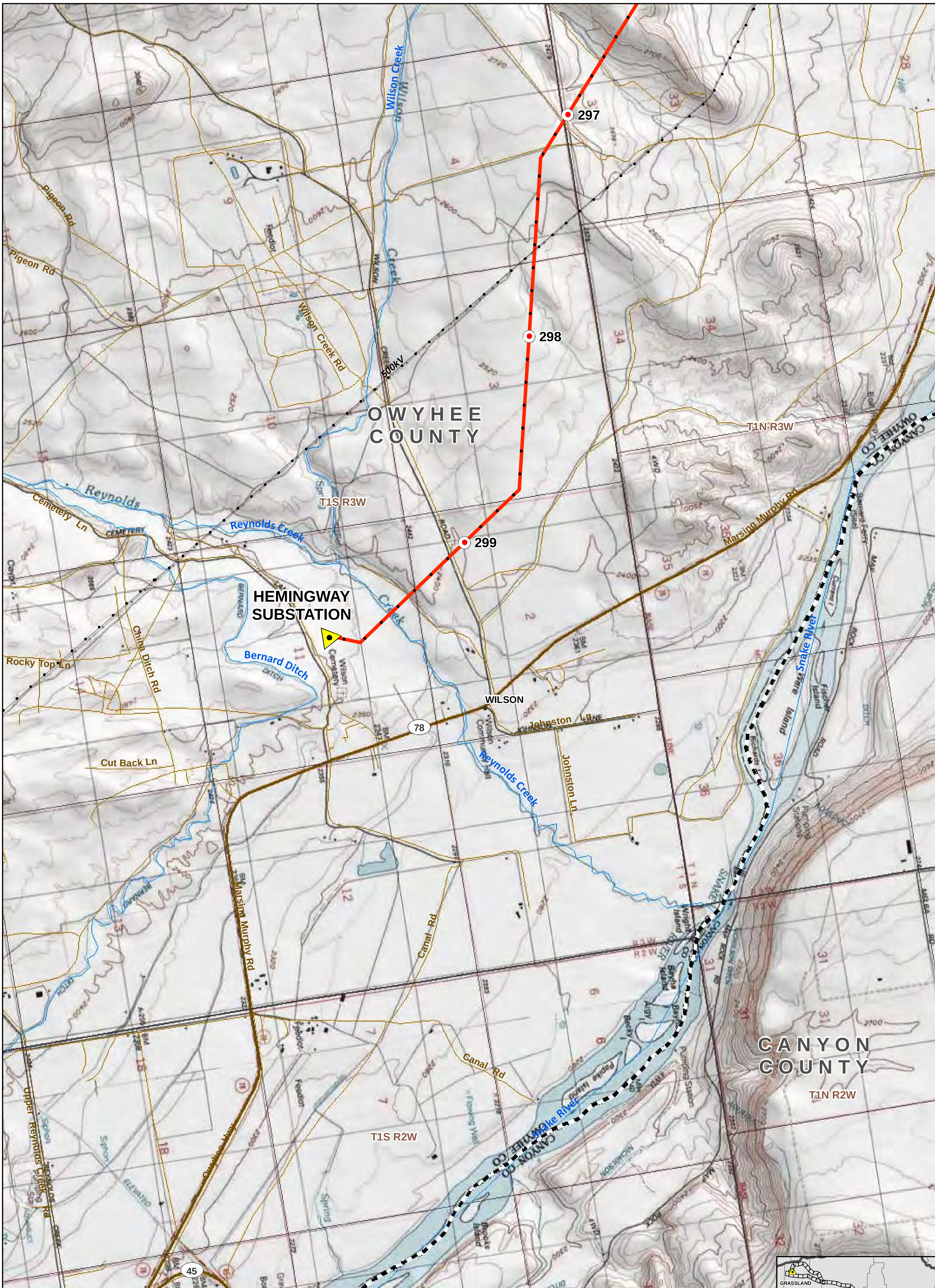
AUGUST 2010

APPENDIX E
MAP 54 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road

MAP 54
Owyhee County



DETAILED ROUTE MAP

1:24K TOPOGRAPHIC MAP

Proposed Route

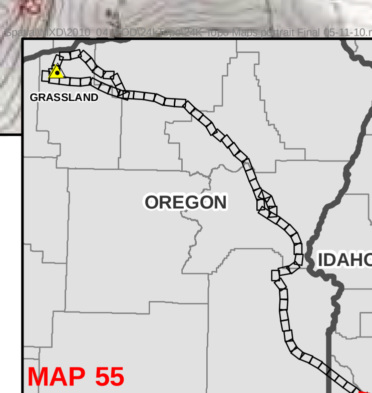
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 55 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

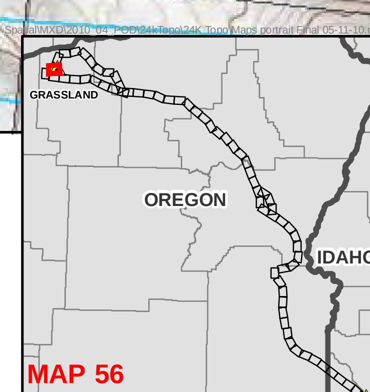
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

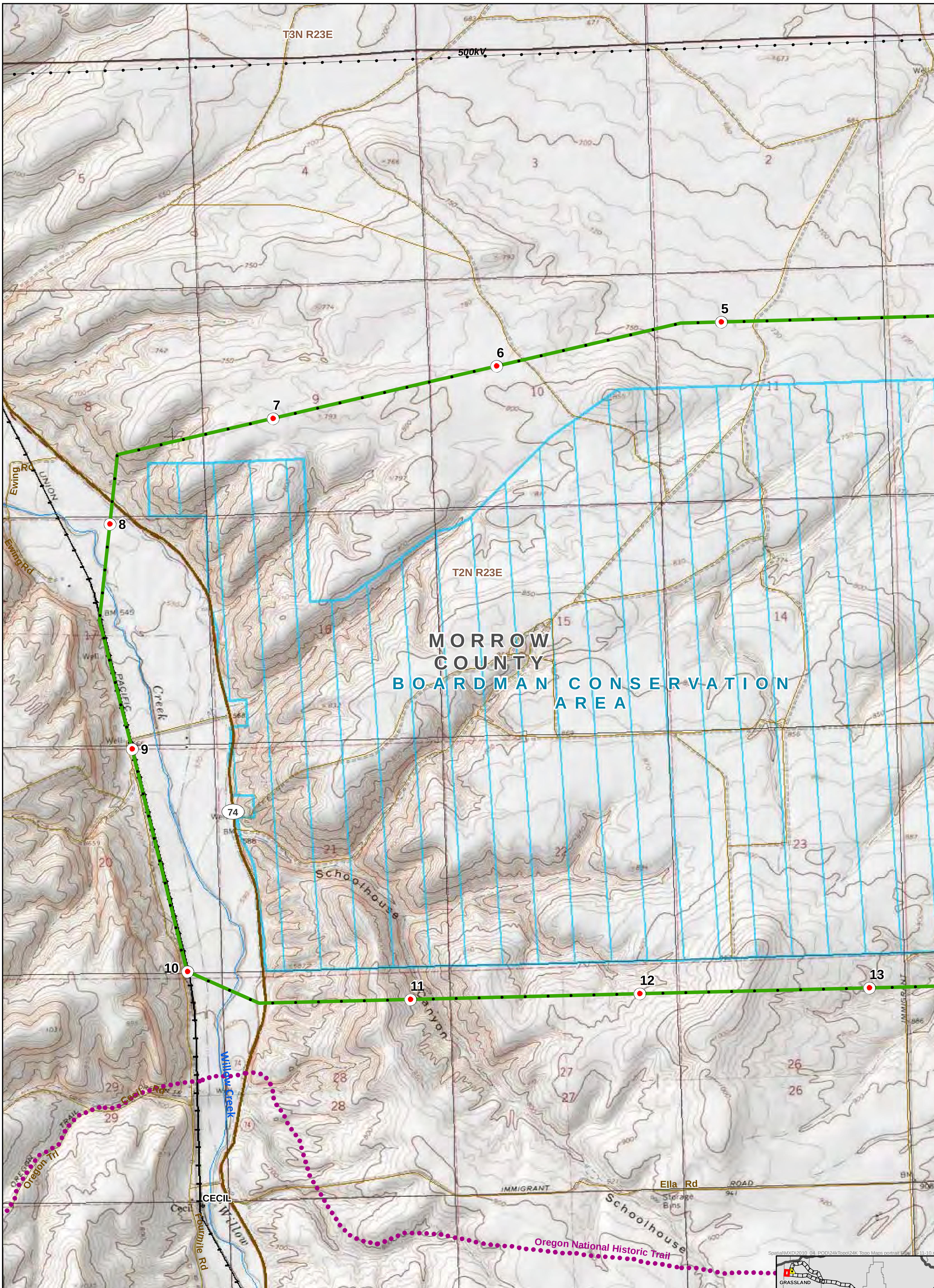
AUGUST 2010

APPENDIX E
MAP 56 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

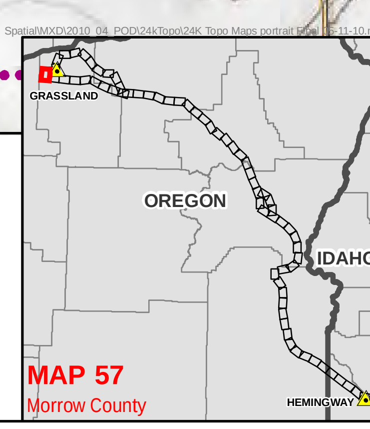
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

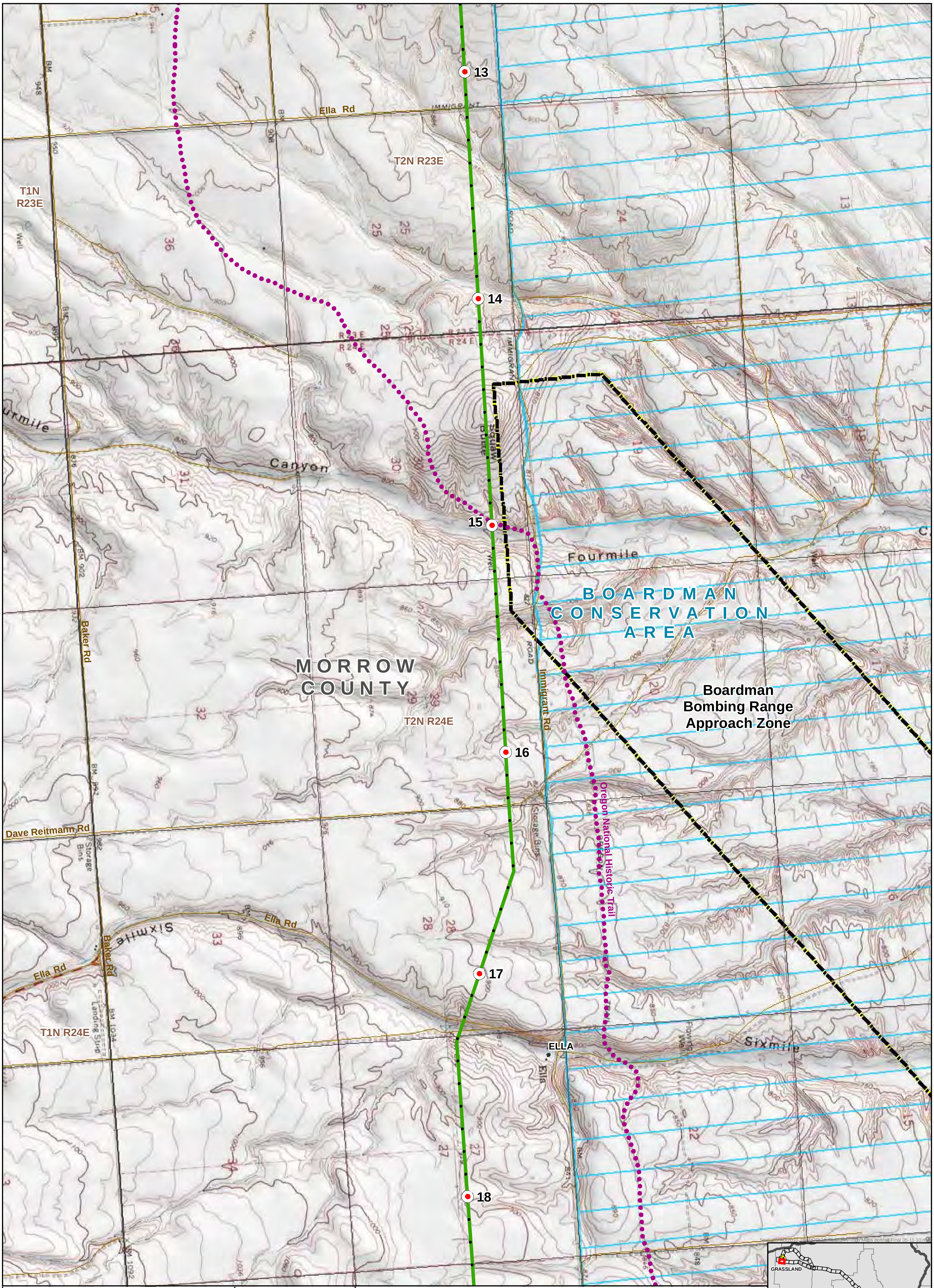
APPENDIX E
MAP 57 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 57
Morrow County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

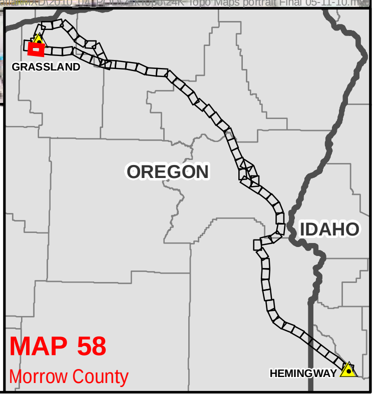
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 58 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 58
Morrow County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

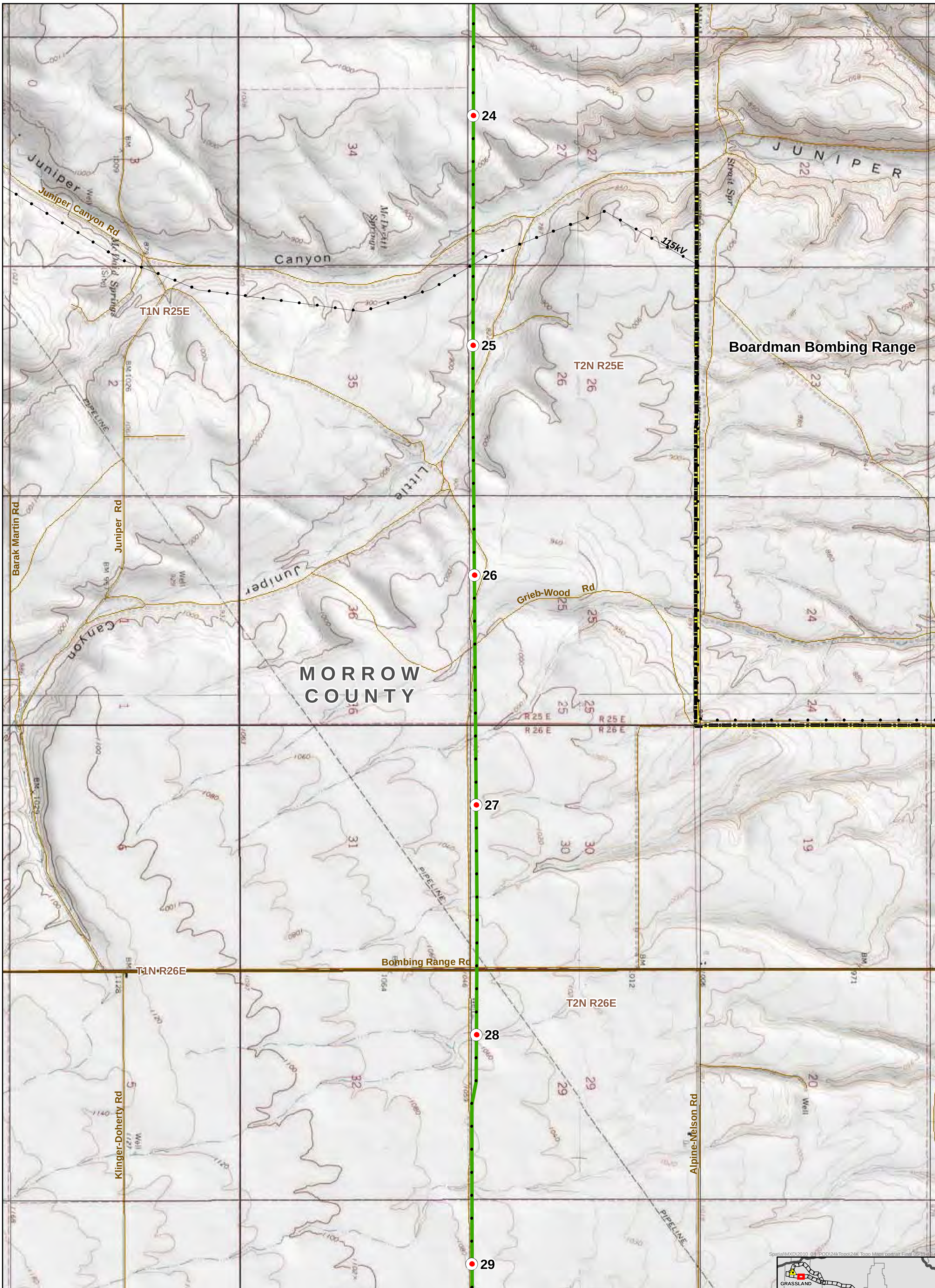
AUGUST 2010

APPENDIX E
MAP 59 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road

MAP 59
Morrow County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

IDAHO POWER

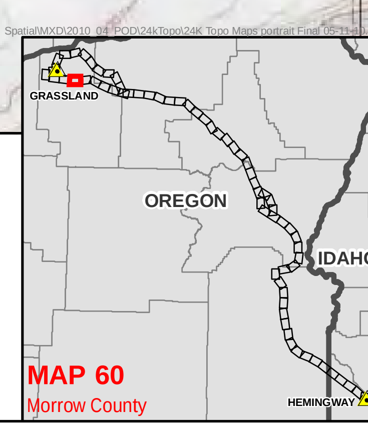
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

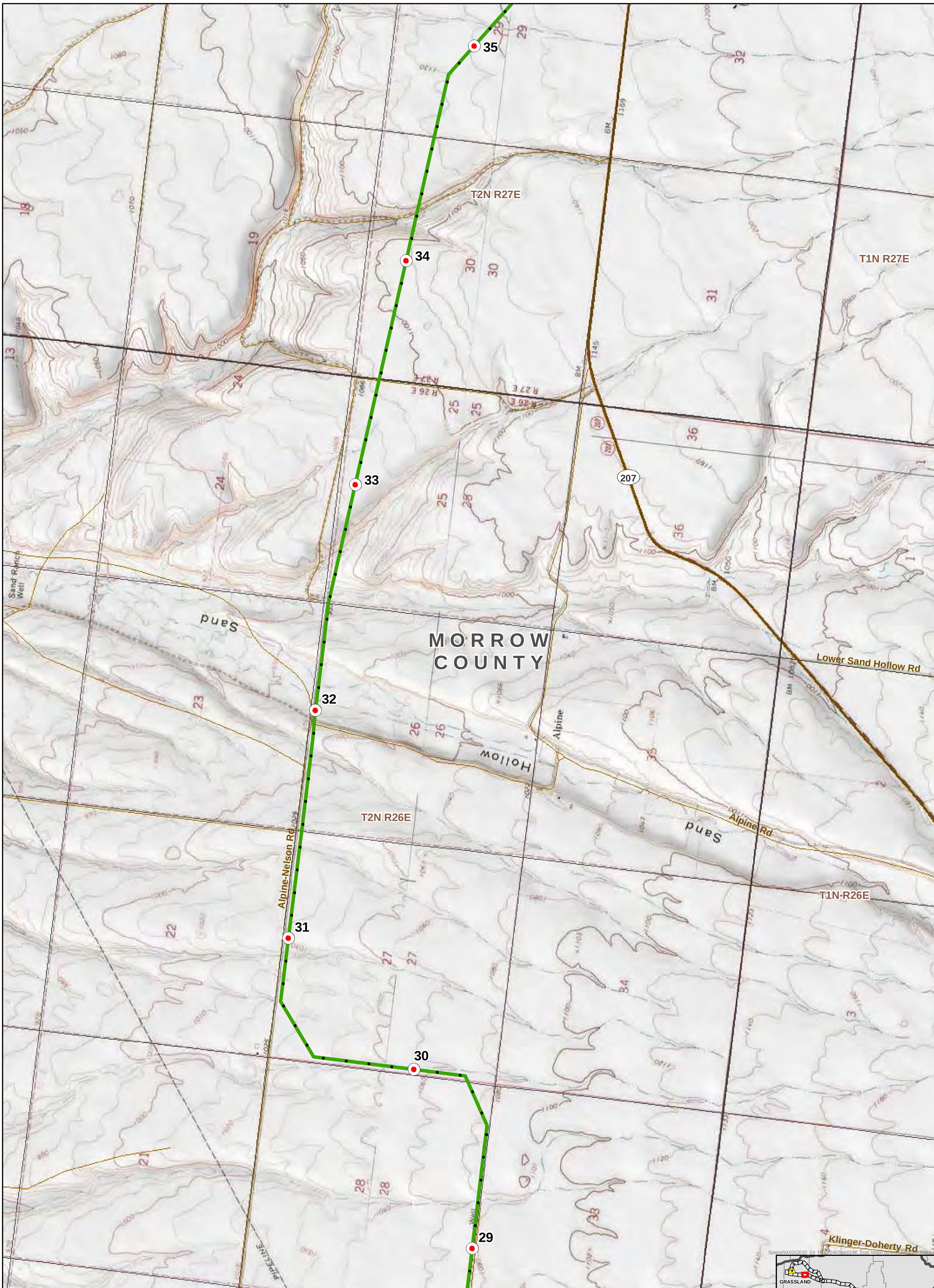
AUGUST 2010

APPENDIX E
MAP 60 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

IDAHO POWER

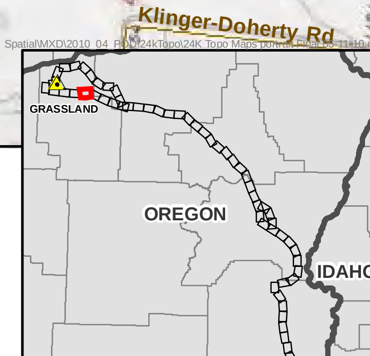
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 61 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 61
Morrow County

DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

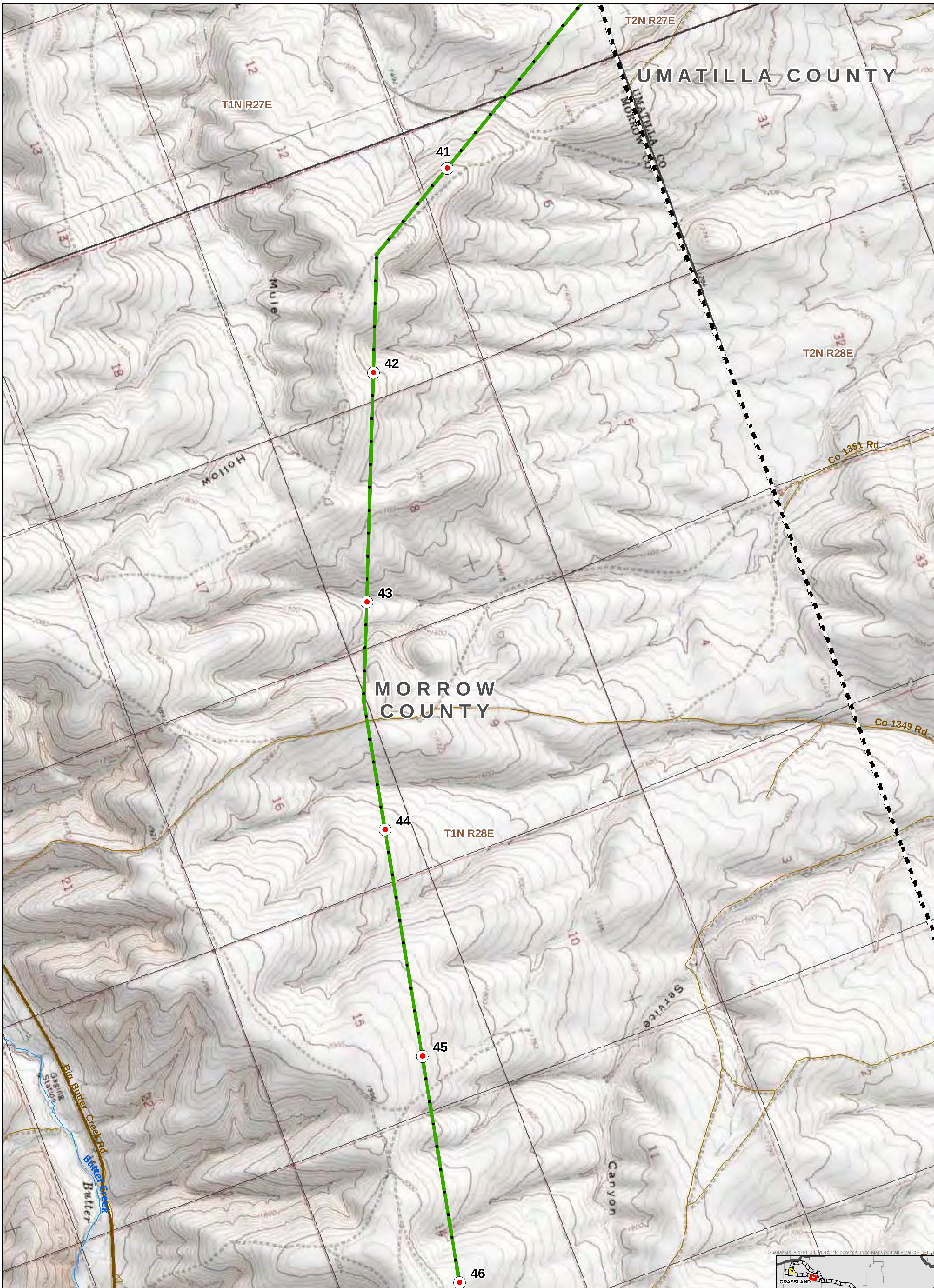
AUGUST 2010

APPENDIX E
MAP 62 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road

MAP 62
Morrow County/Umatilla County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

IDAHO POWER

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

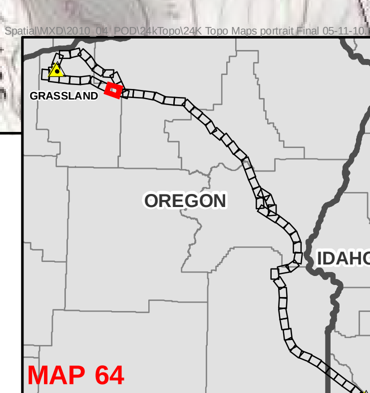
AUGUST 2010

APPENDIX E
MAP 63 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road

MAP 63
Morrow County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

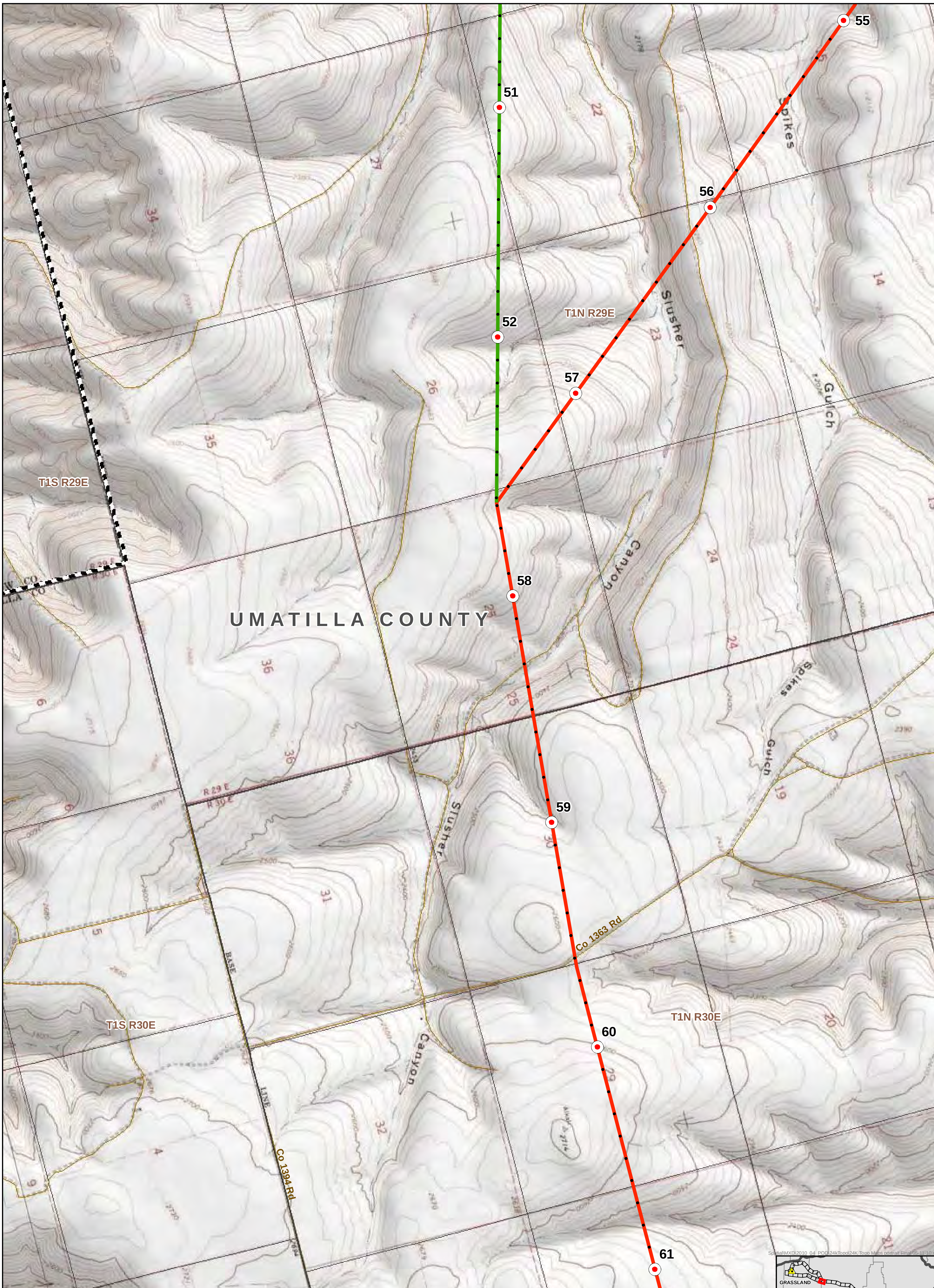
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 64 OF 68

0 — 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Bombing Range South Alternative

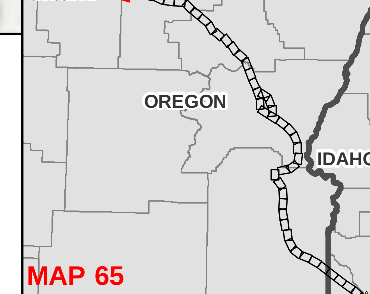
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

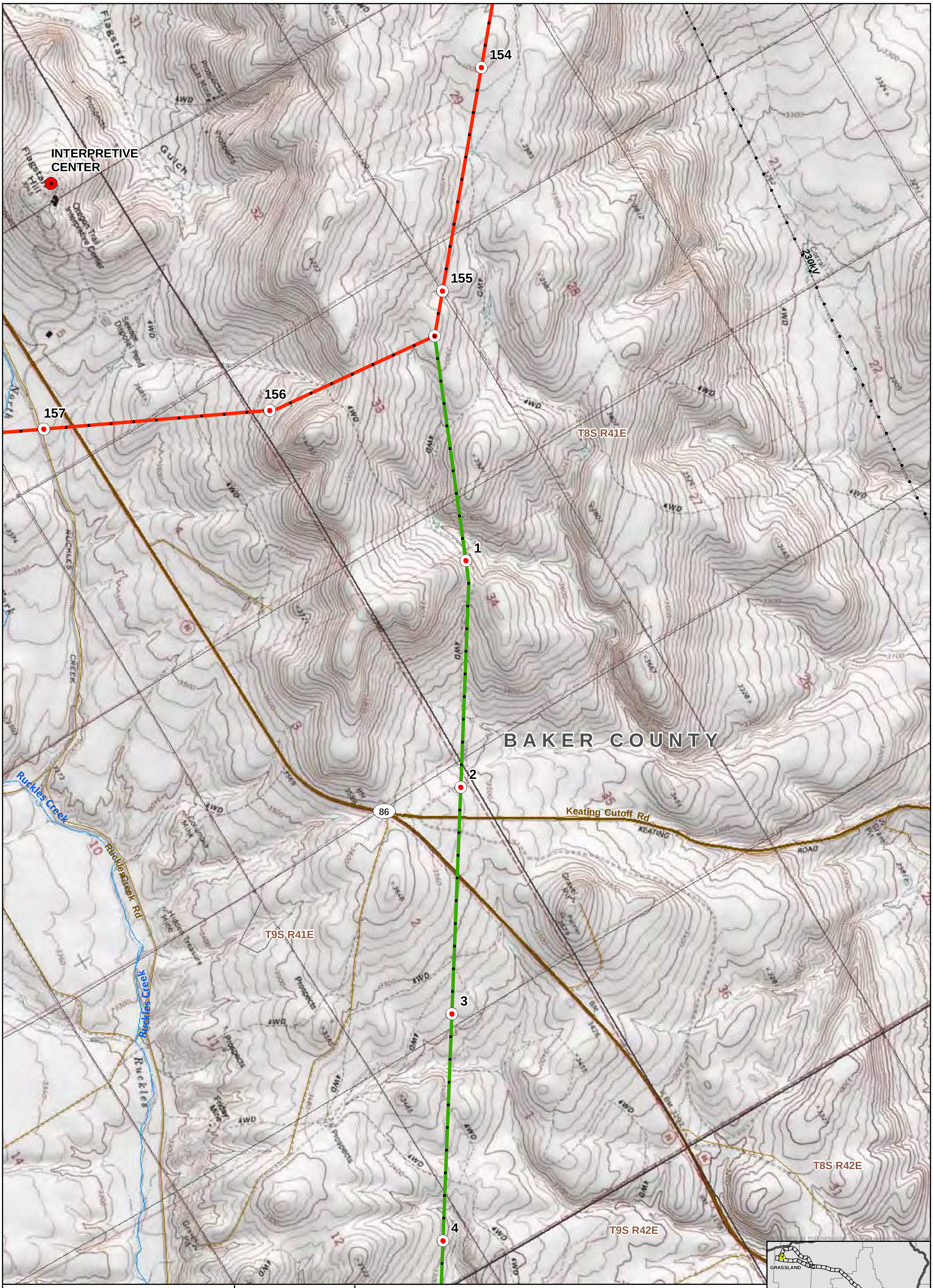
AUGUST 2010

APPENDIX E
MAP 65 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Virtue Flat Alternative

BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

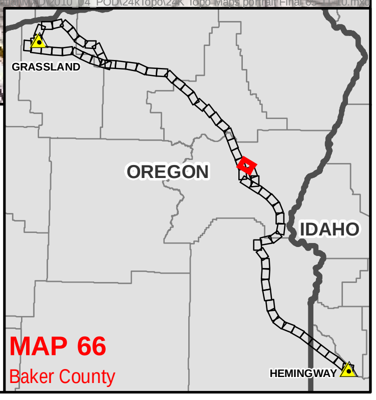
AUGUST 2010

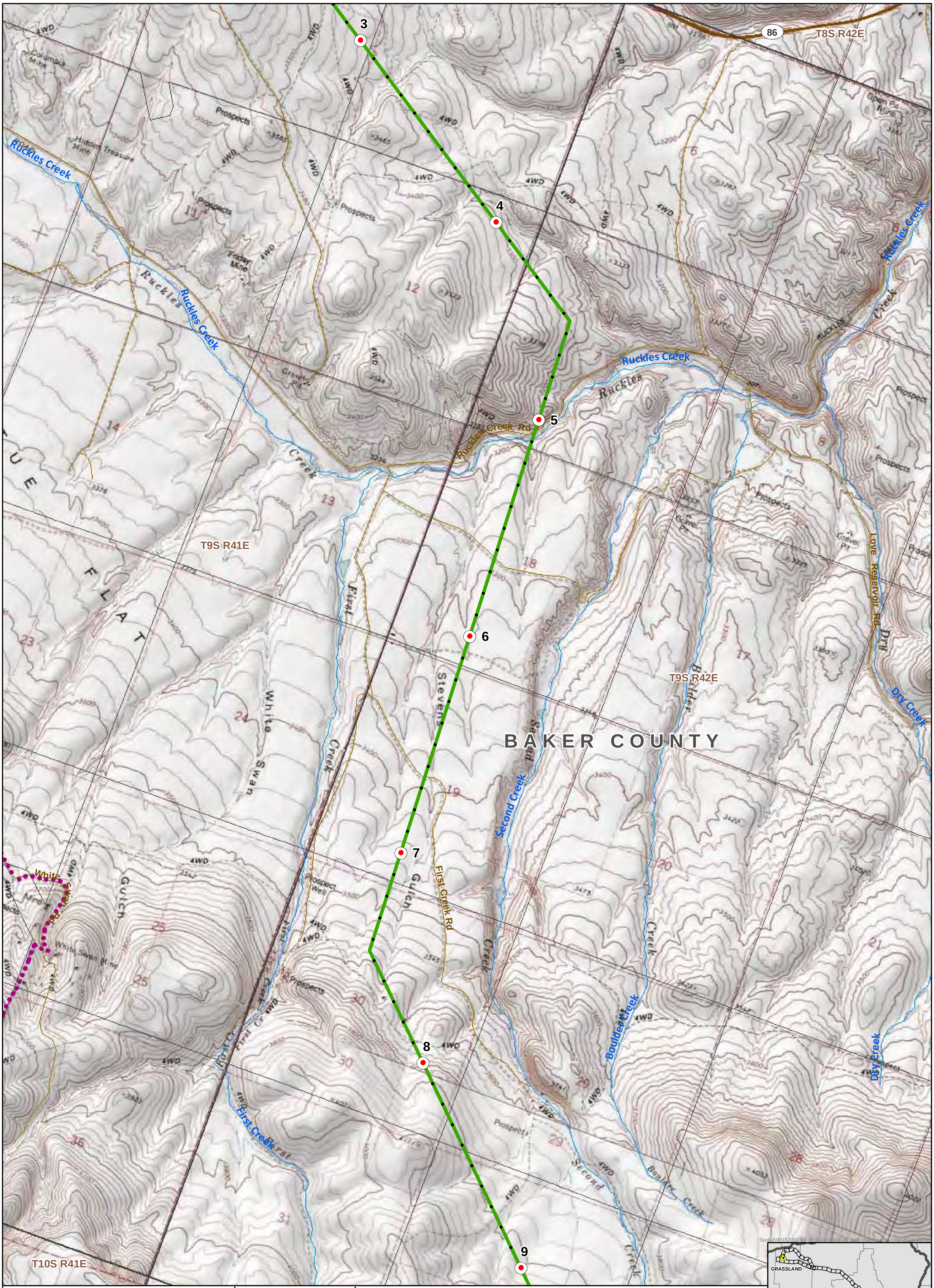
APPENDIX E
MAP 66 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route

State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road





DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Virtue Flat Alternative

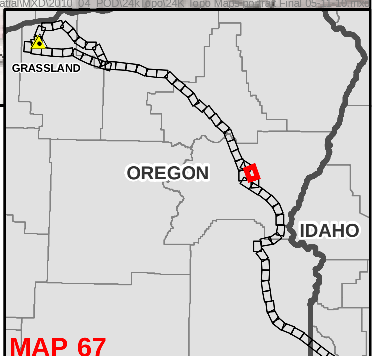
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

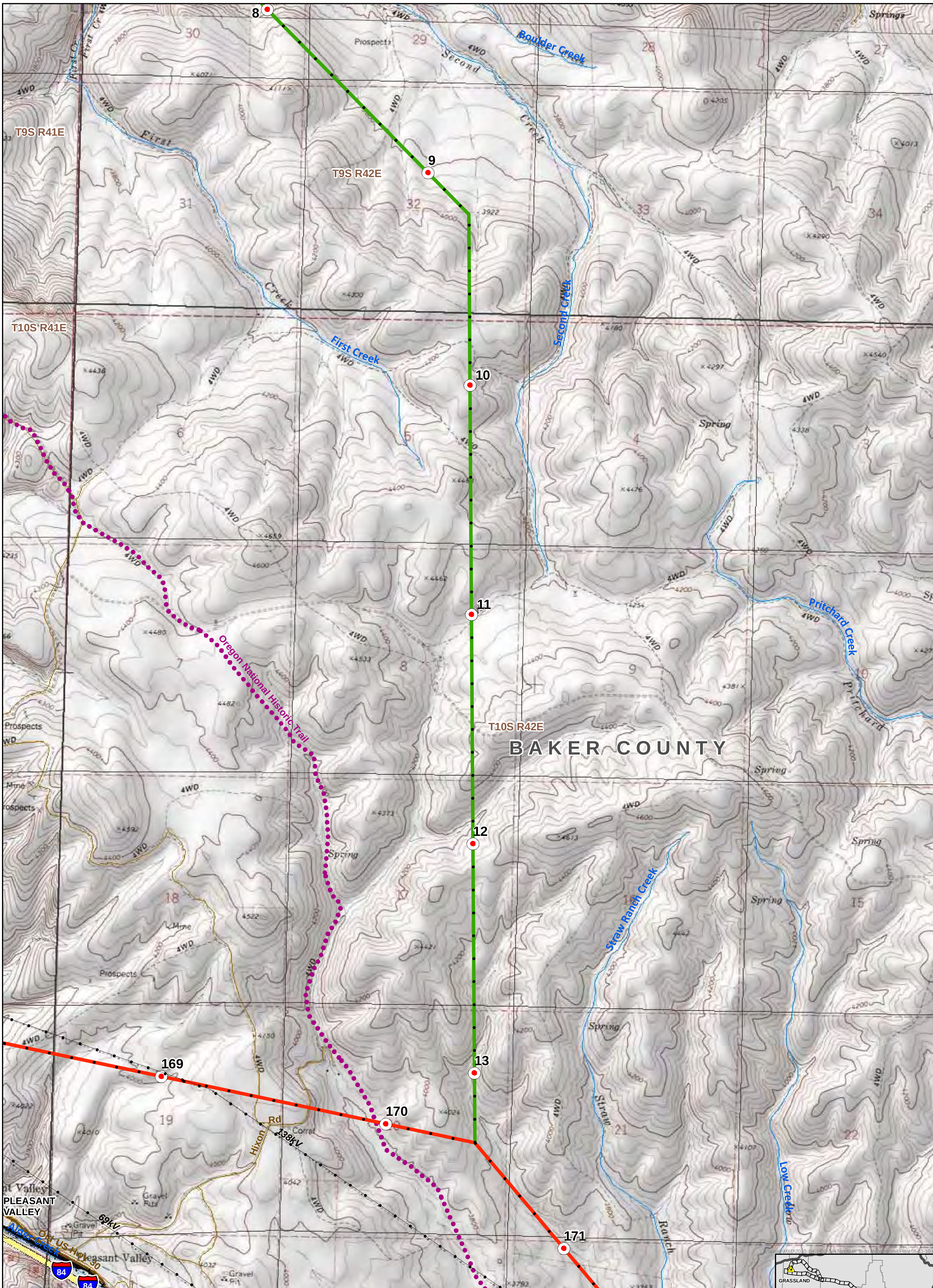
APPENDIX E
MAP 67 OF 68

0 2,000
Feet

- Substation
- Existing Transmission Line
- Mile Marker
- Tenth Mile Marker
- Proposed Route
- Alternative Route
- State Boundary
- County Boundary
- River/Stream
- Township/Range Boundary
- Section Line
- County Road



MAP 67
Baker County



DETAILED ROUTE MAP
1:24K TOPOGRAPHIC MAP
Virtue Flat Alternative

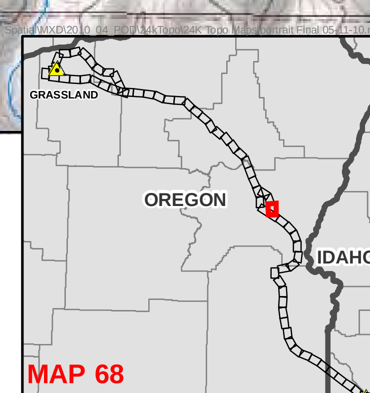
BOARDMAN TO HEMINGWAY 500kV
TRANSMISSION LINE PROJECT
OREGON-IDAHO

AUGUST 2010

APPENDIX E
MAP 68 OF 68

0 2,000
Feet

Substation
Existing Transmission Line
Mile Marker
Tenth Mile Marker
Proposed Route
Alternative Route
State Boundary
County Boundary
River/Stream
Township/Range Boundary
Section Line
County Road



MAP 68
Baker County