

Rail Tie Wind Project Albany County, Wyoming

Reclamation Plan

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**Prepared for:
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1 INTRODUCTION

The Rail Tie Wind Project (Project) is a proposed utility-scale wind energy facility under development by ConnectGen Albany County LLC (ConnectGen). The Project is located in southeastern Albany County, Wyoming, and encompasses approximately 26,000 acres of ranchland on private and state lands near Tie Siding, Wyoming (Figure 1). The Project would include 120 wind turbine generators (WTG), each 4.2 megawatts (MW) in size, with a combined maximum nameplate capacity of 504 MW. The Project proposes to interconnect to the existing transmission system of Western Area Power Administration via the Ault-Craig 345-kilovolt (kV) transmission line that runs through the Project Area.

For construction planning and site optimization, the Project consists of two separate stages, each approximately 252 MW. These stages are defined as the East stage and the West stage as differentiated by U.S. Highway 287 (U.S. 287). Construction of the Project is expected to begin in 2022, and will require two years to fully construct. It is anticipated that the first 252 MW West stage would be completed and fully operational by the end of 2022, and the second East stage operational in 2023.

This document outlines the reclamation activities planned by ConnectGen in accordance with the Project Decommissioning Plan and requirements adopted by the Wyoming Industrial Siting Council (ISC) under §§35-12-105 (d) and (e) and associated siting requirements outlined in Section 5, Chapter 12 of the Albany County Siting Regulations (Albany County 2020). This document also considers proposed ordinance revisions to the current Albany County Siting Regulations, anticipated for approval in March 2021.

1.1 Purpose and Objectives

As defined in Wyoming ISC rules and regulations, reclamation is defined as “the process of restoring all lands affected by the proposed industrial facility or its dependent components to a use for grazing, agriculture, recreational, wildlife purpose, or any other purpose of greater or equal value which satisfies the landowner or land management agency”.

The purpose and objective of a reclamation plan is to identify measures that will be taken upon completion of Project construction, operation and maintenance, and decommissioning activities in order to return disturbed land to a condition approximating or improving upon that which existed prior to disturbance. This process includes removal of structures, backfilling, grading, contouring, compaction, stabilization, revegetation, and drainage control. This section outlines the anticipated interim and final reclamation activities and measures proposed for the Project, including information on the existing environment. Objectives of interim and final reclamation measures will include identification of seed mixes that are compatible with existing land uses

and ecological site conditions, erosion control measures, and incorporation of landowner input on restoration protocols.

Reclamation of the Project will be conducted in accordance with ISC rules and regulations, Albany County Zoning Regulations, and the requirements outlined in the Wyoming Pollutant Discharge Elimination System (WYPDES) – Large Construction General Permit.

2 EXISTING SITE CONDITIONS

As outlined in Chapter 1 Section 9(c)(i) of the ISC Rules and Regulations, the following section provides a detailed description of site conditions within lands comprising the Project boundary (Project Area) prior to construction, including topography, vegetative cover (including plant species and plant community structure), climate, and land uses.

2.1 Land Use and Land Cover

The Project Area is located within the Laramie Basin and Crystalline Mid-Elevation Forests Level IV EPA Ecoregions (Chapman et al. 2004). The Laramie Basin Ecoregion, which encompasses the majority of the western portion of the Project Area, is an intermontane valley containing primarily mixed-grass prairie. The topography of this ecoregion is nearly flat with elevations ranging from 7,100 to 7,900 feet above sea level. Average annual precipitation ranges from ten to 16 inches and the mean high temperature ranges from 32°F in January to 80°F in July. Vegetation includes mixed-grass prairie species such as blue grama (*Bouteloua gracilis*), Indian ricegrass (*Oryzopsis hymenoides*), western wheatgrass (*Pascopyrum smithii*), rabbitbrush (*Ericameria* and *Chrysothamnus* spp.), and fringed sage (*Artemisia frigida*). The Crystalline Mid-Elevation Forests Ecoregion, which encompasses the central and eastern portions of the Project Area, consists of low mountain slopes and outwash fans between 7,500 and 9,000 feet above sea level. Average annual precipitation ranges from 18 to 26 inches and the mean high temperature ranges from 32°F in January to 80°F in July. Dominant vegetation includes lodgepole pine (*Pinus contorta*) and Douglas fir (*Pseudotsuga menziesii*) forests with areas containing limber pine (*Pinus flexilis*) and quaking aspen (*Populus tremuloides*).

Land use within the Laramie Basin Ecoregion generally consists of seasonal grazing of livestock. Land use within the Crystalline Mid-Elevation Forests Ecoregion is comprised of livestock grazing, logging, recreation, and mineral extraction (Chapman et al. 2004). Within the Project Area, land use is primarily ranchland, with scattered residential properties that are generally associated with ranching activities.

2.2 Surface Water Resources

Eight named streams are located within the Project Area. These named stream features include Government Creek, Forest Creek, Boulder Creek, Willow Creek, Fish Creek, Dale Creek, Pump

Creek, and Johnson Creek (USGS 2018). Intermittent and ephemeral tributaries associated with these features are also present throughout the Project Area. The majority of drainages within the northwestern portion of the Project Area drain into Willow Creek, a perennial stream that drains northwest into the Laramie River. The majority of drainages within the northeastern and southern portions of the Project Area drain into Dale Creek, a perennial stream that drains south into the North Fork Cache la Poudre River. Both the Laramie River and North Fork Cache La Poudre River are drainages within the Platte River Watershed.

A field-based wetland and other waterbody mapping assessment was conducted for the Project in September 2019 for all areas proposed for potential ground disturbance (i.e. the Siting Corridor; Tetra Tech 2020). A total of 53 stream features and 58 potential wetland features were mapped within the Siting Corridor. The majority of the mapped stream features were identified as ephemeral and are reflective of the numerous ephemeral tributaries associated with the major drainages present throughout the Siting Corridor. Intermittent and perennial stream features within the Siting Corridor were generally reflective of the named stream features present within the Siting Corridor. The majority of the mapped wetland features are associated with the major named streams and associated tributaries present throughout the Siting Corridor, and were focused predominantly within the southern and northeastern portions of the Siting Corridor. The features identified during the wetland and other waterbody mapping effort were incorporated into the habitat assessment results below.

2.3 Habitat

A field-based habitat assessment for the Project Area was conducted in September 2019 (Tetra Tech 2020). The most common habitat type identified within the Project Area was sagebrush shrublands (over 90 percent), specifically the Wyoming Basins Dwarf Sagebrush Shrubland and Steppe ecological system. This ecological system is common in the windswept high-elevation basins within central and southern Wyoming and is associated with shallow, rocky soils (NatureServe 2019). The distinguishing feature of this system is a short-shrub stratum in which dwarf-shrubs (<30 centimeters [cm] tall) contribute at least two-thirds of the woody canopy. The dominant sagebrush species within the Project Area representative of this system is Wyoming threetip sagebrush (*Artemisia tripartita* ssp. *rupicola*). As reflected within the Project Area, where graminoids are common and tall, the vegetation within this system often has the appearance of grassland without shrubs when viewed from a distance. Where graminoids contribute less cover, the vegetation is a compact shrubland. The herbaceous component of the vegetation includes both rhizomatous and bunch-form graminoids, cushion plants, and other low-growing forbs (Nature Serve 2019). Due to its low-stature shrubs and grass composition, this system is used by many grassland wildlife species (WGFD 2017). Within the western portion of the Project Area, this habitat has been heavily grazed by cattle.

Table 1 provides a description of all habitat types and associated ecological systems identified within the Project Area, as illustrated in Figure 1. Overall, habitat within the Project Area is representative of the land cover types mapped by the NLCD (Yang et al 2018), with the NLCD grassland cover accounted for within the Wyoming Basins Dwarf Sagebrush Shrubland and Steppe ecological system. A number of bedrock outcrops dominated by cushion plant communities were also mapped within this ecological system, primarily within the northwestern portion of the Project Area. Wetland and riparian habitat was mapped primarily along the major stream features associated with the Project Area. A small area of aspen/deciduous forest was mapped along the westernmost portion of the Project Area, while cliffs and rock outcrops were mapped within the northeastern portion of the Project Area. Foothill shrublands were mapped within the southern and western portions of the Project Area, while xeric and lower montane forest was mapped primarily within the southernmost portion of the Project Area, with a few small segments located within the eastern portion.

Table 1: Habitat Types and Ecological Systems Present within the Project Area

WGFD SWAP Habitat Type ¹	NatureServe Ecological System ¹	Description ²	Acres within Project Area	Percentage of Project Area
Aspen/Deciduous Forest	Rocky Mountain Aspen Forest and Woodland	Upland forests and woodlands dominated by quaking aspen (<i>Populus tremuloides</i>) without a significant conifer component.	17.15	0.07%
Cliffs, Canyons, Caves, and Rock Outcrops	Inter-mountain Basins Cliff and Canyon	Granite rock outcrops with sparse vegetation (generally <10% plant cover).	292.33	1.12%
Foothill Shrublands	Inter-mountain Basins Montane Sagebrush Steppe	Mesic shrub-steppe stands comprised of Wyoming big sagebrush (<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>) and other sagebrush species intermixed with grasses such as bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>) and western wheatgrass (<i>Pascopyrum smithii</i>).	875.79	3.36%
	Inter-mountain Basins Mountain-Mahogany Woodland and Shrubland	Dense thickets of 1.5-2 m tall shrubland or woodlands dominated by curl-leaf mountain mahogany (<i>Cercocarpus ledifolius</i>) located generally along ridges and steep rimrock slopes.	79.84	0.31%
Riparian Areas	Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland	Mosaic of multiple communities along streams that are tree-dominated with a diverse shrub component. Dominant species include Bebb willow (<i>Salix bebbiana</i>), mountain willow (<i>S. monticola</i>), and strapleaf willow (<i>S. eriocephala</i>).	93.51	0.36%

WGFD SWAP Habitat Type ¹	NatureServe Ecological System ¹	Description ²	Acres within Project Area	Percentage of Project Area
Sagebrush Shrublands	Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	Matrix of dwarf sagebrush and shrub-steppe in which dwarf-shrubs (<30 cm tall) contribute at least two-thirds of the woody canopy. Vegetation cover is dominated by Wyoming threetip sagebrush, growing no taller than a few inches, intermixed with grassland species such as blue grama (<i>Bouteloua gracilis</i>), Sandberg's bluegrass (<i>Poa secunda</i>), and bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>).	23,540.98	90.34%
	Wyoming Basins Dwarf Sagebrush Shrubland and Steppe- Bedrock Outcrops	Predominantly barren, wind-scoured bedrock outcrop inclusions of shale characterized by soft soil, low vegetation cover, and a dominance of cushion plants such as Hood's phlox (<i>Phlox hoodii</i>) and Hooker's desert sandwort (<i>Eremogone hookeri</i>). Fringed sagebrush (<i>Artemisia frigida</i>) also common around the perimeters of these areas. May support rare plant species.	169.94	0.65%
Wetlands	Pasture/Hay	Meadows comprised of moist soils supporting grass and forb species used for hayfields and grazing. Dominant species include Timothy (<i>Phleum pratense</i>) and smooth brome (<i>Bromus inermis</i>).	76.68	0.29%
	Open Water	Open water areas with little to no vegetative cover.	7.18	0.03%
	Rocky Mountain Subalpine-Montane Fen (Suspected)	Wetlands characterized by a high groundwater level and peat accumulation. Further soil and groundwater analyses would be required for confirmation. Dominant species include sedges (<i>Carex</i> spp.) and spikerushes (<i>Eleocharis</i> spp.).	12.51	0.05%
	Western Great Plains Open Freshwater Depression Wetland	Depressional wetlands and stream margins characterized by herbaceous emergent species such as sedges (e.g., <i>Carex aquatilis</i> and <i>C. nebrascensis</i>), rushes (e.g., <i>Juncus balticus</i>), and spikerushes (e.g., <i>Eleocharis palustris</i>).	352.63	1.35%

WGFD SWAP Habitat Type ¹	NatureServe Ecological System ¹	Description ²	Acres within Project Area	Percentage of Project Area
Xeric and Lower Montane Forest	Rocky Mountain Foothill Limber Pine-Juniper Woodland	Rocky, patchy forests dominated by limber pine (<i>Pinus flexis</i>) and Ponderosa pine (<i>Pinus ponderosa</i>) interspersed with sagebrush species and montane grasses.	540.05	2.07%
TOTAL			26,058.6	100%

- 1 WGFD 2017
- 2 NatureServe 2019

2.4 Noxious Weeds

No formal noxious weed survey has been undertaken for the Project Area. However, during the September 2019 field-based habitat assessment, incidental observations of listed weed species, including noxious weeds, were noted (Tetra Tech 2020). Cheatgrass (*Bromus tectorum*) was observed throughout the overall Project Area in relatively low concentrations. Other Wyoming state-listed noxious weed species noted during the habitat assessment include Canada thistle (*Cirsium arvense*), houndstongue (*Cynoglossum officinale*), and common mullein (*Verbascum thapsus*). Previous field efforts conducted within the Project Area for the Hermosa West Wind Energy Project have also noted the presence of leafy spurge (*Euphorbia esula*), field bindweed (*Convolvulus arvensis*), and quackgrass (*Elymus repens*; WAPA 2012). A preconstruction noxious weed survey of the Project footprint will be performed prior to construction.

3 INTERIM RECLAMATION

As outlined in Chapter 1 Section 9(b) of the ISC Rules and Regulations, interim reclamation shall comply with the applicable permitting requirements of the Wyoming Department of Environmental Quality (WDEQ), Water Quality Division stormwater program. Interim reclamation will also comply with all provisions outlined in landowner agreements.

The primary goal of interim reclamation is minimization of erosion and stabilization of soil during the course of construction and decommissioning activities. Under the WYPDES – Large Construction General Permit, preparation of a Stormwater Pollution Prevention Plan (SWPPP) is required which details erosion control measures to be utilized during all phases of construction, including final stabilization. The interim reclamation measures outlined in the SWPPP will be prepared by the Construction Contractor prior to construction. Approximate potential areas of temporary and permanent disturbance for the Project are illustrated in Figure 2.

4 FINAL RECLAMATION

As outlined in Chapter 1 Section 9(c) of the ISC Rules and Regulations, the applicant shall provide a Final Reclamation Plan, which shall include a detailed description of site conditions (including topography, vegetative cover, climate, and land uses), regrading of disturbed areas to their natural site contours (including backfilling, grading and contouring), and revegetation of disturbed areas (including seedbed preparation, seed mixture, and post seeding maintenance) in order to restore the land to a condition and native or adaptive perennial vegetative cover equal to or better than the original condition in a manner consistent with the proposed future use of the land. The Final Reclamation Plan will also be compliance with final stabilization requirements described in the SWPPP. Approximate potential areas of temporary and permanent disturbance for the Project are illustrated in Figure 2.

A Final Reclamation Plan will be submitted to the ISD for review prior to construction. Pursuant to both county and state requirements, the Final Reclamation Plan will be updated and submitted to the ISD Administrator every five years until site reclamation and decommissioning is complete.

4.1 Reclamation Methods

After turbine decommissioning and removal, disturbed areas will be reclaimed and returned to pre-Project land uses (grazing) and will follow landowner use agreements. Disturbed areas will re-establish the contour of the land consistent with the land's future use and contours will blend in with the topography of the surrounding terrain unless it would create an erosion problem or hazard.

All unexcavated areas compacted by equipment and activity during decommissioning will be de-compacted as needed to ensure proper density of topsoil consistent and compatible with the surrounding area and associated land use. All materials and debris associated with the wind project decommissioning will be removed from the site and properly recycled or disposed of at off-site facilities.

As necessary, the topsoil will be stripped and isolated prior to removal of structures and facilities for reapplication to promote future land use activities. The topsoil will be reapplied following backfill (as necessary) and graded to match adjacent existing contours to preserve existing drainage patterns, while minimizing the area of disturbance. The topsoil reapplied will not contain debris from the decommissioning activities.

4.2 Revegetation

Following decommissioning, temporary work areas will be reclaimed and revegetated with landowner-approved and ecologically appropriate seed mixes. Soil will be de-compacted and revegetated using seed mixes approved by the landowner and compatible with local Natural

Resource Conservation Service and Laramie Rivers Conservation District recommendations and specifications. The final composition of the seed mix and the amount applied per acre will be described in the Final Reclamation Plan. Temporary erosion protection such as mulch, hydromulch, or erosion control blanket will be applied in accordance with the requirements of the (SWPPP).

As outlined in Chapter 1 Section 9(c)(iii)(F) of the ISC Rules and Regulations, seeding of affected land shall be conducted during the first normal period for favorable planting conditions after final preparation unless an alternative plan is approved. The species of vegetation to be used in revegetation efforts shall be described in the Final Reclamation Plan indicating the composition of seed mixtures and the amount of seed to be distributed on the area on a per acre basis.

4.3 Noxious Weed Control

As outlined in Chapter 1 Section 9(c)(iii)(G) of the ISC Rules and Regulations, the operator must control and minimize the introduction of noxious weeds into the revegetated areas until final reclamation is achieved. Pursuant to Section 12, H.1 (b) of the Albany County Siting Regulations, approximate potential areas of temporary and permanent Project disturbance that would be managed for noxious weeds are illustrated in Figure 2.

ConnectGen will control noxious and invasive weeds in the Project Area during all phases of reclamation in accordance with the approved Weed Management Plan (Tetra Tech 2021) and in cooperation with landowners. Prior to and following construction, ConnectGen will conduct a survey of the Project footprint to identify existing locations of noxious weeds in order to identify the appropriate controls and avoidance and minimization measures to control potential infestations. Proposed measures include:

- Use of locally approved, weed-free, native seed mixes;
- Monitoring for noxious and invasive weed species;
- Coordination with landowners and agencies to conduct weed management;
- Control of weeds as needed with appropriate control methods;
- Washing of construction equipment;
- Training for employees on noxious and invasive plant species awareness and measures to prevent the spread of weeds; and
- Marking of weed occurrence areas during construction and decommissioning

See the Weed Management Plan (Tetra Tech 2021) for more detailed information on weed identification, management, and applicable regulations.

4.4 Reclamation Monitoring

In accordance with the ISC Rules and Regulations and the requirements of the SWPPP, a reclamation monitoring and reporting plan will be developed and implemented to conduct compliance and effectiveness monitoring in accordance with WDEQ standards and the Final Reclamation Plan established for the Project.

Reclaimed areas will be periodically monitored to ensure reclamation practices are successful. The completion of reclamation will be based on various factors, such as compliance with meeting SWPPP revegetation thresholds, meeting requirements established by landowner agreements, and satisfying and reclamation standards established by regulatory or land use permits.

5 LITERATURE CITED

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Figures

Figure 1 : Field-Based Habitat Assessment Results

Figure 2 : Temporary and Permanent Disturbance Areas

WGFD SWAP Habitat Type	NatureServe Ecological Systems
Aspen/Deciduous Forest	Rocky Mountain Aspen Forest and Woodland
Cliffs, Canyons, Caves, and Rock Outcrops	Inter-mountain Basins Cliff and Canyon
Foothill Shrublands	Inter-mountain Basins Montane Sagebrush Steppe
Riparian Areas	Inter-mountain Basins Mountain-Mahogany Woodland and Shrubland
Sagebrush Shrublands	Rocky Mountain Lower Montane- Foothill Riparian Woodland and Shrubland
	Wyoming Basins Dwarf Sagebrush Shrubland and Steppe
	Wyoming Basins Dwarf Sagebrush Shrubland and Steppe- Bedrock Outcrops
	Pasture/hay
Wetlands	Open water
	Rocky Mountain Subalpine-Montane Fen (Suspected)
	Western Great Plains Open Freshwater Depression Wetland
Xeric and Lower Montane Forest	Rocky Mountain Foothill Limber Pine-Juniper Woodland

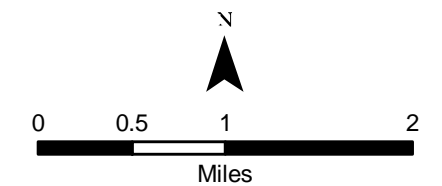
Rail Tie Wind Project

Figure 1
Field-Based Habitat Assessment
Results

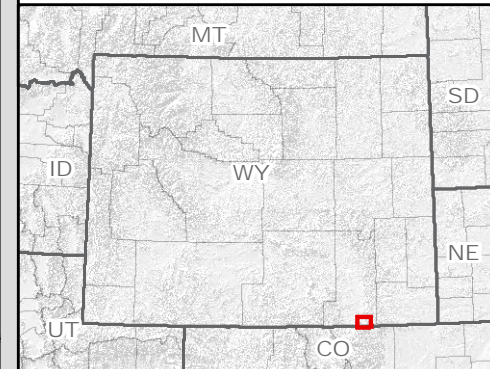
Albany County, WY

- Project Area
- State/County Boundary
- Highways
- County Roads

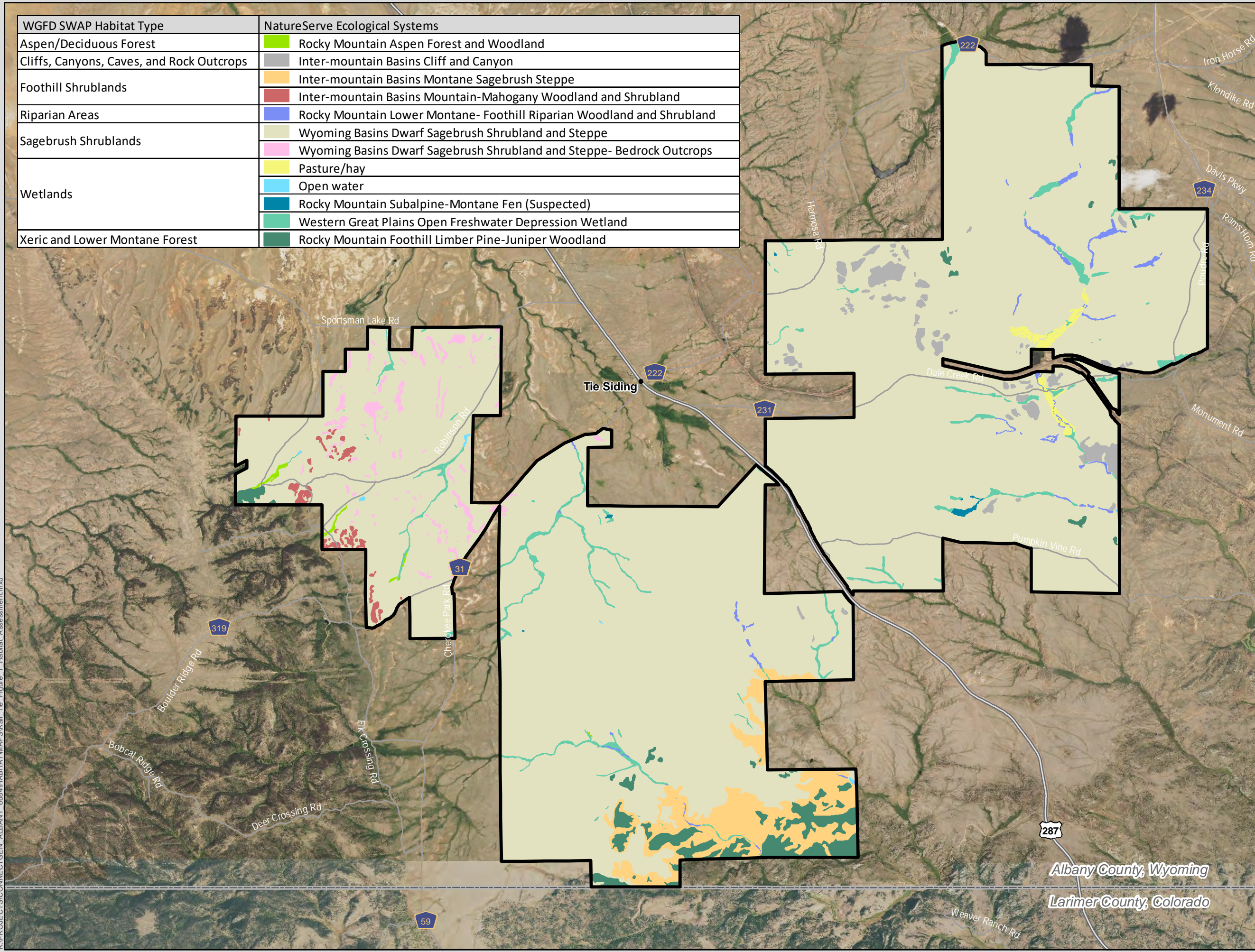
Habitat classification based on the NatureServe Ecological Systems (2019) within the Wyoming Game and Fish Department State Wildlife Action Plan Habitat Types (2017).



NOT FOR CONSTRUCTION










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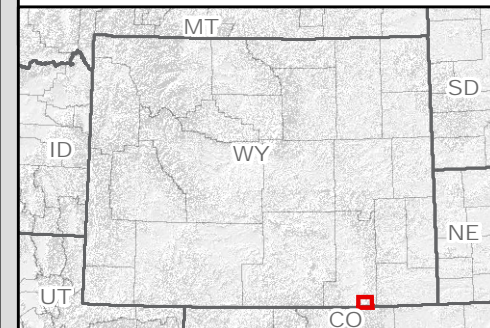
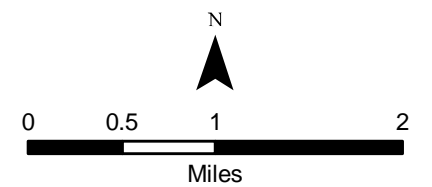


Rail Tie Wind Project

Figure 2
Temporary and Permanent
Disturbance Areas

Albany County, WY

-  Project Area
-  Temporary Disturbance
-  Permanent Disturbance
-  Parcel Boundary
-  State/County Boundary
-  Highways
-  County Roads



Albany County, Wyoming
Larimer County, Colorado

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