



## ecology and environment, inc.

Global Environmental Specialists

4949 Pearl E Circle, Suite 300  
Boulder, Colorado 80301  
Tel: (303) 443-3282, Fax: (303) 443-0367

April 18, 2018

Nathan Groh  
Black Hills Corporation  
1301 West 24th Street  
Cheyenne, WY 82001

Submitted via e-mail to: [nathan.groh@blackhillscorp.com](mailto:nathan.groh@blackhillscorp.com)

**Re: Report of Vegetation and Wetland Investigation at the Corriedale Wind Farm Project in Laramie County, Wyoming**

Dear Mr. Groh:

This report summarizes the onsite survey of vegetation communities and wetlands within the updated boundary (May 2017) of the proposed wind energy generation facility in Laramie County, Wyoming, known as the Corriedale Wind Farm Project (Project). The purpose of this survey is to provide information to determine if there are areas that would need to be avoided when planning locations for wind turbines and associated facilities for the Project.

The Project site is approximately 6 miles west of the city of Cheyenne, south of Happy Jack Road (Highway 210), and spanning Interstate 80 (Figure 1). The Project area comprises 4,778 acres, and is located within the following Townships, Ranges, and Sections:

- T13N R68W, Sections 2–4, and 9–14
- T14N R68W, Section 35

### Methods

Prior to the site visit, Ecology and Environment, Inc. (E & E) conducted a desktop-level review of available information, including aerial imagery of drainages, the National Wetland Inventory (USFWS 2018), the Natural Resource Conservation Service Soil Survey (USDA NRCS 2001), Landfire vegetation (USGS EROS 2013), and the National Hydrography Data (USGS 2012). The desktop review was conducted to become familiar with vegetation communities, drainages, and potential wetlands within the 2017 Project boundary, and also to gain an initial estimate of which tributaries could be jurisdictional wetlands and Waters of the U.S. For this purpose, the National Hydrography Data was used to evaluate the connectivity of drainages within the Project area to a known navigable river, the South Platte River, and thus considered to be under the jurisdiction of the U.S. Army Corps of Engineers.

### Results

Guided by the results of the desktop review, an E & E ecologist visited the Project area on March 23, 2018. The ecologist observed each drainage segment for signs of hydrology that would support wetland vegetation, looked for vegetation species that are indicative of wetlands, and noted any habitat for special status plant species. Likewise, one ESA-listed threatened wildlife species, Preble's meadow jumping mouse (*Zapus hudsonius preblei*) was considered for additional onsite assessment.

Mr. Nathan Groh

April 18, 2018

Page 2

Of the 27 drainage segments surveyed on July 14, 2016, within the former Project boundary, nine drainage segments remain within the 2017 boundary. The March 23, 2018, site visit did not re-visit these nine drainage segments and only observed areas that had not been previously surveyed. Results described below include findings from both site visits (i.e., 2016 and 2018) that pertain to areas contained within the 2017 boundary.

The National Hydrography Data shows that all of the drainages in the Project area are tributaries to the South Platte River. This suggests that non-isolated wetlands occurring in any of the drainages are jurisdictional. However, all of the drainages are classified as intermittent, and water does not flow in them year-round (Figure 1). The on-site investigation confirmed that water does not flow permanently in any of the drainages within the 2017 boundary. Soils are course and well-drained, and it is evident that water, when present, remains for brief periods before evaporating or percolating into the soil (Photo 1).

Hydrophytic vegetation (i.e., vegetation that occurs in wetlands) was not observed in any of the drainage segments. In drainages that are shaped as broad swales, the dominant vegetation present throughout the swale is upland prairie grassland (Photo 2). This includes mainly blue grama (*Chondrosium gracile*), western wheatgrass (*Pascopyrum smithii*), and fringed sage (*Artemisia frigida*). In drainages that have steeper side slopes, the channel bottom is not vegetated (Photo 3). In approximately 10 areas where water has been ponded—either naturally or in a stock pond—the observed substrate is bare ground, with no fringe of wetland vegetation (Photo 4). Shrubs and trees associated with streamside riparian habitat are mostly absent, and uplands are dominated by shortgrass habitat.

E & E checked all drainage segments for the presence of habitat for two federally listed plant species, the Colorado butterfly plant (*Gaura neomexicana* var. *coloradensis*) and Ute Ladies'-tresses (*Spiranthes diluvialis*). The Colorado butterfly plant occurs in sub-irrigated alluvial soils between drainage bottoms dominated by sedges, rushes, and cattails, and adjacent upland prairie. Ute Ladies'-tresses occurs in sub-irrigated alluvial soils along streams and floodplains (CNHP 2013). Conditions necessary to support these plants and plant species that are typically associated with them were not observed within the 2017 Project boundary.

## Conclusion

No areas that could be defined as wetlands were observed within the 2017 Project boundary. Habitat for federally listed plant species does not occur within the 2017 Project boundary. Likewise, no appropriate habitat (diverse streamside riparian) was determined to be present on the site for Preble's meadow jumping mouse.

If you have any questions or require additional information regarding this report, please contact me by telephone at 720/544-1783 or by e-mail at [snordstrom@ene.com](mailto:snordstrom@ene.com).

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.



Susan Nordstrom

Landscape Architect/Ecologist

Mr. Nathan Groh

April 18, 2018

Page 3

Attachments

Figure 1: Hydrography and Photo Points

Photos

Mr. Nathan Groh

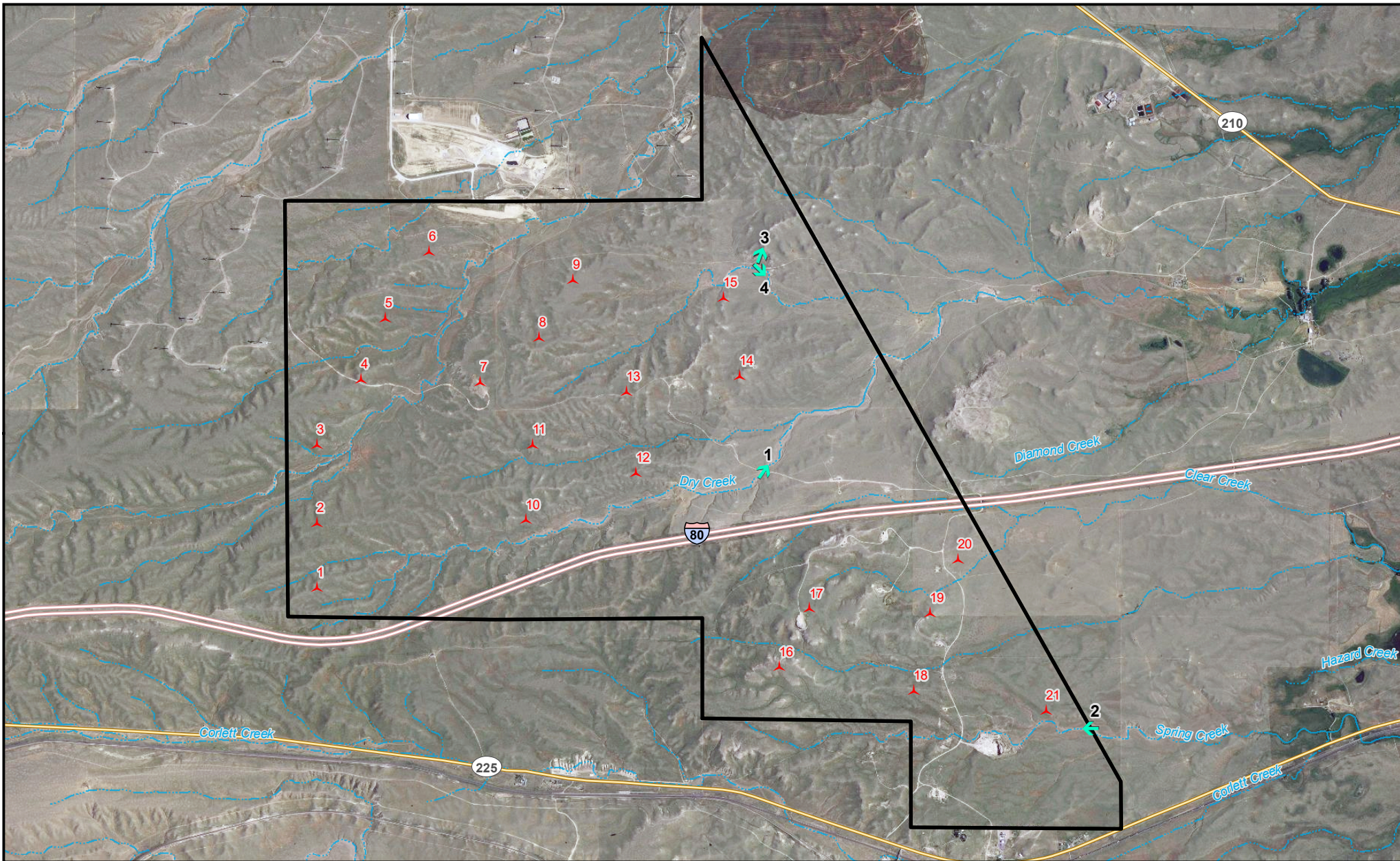
April 18, 2018




Page 4





## References

- Colorado Natural Heritage Program (CNHP). 2013. Colorado Rare Plant Guide. Fort Collins, CO. Colorado State University. Accessed at: <https://cnhp.colostate.edu/rareplants/>.
- U.S. Geological Survey (USGS). 2012. National Hydrography Data Flowline. Reston, VA. July 11, 2016. Accessed at: [\\igskbthifsfasd1\nvm\\_extracts\GDBExtractServer\Template\NHD\\_File\\_Template\\_High\\_931vjxx.gdb](\\igskbthifsfasd1\nvm_extracts\GDBExtractServer\Template\NHD_File_Template_High_931vjxx.gdb).
- U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). 2001. Soil Survey of Laramie County, Wyoming, Western Part.
- U.S. Fish and Wildlife Service (USFWS). 2018. National Wetlands Inventory - Version 2 - Surface Waters and Wetlands Inventory. Accessed at: <http://www.fws.gov/wetlands/data/Data-Download.html>.
- U.S. Geological Survey, Wildland Fire Science, Earth Resources Observation and Science Center (USGS-EROS). 2013. LANDFIRE Existing Vegetation Type. LANDFIRE 2012 If\_1.3.0).





-  Photo Locations
-  WTG ( GE-2.5/116 Sec 9)
-  Project Boundary

-  Perennial Stream
-  Intermittent Stream
-  Interstate Highway
-  Major Road



Data Sources:

USGS 2017; NAIP 2017

**Figure 1**  
**Hydrography and**  
**Photo Locations**

**Corriedale Wind Farm**  
**Laramie County, Wyoming**

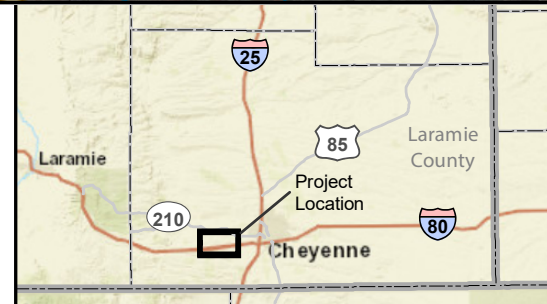
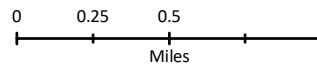






Photo 1. Dry swale with upland grasses is typical of intermittent drainages on the site. 3-23-18



Photo 2. Intermittent drainage dominated by upland vegetation. 7-14-16.





Photo 3. Steeper-sided drainage with no vegetation on channel bottom. 3-23-18.



Photo 4. Typical area of temporarily ponded water, lacking wetland vegetation fringe. 3-23-18.