Appendix I
Northern Long Eared Bat Habitat Assessment

Rose Creek Wind, LLC
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TECHNICAL MEMORANDUM

Date: April 29, 2021

To: Rose Creek Wind, LLC
ConEdison Development

From: Maggie Voth and Brenna Hyzy
Western EcoSystems Technology

Subject: Rose Creek Wind Project
Northern Long-eared Bat Habitat Assessment

INTRODUCTION

Rose Creek Wind, LLC, a subsidiary of ConEdison Development (CED), is in the process of repowering the Rose Creek Wind Project (Project) in Mower County, Minnesota. To better understand potential use of the Project area by northern long-eared bats (NLEB; *Myotis septentrionalis*), CED requested Western EcoSystems Technology (WEST) complete a NLEB habitat assessment. The purpose of the assessment was to identify and quantify potentially suitable summer NLEB habitat within and near the Project area. This assessment follows the NLEB guidance provided in the *2020 Range-Wide Indiana Bat Summer Survey Guidelines* (U.S. Fish and Wildlife Service [USFWS] 2020).

NORTHERN LONG-EARED BAT HABITAT CHARACTERIZATION

NLEB is a federally threatened species that can be found throughout most of the eastern continental U.S. and has the potential to occur within the Project area. NLEBs typically overwinter in hibernacula such as caves and abandoned mines, and occupy forested summer habitats between mid-May and mid-August, depending on latitude (USFWS 2014).

NLEBs prefer mature-growth upland hardwood forests, where available (Broders and Forbes 2004, USFWS 2015), but will utilize a wide range of upland and wetland forest types for roosting, foraging, and travel during the summer. Suitable summer roosting and foraging habitats may include dense forest patches, loose aggregates of trees, or linear features (e.g., tree lines or riparian corridors) with variable amounts of canopy closure (USFWS 2014). NLEB typically forage under the forest canopy, but suitable foraging areas also include small forest clearings and other non-forested areas directly adjacent to suitable habitats (USFWS 2014, USFWS 2015, Henderson and Broders 2008).

NLEB roost individually (male or female) or in colonies (female) under exfoliating bark or in the cracks, crevices, and cavities of snags and dead, dying, or (less frequently) live trees with a diameter at breast height (dbh) of at least three inches (USFWS 2015, 2020). NLEBs switch roosts frequently, every two to three days on average, with female NLEB traveling up to approximately 1.2 miles and males up to approximately 0.6 mile between roost sites (Broders et al. 2006, USFWS 2014, USFWS 2015). Individual, isolated trees may be considered potential roosts if they fall within 1,000 feet of other potentially suitable forested habitat and meet the definition of a potential roost tree (Henderson and Broders 2008).

No known maternity roost trees have been documented in Mower County, Minnesota (Minnesota Department of Natural Resources and USFWS 2020); however, it is possible that there are undocumented maternity colonies in the county. If present, NLEB use within the Project area is expected to be limited to forested areas that provide naturally occurring potentially suitable summer roosting and foraging habitat. Suitable NLEB habitat patch size varies by region based on overall forest availability and structure; based on the relative abundance and fragmentation of deciduous forests in southern Minnesota, this assessment considered all forest types and woody wetlands patches greater or equal to 10 acres to be potentially suitable summer NLEB habitat (USFWS 2017). Additionally, a 1,000-foot buffer was applied to patches 10 acres or larger, and all forested areas (regardless of patch size) within or intersecting this buffer were considered potentially suitable roosting, foraging, and/or travel habitat for NLEB.

HABITAT ASSESSMENT METHODOLOGY

For this assessment, suitable habitat was evaluated within an assessment area that included the Project area and a 2.5-mile buffer around the Project area. This buffer ensured that all suitable habitat that could affect NLEB use within and around the Project area would be identified. The assessment area review covered 53,944 acres, including 12,745 acres within the Project area and 41,199 acres outside of the Project area, but within the 2.5-mile buffer.

Forested areas within the assessment area were visually assessed and digitized by a Geographic Information System (commonly, GIS) Specialist. Due to the number of small, distributed forest patches within the assessment area and relatively small total forested acreage, manual digitizing was deem to be the best means to achieve high classification precision and accuracy. An experienced bat biologist reviewed the resulting digitized forested patches for biological relevance. Using professional opinion, the bat biologist evaluated the suitability of each patch digitized to ensure all final patches deemed suitable were valid and to ensure no patches were excluded that could be ecologically important.

The resulting forest patches were grouped into three categories by size and suitability. Contiguous forests and/or riparian corridors 10 acres or larger provide habitat for NLEB roosting, foraging, and commuting, and were considered suitable summer habitat. Since NLEB also utilize open areas adjacent to suitable forest habitat, a 1,000-foot buffer was applied to forest patches 10 acres or larger. All forested areas within or intersecting this buffer, regardless of patch size or canopy closure, were considered potentially suitable habitat for NLEB and included in the suitable

NLEB habitat acreage. Individual trees and small isolated forest stands (less than 10 acres in size) located outside the 1,000-foot buffer were considered unsuitable habitat for NLEB, per supporting research (Foster and Kurta 1999, USFWS 2015, Henderson and Broders 2008). Trees in highly developed urban areas and sapling patches or wooded areas containing only trees under three inches in dbh were also considered unsuitable habitat.

RESULTS

The assessment area contains 2,124.9 acres of potentially suitable habitat (Figure 1), including 30.4 acres of potentially suitable habitat within the Project area. Suitable habitat patches within the Project area are primarily located east of the Little Cedar River on the western edge of the Project area and along a tributary to the Wapsipinicon River in the southeast. Approximately 2,094 acres of potentially suitable habitat are located outside of the Project area, but within the 2.5-mile buffer; the majority of this habitat follows the Little Cedar River riparian system along the western half of the assessment area. Two additional larger patches of potentially suitable habitat occur outside the Project area but within the assessment area, one along North Branch Upper Iowa River in the northeast, and the second along the Wapsipinicon River in the southeast.

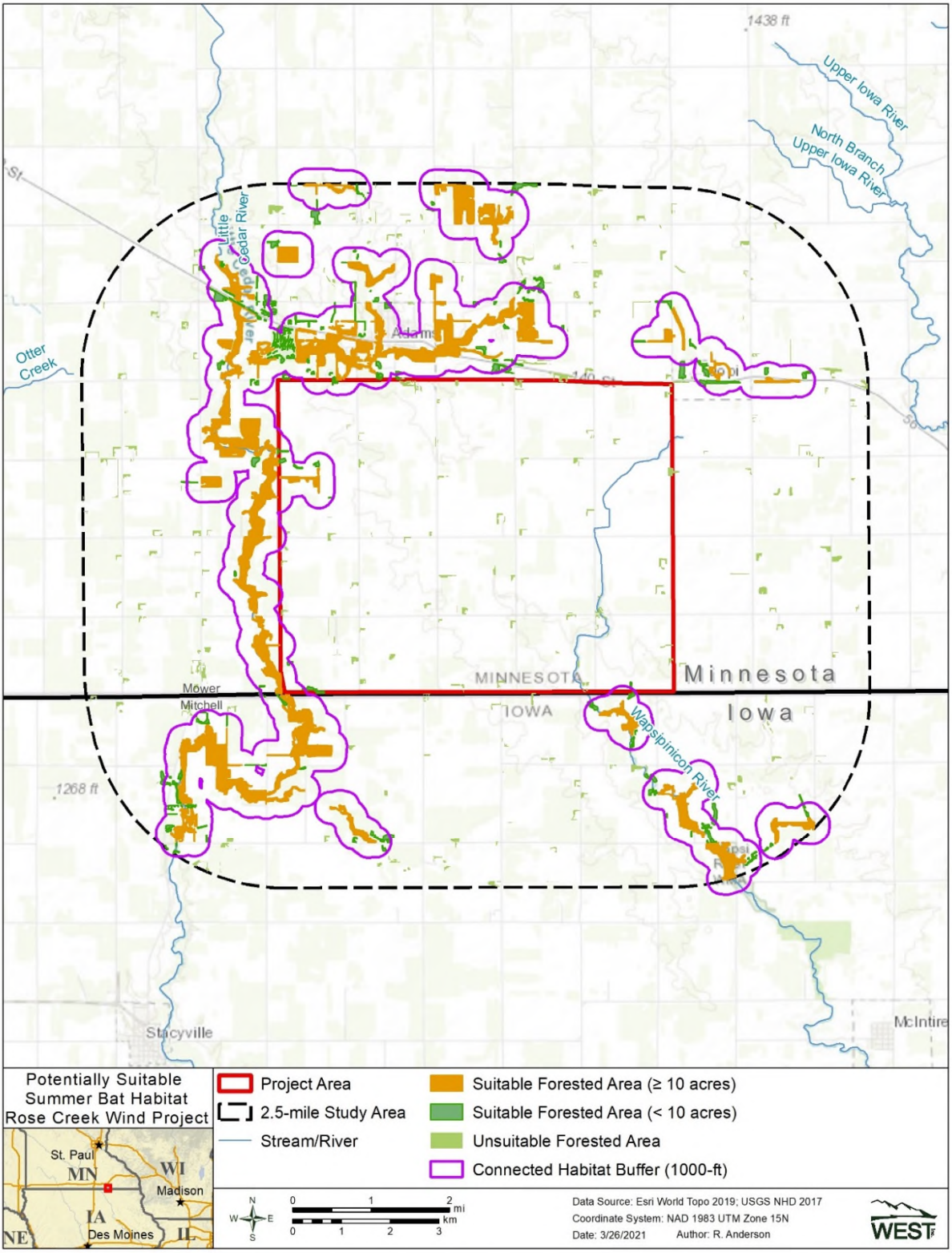

Figure 1. Potentially suitable summer habitat for northern long-eared bats within and near the Rose Creek Wind Project.

REFERENCES

Broders, H. G. and G. J. Forbes. 2004. Interspecific and Intersexual Variation in Roost-Site Selection of Northern Long-Eared and Little Brown Bats in the Greater Fundy National Park Ecosystem. Journal of Wildlife Management 68(3): 602-610.

Broders, H. G., G. J. Forbes, S. Woodley, and I. D. Thompson. 2006. Range Extent and Stand Selection for Roosting and Foraging in Forest-Dwelling Northern Long-Eared Bats and Little Brown Bats in the Greater Fundy Ecosystem, New Brunswick. Journal of Wildlife Management 70: 1174-1184.

Esri. 2021. World Imagery and Aerial Photos (World Topo). ArcGIS Resource Center. Environmental Systems Research Institute (Esri), producers of ArcGIS software, Redlands, California. Accessed April 2021. Information online: https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=10df2279f9684e4a9f6a7f08febac2a9

Foster, R. W. and A. Kurta. 1999. Roosting Ecology of the Northern Bat (*Myotis septentrionalis*) and Comparisons with the Endangered Indiana Bat (*Myotis sodalis*). Journal of Mammalogy 80(2): 659-672.

Henderson, L. E. and H. G. Broders. 2008. Movements and Resource Selection of the Northern Long-Eared Myotis (*Myotis septentrionalis*) in a Forest-Agriculture Landscape. Journal of Mammalogy 89: 952-963.

Minnesota Department of Natural Resources (MNDNR) and U.S. Fish and Wildlife Service (USFWS). 2020. Townships Containing Documented Northern Long-Eared Bat (NLEB) Maternity Roost Trees and/or Hibernacula Entrances in Minnesota. MNDNR, St. Paul, Minnesota and USFWS, Bloomington, Minnesota. June 3, 2020. 6 pp. Available online: http://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf

North American Datum (NAD). 1983. NAD83 Geodetic Datum.

U.S. Fish and Wildlife Service (USFWS). 2014. *Northern Long-eared Bat Interim Conference and Planning Guidance.* January 2014. Available online at: http://www.fws.gov/midwest/endangered/mammals/nleb/pdf/NLEBinterimGuidance6Jan2014.pdf.

U.S. Fish and Wildlife Service (USFWS). 2015. Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Northern Long-Eared Bat with 4(d) Rule; Final Rule and Interim Rule. Department of the Interior, Fish and Wildlife Service, 50 CFR Part 17. 80 Federal Register (FR) 63: 17974-18033. April 2, 2015.

U.S. Fish and Wildlife Service (USFWS). 2017. J. Reeves Presentation to Society of American Foresters. March 3,2017. Available online: https://www.fws.gov/wyominges/PDFs/Species_Listed/NLEB_20170310_JReeves_PresToSocietyAmerForesters.pdf

U.S. Fish and Wildlife Service (USFWS). 2020. Range-Wide Indiana Bat Summer Survey Guidelines. USFWS Region 3, Bloomington, Indiana. April 2020. 63 pp. including appendices. Available online: https://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2019_Rangewide_IBat_Survey_Guidelines.pdf

U.S. Geological Survey (USGS). 2017. National Hydrography Dataset (NHD). USGS NHD Extracts. Accessed March 2021. Information online: http://nhd.usgs.gov/