Appendix A
References

A.1 Chapter 1

Nebraska Public Power District (NPPD). 2023. R-Project Draft Revised Habitat Conservation Plan. Prepared by Ben Bainbridge, POWER Engineers, for Nebraska Public Power District.

A.2 Chapter 2

Baasch, D. M., A. M.Hegg, J. F. Dwyer, A. J. Caven, W. E. Taddicken, C. A. Worley, N. D. Mittman. 2022. Mitigating avian collisions with power lines through illumination with ultraviolet light. Avian Conservation and Ecology, 17(2).

Dwyer, J. F., A. K. Pandey, L. A. McHale, and R. E. Harness. 2019. Near-ultraviolet light reduced Sandhill Crane collisions with a power line by 98%. The Condor: Ornithological Applications. Volume 121, 2019, pp. 1–10. DOI: 10.1093/condor/duz008.

Haws, George. 2023. Commissioners act on state approval of Sutherland Bridge. Written for the North Platte Telegraph. July 3. Available: https://nptelegraph.com/news/local/government-politics/commissioners-act-on-state-approval-of-sutherland-bridge/article_192622ba-19da-11ee-a380-479b96994ea5.html.

Nebraska Public Power District (NPPD). 2023. Response to Request for Alternatives Screening Information.

Pearse, A. T., D. A. Brandt, W. C. Harrell, K. L. Metzger, D. M. Baasch, and T.J. Hefley. 2015. Whooping crane stopover site use intensity within the Great Plains: U.S. Geological Survey Open-File Report 2015–1166, 12 pp. Available: http://dx.doi.org/10.3133/ofr20151166.

U.S. Fish and Wildlife Service (FWS). 2022. *A Review of Three Avoidance and Minimization Measures for the American Burying Beetle*. Internal Memorandum to File. February.

A.3 Chapter 3

A.3.1 Section 3.1, Introduction

Higgins, Gavin. 2021. *Supervisors approve 3.25% increase to budget, approve wind farm in SE Custer County.* Article written for Sandhills Express. Available: https://www.wind-watch.org/news/2021/09/15/supervisors-approve-3-25-increase-to-budget-approve-wind-farm-in-se-custer-county/ Accessed: September 19. 2023.

Jenniges, James. 2023. Personal communication regarding future generation relevant to the R-Project. May 24.

Nebraska Public Power District (NPPD). 2018. *R-Project Final Habitat Conservation Plan*. Prepared by Ben Bainbridge for Nebraska Public Power District.

_____. 2022. *Summary of New Information Relevant to the R-Project Remand.*

_____. 2023a. *R-Project Draft Revised Habitat Conservation Plan*. Prepared by Ben Bainbridge for Nebraska Public Power District.

_____. 2023b. *Summary of Future Generation Projects Relevant to the R-Project.*

NextEra Wind Energy. 2023. Project Overview. Available: https://www.nexteraenergyresources.com/big-blue-wind/project-overview.html. Accessed: Sept 19, 2023.

Sandhills Energy. 2023. *Solar Projects*. Available: https://sandhillsenergy.com/sandhills-solar. Accessed: September 19, 2023.

SWCA Environmental Consultants. 2022. *Thunderhead Wind Energy Center Interconnection Project Final Environmental Assessment, Antelope, Holt, and Wheeler Counties, Nebraska.* Prepared for U.S. Department of Energy Western Area Power Administration.

Omaha Public Power District. 2023. K-Junction Solar Project, York County, NE. Available: https://www.oppdcommunityconnect.com/k-junction-solar. Accessed: November 3, 2023.

A.3.2 Section 3.2, Geology, Mineral Resources, Paleontological Resources, and Soils

Nebraska Department of Transportation (NDOT). 2023. Archaeology & Paleontology. Last revised: Unknown. Part of the Highway Paleontology Program. Available: https://dot.nebraska.gov/projects/environment/archaeology/. Accessed: September 12, 2023.

Paleontology Portal. 2023. Nebraska, U.S. Last revised: Unknown. Available: http://paleoportal.org/index.php?globalnav=time_space&sectionnav=state&name=Nebraska. Accessed: September 12, 2023.

University of Nebraska State Museum (UNSM). 2023. Nebraska County Fossils. Last revised: Unknown. Includes subpages for several counties. Available: https://museum.unl.edu/collections/vertebrate-paleontology/nebraska-county-fossils.html. Accessed: September 12, 2023.

University of Nebraska–Lincoln. 2023. Geology Related GIS Data. School of Natural Resources. Active Mineral Operations. Available at: http://snr.unl.edu/data/geographygis/geology.aspx. Accessed September 15, 2023.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2023. Soil Survey Geographic (SSURGO) Database for Holt, Cheyenne, Jefferson, York, and Greeley Counties. Available at: http://SoilDataMart.nrcs.usda.gov/. Accessed September 15, 2023.

_____. 2001. Revised Universal Soil Loss Equation Version 2 Handbook. Available: https://www.nrcs.usda.gov/sites/default/files/2022-10/RUSLE2%20Handbook_0.pdf. Accessed December 6, 2023.

A.3.3 Section 3.3, Water Resources

Divine, D. and S. Sibray. 2017. *An Overview of Secondary Aquifers in Nebraska.* University of Nebraska School of Natural Resources – Conservation and Survey Division. 138. Available: http://digitalcommons.unl.edu/conservationsurvey/138. Accessed: September 5, 2023.

Federal Emergency Management Agency (FEMA). 2023. *National Flood Hazard Layer.* Available: https://www.fema.gov/flood-maps/national-flood-hazard-layer. Accessed: October 31, 2023.

Gutentag, E. D., F. J. Heimes, N. C. Kroth, R. R. luckey, and J. B. Weeks. 1984. *Geohydrology of the High Plains Aquifer in Parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming.* United States Geological Survey. Professional Paper. Available: https://pubs.usgs.gov/ha/ha730/ch_d/D-text2.html#:~:text=The%20depth%20to%20water%20in%20the%20High%20Plains%20aquifer%20is,most%20of%20Nebraska%20and%20Kansas. Accessed: October 30, 2023.

LANDFIRE. 2020. *Existing Vegetation Cover*. Available: https://www.landfire.gov/evc.php. Accessed: September 18, 2023.

Little Blue Natural Resource District. 2011. Little Blue Natural Resources District Geologic and Hydro-Geologic Information. Available: https://littlebluenrd.org/groundwater-management/water-quantity/hydrogeological-study/. Accessed: August 26, 2023.

Lower Big Blue Natural Resource District. 2023. Groundwater Level Monitoring Network. Edited November 1, 2023. Available: https://lbbnrd.maps.arcgis.com/apps/webappviewer/index.html?id=b4affc53848440bf832f6cbcc769ac7d. Accessed: November 2, 2023.

Miller, J. A. and C. L. Appel. 1997. Ground water atlas of the United States: Segment 3, Kansas, Missouri, and Nebraska: U.S. Geological Survey, Hydrologic Investigations Atlas 730-D, 24 p. Available: https://pubs.usgs.gov/ha/730d/report.pdf. Accessed: November 2, 2023.

Nebraska Department of Environment and Energy (NDEE). 2021. *2020 Water Quality Integrated Report*. Final. Lincoln, Nebraska. Prepared by: Nebraska Department of Environment and Energy.

Schneider, R.K., G. Stoner, M. Steinauer, M. Panella, and M. Humpert (eds.). 2011. *The Nebraska Natural Legacy Project: State Wildlife Action Plan.* Second Edition. Lincoln, NE: The Nebraska Game and Parks Commission. 344 pp.

U.S. Geological Survey (USGS). 2023. *National Hydrography Datasets (ver. USFS National Hydrography Dataset) for Surface Waters and Watershed Boundaries for Nebraska*. Available: https://www.usgs.gov/national-hydrography/access-national-hydrography-products. Data refreshed July 2023. Accessed: June and October 2023.

A.3.4 Section 3.4, Wetlands

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States.* Final Report. FWS/OBS-79/31. Prepared for U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C.

U. S. Environmental Protection Agency (EPA). 2023. Definition of "Waters of the United States": Rule Status and Litigation Update. Updated September 8, 2023. Available: https://www.epa.gov/wotus/definition-waters-united-states-rule-status-and-litigation-update. Accessed: October 28, 2023.

Gersib, R. A. 1991. Nebraska Wetlands Priority Plan. Nebraska Game and Parks Commision. Lincoln. NE. July.

Lagrange, T. 2005. Guide to Nebraska's Wetlands and Their Conservation Needs. Second Edition. Nebraska Game and Parks Commission, Lincoln, NE.

Lagrange, T. 2019. Wetland Program Plan for Nebraska 2019-2023. Nebraska Game and Parks Commission. Lincoln, NE. February 15, 2019.

Lagrange, T. 2022. *Guide to Nebraska's Wetlands and Their Conservation Needs.* Nebraska Game and Parks Commission. Lincoln, Nebraska. Available: http://digital.outdoornebraska.gov/i/1488352-2022-wetlands-guide-for-web-single-pages/1?. Accessed: September 19, 2023.

Schneider, R. K. Stoner, G. Steinauer, M. Panella, and M. Humpert (eds.). 2011. *The Nebraska Natural Legacy Project: State Wildlife Action Plan.* Second Edition. Lincoln, NE: The Nebraska Game and Parks Commission. 344 pp.

U.S. Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center. March.)

U.S. Fish and Wildlife Service (FWS). 2023. National Wetland Inventory. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available: https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper. Accessed: August 30 and September 6, 2023.

A.3.5 Section 3.5, Vegetation

Chapman, S. S., J. M. Omernik, J. A. Freeouf, D. G. Huggins, J. R. McCauley, C. C. Freeman, G. Steinauer, R. T. Angelo, and R. L. Schlepp. 2001. Ecoregions of Nebraska and Kansas: Reston, Virginia, U.S. Geological Survey (Map Scale 1:1,950,000).

Gaussoin, R. E., S. E. Knezevic, and J. L. Lindquist. 2010. Noxious Weeds of Nebraska: Spotted and Diffuse Knapweed. University of Nebraska, Lincoln Extension EC171. Available: http://www.neweed.org/NeWeeds/knapweed.pdf. Accessed: August 25, 2023.

Knezevic, S. Z. 2003. Noxious Weeds of Nebraska: Purple Loosestrife. Historical Materials from University of Nebraska-Lincoln Extension EC03-177. Paper 1707. Available: http://digitalcommons.unl.edu/extensionhist/1707. Accessed: August 25, 2023.

Knezevic, S. Z., A. Datta, and R. E. Rapp. 2008. Noxious Weeds of Nebraska: Common Reed. University of Nebraska-Lincoln Extension EC-166. Available: http://www.neweed.org/NeWeeds/phrag.pdf. Accessed: August 25, 2023.

LANDFIRE. 2020. *Existing Vegetation Cover*. Available: https://www.landfire.gov/evc.php. Accessed: September 18, 2023.

Nebraska Cooperative Fish & Wildlife Research Unit. 2023. Nebraska Invasive Species Program. University of Nebraska–Lincoln. Available: https://neinvasives.com/ecoregions/all. Accessed: August 25, 2023.

Nebraska Weed Control Association. 2023. Nebraska County Designated Noxious Weeds. June 2023. Available: https://neweed.org/Forms/County_Noxious_Weeds.pdf. Accessed: December 6, 2023.

Roeth, F., S. R. Melvin, and I. L. Schleufer. 2003. Noxious Weeds of Nebraska: Musk Thistle. Historical Materials from University of Nebraska-Lincoln Extension EC03-176. Paper 1708. Available: http://digitalcommons.unl.edu/extensionhist/1708. Accessed: August 25, 2023.

Sandell, L. D., and S. Knezevic. 2001. Noxious Weeds of Nebraska: Leafy Spurge. University of Nebraska-Lincoln Extension EC174. Available: http://www.neweed.org/NeWeeds/spurge.pdf. Accessed: August 25, 2023.

U.S. Department of Agriculture (USDA). n.d. *Plants Database*. United States Department of Agriculture Natural Resources Conservation Service. Available: https://plants.usda.gov/home. Accessed: August 25, 2023.

_____. 2010. *Federal Noxious Weed List.* Original: December 10, 2010, updated February 1, 2012. Available: https://www.aphis.usda.gov/aphis/ourfocus/planthealth/plant-pest-and-disease-programs/pests-and-diseases/sa_weeds/sa_noxious_weeds_program. Accessed: October 25, 2023.

_____. 2023a. *State Noxious-Weed Seed Requirements Recognized in the Administration of the Federal Seed Act.* Revised: February 2023. Available: https://www.ams.usda.gov/sites/default/files/media/StateNoxiousWeedsSeedList.pdf. Accessed: October 24, 2023.

_____. 2023b. *The Importance of Pollinators*. Available: https://www.usda.gov/peoples-garden/pollinators#:~:text=How%20Animal%20Pollination%20Works,produce%20a%20fruit%20or%20seed. Accessed: September 6, 2023.

A.3.6 Section 3.6, Wildlife

National Wind Coordinating Committee (NWCC). 2001. *Avian Collisions with Wind Turbines: A Summary of Existing Studies and Comparisons to Other Sources of Avian Collision Mortality in the United States*. Prepared by Western EcoSystems Technology, Inc. Available: https://www.osti.gov/servlets/purl/822418.

Nebraska Ornithologists' Union. 2023. *Checklist of the Birds of Nebraska.* Available: https://noubirds.org/Birds/CountyChecklistPDF.aspx?id=0. Accessed: September 14, 2023.

Schneider, R., K. Stoner, G. Steinauer, M. Panella, and M. Humpert (Eds.). 2011. *The Nebraska Natural Legacy Project: State Wildlife Action Plan*. 2nd ed. Nebraska Game and Parks Commission, Lincoln, NE.

Western Area Power Administration (WAPA). 2022. Thunderhead Wind Energy Center Interconnection Project. Final Environmental Assessment Antelope, Holt, and Wheeler Counties, Nebraska. DOE/EA-2174. July. Prepared by SWCA Environmental Consultants.

A.3.7 Section 3.7, Special Status Species

Abernathy, Ian. 2018. White-Nose Syndrome Surveillance Across Northern Great Plains National Park Units 2018 Interim Report. Prepared for National Park Service Northern Great Plains Inventory and Monitoring Network. August.

_____. 2020. White-Nose Syndrome Surveillance Across Northern Great Plains National Park Units Permit Report 2019. Prepared for the United States Fish and Wildlife Service.

_____. 2023. White-Nose Syndrome Surveillance Across Northern Great Plains National Park Units Permit Report 2022.

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

Barzen, J. A., M. J. Engels, L. H. Elliott, and D. H. Johnson. 2023. Potential effect of the proposed R-Project transmission line on the Aransas/Wood Buffalo Whooping Crane Population. Submitted as Comments during the R-Project Scoping Period.

Bat Conservation International (BCI). 2023. Hoary Bat Species Account. Available: https://www.batcon.org/bat/lasiurus-cinereus. Accessed: November 1, 2023.

Benedict, R. A. 2004. Reproductive Activity and Distribution of Bats in Nebraska. *Western North American Naturalist* 64(2):231–248.

Bockart, M. 2020. The Effects of White-nose Syndrome on Cave-dwelling Bats During Their Pre-hibernation Season in Eastern Nebraska. Theses/Capstones/Creative Projects. 116. Available: https://digitalcommons.unomaha.edu/university_honors_program/116.

Brown, W. M. and R. C. Drewien. 1995. Evaluation of two powerline markers to reduce crane and waterfowl collision mortality. Wildlife Society Bulletin 23(2):217–227.

Cameron, S. A., J. D. Lozier, J. P. Strange, J. B. Koch, N. Cordes, L. F. Solter, and T. L. Griswold. 2011. Patterns of widespread decline in North American bumble bees. Proceedings of the National Academy of Sciences 108 (2): 662–667. Available: 10.1073/pnas.1014743108

Confer, J. L., P. Hartman, and A. Roth. 2020. Golden-winged Warbler (Vermivora chrysoptera), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. Available: https://doi.org/10.2173/bow.gowwar.01.

Damm, J. P. and K. Geluso. 2008. Use of a mine by eastern pipistrelles (Perimyotis subflavus) in east central Nebraska. Western North American Naturalist. 68(3):382–389.

eBird. 2023. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: http://www.ebird.org.

Ellis K. S., A. T. Pearse, D. A. Brandt, M. T. Bidwell, W. Harrell, M. J. Butler and M. Post van der Burg 2022. Balancing future renewable energy infrastructure siting and associated habitat loss for migrating whooping cranes. *Front. Ecol. Evol*.

Friedenberg, N. A. and W. F. Frick. 2021. Assessing fatality minimization for hoary bats amid continued wind energy development. Biological Conservation 262: 109309. Available: https://www.sciencedirect.com/science/article/abs/pii/S000632072100361X?via%3Dihub.

Geluso, K., R. A. Benedict, and F. L. Kock. 2004. *Seasonal Activity and Reproduction in Bats of East-Central Nebraska*. Biology Faculty Publications 26:33–44.

Geluso, K., J. J. Huebschman, and K. N. Geluso. 2013. Bats of the Wildcat Hills and surrounding areas in western Nebraska. Monographs of the Western North American Naturalist: Vol. 6, Article 2. Available: https://scholarsarchive.byu.edu/mwnan/vol6/iss1/2. Accessed: January 9, 2024.

Kasten, K., C. Stenoien, W. Caldwell, and K. S. Oberhauser. 2016. Can roadside habitat lead monarchs on a route to recovery? *Journal of Insect Conservation* (20:1047–1057).

Knopf, F. L. and M. B. Wunder (2020). Mountain Plover (Charadrius montanus), version 1.0. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. Available: https://doi.org/10.2173/bow.mouplo.01 Accessed: September 2023.

Koch, J. B., J. Lozier, J. P. Strange, H. Ikerd, T. Griswold, N. Cordes, L. Solter, I. Stewart, S. A. Cameron. 2015. USBombus, a database of contemporary survey data for North American Bumble Bees (Hymenoptera, Apidae, Bombus) distributed in the United States. *Biodiversity Data Journal*. Available: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4698456/.

Kunz, T. H. and J. D. Reichard. 2010. Status Review of the Little Brown Myotis (Myotis lucifugus) and Determination that Immediate Listing Under the Endangered Species Act is Scientifically and Legally Warranted.

Lemen, C.A., P.W. Freeman, and J.A. White. 2016. Acoustic evidence of bats using rock crevices in winter: A call for more research on winter roosts in North America. Transactions of the Nebraska Academy of Sciences and Affiliated Societies. 506.

Loring, P. H., J. D. McLauren, H. F. Goyert, and P. W. C. Paton. 2020. Supportive Wind Conditions Influence Offshore Movements of Atlantic Coast Piping Plovers During Fall Migration. The Condor: Ornithological Applications. 122:1–6.

Mallinger E. C., K. R. Goodwin, A. Kirschbaum, Y. Shen, E. H. Gillam, E. R. Olson. 2023. Species-specific responses to white-nose syndrome in the Great Lakes region. *Ecology and Evolution* 9;13(7).

Morkill, A. E. and S.H. Anderson. 1991. Effectiveness of marking powerlines to reduce sandhill crane collisions. Wildlife Society Bulletin 19:442–449.

Nevinson, S. 2023. *Swift Fox (Vulpes velox)*. A Species Conservation Assessment for the Nebraska Natural Legacy Project. Nebraska Game and Parks Commission, Wildlife Division. 17 pp.

Nebraska Game and Parks Commission (NGPC). 2015. Threatened and Endangered Species in Nebraska Estimated Ranges. Available: http://news.legislature.ne.gov/lrd/files/2015/12/lrd_mow_14.pdf. Accessed: November 27, 2023.

Nebraska Public Power District (NPPD). 2023. R-Project Draft Revised Habitat Conservation Plan. Prepared by Ben Bainbridge for Nebraska Public Power District.

Pearse, A. T., and S. M. Selbo. 2012. Model of whooping crane energetics as foundation for development of a method to assess potential take during migration: U.S. Geological Survey Open-File Report 2012–1156, 13 p.

Pearse, A. T., M. J. Harner, D. M. Baasch, G. D. Wright, A. J. Caven, and K. L. Metzger. 2017. Evaluation of nocturnal roost and diurnal sites used by whooping cranes in the Great Plains, United States. Open-file Report 2016–1209. U.S. Geological Survey, Reston, Virginia, USA.

Pearse, A. T., M. Rabbe, L. M. Juliusson, M. T. Bidwell, L. Craig-Moore, D. A. Brandt, and W. Harrell. 2018. Delineating and identifying long-term changes in the whooping crane (Grus americana) migration corridor. PLoS ONE 13:e0192737.

Pearse, A. T., D. A. Brandt, K. L. Metzger, M. T. Bidwell, and W. Harrell. 2020. Whooping crane migration habitat selection data and distance to wind-energy infrastructure, 2010–2016. U.S. Geological Survey data release. Available: https://doi.org/10.5066/P9SVV311.

Pearse, A. T., K. L. Metzger, D. A. Brandt, J. A. Shaffer, M. T. Bidwell, and W. Harrell. 2021. Migrating whooping cranes avoid wind-energy infrastructure when selecting stopover habitat. Ecological Applications 31(5):e02324. 10.1002/eap.2324.

Poicus, V. M., J. M. Pleasants, D. M. Debinski, K. G. Bidne, R. L. Hellmich, S. P. Bradbury, and S. L. Blodgett. 2018. Monarch butterflies show differential utilization of nine midwestern milkweed species. Frontiers in Ecology and Evolution 6. Available: https://doi.org/10.3389/fevo.2018.00169.

Powers, R., K. Lamke, J. Hopwood, and R. Hatfield. 2022. *Habitat Management for Bumble Bees in Nebraska*. The Xerxes Society for Invertebrate Conservation. Portland, OR. 20 pp.

Schneider, R., K. Stoner, G. Steinauer, M. Panella, and M. Humpert (Eds.). 2011. The Nebraska Natural Legacy Project: State Wildlife Action Plan. 2nd ed. The Nebraska Game and Parks Commission, Lincoln, NE.

Schneider, R., M. Fritz, J. Jorgensen, S. Schainost, R. Simpson, G. Steinauer, and C. Rothe-Groleau. 2018. Revision of the Tier 1 and 2 Lists of Species of Greatest Conservation Need: A Supplement to the Nebraska Natural Legacy Project State Wildlife Action Plan. The Nebraska Game and Parks Commission, Lincoln, NE.

Selby, G. 2007. *Regal Fritillary (*Speyeria idalia *Drury): a technical conservation assessment*. USDA Forest Service, Rocky Mountain Region. February 9. Available: http://www.fs.fed.us/r2/projects/scp/assessments/regalfritillary.pdf. Accessed: November 29, 2023.

Silcock, W. R., and J. G. Jorgensen. 2023. Golden-winged Warbler (Vermivora chrysoptera). In *Birds of Nebraska - Online*. Available: https://birds.outdoornebraska.gov/golden-winged-warbler/. Accessed: November 1, 2023.

Skorupa, Joe. 2018. Memorandum "Review of: Take Calculations for Whooping Cranes (Grus americana) for the Nebraska Public Power District's R-Project Transmission Line" prepared by the Nebraska Field Office of the U.S. Fish and Wildlife Service; and a proposed use of reasonably certain knowledge to assess the risk of power-line strikes for the R-Project. Final December 7, 2018, as included within "A Review and Critique of Risk Assessments Considered by the U.S. Fish

and Wildlife Service Regarding the Collision Risk for Whooping Cranes with NPPD's R-Project, dated January 30, 2019.

Stehn, T. V., and T. Wassenich. 2008. "Whooping Crane Collisions with Power Lines: an Issue Paper". North American Crane Workshop Proceedings. Paper 203. Available: http://digitalcommons.unl.edu/nacwgproc/203.

Stehn, T. V., and C. L. Haralson-Strobel. 2016. "An update on mortality of fledged whooping cranes in the Aransas/Wood Buffalo Population". Proceedings of the North American Crane Workshop. 372. Available: https://digitalcommons.unl.edu/nacwgproc/372.

Stehn, T. V. and C. L. Haralson-Strobel. 2014. An update on mortality of fledged whooping cranes in the Aransas/Wood Buffalo population. Proceedings of the North American Crane Workshop 12:43-50.

Thompson, M., J. A. Beston, M. Etterson, J.E. Diffendorfer, and S. R. Lossa. 2017. Factors associated with bat mortality at wind energy facilities in the United States. Available at: https://doi.org/10.1016/j.biocon.2017.09.014. Accessed: January 11, 2024.

U.S. Department of Agriculture (USDA). 2017. Monarch Butterfly Conservation Strategy for the Eastern Region of the USDA Forest Service.

U.S. Fish and Wildlife Service (FWS). 2018. Final Environmental Impact Statement on Issuance of an Incidental Take Permit And Implementation of a Habitat Conservation Plan For The R-Project Transmission Line. November.

_____. 2020. Species status assessment report for the Whooping Crane (*Grus americana*), Version 1.0. December 2020. Albuquerque, New Mexico.

_____. 2021. Species status assessment (SSA) report for the tricolored bat (Perimyotis subflavus). Version 1.1. December 2021. FWS Northeast Region.

_____. 2022. Endangered Species Act Section 7 Concurrence Letter to Western Area Power Administration for Thunderhead Wind Energy Center Interconnection Project, Wheeler, Antelope, and Holt County, Nebraska. June 21, 2022. 6 pp.

_____. 2023a. *National Domestic Listing Workplan. FY23-27 Workplan* (April 23, 2023 Version). Available: National Domestic Listing Workplan for Fiscal Years 2023-2027 (fws.gov). Accessed: November 27, 2023.

_____. 2023b. *Variable Cuckoo Bumble Bee*. Available: https://www.fws.gov/species/variable-cuckoo-bumble-bee-bombus-variabilis. Accessed: November 27, 2023.

_____. 2023c. *Whooping Crane Survey Results: Winter 2022–2023*. Available: https://www.fws.gov/sites/default/files/documents/WHCR%20Update%20Winter%202022-2023.pdf. Accessed: September 19, 2023.

_____. 2023d. *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*. U.S. Fish and Wildlife Service, Region 3, Bloomington, MN. 76 pp.

Western Area Power Administration (WAPA). 2022*. Thunderhead Wind Energy Center Interconnection Project Final Environmental Assessment, Antelope, Holt, and Wheeler Counties, Nebraska*. DOE/EA-2174. July.

White, J. A., C. A. Lemen, and P. W. Freeman. 2016. Acoustic detection reveals fine-scale distributions of Myotis lucifugus, Myotis septemtrionalis, and Perimyotis subflavus in eastern Nebraska. *Western North American Naturalist* 76:27-35.

White, J. A., P. W. Freeman, M. E. Shehan, and C. A. Lemen. 2022. Decline of the Northern Long-Eared Myotis (Myotis septentrionalis) in the Eastern Great Plains After the Arrival of White-Nose Syndrome. *Western North American Naturalist*. 82:86–93.

With, K. A. 2021. Thick-billed Longspur (Rhynchophanes mccownii), version 1.1. In Birds of the World (A. F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bow.mcclon.01.1

Xerces Society for Invertebrate Conservation. 2022. *Milkweeds of Nebraska and the Dakotas*. Available: https://xerces.org/sites/default/files/publications/19-027.pdf. Accessed: November 27, 2023.

Xerces Society for Invertebrate Conservation. 2022. *A Guide to the Bumble Bees of Nebraska*. Available: https://xerces.org/publications/identification-and-monitoring-guides/guide-to-bumble-bees-of-nebraska.

Yee, M. L. 2008. Testing the effectiveness of an avian flight diverter for reducing avian collisions with distribution power lines in the Sacramento Valley, California. California Energy Commission; Publication CEC-500-2007-122.

A.3.8 Section 3.8, Land Use

Cheyenne County Planning & Zoning. 2023. Zoning and Subdivision Regulations, March 2023. Available: https://www.cheyennecountyne.net/planning--zoning. Accessed: August 24, 2023.

County of Antelope. 2012. Zoning Regulations of Antelope County Nebraska as Amended July, 2012. Available: https://antelopecounty.nebraska.gov/sites/antelopecounty.nebraska.gov/files/doc/2012%20Antelope%20Co.%20Zoning%20Regulations.pdf. Accessed: October 31, 2023.

Greeley County, Nebraska Planning and Zoning. 2015a. Greeley County, Nebraska Comprehensive Plan - 2025. Available: https://greeleycounty.ne.gov/webpages/planning_zoning/planning_zoning.html. Accessed: August 24, 2023.

Greeley County, Nebraska Planning and Zoning. 2015b. Greeley County, Nebraska Zoning Regulations - 2025. Available: https://greeleycounty.ne.gov/webpages/planning_zoning/planning_zoning.html. Accessed: August 24, 2023.

Hayford, B. and D. Baker. 2011. Lakes of the Nebraska Sandhills. Available: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nalms.org/wp-content/uploads/2018/09/31-4-5.pdf. Accessed: August 24, 2023.

Holt County, Nebraska. 2021. HOLT COUNTY ZONING REGULATIONS. Available: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://holtcounty.nebraska.gov/sites/holtcounty.nebraska.gov/files/doc/ZoningRegs.pdf. Accessed: August 24, 2023.

Jefferson County. 2023a. Jefferson County, Nebraska Comprehensive Plan Update, Amended 3/23/2023. Available: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://jeffersoncounty.nebraska.gov/sites/jeffersoncounty.nebraska.gov/files/doc/JEFFERSON%20COUNTY%20NEBRASKA%20COMPREHENSIVE%20PLAN-UPDATE.pdf. Accessed: August 24, 2023.

Jefferson County. 2023b. Jefferson County, Nebraska Zoning Regulations, Amended 3/23/2023. Available: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://jeffersoncounty.nebraska.gov/sites/jeffersoncounty.nebraska.gov/files/doc/JEFFERSON%20CO%20NEBRASKA%20ZONING%20REGULATIONS%20AMENDED_APPROVED%203_23_2023%20USE.pdf. Accessed: August 24, 2023.

National Conservation Easement Database. 2023. National Conservation Easement Database. Available: https://www.conservationeasement.us/. Accessed: September 1, 2023.

Nebraska Department of Revenue. 2021. Real Property. Available: https://revenue.nebraska.gov/PAD/real-property. Accessed: September 1, 2023.

Nebraska Game and Parks Commission (NGPC). 2023. Nebraska State Parks. Available: https://outdoornebraska.gov/parks/find-a-park/nebraska-state-parks/. Accessed: August 23, 2023.

Nebraska Legislature. 2023. Nebraska Revised Statutes: Chapter 66. Available: https://nebraskalegislature.gov/laws/browse-statutes.php. Accessed: October 31, 2023.

Otto, Clint R.V, H. Zheng, T. Hovick, M. Post van der Burg, B. Geaumont. 2022. Grassland conservation supports migratory birds and produces economic benefits for the commercial beekeeping industry in the U.S. Great Plains, Ecological Economics, Volume 197. Available: https://www.sciencedirect.com/science/article/abs/pii/S0921800922001124. Accessed: September 1, 2023.

The Custer County Planning Commission. 2022. Custer County Nebraska Zoning Resolution No. 67Z-22, December 13, 2022. Available: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://custercountyne.gov/pdfs/planning_zoning/zoning_regulations.pdf. Accessed: August 24, 2023.

York County, Nebraska. 2015. York County, Nebraska 2015 Adopted Zoning Regulations. Available: https://www.yorkcounty.ne.gov/zoning.html. Accessed: August 24, 2023.

A.3.9 Section 3.9, Recreation and Tourism

Nebraska Game and Parks Commission (NGPC). 2020. *Nebraska Wildlife Management Area (WMA) – Regulations*. Available: https://outdoornebraska.gov/wp-content/uploads/2023/04/WMA-Regulations_handout_Final-6-2020.pdf.

U.S. Fish and Wildlife Service (FWS). 2020. *John W. and Louise Seier National Wildlife Refuge Hunting*. Available: https://www.fws.gov/sites/default/files/documents/Seier%20NWR%20Hunting.pdf.

_____. 2023. *Waterfowl Production Areas*. Available: https://www.fws.gov/story/waterfowl-production-areas.

A.3.10 Section 3.10, Cultural Resources

Bedingfield, Ken. 2017. *2017 Cultural Resources Survey of the R-Project 345 kV Transmission Line*. Prepared for the Nebraska Public Power District by POWER Engineers, Inc.

_____. 2019. *Cultural Resources Survey of the R-Project 345 kV Transmission Line.* Prepared for the Nebraska Public Power District by POWER Engineers, Inc. December 13, 2019.

Bedingfield, K. and C. McKenzie. 2018. *Cultural Resources Survey of the R-Project 345 kV Transmission Line.* Prepared for the Nebraska Public Power District by POWER Engineers, Inc. November 14, 2018.

Bedingfield, K. and C.J. Tucker. 2016. *2016 Cultural Resources Survey of the R-Project 345 kV Transmission Line*. Prepared for the Nebraska Public Power District by POWER Engineers, Inc. November 3, 2016.

Bedingfield, K. and T. Webb. 2015. *Cultural Resources Survey of the R-Project 345 kV Transmission Line.* Prepared for the Nebraska Public Power District by POWER Engineers, Inc. November 11, 2015.

Larned, Susan M. 2018. Water is Life: The Native American Tribal Role in Protecting Natural Resources. Environmental and Earth Law Journal 8:52-94.

A.3.11 Section 3.11, Transportation

Nebraska Department of Transportation (NDOT). 2023. *2022 Continuous Traffic Count Data and Traffic Characteristics on Nebraska Streets and Highways.* Strategic Planning Division. Traffic Analysis Unit. Available: http://govdocs.nebraska.gov/epubs/R6000/S009-2022.pdf.

NebraskaMap. 2020. *Airports in Nebraska*. Available: https://www.nebraskamap.gov/datasets/airports/about.

A.3.12 Section 3.12, Visual Resources and Aesthetics

American Medical Association. 2016. *Human and Environmental Effects of Light Emitting Diode (LED) Community Lighting (CSAPH Report 2-A-16)*. Presented by: Louis J. Kraus, MD, Chair. Available: http://darksky.org/wp-content/uploads/bsk-pdf-manager/AMA_Report_2016_60.pdf. Accessed: March 31, 2021.

Anurag, J. Zhang, J. Gwamuri, and J. M. Pearce. 2017. General Design Procedures for Airport-Based Solar Photovoltaic Systems. In *Energies*, doi:10.3390/en10081194. Available: https://www.mdpi.com/1996-1073/10/8/1194. Accessed: May 9, 2023.

Aubé, M., J. Roby, M. Kocifaj. 2013. Evaluating Potential Spectral Impacts of Various Artificial Lights on Melatonin Suppression, Photosynthesis, and Star Visibility. July 5. *PLOS (Public Library of Science) ONE*. 8(7). Available: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0067798. Accessed: March 31, 2021.

Falchi, F., P. Cinzano, D. Duriscoe, C. C. M. Kyba, C. D. Elvidge, K. Baugh, B. A. Portnov, N. A. Rybnikova, and R. Furgoni. 2016. The New World Atlas of Artificial Night Sky Brightness. June 10. *Science*

Advances. 2(6). Available: http://advances.sciencemag.org/content/2/6/e1600377. Accessed: March 31, 2021.

Falchi, F., P. Cinzano, C. D. Elvidge, D. M. Keith, A. Haim. 2011. Limiting the Impact of Light Pollution on Human Health, Environment and Stellar Visibility. *Journal of Environmental Management* (2011), doi:10.1016/j.jenvman.2011.06.029. Available: https://www.yumpu.com/en/document/view/6983159/limiting-the-impact-of-light-pollution-on-human-health-environment-. Accessed: March 31, 2021.

Federal Highway Administration. 2023. *National Scenic Byways & All-American Roads - Sandhills Journey Scenic Byway.* Available: https://fhwaapps.fhwa.dot.gov/bywaysp/byway/81509/map. Accessed: September 14, 2023.

International Dark-Sky Association. 2010a. Seeing Blue. April 2010. Nightscape 80: 8-12. Available: http://darksky.org/wp-content/uploads/bsk-pdf-manager/29_SEEINGBLUE(1).PDF. Accessed: March 31, 2021.

_____. 2010b. *Visibility, Environmental, and Astronomical Issues Associated with Blue-Rich White Outdoor Lighting*. May 4, 2010. Available: http://www.darksky.org/wp-content/uploads/bsk-pdf-manager/8_IDA-BLUE-RICH-LIGHT-WHITE-PAPER.PDF. Accessed: March 31, 2021.

_____. 2015. IDA Issues New Standards on Blue Light at Night. April 2015. *Nightscape, The 2014 Annual Report. 94*: 10. Available: http://darksky.org/wp-content/uploads/2015/06/NS94.pdf. Accessed: March 31, 2021.

National Park Service (NPS). 2023. *Nebraska Parks.* Available: https://www.nps.gov/state/ne/index.htm. Accessed: September 11, 2023.

National Wild and Scenic Rivers System. 2023. *Nebraska*. Available: https://www.rivers.gov/nebraska. Accessed: September 11, 2023.

Nebraska Department of Roads. 2012. *Nebraska Scenic Byways*. Available: https://dot.nebraska.gov/media/5ayd4evp/scenic-byways-system.pdf. January. Accessed: September 12, 2023.

Riley and Olson. 2011. A Study of the hazardous glare potential to aviators from utility-scale flat-plate photovoltaic systems*. International Scholarly Research Network, Renewable Energy.* (Article ID 651857):1–6. Available: https://www.hindawi.com/journals/isrn/2011/651857/. Accessed: July 26, 2022.

U.S. Department of Agriculture Forest Service. 2023. *Interactive Visitors Map - Nebraska*. Available: https://www.fs.usda.gov/ivm/. Accessed: September 11, 2023.

U.S. Fish and Wildlife Service (FWS). 2023. *Our Facilities - Nebraska*. Available: https://www.fws.gov/our-facilities?state_name=%5B%22Nebraska%22%5D. Accessed: September 14, 2023.

A.3.13 Section 3.13, Air Quality and Greenhouse Gases

U.S. Environmental Protection Agency (EPA). 2023. *Nonattainment Areas for Criteria Pollutants (Green Book).* Available: https://www.epa.gov/green-book. Accessed: September 14, 2023.

Nebraska Public Power District (NPPD). 2021. *Powering Our Future: Carbon Emission Reductions (BP-SD-05)*. Available: https://www.nppd.com/powering-nebraska/powering-our-future. Accessed: September 14, 2023.

A.3.14 Section 3.14, Noise

No references cited.

A.3.15 Section 3.15, Hazardous Materials and Hazardous Waste

U.S. Environmental Protection Agency (EPA). 2010. *Considering Reasonably Anticipated Future Land Use and Reducing Barriers to Reuse at EPA-lead Superfund Remedial Sites*. Available at: https://semspub.epa.gov/work/HQ/ 175563.pdf.

_____. 2022. *What is Superfund?* Available at: https://www.epa.gov/superfund/what-superfund.

_____. 2023*. Search for Superfund Sites Where You Live*. Available at: https://www.epa.gov/superfund/search-superfund-sites-where-you-live.

A.3.16 Section 3.16, Health and Safety

Department of Energy (DOE). Wind Energy Technologies Office. 2022. Living in Wind Energy's Shadow. Available: https://www.energy.gov/eere/wind/articles/living-wind-energys-shadow.

Knopper, L.D. and C.A. Ollson. 2011. Health effects and wind turbines: a review of the literature. Environ Health. National Library of Medicine. doi: 10.1186/1476-069X-10-78. PMID: 21914211; PMCID: PMC3179699. Accessed: November 3, 2023.

World Health Organization. 2012. What are Electromagnetic Fields? Available: http://www.who.int/peh-emf/about/WhatisEMF/. Accessed: June 20, 2023.

A.3.17 Section 3.17, Socioeconomics

Center for Public Affairs Research, University of Nebraska at Omaha. 2022. *Population Projections for Nebraska Counties 2020 to 2050.* Available: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.unomaha.edu/college-of-public-affairs-and-community-service/center-for-public-affairs-research/documents/population-projections-for-nebraska-counties-2020-2050.pdf. Accessed: August 23, 2023.

U.S. Census Bureau (USCB). 2013. *2009–2013 American Community Survey 5-Year Estimates.* Available: http://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml. Accessed: August 23, 2023.

_____. 2020. *Decennial Census.* Available: https://data.census.gov/. Accessed: August 23, 2023.

University of Nebraska–Lincoln. 2022. *Nebraska's Rural Population: Historical Facts and Future Projections.* Available: https://agecon.unl.edu/nebraska%E2%80%99s-rural-population-historical-facts-and-future-projections. Accessed: August 23, 2023.

A.3.18 Section 3.18, Environmental Justice

Council on Environmental Quality (CEQ). 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act.* Washington, D.C.: Executive Office of the President. Available: http://www3.epa.gov/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf. Accessed: August 31, 2023.

U.S. Environmental Protection Agency (EPA). 1998. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis.* Washington, DC: U.S. EPA. Available: https://www.epa.gov/communityhealth/guidance-incorporating-environmental-justiceconcerns-epas-national-environmental. Accessed: August 31, 2023.

U.S. Census Bureau (UCSB). 2014. *Living in Poverty Areas.* Available: https://www.census.gov/library/visualizations/2014/comm/cb14-123_poverty_areas.html. Accessed: August 31, 2023.

_____. 2020. *Decennial Census.* Available: https://data.census.gov/. Accessed: August 23, 2023.

Appendix B
Scoping Summary

Introduction

The Nebraska Public Power District (NPPD, applicant) is preparing a revised habitat conservation plan (HCP) in support of its anticipated resubmission of an application for an Endangered Species Act (ESA) incidental take permit (ITP) for the threatened American burying beetle (*Nicrophorus americanus*) (ABB) for activities NPPD will undertake in constructing, operating, and maintaining a new transmission line in central Nebraska, known as the R-Project (project).

The U.S. Fish and Wildlife Service (FWS) is preparing a supplemental environmental impact statement (SEIS) to the February 2019 *Final Environmental Impact Statement on Issuance of an Incidental Take Permit and Implementation of a Habitat Conservation Plan for the R-Project Transmission Line* (FEIS). The SEIS will evaluate the impacts on the human environment related to the proposed issuance of the ITP and implementation of the HCP, including addressing the issues identified by the U.S. District Court for the District of Colorado in its remand of the ITP that FWS issued June 12, 2019. The SEIS will focus specifically on information in the FEIS that requires supplementing (i.e., issues identified by the U.S. District Court) and any new information that has become available since the issuance of the FEIS and that is notable and would result in a substantial difference in the analyses.

The National Environmental Policy Act (NEPA) requires full disclosure of potential environmental effects of a proposed project and open public participation throughout the decision-making process. The SEIS is necessary for the FWS to meet their requirements under NEPA and its implementing regulations and involves a public scoping period.[1] Scoping is an early and open process for determining the scope of the issues for analysis in a SEIS, including identifying the significant issues and eliminating non-significant issues from further study (40 Code of Federal Regulations [CFR] 1501.9). Through this process, the public, organizations, and agencies assist in the development of the SEIS by identifying important issues and alternatives to the proposed action that should be considered in the SEIS.

This report describes the public noticing and engagement efforts undertaken by FWS during the scoping period and summarizes comments received during the scoping period. The full text of comments received on regulations.gov during scoping are available at the following web address: https://www.regulations.gov/document/FWS-R6-ES-2014-0048-0202/comment. The FWS also received comments via email.

[1] Note that under CEQ regulations scoping is not required for SEISs. However, for this SEIS the FWS decided to conduct scoping.

Public Notices and Distribution of Notices

Notice of Intent

The Notice of Intent (NOI) was published in the *Federal Register* (FR) on November 18, 2022 (https://www.federalregister.gov/documents/2022/11/18/2022-25217/notice-of-intent-to-prepare-a-supplemental-environmental-impact-statement-for-the-r-project). The NOI provided background information on the proposed action, the habitat conservation plan (HCP), and the National Environmental Policy Act (NEPA) process, as well as a summary of expected impacts, an estimated timeframe for the availability of the Draft SEIS, and information on how to participate in the scoping process. The NOI included the project website and provided ways to view a recording of the public scoping meeting virtually. The NOI was also made available on the FWS R-Project website at https://www.fws.gov/project/r-project-transmission-line and in a FWS press release at https://www.fws.gov/press-release/2022-11/usfws-seeks-public-input-preparation-supplemental-environmental-impact.

Email Notifications

FWS distributed notice by email to interested parties on November 17, 2022, in advance of the publication of the NOI in the Federal Register. The email notice provided an overview of the potential action and announced the opportunity to participate in virtual public scoping meetings and provide comments on the effect of the potential action. The email notifications were sent to representatives of federal, state, and local governments; elected officials; tribes; nongovernmental organizations; environmental organizations; businesses; and others who have expressed interest in the process.

Media Notifications

FWS distributed a public scoping news release to the media announcing the availability of the NOI, the opportunity to attend a virtual public meeting, and explained how to provide comments on November 17, 2022. The media release was made available to the public online at: https://www.fws.gov/press-release/2022-11/usfws-seeks-public-input-preparation-supplemental-environmental-impact. The FWS also distributed this same information via FWS social media platforms, including Facebook (https://www.facebook.com/photo?fbid=509391794564755&set=a.222353563268581) and Twitter (https://twitter.com/USFWSMtnPrairie/status/1593334269232947202).

U.S. Fish and Wildlife Service Website

Prior to the virtual public meeting, the FWS website provided a summary of the proposed action, information on how to join the virtual public meeting, information about how to provide comments and a link to www.Regulations.gov, a link to the FR notice, the public scoping news release, and a link to a Frequently Asked Questions document. Following the virtual public meeting, links to the closed-captioned recordings of the two virtual public meeting were posted on the FWS R-Project website at https://www.fws.gov/project/r-project-transmission-line.

Virtual Public Scoping Meeting

FWS held two virtual public scoping meetings on December 8, 2022. The first meeting was held in the morning at 10:00 a.m. Central Standard Time (CST) and the second was held later in the evening at 6:30 p.m. CST. The meetings were held using Zoom as the webinar platform and included a presentation by FWS and a question-and-answer session. The purpose of the meeting was to provide information to the public about the NEPA process and the proposed action, how to submit comments, and to allow participants to ask questions about the environmental review process and SEIS.

Jennifer Piggott, facilitator with ICF, a third-party contractor, opened the meeting and provided an overview of the agenda, basic functions of how to participate on the virtual meeting platform, and how to turn on closed captioning and join by phone if needed. Mark Porath, FWS project lead, described the project background, the meeting purpose, and the proposed action. He also introduced the NEPA process and the purpose of scoping. After Mark Porath's presentation, Jennifer Piggott reviewed the different methods the public could use to submit written comments. Jeff Runge, FWS Project Manager, provided an overview of Section 106 and cultural resources process and information on how to participate in the Section 106 process as a consulting party.

Following the presentations, FWS provided meeting participants the opportunity to ask clarifying questions. The first virtual public meeting held at 10:00 a.m. CST was attended by 35 individual stakeholders and the second meeting held at 6:30 p.m. CST was attended by 25 individual stakeholders.

During the virtual public meetings, FWS did not solicit, collect, or record oral public comments for the project record. Participants were provided detailed explanations on how to submit comments for the project record - written comments online via www.Regulations.gov or via mail to FWS headquarters. Participants were reminded that all comments are treated equally regardless of submission method.

Summary of Public Scoping Comments Received

During the scoping period a total of 64 comment letters were received: 1 from a federal agency, 2 from elected officials, 8 from non-profit organizations, 7 from businesses, and 46 from members of the public. From the 64 comments, 305 comments were excerpted and used in creating this report. Most comments were received via regulations.gov, which are available online at: https://www.regulations.gov/document/FWS-R6-ES-2014-0048-0202/comment.

Below is a summary of all comments received, by topic. No comments were received specific to the FEIS topics of geology and soils, transportation, air quality and greenhouse gas emissions, noise, hazardous materials and hazardous substances, or environmental justice.

HCP

Commenters provided the following comments on the HCP.

- Covered Species

  - The HCP should seek take coverage for more than just the American burying beetle, and include whooping cranes, listed bats, bald eagles, red knots, piping plovers, and other raptors.

- Mitigation
  - Concern that enhancing 500 acres of American burying beetle habitat is not enough to offset impacts.
  - In addition to implementing measures that would reduce the likelihood of Whooping Crane-power line collisions, the HCP should include funding to protect, enhance, and create wetland areas within the migration corridor that is not impacted by the project, which would lessen their dependence on the wetland foraging and roosting sites that are affected.
  - Concern with mitigation terminology like 'maximum extent practicable'; a measurable standard should be required and shown to be a benefit to the species.
  - Concern with spread of noxious weeds and cattle disease from vehicle use, and washing vehicles at county boundaries rather than landowner property boundaries.
- Monitoring and implementation
  - A before and after impact study should be implemented to determine the impact of the project.
  - Concern that landowners and ranchers will have to take on an undue burden of fixing damage caused by heavy equipment on the Sandhills.

General Support

Several commenters expressed support for the project, stating that they believe the project would improve the reliability and congestion constraints of the current transmission system, support customers interested in converting from diesel to electric, and serve the growing electric loads and needs unfailingly.

NEPA Process

One commenter requested that the NEPA process include a 30-day comment period extension to enable more people to submit comments and were concerned that the comment period overlapped with the holidays. Another commenter expressed that the SEIS public meetings should replicate those held for the FEIS and include in-person meetings with landowners impacted by the route, community informational meetings, and physical tours of the route guided by landowners and stakeholders.

Approach/Scope to SEIS Analysis

One commenter stated the scope of the SEIS should be limited to those specific issues identified by the U.S. District Court in its remand and new information, and not a re-visitation of information such as alternative routing previously evaluated that resulted in the issuance of the ITP.

Purpose and Need

FWS Purposed and Need -

- On commenter stated the FWS should be protecting the Nebraska Sandhills and the rare species that depend on this environment rather than approving a project that runs through this fragile ecosystem, and that this approval would be contrary to the purpose and goals of ESA.

NPPD Purposed and Need -

- Several comments question the R-Project's purpose and need
    - NPPD should support the claim that the project will enhance reliability and relieve congestion, and should disclose whether Nebraska is a net producer or exporter of electrical energy.
    - NPPD needs to disclose what renewable energy projects have been requested or expected to be built as a result of the R-Project.
    - NPPD needs to disclose what facts support claims that NPPD's membership in the Southwest Power Pool is beneficial to Nebraska and NPPD as compared to the burdens and obligations imposed by such membership.
    - NPPD needs to disclose how its current proposal complies with the decision of the U.S. District Court for the District of Colorado.
    - The FWS should make an independent determination on NPPD's stated goals – will the R-Project enhance reliability of NPPD's electrical transmission system and will the R-Project relieve congestion from existing transmission lines?
    - Questions on maintaining the functionality of NPPD's Gerald Gentleman Station, a coal-fired complex - If the R-Project helps facilitate continued operation of this facility then impacts of greenhouse gas emissions and other air pollutants need to be assessed (the analysis would need to occur in the SEIS, if necessary).

Alternatives

Commenters suggested that the following alternatives be analyzed in the SEIS.

- General comments requesting FWS to explore alternative routes that reduce or avoid impacts to various resources (e.g., Nebraska Sandhills).
- Use existing easements and already disturbed corridors (e.g., existing transmission line corridors, existing road corridors, etc.).
- Bury the transmission line as an alternative to an elevated powerline attached to towers to reduce impacts to resources (e.g., birds, wetland habitats).
- Revisit alternative routes there were previously studied.
- Consider a route that avoids degrading and impacting the most sensitive portions of the Sandhills.
- Avoid conservation easements, specifically the conservation easement on the Horseshoe Bar Ranch that will soon be the held by Nebraska Land Trust. The R-Line would cross the property near its crossing of the Dismal River along U.S. Highway 83. The easement is being acquired

through the Natural Resources Conservation Service (NRCS) Agricultural Easement Program (ACEP) and has qualified for the Grasslands of Special Environmental Significance (GSS) section of the program. If NPPD or any other entity proposes to condemn all or part of the easement for the R-Line, they will need to obtain approval from the NRCS.

- Suggestion that FWS conduct a full study of which the proposed route will minimize the environmental damage of the transmission line and any associated projects (wind and solar).
- Request for a route that does not impede additional views and uses no new space.
- Suggestion of an alternative that uses ultra-violet light to mitigate avian collision impacts with the transmission line.
- Suggestion of an alternative of off-site habitat restoration for species (e.g., whooping crane).
- Suggestion that the South Route be used or a route south (i.e., not going through Thedford) of the proposed route to reduce impacts on resources (e.g., wildlife, ABB).
- Suggestion that the Central Route be used to reduce impacts the Sandhills, ABB, and whooping crane.
- Suggestion to explore additional alternatives to avoid or reduce adverse impacts on O'Fallon's Bluff, or the Sand Hill Ruts, or both.
- A commenter stated that the FWS is obligated to consider not only those alternatives that NPPD asserts it is willing to ultimately adopt, but any alternatives that could satisfy the stated purpose of this action. The FWS, as the federal agency with discretion to issue or deny a legally necessary federal permit, has the duty under federal law to ensure that all reasonable alternatives for avoiding and/or minimizing harm have been thoroughly considered and disclosed in the SEIS, and that such options or measures have been adopted prior to FWS rendering any final decisions under the National Historic Preservation Act (NHPA) and the ESA. This means that as part of this decision-making process, FWS must consider even those reasonable R-Project routing alternatives with reduced impacts to affected resources that are outside of the corridors approved in 2014 by the Nebraska Power Review Board ("Board"). This is because NPPD could return to the Board and seek approval for additional R-Project routing corridors, especially given that more than eight years have passed and significantly more is known today about various relevant factors (including Whooping crane migratory paths and impacts to historic and cultural resources) that would be in front of the Board in any new proceeding to determine the most appropriate routing corridors.
- As the U.S. District Court already held in the prior litigation, FWS must, at minimum, consider all reasonable routing alternatives inside the corridors the Board approved in 2014. There are surely modifications that can be made by NPPD to its long-proposed route within the Board-approved corridors, which would avoid or reduce harm to affected resources (and in particular O'Fallon's Bluff and the Oregon-California Trail ruts).
- A commenter stated the FWS must in its SEIS consider a reasonable range of alternatives that NPPD could take to avoid or reduce impacts to affected resources—including alternatives that NPPD self-servingly states it would not ultimately accept—and they must be substantively different options, rather than slightly different transmission line tower options (monopole versus lattice) with no meaningful distinctions among the action alternatives. The commenter suggests that absent a full consideration of meaningfully different alternatives in the draft HCP

that are theoretically available (as well as in the SEIS), the FWS cannot lawfully issue any ITP for the R-Project.

- NPPD needs to disclose whether any part of the original final route will be changed.
- A commenter stated that the routes dismissed from further evaluation in the FEIS were technically and economically feasible.
- The FWS must not be constrained in its analysis by the preferred route of NPPD, nor blindly rely on its claims regarding the availability or feasibility of alternative routes.
- The FWS must analyze all potential ways to avoid impacts to wetlands, streams and rivers by limiting water crossings, locating them away from sensitive habitat areas, and using construction techniques and temporal limitations to prevent disturbance.
- NPPD has not set forth a compelling justification for placing the R-Project in this location when other financially viable options exist that would relocate the R-Project only a few miles east, thereby avoiding the major destruction of historic and cultural resources. In practice, this would mean re-routing the R-Project three miles further east from Gerald Gentleman Station and turning north on a route that was considered by NPPD at an earlier time. By going east this small distance, the habitat/setting of the Oregon Trail, Mormon Trail, and Birdwood Trails would be kept pristine and historic, and cultural treasures preserved for generations to come.

Commenters also expressed concern related to the no action alternative:

- The project is imperative for improving the reliability of Nebraska's transmission grid and avoiding congestion constraints and electricity shortages as electrical demand continues to increase.
- Without the project, irrigation customers would not be able to convert diesel-powered irrigation systems to electric, prohibiting beneficial environmental impacts.

Environmental Resource Areas

Water Resources

Commenters expressed concern with the following water resources issues:

- Potential for groundwater contamination (Ogalla Aquifer) from the project, including installation of helical piers in wetland areas, drilling at Freemont Slough, or by other means.
- Potential for adverse impacts on groundwater/water resources in areas where the water table is high (i.e., near the ground surface).
- Concern that recent long-term flooding would make construction, maintenance, and emergency repairs impossible and negatively impact landowners.
- Concern with clearing at locations where the project crosses water ways, including at Birdwood Creek, South Platte, North Platte, South Loop, Dismal, North Loup, Middle Loup, Calamus, and Cedar Rivers.
- Concern that adverse impacts on water resources would negatively impact wildlife that utilize them.

Wetlands

Commenters expressed concern with the following wetland issues:

- Potential for heavy equipment to damage sensitive wetland topography and cause irreparable harm to wetlands, particularly to swales, fens, and bogs.
- Concern transmission lines crossing sites protected by Wetlands Reserve Program would result in decreased habitat values for wetland-dependent bird and wildlife.

Vegetation

Commenters made the following suggestions regarding the vegetation resources analysis or expressed concern with the following vegetation resources issues:

- FWS must give serious consideration as to how the project would affect the largest remaining intact area of grassland (i.e., grassland would be divided into two isolated parts); this will have consequences for wildlife.
- Concern for adverse impacts on intact grassland regions given that they have critical importance to global grassland conservation efforts.
- Concern with spread of noxious weeds and cattle disease from vehicle use, and washing vehicles at county boundaries rather than landowner property boundaries.

Wildlife

Commenters made the following suggestions regarding the wildlife resources analysis or expressed concern with the following wildlife resources issues:

- General concern for potential impacts on birds protected under the Migratory Bird Treaty Act and compliance with that statute.
- General concern for bird collisions with transmission lines and towers and impacts to flight patterns.
- General concern the project will adversely impact migrating, breeding, and overwintering birds, as well as prairie chickens, bats, and other species local to the project area (e.g., sandhill crane).
- Concern that effects of the project on migratory birds have not been adequately studied.
- Concern that transmission lines will create perches and corridors for predators that will significantly reduce species population.
- Concern that clearing for the transmission line with destroy trees and habitats for bird and other wildlife species, particularly around North Platte River, Birdwood Creek, and Old Ford Road/Lower Platte Crossing.
- Concern that trumpeter swans and prairie chickens will lose habitat needed for foraging, nesting, and wintering.
- Concern that prairie chicken populations, as well as other grassland birds, will suffer due to their need for large and unfragmented habitat with various densities of grassland.

- Consider impacts to other regional taxa of conservation concern, develop a migratory bird conservation plan that is provided to the public to comment on, and analyze impacts to wildlife at each point the project crosses a water way.
- Consider species other than the American Burying Beetle in the SEIS and ensure alternatives that would minimize and mitigate any potential harm to such species are being considered.
- Additional measures for mitigating bird collisions are needed as those identified in the Migratory Bird Conservation Plan, including Bird Flight Diverters and bird deflectors, are not adequately effective.

Commenters specifically expressed concern with the following Greater Prairie-Chicken issues:

- The Sandhills provides habitat for the only prairie-chicken species not listed as endangered or threatened, making it a valuable resource.
- Greater Prairie-Chickens require unfragmented habitat and varying grassland vegetation heights to complete its life cycle.
- Transmission lines can negatively impact Greater Prairie-Chicken survival and movement as they avoid power lines and roads.
- Collision mortality events associated with transmission lines have been documented for Greater Prairie-Chickens who would benefit from buried transmission lines.

Special Status Species

Commenters made the following suggestions regarding the Special Status Species analysis or expressed concern with the following Special Status Species issues:

- Whooping Crane
    - General concern of the R-Project's potential impact on the species, including potential for take and not including the species in the HCP.
    - Analysis of the species should be included in the SEIS.
    - The SEIS analysis should include the best available science and the most recent and up to date information on whooping crane, including any recent electronic tracking data and recent studies (e.g., study by Dr. Craig Davis at Oklahoma State University).
    - Consider the 2018 study by Pearse et al. and 2017 study by Gil and Weir in the analysis.
    - Concern with collisions with the transmission line, including specific areas along the proposed route (e.g., Birdwood Creek).
    - Potential impacts on the flyway and avoidance of transmission line and related effects, including:
        - Changes to feeding and breeding behavior, including how Whooping Cranes move within and between wetlands in search of food, water, and secure roosting locations.
        - Forced temporally and spatially longer flights in the search of suitable habitats, or roosting and foraging closer to anthropogenic structures.

        - The increased likelihood of collisions with anthropogenic structures due to an expenditure of energy reserves and flying during low light conditions due to temporally and spatially longer flights.
    - Avian collision systems should be considered to reduce impacts of the transmission line (e.g., ultra-violet light systems).
    - The SEIS should strongly consider robust mitigation and habitat restoration should be considered to offset impacts.
    - Transmission line burial should be considered in high traffic wetland areas.
    - Flight diverters should not be considered as they are found to be only 50% effective.
    - Include potential impacts from any related wind energy projects.
    - One commenter commissioned a 2-year study to calculate whooping crane take from the R-Project. Publication is forthcoming and is titled "Potential Effect of the Proposed R-Project Transmission Line on the Aransas/Wood Buffalo Whooping Crane Population" (Barzen et al 2022). The study concluded with 62.8% probability that take (just over one) of whooping crane would occur from the R-project. The FWS should consider this information.
- Piping Plover
    - Demonstrate that the R-Project would not result in take for other federally listed species (e.g., piping plover).
    - Conduct or commission a take probability analysis the Piping plover that includes a collision assessment which attempts to estimate the probable risk of take and examines the direct and indirect impacts of the R-project.
- Eagles
    - Concern with protected species around Birdwood Creek, including bald eagles.
    - Concern that the R-project will result in take of golden and bald eagles.
    - Forecast based on best available understanding the anticipated risks potential future development projects would pose to bald and golden eagles.
- American Burying Beetle
    - Concern with potential impacts of the project on American burying beetle and their habitat, and mitigating for impacts.
- Migrating Birds
    - Concern that the R-project and any potential future development will cause major adverse impacts to and result in take of migratory birds.
- Northern Long-Eared Bats
    - Concern the R-project would have significant adverse impacts to northern long-eared bats.
    - Concern potential future development projects, including wind farms, would result in habitat disturbance and mortality of hundreds of northern long-eared bats.
    - Include an analysis of potential indirect and cumulative impacts to the federally endangered northern long-eared bats in the SEIS.

- Other Special Status Species
    - Concern that the R-project will negatively impact the Blanding's turtle, destroying the fragile ecosystem making up its habitat.
    - Concern the project would likely result in harm to Endangered Species Act protected birds, including red knots.
    - Concern with potential impacts on other federally listed species (e.g., northern long eared bats, piping plover) and protected species (e.g., Bald and Golden eagles) from the project and related infrastructure facilities (e.g., wind turbines).
    - Concern that clearing for the transmission line will destroy habitats for special status species (e.g., bald eagles, nesting bald eagles, piping plovers, terns etc.) along the North Platte River, Birdwood Creek, and Old Ford Road/Lower Platte Crossing.

Land Use

Commenters made the following suggestions regarding the land use resources analysis or expressed concern with the following land use resources issues:

- Potential damage to conservation values where the project crosses conservation easements.
- Concern that construction of towers will make cause blowouts and clearing of trees will create wind tunnels, ultimately making land unusable to raise cattle on.
- Concern land developed for hunting will no longer be usable.
- Concern for negative impacts to Natural Resources Conservation Service (NRCS) Conservation Stewardship Program (CSP) lands protecting species including the American Burying Beetle.
- Concern that efforts to secure portions of properties along the project's route threaten ranchers and would permanently devalue land along the route.
- Concern electrical magnetic energy will affect grazing and reproduction patterns of cattle and horses.
- Concern that not moving forward with the project would prohibit energy suppliers from meeting the electricity needs of agricultural customers who would experience electricity shortages and negative impacts to their ability to use the landscape for agricultural purposes.
- Concern with spread of noxious weeds and cattle disease from vehicle use, and washing vehicles at county boundaries rather than landowner property boundaries.
- Concern with constructing the project on areas previously damaged by the Bovee fire that has been put into U.S. Department of Agriculture Farm Service Agency set aside programs.

Recreation and Tourism

Commenters express the following concerns for recreation and tourism:

- Several commenters expressed concern with the project's potential impact on tourism, including reduced visits and revenues:
    - Ecotourism related to the wildlife (e.g., whooping crane viewing) and natural habitats of the Nebraska Sandhills, including in those in Lincoln County.

- Heritage tourism related to historical sites, particularly in Lincoln County.
- Ranchers, Airbnbs, bed and breakfasts, campgrounds, hotels, and motels who host travelers who visit to experience ranches, bird watch, stargaze, and see the unique open spaces of the Sandhills.

Cultural Resources

Commenters made the following suggestions regarding the cultural resources analysis or expressed concern with the following cultural resources issues:

- General concern with the impacts the project will have on historical and cultural sites.
- Potential impacts to the Oregon-California National Historic Trail, Mormon Pioneer National Historic Trail, and Pony Express Trails (collectively the Trails); and the trail ruts and significant historical sites associated with the Trails (e.g., O'Fallon's Bluff).
- Concerns that the intrusion of the transmission line towers and power lines will fundamentally change the character, setting, feeling, and historic value of the Trails and associated historical sites.
- Concern that the visual impact to the Trails would jeopardize the ability of the Trails to remain at a Class 1 ranking status.
- Concerned with the FWS' execution of the Section 106 process and potential lack of transparency and diligence in the Section 106 process, as well as exclusion of parties in the process and lack surveys of land parcels.
- Concerned with potential impacts on Birdwood Creek Archeological Site – 25LN113 (potentially eligible for the National Register under Criterion D). Additional investigations are recommended if soils disturbance is to occur in this area.
- Concern about whether the Area of Potential Effect is adequate and captures the appropriate areas along the 225 mile transmission line.
- Concern with potential impacts on the Birdwood Creek valley – a traditional route for ancestors of the native indigenous people; archaeological sites in the valley indicate various people-groups utilized the area.
- Concern with native graves in that the project area that could be affected by the project.
- Concern the project would go through the visible remains of the first sod schoolhouse in the north end of Garfield County. The Garfield County Historical Society has marked the location with a nearby sign.
- Concern with potential impacts on the historical remnants of the early Nebraska homesteaders.
- Concern with potential impacts on Native American campgrounds along Birdwood Creek (confirmed by State Historical Preservation).
- Concern with potential impact on Native American artifacts (arrowheads, spear points, metal objects) and burial sites around the bluffs.
- A commenter stated the FWS must ensure that NPPD to avoid, minimize, or mitigation adverse effects on historic properties (36 CFR 800.1(a)) and shall ensure that a broad range of alternatives are considered to avoid or minimize impacts to affected resources (36 CFR

800.1(c)). FWS must consider under the NHPA routing alternatives both outside the Nebraska Power Review Board (Board)-approved corridors and inside the Board-approved corridors that could reasonably achieve the R-Project's purpose while avoiding or reducing impacts to O'Fallon's Bluff, trail ruts along the Oregon-California Trails, the Mormon Pioneer Trail, and the Pony Express Trail.

- Concern the R-project would damage the view of a protected property with historical value as it makes up a part of the Black Ranch, the subject of a book by Roe R. Black, *The Horseshoe-Bar Ranch (Remembering a Prairie Childhood*).

Visual Resources and Aesthetics

Commenters expressed concern that transmission towers would adversely impact the viewshed of the Lincoln Highway Scenic & Historical Byway, the Sandhills Journey National Scenic Byway, and other historical and culturally significant sites.

Health and Safety

Commenters made the following suggestions regarding the health and safety analysis or expressed concern with the following health and safety issues:

- General concern that construction and maintenance of transmission lines will cause fires, with risks exacerbated by the project area's extreme winds, tall prairie grass, remoteness, and few fire departments.
- Concern with constructing the project on areas previously damaged by the Bovee fire.
- Concern that significant amounts of high frequency currents and electromagnetic radiation will harm human health.
- Concern that tree clearing in wide corridors would exacerbate extreme winds and produce unsafe driving conditions on the Nebraska Interstate System.

Socioeconomics

Commenters expressed concern with the following socioeconomic issues:

- Concern that landowners and ranchers will have to take on an undue burden of fixing damage caused by heavy equipment on the Sandhills, as well as financial burdens from the loss of shelter belts and changes in bale-yards and calving lots.
- Suggestion that FWS require a specified course of action from NPPD in the case of fires started by transmission lines to avoid financial burdens that would otherwise be put on ranchers.
- Concern that small towns and local economies will suffer due to negative impacts on trails, ranching, and tourism businesses, as well as people migrating out of the Sandhills.
- Concern that those who have chosen to live rurally will no longer be able to remain isolated from industrial projects.
- Concern that not moving forward with the project would force agricultural customers who rely on energy providers to experience electricity shortages, negatively impacting their ability to use the landscape for agricultural purposes and the agricultural economy as a whole.

Sandhills Ecosystem

Commenters made the following suggestions regarding the Sandhills ecosystem analysis or expressed concern with the following Sandhills ecosystem issues:

- Concern that due to the fragile nature of the Sandhills, damage to habitat, surface, soil, and grass, including ruts and blowouts, will be long-lasting or permanent.
- Concern with the project route fragmenting the Sandhills' grasslands as they protect storage of fresh water, provide habitat to species, and represent an incredibly unique ecological resource.
- The SEIS must evaluate how the project will adversely affect the ecosystem services the Sandhills provide.
- Require NPPD to purchase or preserve undeveloped off-site lands to offset harm to the Sandhills.
- Concern with constructing the project on areas previously damaged by the Bovee fire that has been put into U.S. Department of Agriculture Farm Service Agency set aside programs.
- Concern the impact current issues of drought and flooding could have, including:
    - Concern the natural grasses of the Sandhills have already been significantly damaged by blowing sand because of ongoing drought and would only be further damaged by the R-Project.
    - Concern the negative effects to the Sandhills would be significantly increased in light of the preceding flooding of the present drought.
    - Concern for the potential future scenario where multiple transmission line locations could be in feet of standing water caused by significant flooding, prohibiting any necessary construction, maintenance, or emergency repairs and negatively impacting landowners.

Cumulative Effects[2]

Commenters expressed concern over the increased likelihood of other development (e.g., renewable energy) to occur in relation to the R-Project:

- Commenters expressed concern that the R-Project would make it more likely for wind-energy development to occur in the area (e.g., Cherry County), which would result in cumulative effects to wildlife and the environment (e.g., Sand Hills).
    - Wind turbines cause night-sky impacts from blinking lights.
    - More roads and increased traffic would occur from constructing and operating wind-energy development projects, which would also result in habitat loss and degradation and increased dust.
    - Installing wind turbines could impact the Ogallala Aquifer.

[2] For simplicity and in consideration of the nature of the scoping comments received, comments concerning the relationship between the R-Project and future development are summarized here under *Cumulative Effects.* The FWS will determine in the SEIS which effects from foreseeable development are analyzed as cumulative effects and which are indirect effects..

  - Wind energy development will impact threatened and endangered species (including whooping cranes), wetlands, habitats (e.g., clearing) migratory birds, bats, and other wildlife species.
  - In addition to turbines, wind energy projects would also include construction and operation of roads, distribution lines, and other impermeable surfaces, which would result in impacts to the environment (e.g., habitat clearing).
  - Impacts from wind-energy project decommissioning, including wind turbine disposal, should be considered.
- The SEIS should analyze the direct, indirect, and cumulative effects of wind-energy projects reasonably foreseeable to be constructed and interconnected to the R-Project.
- One commenter commissioned a study to determine the amount of wind generation that can be supported by a proposed transmission line in Nebraska and the number of wind turbines that would result.
  - The study evaluated the maximum number of new wind turbines that may potentially interconnect to the R-Project by determining the amount of megawatts (MW) that the R-Project can support reliably, considering different scenarios of transmission grid usage.
  - Based on the study result, the R-project could support 35 wind farms, from as few as 700 to as many as 1,400 turbines, and a total acreage occupied by wind farms ranging from 170 to 500 thousand acres.

Commenters noted that the SEIS should assess the extent of future wind-energy development to occur in relation to the R-Project, including estimating the number and location of future turbines and/or projects using best available information.

- Southwest Power Pool estimates reasonable proliferation of industrial wind related to R-Project.
- The scope of the action area for the purposes of NEPA, the ESA, and the NHPA should include any known or reasonably foreseeable locations of wind projects.
- The SEIS should reasonably forecast the location for foreseeable wind energy development using the best available understanding of where wind energy is most profitable along the R-Project route.
- The SEIS should at minimum analyze the nature of the impacts from foreseeable future wind-energy development where there is uncertainty as to the location of future wind-energy projects.

Appendix C

Nebraska Public Power District Summary of the Power Review Board and Transmission Line Routing Process

Nebraska Public Power District Summary of the Power Review Board and Transmission Line Routing Processes

May 17, 2023

The U.S. Fish and Wildlife Service (USFWS) has requested a summary of the Power Review Board (PRB or Board) approval process and the routing process for transmission line projects in Nebraska. Nebraska Public Power District (NPPD) provides this summary for USFWS's consideration.

Nebraska is the only state in the United States where all retail electric service is provided by consumer owned utilities. Consequently, the citizens of Nebraska are served by electric utilities for which they have direct representation through an elected city council, elected public power district board, or elected electric cooperative board. Each retail utility has an exclusive retail service area in which it has the exclusive right to serve and the obligation to serve all customers. Section 70-1001 of the Nebraska Revised Statutes (NRS) provides that, to provide the citizens of the state with adequate service at as low overall cost as possible, consistent with sound business practices, it is the state's policy to avoid and eliminate conflict and competition between public power districts. Thus, all retail electric utilities have service territories and service agreements among them that have to be approved by the PRB.

NRS Section 70-1014 provides that, to build new generation facilities or transmission lines, a utility must file an application with the PRB. Upon consideration of that application, the Board must find that (1) the application will serve the public convenience and necessity, and (2) the applicant can most economically and feasibly supply the electric service resulting from the proposed construction, without unnecessary duplication of facilities or operations. *Id.* As part of the Board's evaluation of the application, it must hold a hearing that allows interested parties to appear, file objections, and offer evidence. *Id*. § 70-1013. In accordance with this requirement, after NPPD completes its extensive routing process (described further below) and selects a final and an alternate route or routes, it files an application with the PRB to obtain approval of the proposed transmission line.

Utilities also have to obtain approval from the Public Service Commission (PSC). The PSC has general supervision over any and all wires transmitting electric current or any other wires that cross under or over any railroad track or public highway crossing. NRS § 75-702. The PSC ensures that all lines that are constructed for the transmission of electric current over the public highways meet all of the requirements for clearances and voltages of electric wires. NPPD seeks approval from the PSC after the PRB because it is usually later during the process that the engineering design of the proposed line will be sufficient to know what wires and what voltages will be crossing over which roads and railroads.

NPPD must obtain all state-level approvals that are required to construct the project before it can begin negotiating with any landowners. Under the Uniform Procedure for Acquiring Private Property for Public Use, NRS §§ 25-2501 to 25-2506, if the project requires NPPD to obtain rights or interests in more than ten separately owned tracts of land, NPPD is required to give notice and hold a public hearing at least 30 days before it can begin negotiating with the landowners along

the route. Thus, after the PRB issues an order approving the project, NPPD must hold a public hearing in each county where landowners along the route are located. NRS § 25-2504.

Because the PRB's function is to determine whether the project as proposed will serve the public convenience and necessity and that the applicant can most economically and feasibly supply the electric service without unnecessary duplication of facilities or operations, the applicant must undertake its own thorough process to identify where the project will be located prior to seeking approval from the Board. The PRB's approval is specific to the application that is filed. For the R-Project, NPPD's application included a preferred and alternative route within a routing corridor. The PRB Order found that the routing corridor satisfied the approval criteria in NRS § 70-1014.

However, this does not mean that NPPD is free to change the location of the R-Project anywhere within that corridor without further public process. Because there is no state agency with routing authority in Nebraska, NPPD has developed a robust routing process that has been honed over several decades to ensure public participation and transparency and reduce land-use, environmental, and other conflicts. As a public entity with publicly elected members of its Board of Directors and monthly public meetings, it is imperative that NPPD continue to follow this process to ensure the integrity and transparency of NPPD's transmission development in the state. Thus, if NPPD were to abandon the final route of the R-Project that NPPD's Board of Directors approved in 2015 and select another location within the PRB corridor, it would have to engage in its multi-year public process again, which is described below, with the exception of the identification of the study area and corridors.

NPPD's steps in selecting a route for its transmission lines are as follows: (1) determine the study area; (2) narrow the study area down to route corridors; (3) identify preferred route and alternative routes within corridors; and (4) select a final route. The Guiding Principles for Routing and Siting the Project are contained in **Exhibit A** attached hereto. NPPD's public involvement process requires public input and transparency, as well as collection of available data, and input from many agencies, the landowners, and all aspects of the public. To better understand how these steps are implemented, a brief summary of how NPPD selected the route for the R-Project is useful.

The R-Project study area was initially established through evaluation of the termination points of the transmission line that needed to be connected. These termination points are consistent with the Southwest Power Pool's Notice to Construct. These starting, ending, and intermediate points, along with the need to identify an area that provides for the development of reasonable alternatives, largely dictated the size and shape of the study area boundaries. Data were then acquired for the preliminary study area, including current aerial photography from National Agricultural Imagery Program, as well as Digital Globe Satellite Photography, municipal boundaries, county boundaries, roads, railroads, airports, irrigated agriculture (center pivots), residences, churches, schools, cemeteries, and sensitive environmental features. These data were mapped using Geographic Information System (GIS), and the maps were taken in the field for reconnaissance of the study area. Based on this information, reasonable R-Project study area boundaries were determined that would provide the necessary area and the flexibility needed to establish line route alternatives. During the course of data acquisition, possible exclusion areas or routing constraints were identified, such as areas around incorporated towns, cities, and villages,

public airports, Wildlife Management Areas, State Recreation Areas, Wetland Reserve Program properties, and Farm and Ranch Protection Program properties. The R-Project Study Area is shown on **Exhibit B** attached hereto.

The R-Project study area encompassed approximately 7,039 square miles of predominantly private lands with a few Federal lands managed by USFWS or the U.S. Forest Service, as well as state lands managed by the Nebraska Game and Parks Commission (NGPC) in the study area. NPPD met with representatives from USFWS and NGPC and presented a proposed study area map on December 12, 2012. The proposed study area was presented to community leaders, agencies and the general public in the first round of open house meetings in January of 2013 in Tyron, Hershey, Halsey, Mullen, Chambers and Ainsworth. Comments were solicited and recorded.

During the meetings with the public, the following key issues were identified for consideration of possible constraints for routing: (1) agriculture and irrigation, (2) residential areas, (3) communities, (4) Sandhills ecoregion, (5) special-status species, (6) National Wildlife Refuge, (7) Wildlife Management and State Recreation areas, (8) Wetlands Reserve Program and Farm and Ranch Land Protection Programs, (9) visual resources, (10) commercial and industrial development, and (11) cultural and historic resources. Data were collected and mapped.

High-resolution aerial photography of the entire study area was acquired in December 2012. Information from the initial public input and public domain and data sources were field verified where public access was available. Field observations were recorded concerning potential constraints and opportunity areas. Potential river crossings were identified and considered.

Based on siting opportunities and constraints, the R-Project Study area was narrowed to corridors. NPPD met with NGPC and USFWS on July 2, 2013, and presented and discussed the R-Project corridor map. A map of the R-Project corridors is shown on **Exhibit C** attached hereto.

Proposed corridors were mapped and presented to community leaders, agencies and the general public in open house meetings in September 2013 in Thedford, Sutherland, Dunning, Stapleton, Burwell, and Bartlett. Comments were solicited and recorded. Routing criteria were developed and used to identify preferred and alternate routes. Routing criteria are specific characteristics or traits that are measured and used as factors or points of comparison between route alternatives. Generally these criteria fall into three broad categories: (1) land use, (2) environmental, and (3) engineering data or information. Line routing becomes a process of identifying alternatives that represent a balance of the criteria that fall within the three general categories, while also considering community input and meeting the specific electric system needs. The R-Project routing criteria are provided in **Exhibit D** attached hereto.

The data collected were input into GIS. Potential route links were identified and screened. Considering the criteria, NPPD evaluated potential routes and developed end-to-end route alternatives. NPPD analyzed each section and half section within the corridors. Route opportunities were identified as section and half section lines where (1) there were no residences within 300 feet, (2) existing access was available, (3) there were no center-pivot conflicts, (4) there were no new impacts to cropland, (5) reasonable low-impact river crossings could be used, (6)

there was no conflict with airport operations, and (7) threatened and endangered species could be largely avoided.

NPPD's team identified over 2,000 miles of potential route links, which were evaluated using the routing criteria and public input from the study corridor open house meetings. Based on this analysis, the team connected route links to create potential routes that presented the least impacts with an acceptable balance of the routing criteria. Of the potential route links identified and evaluated, two potential route segments were judged to provide the best routing opportunities from GGS to the Thedford Substation, and three route segments were judged to provide the best routing opportunities from Thedford Substation to the Western Area Power Administration line.

NPPD met with representatives of the NGPC and the USFWS on April 14, 2014, and presented the R-Project Alternative Routes map with the Preferred Route identified and discussed the Project. The preferred and an alternate route, along with several alternate links were presented to community leaders, agencies and the general public in a third round of open houses in April/May 2014 in Stapleton, Sutherland, Thedford, Bartlett, Dunning and Burwell. Comments were solicited and recorded.

Based on all of the comments received and the data gathered through this lengthy public process, NPPD's team selected a proposed final route for the Project. A map of the R-Project Preferred and Alternate Routes in shown on **Exhibit E** attached hereto.

As required by Nebraska Statutes, public hearings were held in November 2014 in Stapleton, North Platte, Thedford, Brewster, Burwell, Taylor, Bartlett, and Chambers. At each hearing, NPPD described the need for the R-Project, the route selection process, the reasons for selecting the route, the right-of-way compensation process, and the rights of each landowner of property that would be impacted by the Project. NPPD recorded all public comments at the public hearings and also held a 30-day public comment period.

A summary of the attendance of people at all of the open house/public hearings and a summary of all of the most important issues to the public at all of the public meetings are shown on **Exhibits F** and **G** attached hereto.

After the publicly required hearings in each of the counties, NPPD also received a few additional suggested minor modifications to the proposed Route and evaluated them. Select changes were again incorporated that resulted in the Final Route which was announced to the public on January 20, 2015. A map of the final R-Project route is shown on **Exhibit H** attached hereto.

The final route minimizes and balances the impacts to key land uses, communities and residences, engineering issues, and environmental sensitivities. Incorporated changes within the corridor further reduced the number of homes in close proximity to the route and substantially decreased the amount of shelterbelt acres within the right-of-way.

After the U.S. District Court for the District of Colorado issued its order in June 2020, NPPD again reviewed the routing data described above to determine whether there were options for a minor

adjustment in the route to further avoid impacts to the Oregon Trails ruts at the O'Fallon's Bluff segment of the route. NPPD again used the same Guiding Principles for Routing and Siting and the R-Project criteria and considered the most important issues that landowners identified at the public meetings.

After examining the site and reviewing the field conditions with NPPD engineers, and conducting multiple discussions with the affected landowners in that segment of the route, NPPD identified a minor adjustment in the route. At considerable expense to NPPD, the route adjustment will move the transmission line one half mile to the east eliminating the direct impacts of the line passing overhead at the Oregon Trail ruts and moving the overhead line one half mile farther away from the viewshed of the ruts. This minor adjustment to the line within the PRB-approved corridor does not affect any additional landowners; in fact, the adjustment will reduce the number of landowners affected by one. The adjustment was discussed with the landowners affected by this minor adjustment. A map of the minor adjustment in the route at the location of the Oregon Trail ruts at the O'Fallon's Bluff segment of the route is shown on **Exhibit I** attached hereto.

In contrast to this minor half-mile adjustment, if NPPD were to attempt to identify a different route (as opposed to a minor route adjustment) for the R-Project within the PRB-approved corridor, it would need to reengage the public through a series of open houses, coordinate with agencies, gather updated data, reapply the Guiding Principles for Routing and Siting and the R-Project criteria, engage in additional public hearings, and submit the alternative route to the Board of Directors for approval. It would also need to develop a new habitat conservation plan for the different route and start a new incidental take permit process with USFWS, as well as seek new approval from the PSC. However, because NPPD has determined that the final route provides the optimal balance of key issues regarding land use, communities and residences, engineering requirements, and environmental sensitivities, it does not believe that undertaking a multi-year process to identify a different route is appropriate.

If NPPD were to try to identify a different route that is outside the PRB-approved corridor, the process would be even lengthier as NPPD would need to start the entire routing process over with the public, other stakeholders, and the PRB. When 30 days have passed after the date of the PRB hearing on an application, no further actions can be taken on the original application, and NPPD would need to submit a new application to the PRB. The Board would have to hold a hearing and determine whether the new proposal would satisfy NRS § 70-1014.[1] NPPD would also need to draft a new habitat conservation plan and restart the incidental take permit process with USFWS, as well as seek a new approval from the PSC.

[1] Note that even minor deviations from the PRB-approved corridor would require an application to the PRB and additional public process, the extent of which would depend on the specific circumstances of the proposed deviation.

Exhibit "A"

Guiding Principles for Routing and Siting

- Routes must meet the project need and benefit
- Routes generally use section and half-section lines in agricultural areas
- Existing access should be used as much as possible
- Shorter routes generally have less impact
- Fewer large angles generally have less impact
- Each phase of the process must provide a reasonable level of flexibility
- Routing criteria must be measureable and comparable
- Data in the study area will be continually added and refined
- Public input is essential to identify and address key project issues

Exhibit "B"

R-Project Study Area

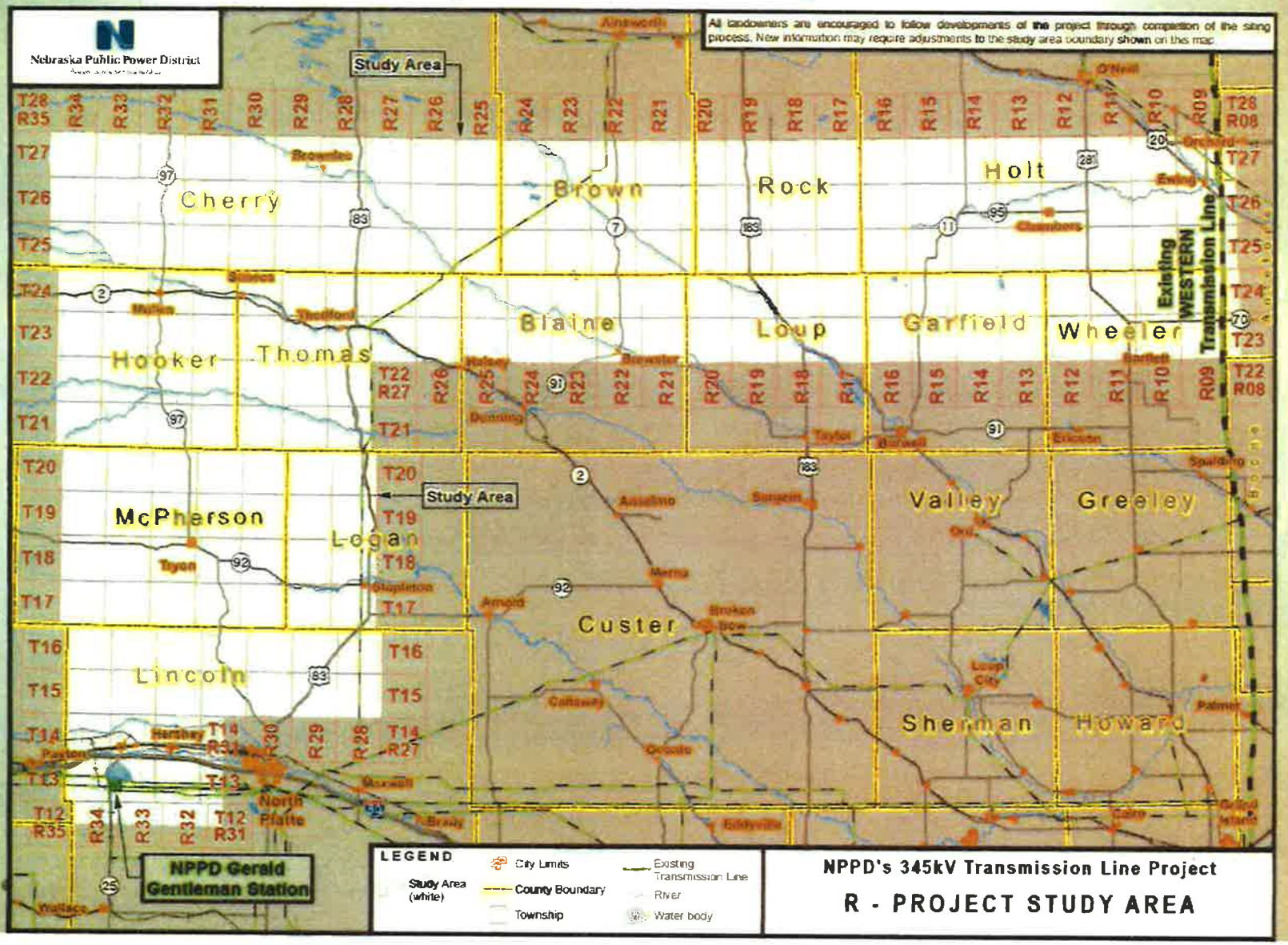


Exhibit "C"

R-Project Corridors

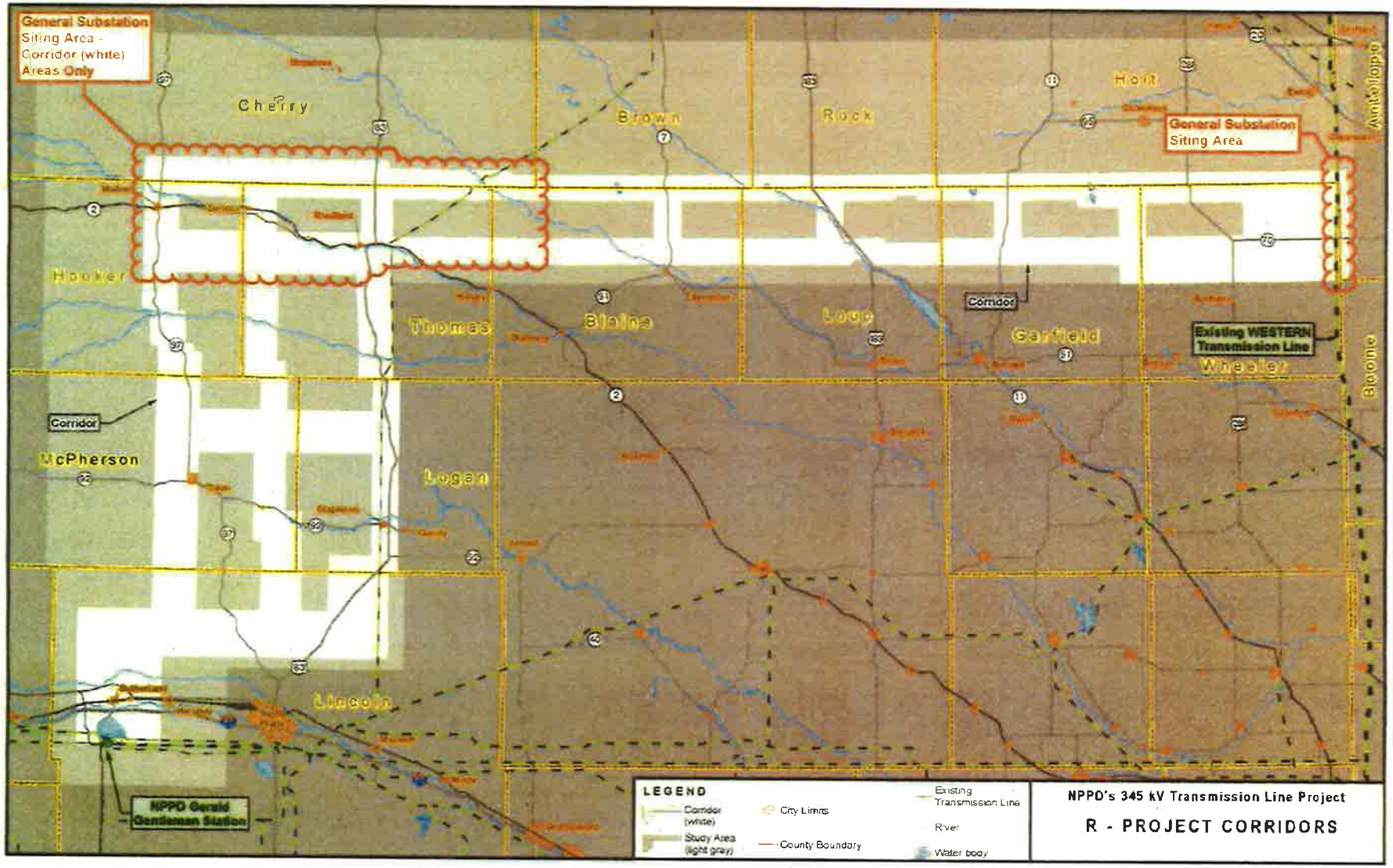


Exhibit "D" (Page 1)

R-Project Routing Criteria

Proximity to Occupied Residences

- Number less than 300 ft.
- Number over 300 ft. & less than 500 ft.
- Number over 500 ft. & less than 0.25 mile

Proximity to Towns/Villages

- Number less than or equal to 0.25 mile
- Number over 0.25 mile & less than or equal to 0.5 mile
- Number over 0.5 mile & less than 1 mile

Proximity to Other Amenities

- Number of churches within 500 ft.
- Number of schools within 0.25 mile
- Number of cemeteries within 500 ft.
- Public use airports (landing strip > 3200 ft.) within 1.5 miles
- Public use airports (landing strip < 3200 ft.) within 1.25 miles
- Private FAA registered airports within 1.25 miles
- Private non-FAA registered airports within 0.5 mile

Land Use Criteria

- Wellheads within ROW of apparent centerline
- Number of other buildings within ROW
- Proximity to platted development
- Length adjacent to platted development (ft.)
- Irrigated cropland crossed (acres in ROW)Pasture/rangeland crossed (acres in ROW)
- Dry land crops crossed (acres in ROW)
- Number of center pivot conflicts
- Cultivated field bisections

Other Land Use

- Number of parcels crossed by ROW
  Number of land owners affected by ROW

Exhibit "D" (Page 2)

R-Project Routing Criteria

Environmental Criteria

- Threatened and endangered plant habitat within ROW (acres)
- Wetland/jurisdictional water crossed (acres)
- Recorded Conservation easements crossed (ft.)
- Trees within ROW (acres)
- Shelterbelt within ROW (acres)
- Number of known cultural resources within 500 ft. (recorded only)
- Number of river crossings
- Number of named stream crossings
- Preliminary whooping crane stop over habitat (acres within 1 mile of route centerline)
- Tern and plover habitat (acres within 0.25 mile of route centerline)
- Sandhills Scenic Byway crossed (#)
- Sandhills Scenic Byway paralleled (miles)

Engineering and Construction

- Distance of floodplain crossing (ft.)
- Miles of Sandhills Crossed
- Number of heavy angles (greater than 30 degrees)
- Length (miles)
- Cost (millions of dollars)
- Subtransmission line (69 and 34.5 kV) relocation (ft.)
- Number of railroads crossed
- Length of railroads paralleled (ft.)
- Number state highways crossed
- Number US highways crossed
- Interstate highway crossing
- Number major pipelines crossed
- Length of major pipelines paralleled (within ROW)
- Number of existing 345 kV transmission line crossings
- Number of existing 230 kV transmission line crossings
- Number of existing 115 kV transmission line crossings
- Number of existing Subtransmission line (69 and 34.5 kV) crossings
- Length of existing transmission parallel <500' (ft.)
- Number of communication towers within 0.25 mile
- Existing access for construction and operation (miles)

Exhibit "E"

R-Project Route Alternatives

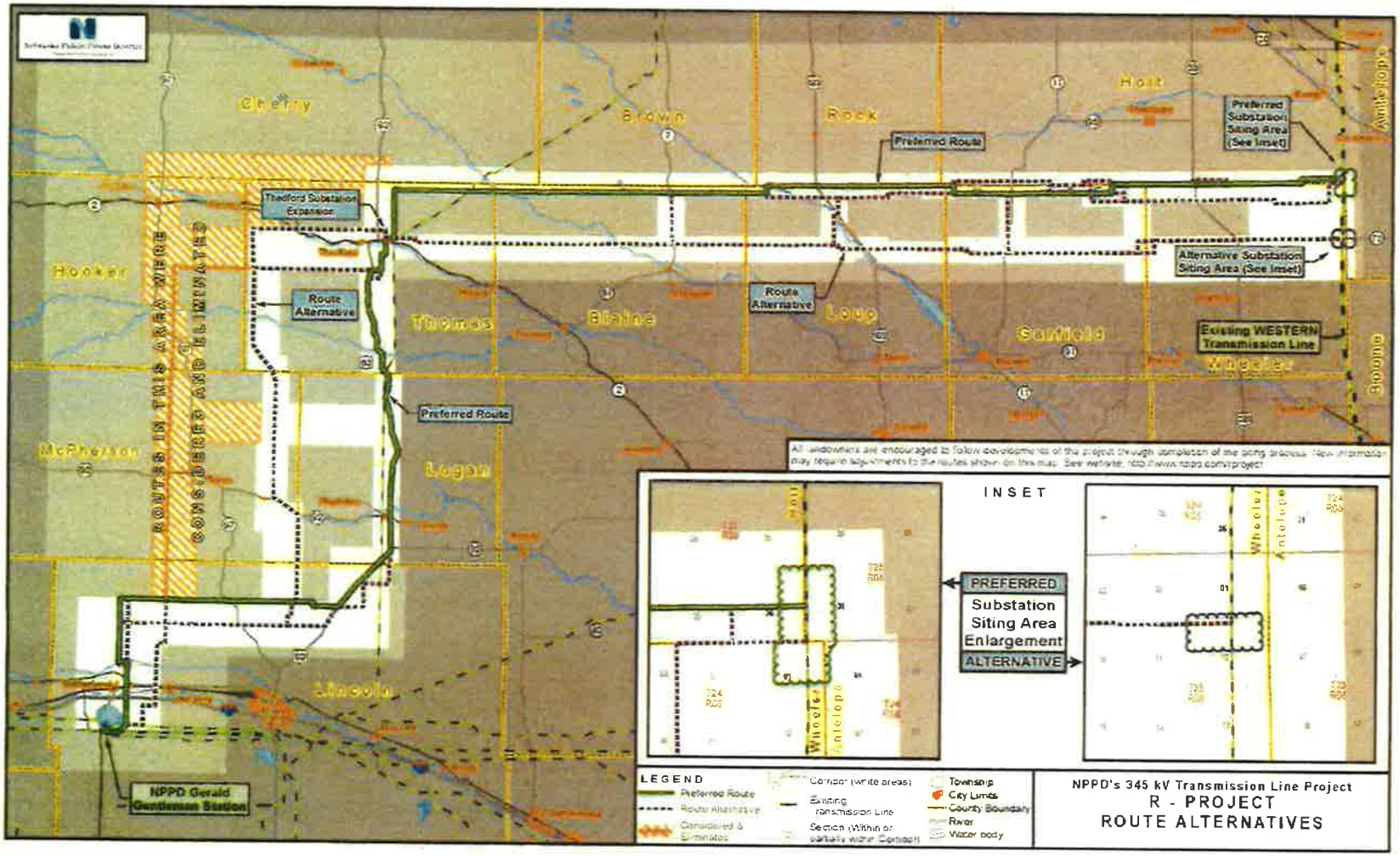


Exhibit "F"

Open House/Public Hearing Summary

	Locations	Dates	Invitations Sent	Attendance
Study Area	Tryon, Hershey, Halsey, Mullen, Chambers & Ainsworth	1/19/2013 through 1/22/2013	3,695	581
Corridors	Thedford, Sutherland, Stapleton, Bartlett, Dunning & Burwell	9/9/2013 through 9/17/2013	1,641	369
Alternate Routes	Stapleton, Sutherland, Thedford, Bartlett, Dunning & Burwell	4/29/14 through 5/7/2014	542	398
Additional Landowner Meetings	Stapleton & Brewster	8/13/2014 through 8/14/2014	77	63
Public Hearings	Stapleton, North Platte, Thedford, Brewster, Burwell, Taylor, Bartlett & Chambers	11/4/2014 through 11/12/2014	286	377

Exhibit "G"

Most Important Issue – All Meetings

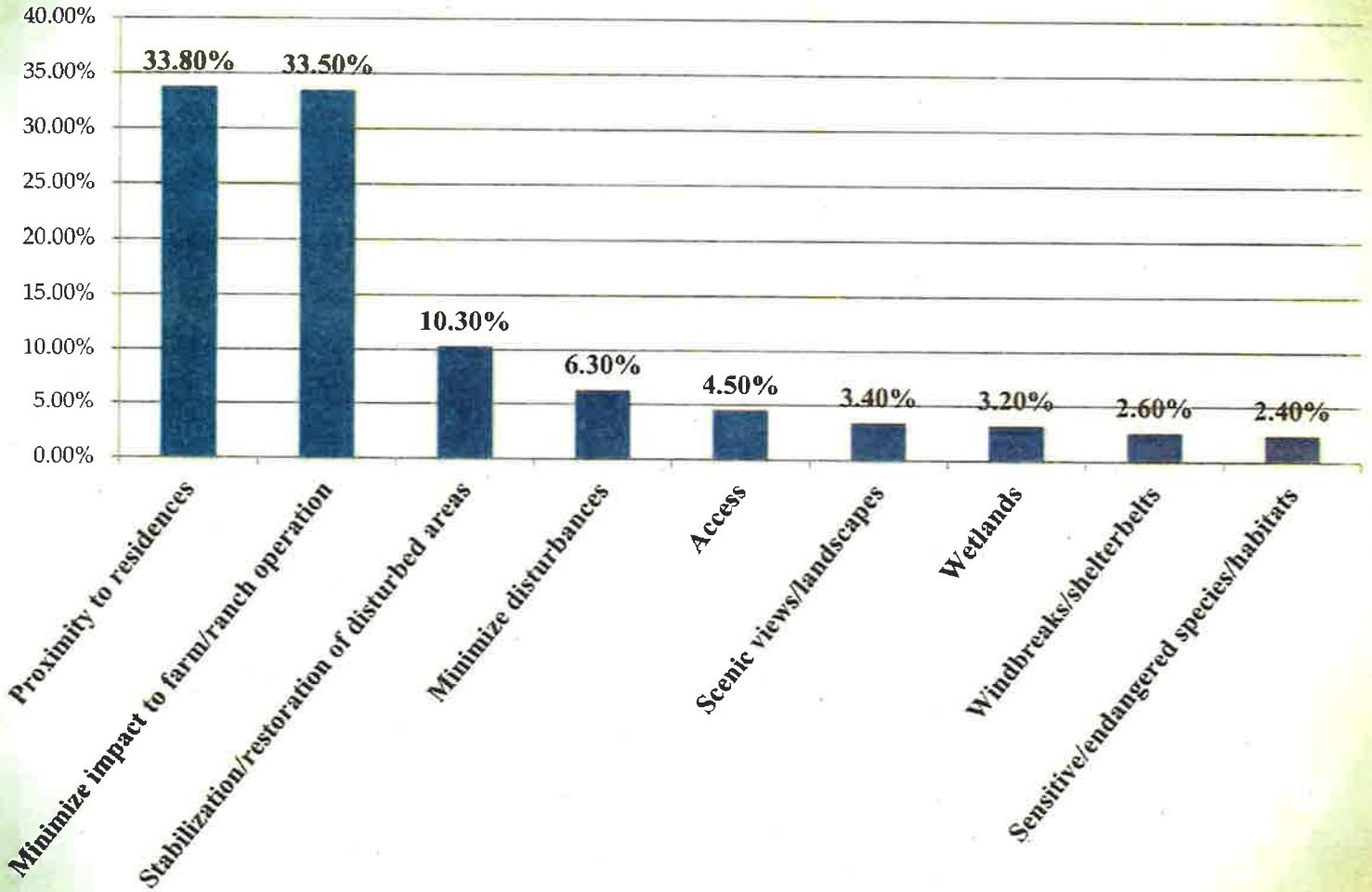


Exhibit "H"

R-Project Proposed Route

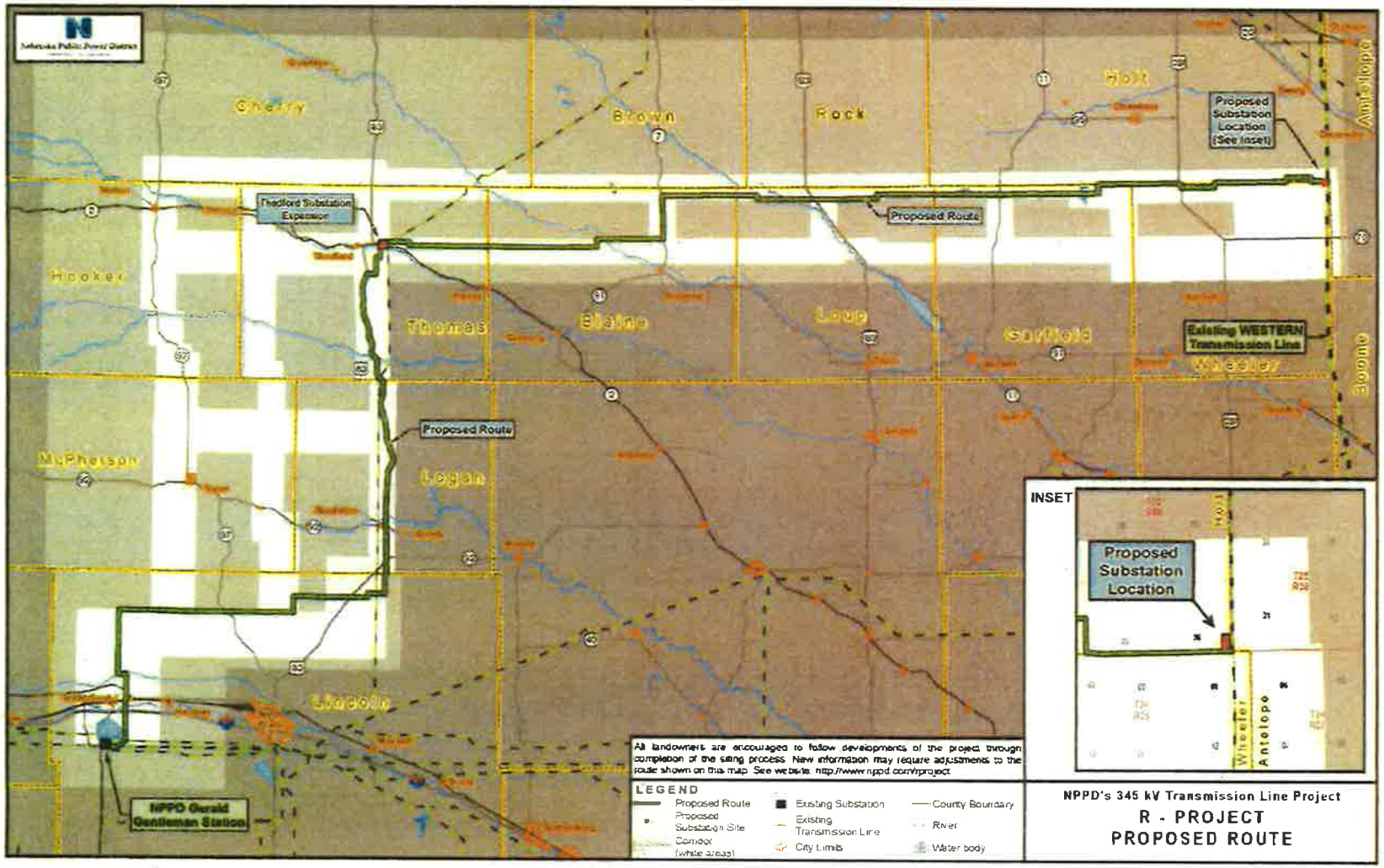
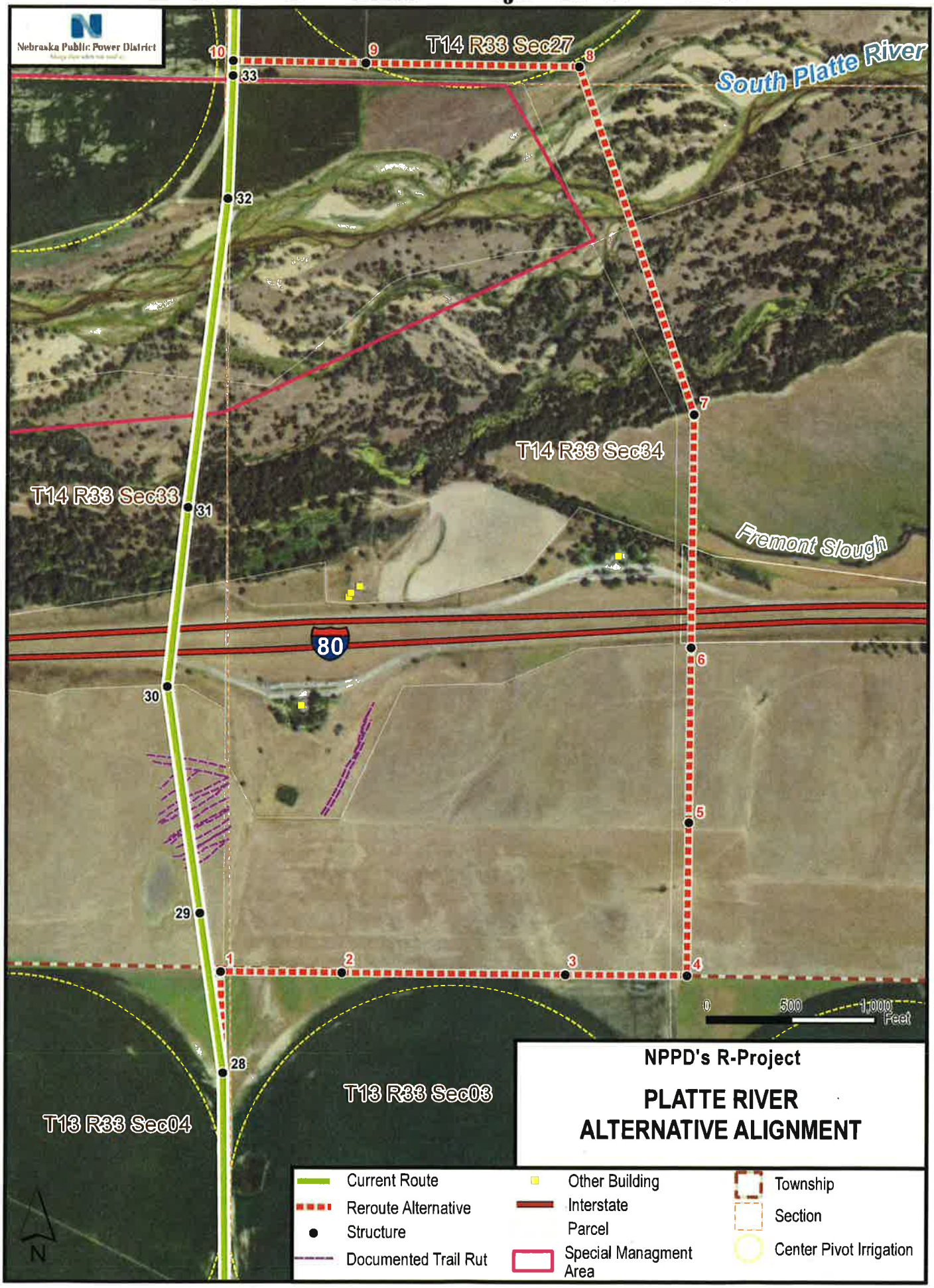


Exhibit "I" – Minor Adjustment to Line



Appendix D

Nebraska Public Power District Input on Alternatives Development

Response to Request from U.S. Fish and Wildlife Service for Feedback on Alternatives Screening for the R-Project Habitat Conservation Plan Supplemental Environmental Impact Statement

I. Introduction

On May 19, 2023, the U.S. Fish and Wildlife Service (USFWS or the Service) sent a request to Nebraska Public Power District (NPPD) for input relevant to the alternatives screening and development process that the Service is undertaking to respond to the federal district court's direction on remand. In particular, USFWS requested information as to whether there is a technically and economically feasible alternative route for the R-Project that would avoid the O'Fallon's Bluff site, the Mormon Pioneer Trail's Sand Hill Ruts Site, and Archaeological Site 25LN113; the Service also included a map showing avoidance areas for consideration. The Service also provided feedback from the National Park Service (NPS), which indicated that the project would have minimal impact by moving the route four miles to the east of the proposed route near the O'Fallon's Bluff site and five miles to the east of the proposed route near the Sand Hill Ruts Site. In this document, NPPD provides information responsive to USFWS's request.

II. Alternatives Evaluated

NPPD has previously evaluated multiple routes in the vicinity of the resources the Service has identified. Given the input from the NPS and the avoidance areas identified, NPPD is unable to identify an alternative route for this portion of the line that is reasonable as that term is defined by the Department of Interior's regulations for implementing the National Environmental Policy Act, i.e., those "that are technically and economically practical or feasible and meet the purpose and need of the proposed action."[1]

During the initial routing process in 2014, NPPD evaluated an alternative route in this area. After the routing process was complete and the final route was selected, NPPD evaluated additional routes in this area based on comments received from the public. Routes evaluated that avoid the identified avoidance areas are shown in Figure 1, the map attached to this response. The route identified in blue in Figure 1 was the one route developed during the routing process, while the routes identified in yellow and red were developed after the final route was selected. Information about these three routes is provided below. All the metrics provided in this document are from those previous analyses and have not been revisited.

In addition to the routes evaluated to the east of the cultural resources identified by the Service, NPPD considered whether any alternatives to the west of the final route in this area would be technically and economically practical or feasible. Information regarding this evaluation is also provided below.

[1] 43 C.F.R. § 46.420(b).

A. Issues Common to All Three Alternatives

The three alternatives shown in blue, yellow, and red have the following issues regarding their technical or economic feasibility or practicality in common, as would any other alternatives in this area.

- The alternatives would parallel existing transmission lines for longer distance to the east, which would increase the chances of an event impacting all the lines, thus reducing the redundancy and, ultimately, the reliability of NPPD's system, which is one of the purposes of the R-Project.

- The alternatives traverse through areas both north and south of the North Platte River that have large concentrations of swans, waterfowl, and staging sandhill cranes in the spring. These birds use the river for roosting and the cornfields and wet meadows for foraging and thus would have to cross the R-Project multiple times daily. NPPD's final route avoids this area. When NPPD was siting its final route, the crossing of the North Platte River was the subject of a discussion between the USFWS Field Office, Nebraska Game and Parks, and NPPD, and all parties agreed that avoiding this area was the best approach to protecting the birds in this area of high use.

- The North Platte River crossing area for all three alternatives spans approximately 3,000 feet (14 acres) of wooded river bottom, which would require the removal of two times more trees compared to NPPD's final route. The final route crosses the North Platte River at the existing Sutherland Bridge, which spans approximately 1,500 feet (7 acres) of wooded river bottom. Crossing at the Sutherland Bridge eliminates the need to clear cut a new corridor width through river bottom to accommodate the line. Placing crossings where infrastructure such as bridges already exist results in less impact to waterfowl and is an impact minimization measure identified by Avian Power Line Interaction Committee (APLIC), which was also adapted by NPPD in the final route.

- Each of these alternatives would have more human impact and safety issues than the final route because the transmission line would be in closer proximity to homes and buildings. NPPD's final route in this area had one home within 600 feet from the transmission centerline. More specific information for each alternative is provided below.

B. Red Alternative Route

The route shown in red in Figure 1 would be consistent with NPS's suggestion to move the line an additional four miles east of O'Fallon's Bluff and five miles east of the Mormon Trail; it would then continue north to intersect to NPPD's final line route east of Birdwood Creek. This route has the following concerns in addition to those outlined in Section II.A above.

- This alternative route would pass within 600 feet of 13 homes before intersecting with the final NPPD line route. Of these 13 homes, five would be 100 feet or less from the centerline and potentially fall within the right-of-way of the transmission line.

- This alternative had one center-pivot conflict at the time NPPD looked at this area.

- This alternative includes a cell tower along Willow Creek Road that would potentially be within 100 feet from the centerline and potentially fall within the right-of-way of the transmission line.

C. Blue Alternative Route

The route shown in blue on Figure 1 would be located an additional 3.5 miles east of O'Fallon's Bluff and 4.5 miles east of the Mormon Trail and then would continue north to intersect to NPPD's final line route east of Birdwood Creek. This route has the following concerns in addition to those outlined in Section II.A above.

- This alternative route would pass within 600 feet of five homes before intersecting with the final NPPD line route. Of these five homes, two would be 100 feet or less from the centerline and potentially fall within the right-of-way of the transmission line.

- This alternative had one center-pivot conflict at the time NPPD looked at this area.

D. Yellow Alternative Route

The route shown in yellow on Figure 1 would be located an additional 3.0 miles east of O'Fallon's Bluff and 4.0 miles east of the Mormon Trail; it would then continue north to intersect to NPPD's final line route east of Birdwood Creek. This route has the following concerns in addition to those outlined in Section II.A above.

- This alternative route would be within 600 feet of 19 homes before intersecting with the final NPPD line route. Of these 19 homes, eight would be 100 feet or less from the centerline and potentially fall within the right-of-way of the transmission line.

E. Alternative Routes to the West of the Final Route

While NPS's feedback did not suggest an alternative route to the west of the final route in the area of interest, NPPD considered whether any such route would be economically or technically feasible or practical. The following issues suggest that no such route is available.

- Any alternative to the west of the resources identified by USFWS would involve a route that would have to go far enough west from Gerald Gentlemen Station to avoid Sutherland Reservoir and the town of Sutherland. This would, at a minimum, require 4.5 miles of additional line (at least 1.5 miles west, then eventually go 3.0

miles back to the east to get back to final line route), which is inconsistent with prudent utility practice to use the shortest line length feasible in order to minimize cost (including the significant costs of heavy angle structures when a turn in the line is required), landowner impacts, and potential environmental and land-use disturbance.

- A route to the west would cross multiple existing single-circuit and double-circuit transmission lines, possibly as many as four, leading to greater risk to the reliability of NPPD's system, contrary to the purpose of the R-Project.

- Routes to the west would have potential conflicts with conservation easements along the South Platte and North Platte rivers, a Wetland Reserve Program area, and numerous homes or would require additional line miles to avoid such conflicts.

- NPS has identified other National Historic Trail resources to avoid to the west, which also present potential conflicts for routes in this area.

III. Conclusion

NPPD has provided this information to assist USFWS with its consideration of alternatives to satisfy the court's remand. NPPD has undertaken a comprehensive review of potential alternatives, both in this area and project-wide, to identify the route that is economically and technically feasible and practical. Other route options suggested to avoid impacts to cultural resources pose serious concerns about safety, reliability, and conflicts with homes, as well as variety of other undesirable impacts. If additional detail is required for this alternatives exercise, NPPD will strive to provide the Service with such information.

21573848_v2

Outside Corridor

Corridor Considered & Eliminated

T16 R34

T16 R33

T16 R32

N Prairie Trace Rd

Birdwood Creek

Fleecs Rd

N Sand Rd

T15 R34

T15 R33

Land Rd

T15 R32

Stark Rd

N Birdwood Rd

Outside Corridor

Birdwood Canal

North Platte River

W North River Rd

W Wildlife Rd

T14 R32

N Hershey Rd

T14 R34

North Platte Canal

W Suburban Rd

N Ofallons Rd

Suburban Canal

N Parkway Rd

Keith Lincoln Canal

Paxton Hershey Canal

W Snake Rd

W Platte Valley Rd

T14 R33

Sutherland

30

Hershey

W County Rd

South Platte River

Outside Corridor

Murray Ave

W Slough Rd

Beer Slough

N Dmont Rd

Fremont Slough

W South River Rd

80

Sutherland Cemetary Rd

W Oregon Trail Rd

S King Rd

Tower Rd

W Antelope Rd

Sutherland Reservoir

O Fallons Rd

Outlet Canal

T13 R34

T13 R33

T13 R32

Sutherland Canal

W State Farm Rd

GERALD GENTLEMAN STATION

MALONEY TO SUTHERLAND (NE) 115 KV

NORTH PLATTE TO GERALD GENTLEMAN 230 KV

GERALD GENTLEMAN TO NORTH PLATTE 230 KV

GERALD GENTLEMAN TO SWEETWATER 345 KV

Outside Corridor

R - PROJECT ALTERNATIVES SCREENING DISCUSSION

May 26, 2023

Nebraska Public Power District
Always there when you need us

1 inch equals 6,000 feet

0 1 2 3 Miles

Legend

- 2023 Alignment
- Yellow Alternative
- Blue Alternative
- Red Alternative

Existing Transmission Line

- 345 kV
- 230 kV
- 115 kV
- Railroad
- Municipal Boundary
- Interstate
- Township
- US Highway
- Section

Aerial Photography: NAIP 2022

*** Areas Outside Corridor Are Shaded***

5/26/2023 G:\Projects\128143_NPPD_SPP\Apps\SubroutеAnalysis\SubroutеAnalysis_2023\SubroutеAnalysis_2023.aprx

Updated Response to Request from U.S. Fish and Wildlife Service for Feedback on Alternatives Screening for the R-Project Habitat Conservation Plan Supplemental Environmental Impact Statement

June 6, 2023

I. Introduction

On May 19, 2023, the U.S. Fish and Wildlife Service (USFWS or the Service) sent a request to Nebraska Public Power District (NPPD) for input relevant to the alternatives screening and development process that the Service is undertaking to respond to the federal district court's direction on remand. In particular, USFWS requested information as to whether there is a technically and economically feasible alternative route for the R-Project that would avoid the O'Fallon's Bluff site, the Mormon Pioneer Trail's Sand Hill Ruts Site, and Archaeological Site 25LN113; the Service also included a map showing avoidance areas for consideration. The Service also provided feedback from the National Park Service (NPS), which indicated that the project would have minimal impact by moving the route four miles to the east of the proposed route near the O'Fallon's Bluff site and five miles to the east of the proposed route near the Sand Hill Ruts Site. In this document, NPPD provides information responsive to USFWS's request.

II. Alternatives Evaluated

NPPD has previously evaluated multiple routes in the vicinity of the resources the Service has identified. Given the input from the NPS and the avoidance areas identified, NPPD is unable to identify an alternative route for this portion of the line that is reasonable as that term is defined by the Department of Interior's regulations for implementing the National Environmental Policy Act, i.e., those "that are technically and economically practical or feasible and meet the purpose and need of the proposed action."[1]

During the initial routing process in 2014, NPPD evaluated an alternative route in this area. After the routing process was complete and the final route was selected, NPPD evaluated additional routes in this area based on comments received from the public. Routes evaluated that avoid the identified avoidance areas are shown in Figure 1, the map attached to this response. The route identified in blue in Figure 1 was the one route developed during the routing process, while the routes identified in yellow and red were developed after the final route was selected. Information about these three routes is provided below. The metrics provided in this document are from those previous analyses; however, a review of aerial imagery confirms that the constraints discussed in this document are still on the landscape.

In addition to the routes evaluated to the east of the cultural resources identified by the Service, NPPD considered whether any alternatives to the west of the final route in this area

[1] 43 C.F.R. § 46.420(b).

would be technically and economically practical or feasible. Information regarding this evaluation is also provided below.

A. Issues Common to All Three Alternatives

The three alternatives shown in blue, yellow, and red have the following issues regarding their technical or economic feasibility or practicality in common, as would any other alternatives in this area.

- The alternatives would parallel existing transmission lines for longer distance to the east, which would increase the chances of an event impacting all the lines, thus reducing the redundancy and, ultimately, the reliability of NPPD's system, which is one of the purposes of the R-Project.

- The alternatives traverse through areas both north and south of the North Platte River that have large concentrations of swans, waterfowl, and staging sandhill cranes in the spring. These birds use the river for roosting and the cornfields and wet meadows for foraging and thus would have to cross the R-Project multiple times daily. NPPD's final route avoids this area. When NPPD was siting its final route, the crossing of the North Platte River was the subject of a discussion between the USFWS Field Office, Nebraska Game and Parks, and NPPD, and all parties agreed that avoiding this area was the best approach to protecting the birds in this area of high use.

- The North Platte River crossing area for all three alternatives spans approximately 3,000 feet (14 acres) of wooded river bottom, which would require the removal of two times more trees compared to NPPD's final route. The final route crosses the North Platte River at the existing Sutherland Bridge, which spans approximately 1,500 feet (7 acres) of wooded river bottom. Crossing at the Sutherland Bridge eliminates the need to clear cut a new corridor width through river bottom to accommodate the line. Placing crossings where infrastructure such as bridges already exist results in less impact to waterfowl and is an impact minimization measure identified by Avian Power Line Interaction Committee (APLIC), which was also adapted by NPPD in the final route.

- Each of these alternatives would have more human impact and safety issues than the final route because the transmission line would be in closer proximity to homes and buildings. NPPD's final route in this area had one home within 600 feet from the transmission centerline. More specific information for each alternative is provided below.

In addition to these on-the-ground constraints, as noted in the summary of the routing and Power Review Board processes that NPPD provided to the Service on May 18, 2023, if NPPD were to pursue any of these alternative routes for the R-Project within the PRB-approved corridor, it would need to reengage the public through a series of open houses, coordinate with

agencies, gather updated data, reapply the Guiding Principles for Routing and Siting and the R-Project criteria, and engage in additional public hearings. It would also need to develop a new habitat conservation plan for the different route and start a new incidental take permit process with USFWS, as well as seek new approval from the Public Service Commission. This multi-year process is inconsistent with the R-Project purpose and need, as it would further delay this critical infrastructure project, the absence of which is already posing grid reliability issues. The costly mitigation measures required to address these reliability issues are also not a sustainable solution from a technical or economic perspective.

B. Red Alternative Route

The route shown in red in Figure 1 would be consistent with NPS's suggestion to move the line an additional four miles east of O'Fallon's Bluff and five miles east of the Mormon Trail; it would then continue north to intersect to NPPD's final line route east of Birdwood Creek. This route has the following concerns in addition to those outlined in Section II.A above.

- This alternative route would pass within 600 feet of 13 homes before intersecting with the final NPPD line route. Of these 13 homes, five would be 100 feet or less from the centerline and potentially fall within the right-of-way of the transmission line.
    - Having homes in such close proximity to the transmission line, some of which may be within the project right-of-way, is a non-starter for NPPD. While unlikely, a severe weather event or equipment malfunction could cause the line to fall, potentially damaging the home and/or injuring the landowner. Thus, the safety risk raised by having homes that close to the line renders the alternative technically impractical and infeasible. The proximity of homes to the route also is economically impractical from a potential liability perspective.
    - Buildings in the ROW would also affect NPPD's ability to safely maintain and repair the transmission line without impacting the landowner's use of their own property.
    - In addition to concerns about residences, when NPPD routes its lines across farms or ranches, it strives to avoid locating the right-of-way close to features used for the landowner's livelihood, such as outbuildings and cattle yards, due to safety concerns for people and livestock. While NPPD has not quantified these additional features along this alternative, they pose an additional technical and economic constraint based on safety considerations and potential liability risk.
- This alternative has one center-pivot conflict.
    - Center pivots are a sprinkler irrigation system with a pivot point at one end that is designed to efficiently irrigate large swaths of agricultural land. A pivot cannot

operate with a line structure in the way, which is contrary to prudent utility siting practices to minimize impacts to landowners.

- Similar to the homes noted above, if the pivot is too close to the transmission line, and the line falls due to a severe weather event, there are safety concerns for both the landowner and NPPD's workers. This would pose unacceptable safety and liability risks.

- This alternative includes a cell tower along Willow Creek Road that would potentially be within 100 feet from the centerline and potentially fall within the right-of-way of the transmission line. As with homes and center pivots, NPPD avoids cell towers due to safety concerns.

  - Modern cell towers in open areas where the R-Project is proposed are very tall structures, likely taller than NPPD's transmission line. Thus, they need to be located at a safe distance from the right-of-way (beyond 100 feet) to avoid outages and other infrastructure impacts if the cell tower were to fall into the transmission line or if the line were to fall into the tower.

  - There are also safety and liability concerns for the personnel of both entities who need to maintain the transmission line and the cell tower when the infrastructure is in such close proximity.

  - Thus, infrastructure and worker safety concerns would render technically infeasible a route that has such little distance between a cell tower and NPPD's transmission line. Moving the cell tower to accommodate NPPD's transmission line would be prohibitively expensive.

C. Blue Alternative Route

The route shown in blue on Figure 1 would be located an additional 3.5 miles east of O'Fallon's Bluff and 4.5 miles east of the Mormon Trail and then would continue north to intersect to NPPD's final line route east of Birdwood Creek. This route has the following concerns in addition to those outlined in Section II.A above.

- This alternative route would pass within 600 feet of five homes before intersecting with the final NPPD line route. Of these five homes, two would be 100 feet or less from the centerline and potentially fall within the right-of-way of the transmission line.

- This alternative had one center-pivot conflict at the time NPPD looked at this area.

D. Yellow Alternative Route

The route shown in yellow on Figure 1 would be located an additional 3.0 miles east of O'Fallon's Bluff and 4.0 miles east of the Mormon Trail; it would then continue north to

intersect to NPPD's final line route east of Birdwood Creek. This route has the following concerns in addition to those outlined in Section II.A above.

- This alternative route would be within 600 feet of 19 homes before intersecting with the final NPPD line route. Of these 19 homes, eight would be 100 feet or less from the centerline and potentially fall within the right-of-way of the transmission line.

E. Alternative Routes to the West of the Final Route

While NPS's feedback did not suggest an alternative route to the west of the final route in the area of interest, NPPD considered whether any such route would be economically or technically feasible or practical. The following issues suggest that no such route is available.

- Any alternative to the west of the resources identified by USFWS would involve a route that would have to go far enough west from Gerald Gentlemen Station to avoid Sutherland Reservoir and the town of Sutherland. This would, at a minimum, require 4.5 miles of additional line (at least 1.5 miles west, then eventually go 3.0 miles back to the east to get back to final line route), which is inconsistent with prudent utility practice to use the shortest line length feasible in order to minimize cost (including the significant costs of heavy angle structures when a turn in the line is required), landowner impacts, and potential environmental and land-use disturbance.

- A route to the west would cross multiple existing single-circuit and double-circuit transmission lines, possibly as many as four, leading to greater risk to the reliability of NPPD's system, contrary to the purpose of the R-Project.

- Routes to the west would have potential conflicts with conservation easements along the South Platte and North Platte rivers, a Wetland Reserve Program area, and numerous homes or would require additional line miles to avoid such conflicts.

- NPS has identified other National Historic Trail resources to avoid to the west, which also present potential conflicts for routes in this area.

III. Conclusion

NPPD has provided this information to assist USFWS with its consideration of alternatives to satisfy the court's remand. NPPD has undertaken a comprehensive review of potential alternatives, both in this area and project-wide, to identify the route that is economically and technically feasible and practical. Other route options suggested to avoid impacts to cultural resources pose serious concerns about safety, reliability, and conflicts with homes, as well as variety of other undesirable impacts. If additional detail is required for this alternatives exercise, NPPD will strive to provide the Service with such information.

Response to Additional Request from U.S. Fish and Wildlife Service for Feedback on Alternatives Screening for the R-Project Habitat Conservation Plan Supplemental Environmental Impact Statement

June 7, 2023

I. Introduction

On May 19, 2023, the U.S. Fish and Wildlife Service (USFWS or the Service) sent a request to Nebraska Public Power District (NPPD) for input relevant to the alternatives screening and development process that the Service is undertaking to respond to the federal district court's direction on remand. NPPD provided a response to that request on May 31, which it updated on June 6. On June 1, USFWS provided a second request for information as to whether there is a technically and economically feasible alternative route for the R-Project that would avoid a historic ranch in Logan County and St. John's Church near Brewster, Nebraska; the Service also included a map showing avoidance areas for consideration. In this document, NPPD provides information responsive to USFWS's request.

II. Alternatives Evaluated

A. Historic Ranch in Logan County

The corridor approved by the Power Review Board (PRB) in this area is only three miles wide, which limits the number of practicable conceptual alternate routing options that could be considered. This portion of the R-Project is also within the incidental take permit area for the American burying beetle (ABB).

The final route that NPPD selected in the vicinity of the historic ranch parallels Highway 83 (see **Figure 1** below). The primary benefits of paralleling an existing highway through the Sandhills region are that the route (1) allows for easier access during construction and maintenance, (2) eliminates the need for a new right-of-way through previously undivided land, and (3) reduces the cumulative structure footprint area by allowing for a greater portion of the line to be constructed with monopoles versus lattice towers. Following existing roads was also a common theme voiced by stakeholders throughout the routing process to minimize disturbance of sensitive areas, such as sandhills and wetlands.

In 2020, NPPD was asked to evaluate an option of shifting the line one mile east of the final line route, then one mile north, then back one mile west back to NPPD's final line route to provide further separation from the ranch home (the alternative show in blue on Figure 1). This shift would be entirely on the ranch property and involve no new landowners. NPPD evaluated this option and determined that doing so would decrease the benefits of paralleling an existing highway and would not be reasonable (i.e., economically or technically practical or feasible) for the following reasons.

- The route would result in increasing the length of the transmission line by two miles, which would result in increased temporary and permanent ground-disturbance

impacts in undisturbed areas (including wetlands), greater overall visual impacts, and increased risk to avian species.

- It would require installing 13 structures on the ranch property compared to the four structures required to follow Highway 83, including four large self-supporting structures required for 90 degree turns.

- It would result in a significant increase in construction and project costs associated with crossing this property, estimated at approximately $5 million.

- It would increase the level of calculated take of ABB due to the increase in access and work areas within the ABB permit area.

Routing alternatives going west from Highway 83 and then back to the east would result in the same impacts as routing east of Highway 83, but they would also include potential reduction in reliability due to the proximity to an existing 115-kilovolt transmission line running north to south one mile west of the ranch.

Alternative routes either east or west of the historic ranch that would fall within the PRB-approved corridor are not technically or economically feasible or practicable due to the decrease in the benefits described above of paralleling an existing highway, the significant increased costs for the line and structures, the greater disturbance from access and construction in ABB habitat and wetlands, the potential impact to an existing transmission line, and the overall increase in visual impact.

Figure 1. Alternative Considered for the Historic Ranch in Logan County

B. St. John's Church

Prior to considering alternatives specific to St. John's Church, it is also important to understand the nature of the impacts to this property. Prior to the permitting process for the R-Project, there was an existing distribution line, including power poles, along the east side of Highway 7 across from the church. To place the R-Project line along the east side of Highway 7, NPPD worked with the local utility to place the distribution line underground. This removed the distribution line and poles from view from the church. If the R-Project is constructed along the final route, the conductors of the R-Project would be visible similar as to how the distribution line's conductors were visible before it was buried. In addition, the two R-Project structures along the east side of Highway 30 that would be closest to the church were sited such that neither would be in view when looking directly across from the church.

With that context in mind, NPPD provides the following information regarding potential alternatives in the vicinity of St. John's Church. As with the historic ranch, the PRB-approved corridor in this area is only three miles wide, which limits the number of practicable conceptual alternate routing options that could be considered. This portion of the R-Project is also within the ABB permit area.

The final route that NPPD selected in the vicinity of St. John's Church parallels Highway 7 (see **Figure 2** below). Similar to the historic ranch, the primary benefits of paralleling an existing highway through the Sandhills region are to (1) allow for easier access during construction and maintenance, (2) eliminate the need for a new right-of-way through previously undivided land, and (3) reduce the cumulative structure footprint area by allowing for a greater portion of the line to be constructed with monopoles versus lattice towers. Following existing roads was also a common theme voiced by stakeholders throughout the routing process to minimize disturbance of sensitive areas, including sandhills and wetlands.

NPPD evaluated two alternative route options within the corridor—one that is 0.5 mile east of Highway 7 (shown in yellow on Figure 2) and one that is 1 mile east of Highway 7 (shown in blue on Figure 2)—both of which then go north to intersect with the NPPD final route. NPPD has determined that both alternatives would decrease the benefits of paralleling an existing highway and would not be reasonable (i.e., economically or technically practical or feasible) for the following reasons.

- Both alternatives would require installing two additional 90-degree turns with large self-supporting structures, which would result in greater overall visual impact.

- Both alternatives would increase disturbance to the natural environment as a result of the increase in access and work areas through undisturbed areas including wetlands.

- Both alternatives would increase the calculated level of take of ABB due to increased access and work areas within the ABB permit area.

- Both alternatives would increase construction costs, estimated to be approximately $1 million, due to the addition of self-supporting 90-degree turn structures.

- The alternative route 0.5 mile to the east would have one center-pivot conflict. See NPPD's June 6, 2023 response to USFWS's initial request for alternatives screening information as to the concerns with center-pivot conflicts.

- The alternative route 1 mile to the east would involve one new landowner, be within 600 feet of a home, have one potential center-pivot conflict, and cross over a feedlot. See NPPD's June 6, 2023 response to USFWS's initial request for alternatives screening information as to the concerns with proximity to homes and livestock areas.

Any routing alternatives going west from Highway 7 and then back to the east would add additional miles of line and costs, as well as include the first four impacts as described above for routing east of Highway 7. Alternative routes either east or west of the church that would fall within the corridor are not technically or economically feasible or practicable due to decrease in the benefits described above of paralleling an existing highway, increased costs, greater disturbance from access and construction in ABB habitat and wetlands, and the overall increase in visual impact.

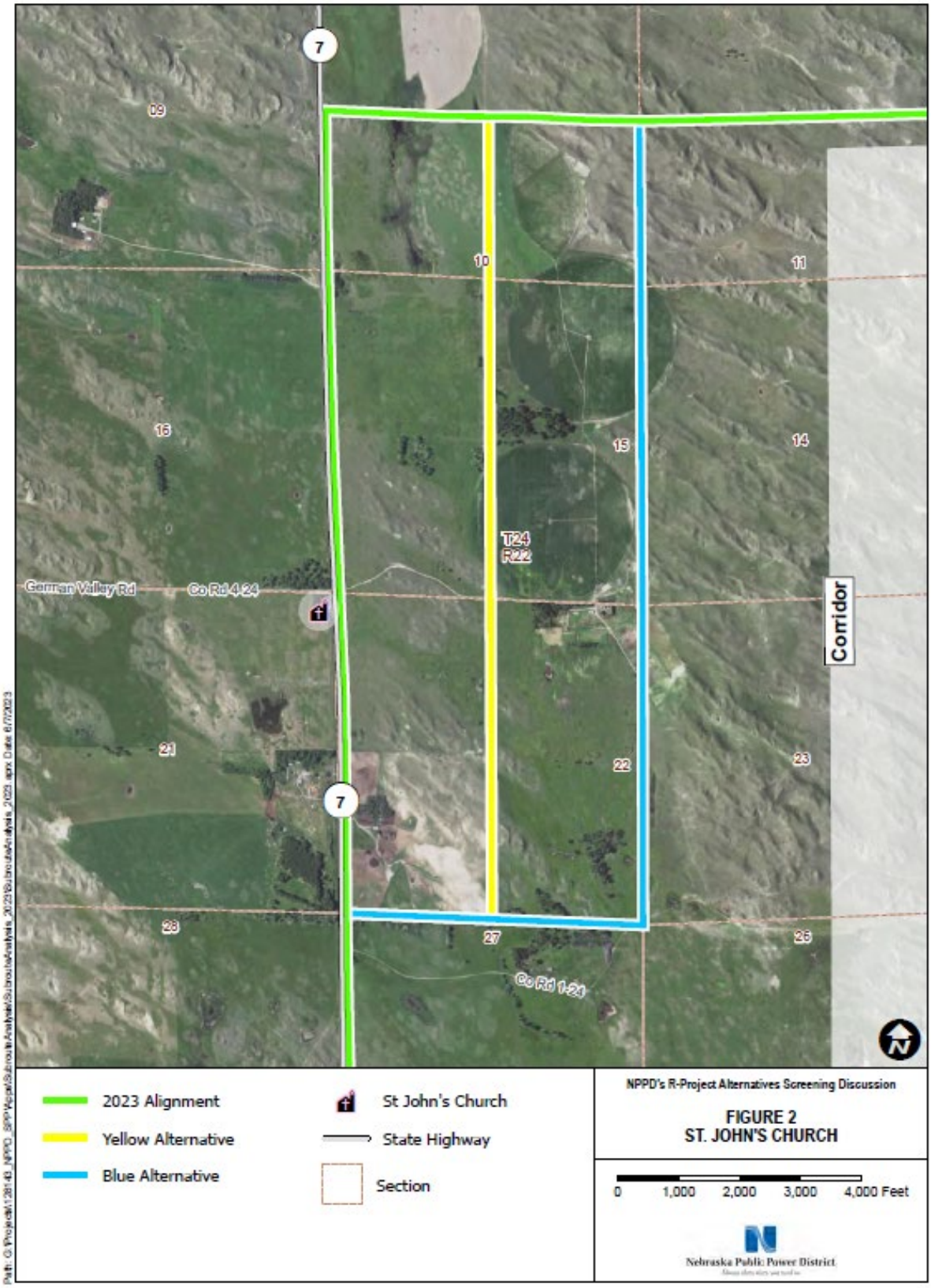


Figure 2. Alternatives Considered for St. John's Church

III. Conclusion

NPPD has provided this information to assist USFWS with its consideration of alternatives to satisfy the court's remand. NPPD has undertaken a comprehensive review of potential alternatives, both in this area and project-wide, to identify the route that is economically and technically feasible and practical. Other route options suggested to avoid impacts to cultural resources pose serious concerns about safety, reliability, and conflicts with homes, as well as variety of other undesirable impacts. If additional detail is required for this alternatives exercise, NPPD will strive to provide the Service with such information.

21624934_v2

NPPD R-Project HCP SEIS: Request for Feedback on Alternatives Screening

The U.S. Fish and Wildlife Service (Service) is conducting an alternatives screening and development process to identify a reasonable range of alternatives in the Supplemental Environmental Impact Statement (SEIS). This document includes the descriptions of two alternatives that were eliminated from detailed study in the 2018 FEIS for which the Service is seeking updated or additional information.

FEIS Section 2.6.2, Lattice Tower Structures Only

Under this alternative, NPPD would construct the R-Project using only lattice tower structures. Lattice towers would be installed using helical pier foundations and helicopter erection.

Reason for Elimination: During the public-involvement process, NPPD documented that the public prefers steel monopole structures to lattice structures to reduce impacts on visual and agricultural resources. Thus, using only lattice towers for the entire R-Project would result in greater impacts on resources, such as visual and agriculture, because of their larger structure profile and base footprint. The use of lattice towers with helical pier foundations along major existing roads is not as economical as the use of steel monopoles with concrete foundations. While this alternative would likely reduce the effects on the beetle by reducing the acres of temporary disturbance because of the smaller structure work area required for lattice structures, the difference in beetle take would be minimal considering NPPD's final route only uses steel monopole structures for 66 miles along major existing roads in the permit area.

Request for NPPD: Does NPPD have any updated information pertaining to the technical or economic feasibility of this alternative from what was presented in the 2018 FEIS?

NPPD's response: The updated Section 2.10.3 of the revised HCP provides the following discussion of the Lattice Tower Structures Only Alternative.

> *Under this alternative, NPPD would construct the R-Project using only lattice tower structures. Lattice towers will be installed using helical pier foundations and helicopter erection. During the public-involvement process, NPPD documented that the public prefers steel monopole structures to lattice structures to reduce impacts to visual and agricultural resources. Thus, using only lattice towers for the entire R-Project would result in greater impacts to other resources, such as visual and agriculture. Lattice structures also would have a greater impact on agricultural operations along the transmission line alignment due to their larger base footprint. The use of lattice towers with helical pier foundations along major existing roads would not be as economical as the use of steel monopoles with concrete foundations. This alternative would not result in a difference in the level of estimated ABB take. Steel monopoles require a work area that measures 200 by 200 feet to accommodate structure assembly and erection by crane. Lattice towers that would replace those structures would likely still require a 200-foot by 200-foot work area because the structures would be erected at the structure location*

and set with a crane, rather than assembled at an off-site fly yard and set with a helicopter. The steel monopoles were purposefully placed adjacent to existing access roads to accommodate concrete truck and cranes. Cranes would likely be used to set lattice towers in this scenario because they are much less expensive than helicopters. Even if helicopters were used to assemble all lattice towers, the reduction of workspace required at the structure locations would likely be mostly or totally offset by the need for additional fly yards located approximately every five miles along the route. Thus, in addition to the increased impacts to agricultural operations and visual resources noted above, the costs to employ helicopters for minimal, if any, reduction in disturbance would be unreasonable.

FEIS Section 2.6.5, Underground Construction

During public scoping, several commenters raised concerns about the potential impacts of the Project on the Birdwood Creek area, where a diversity of migratory birds are known to winter. One commenter brought up the possibility of constructing the line underground in sensitive areas such as this to decrease potential impacts on migratory birds.

Construction of underground transmission lines has been used in a number of specific applications and circumstances around the country, including:

• Areas of considerable congestion where a new, undeveloped ROW is unavailable or so limited that the reduced ROW width for undergrounding would present not just a viable alternative, but in many cases, the only practical alternative

• Areas where height restrictions (such as on or around airports) would prevent use of overhead lines

• Areas of considerable visual sensitivity (such as nationally designated scenic resources or National Register of Historic Places [NRHP] historic structures) where overhead lines would significantly affect the visual setting of the area

• Areas of significantly elevated land values where large portions of the additional costs of underground construction could be offset by significant reductions in overall Project cost obtained through the use of much narrower ROW

Reason for Elimination: High-voltage underground transmission lines (345 kV and above) have markedly different technological requirements and are more difficult to place underground than lower voltage underground distribution lines, which provide electricity to individual homes and businesses. Underground construction cost estimates are 15 to 20 times, or more, the cost of an overhead transmission line. Recent estimates for a single conductor per phase system were approximately $20,000,000 per mile. To achieve the equivalent electrical capacity of Source: NPPD 345-kV underground conductor cross-section R-Project Transmission Line HCP FEIS November 2018 2-43 NPPD's 345-kV R-Project, any underground segment would likely require a minimum of three cables per phase, or nine cables total for the circuit.

Because of the heat generated, these cables would likely need to be installed in either individual trenches or three separate duct banks. In addition, manholes/manways approximately 30 feet long, 12 feet wide, and 5 to 10 feet deep would need to be installed on each phase to allow for work access.

In some instances, underground transmission lines may be installed using conventional open-cut trenching, which results in significant, temporary ground disturbance. However, open-cut trenching is not practical or feasible for all underground transmission installation situations. In areas where open-cut trenching is not an option, a trenchless method of duct installation may be used. Common areas where open trenching may not be allowed include roadway crossings, street intersections, railroads, waterbodies, wetlands, and other environmentally sensitive areas.

Trenchless operations, while typically more costly, enable a project alignment to cross sensitive or inaccessible areas by eliminating the surface disturbance that would occur laterally along the length of the line for open-cut trenching. This method, however, does not eliminate all temporary surface disturbances and actually results in greater permanent ground impacts. Significant surface disturbance still occurs at each end of a buried line segment where the lines changes from overhead to underground. Surface disturbance also occurs for the development of roads to allow access for the heavy equipment and materials necessary for trenchless construction.

Two types of trenchless methods are commonly used: 1) jack and bore and 2) horizontal directional drilling. Horizontal directional drilling methods would likely be needed for underground construction at all river crossings on the R-Project. The horizontal directional drilling method requires a pit excavation area of significant size at the entry and exit points of the drill. A typical entry point site requires an area of about 100 feet x 150 feet and an exit area of 100 feet x 100 feet. Heavy equipment and workers would cause temporary disturbance around the entry and exit pits.

Another environmental concern during horizontal directional drilling is the potential for inadvertent return of drilling lubricant caused when excessive drilling pressure results in drilling mud propagating toward the ground surface or into a body of water. Horizontal directional drilling uses bentonite, a clay-type drilling fluid, to stabilize the bore and reduce mechanical wear. While bentonite is non-toxic, some plants and microscopic animals and fish and their eggs can be smothered by the fine bentonite particles, if discharged into waterways. For this reason, space is required to direct drilling lubricant away from any associated waterbody and then contain it within a diked area or storage containers, such as frac tanks.

Cable installation procedures and equipment are selected based on environmental conditions, equipment and material placement, and pulling requirements. In the typical cable pulling setup, the reel of cable is placed at the transition structure or at one of the manholes and the winch truck is placed at the opposite end of the conduit. Splicing of the cable commences once all the cable is pulled into a manhole from each direction. Generally, the equipment required for pulling the cable is very large and heavy, requiring good access to the pulling sites. Substantially more pulling and tensioning sites are required for long segments of underground installation compared to an overhead line, but the effects of these activities are limited and temporary. For shorter underground segments, such as at a river crossing, tensioning and pulling sites would only be required at each end of the underground segment.

Depending on the construction techniques and Project requirements, the ROW width can vary from 30 to 100 feet, although 50 feet is typical for 345 kV transmission lines. For projects with large load transfer requirements like the R-Project (3,000 amperes), a larger ROW may be needed to accommodate a multiple duct bank design. In an attempt to minimize conductor size, 10-foot, center-to-center separation between parallel duct banks is typically recommended. In addition to permanent easements, temporary construction easements may be required. All trees and vegetation in the permanent and temporary easements must be cleared for construction.

For underground transmission lines that are 345 kV or greater, areas would need to be developed at each end of each underground segment length where the aboveground line structures and all associated equipment and operation systems would be located. These areas—referred to as transition stations—are permanent facilities and can be significant in size. Transition stations for 345 kV or greater transmission lines can require installing equipment, such as reactors at both ends of each segment, to maintain proper voltage and capacity and capacitor banks. Transition stations often look very similar to an electrical substation.

For 345 kV or greater transmission lines, each transition station could be expected to range in size from 2 to 5 acres to as large as 10 acres, depending on the amount of equipment necessary for operation and the terrain. Construction of underground segments at the South Platte River and North Platte River crossings, as well as the Birdwood Creek crossing, would require construction of six separate transition stations—one at each end of each underground segment. If each transition station were 5 acres in size, 30 acres of land would be required for installation of the permanent transition facilities, more land than was purchased for the installation of the new expansion of the Thedford Substation (13 acres) and the new Holt County Substation (12 acres). Like substations, this land would need to be purchased, not held under an easement, and each transition station would be a permanently constructed utility facility, not a temporary disturbance. One benefit of underground construction instead of standard overhead construction at areas such as river crossings is a perceived reduction of the visual impact of having a line structure at each side of the river and a span of transmission line across the river. Considering the need for a permanent facility the size of a small substation at each side of a river crossing, the actual visual intrusion of underground construction may actually be more significant than that of Source: NPPD Typical transition station R-Project Transmission Line HCP FEIS November 2018 2-45 an overhead line. Installation of the underground cable or duct banks and access vaults and construction of transition stations would result in a greater temporary and permanent impact, loss of land use to the landowner, additional visual impacts, significantly increased construction cost, and increased costs to obtain the land.

The significant cost differential between overhead transmission line construction and underground construction plus the abundance of open, undeveloped land eliminated the need to consider underground construction and its associated challenges and impacts. Therefore, underground construction was eliminated from further consideration as a viable alternative for not only constructing the entire Project but also for constructing short segments in environmentally sensitive areas (e.g., wetlands and river crossings).

Impacts on biological, geological, water and cultural resources from underground transmission lines, even short segments, include 1) increased potential for invasive species to establish in the ROW; 2) increased potential for wildlife displacement resulting from the disturbance from trenching activities in the ROW; 3) increased effects on the beetle from greater temporary disturbance from trenching and cable pulling operations and greater permanent disturbance from construction of manholes, reactors, and transition stations; 4) increased potential for impacts from ground disturbance from trenching activities; 5) potential for impacts from increased soil temperatures during operation; 6) potential degradation of water quality during construction when using trenchless techniques; 7) potential for greater visual impacts resulting from transition stations; and 8) loss of land use to landowners resulting from purchase of land for permanent transition stations.

Request for NPPD: Does NPPD have any updated information pertaining to the technical or economic feasibility of this alternative from what was presented in the 2018 FEIS?

NPPD's response: NPPD can confirm that underground construction cost estimates are still 15 to 20 times, or more, the cost of an overhead transmission line. However, the estimated per-mile costs of an underground single conductor per phase system have increased from $20,000,000 to $35,000,000.

In addition, the conclusion that underground construction is not a viable alternative "for constructing short segments in environmentally sensitive areas (e.g., wetlands and river crossings)" applies with equal force to culturally sensitive areas. For example, installation of the underground cable or duct banks and access vaults and construction of transition stations required to bury the line in the vicinity of historic properties would also result in a greater temporary and permanent impact, loss of land use to the landowner, additional visual impacts, significantly increased construction cost, and increased costs to obtain the land. Thus, it would be appropriate for this section to conclude that underground construction is not a viable alternative "for constructing short segments in sensitive areas (e.g., wetlands, river crossings, and historic properties)."

Appendix E

Information from Nebraska Public Power District Regarding Thunderhead Wind Energy Operations

Information for U.S. Fish and Wildlife Service Regarding Thunderhead Wind Energy Center Operations

I. Introduction

The U.S. Fish and Wildlife Service (USFWS) is evaluating an application from Nebraska Public Power District (NPPD) for incidental take permit for its proposed R-Project, a 226-mile 345 kV transmission line in central Nebraska. Because a federal district court remanded the initial incidental take permit for additional consideration, USFWS is in the process of preparing Supplemental Environmental Impact Statement (SEIS).

On July 14, 2022, NPPD provided USFWS with a summary of new information that is relevant to the SEIS on remand, including a discussion of a change in circumstances regarding the Thunderhead Wind Energy Center (Thunderhead Wind Project), a 300 megawatt (MW) wind energy project in Wheeler and Antelope counties, Nebraska. At the time of the Final Environmental Impact Statement, the Thunderhead Wind Project was proposed to interconnect to the grid at the Holt County Substation that was being proposed as part of the R-Project. As noted in NPPD's July 2022 submission, the developer of the Thunderhead Wind Project requested approval from the Western Area Power Administration (Western) to interconnect directly to Western's Grand Island-Fort Thompson transmission line prior to the R-Project being completed. Western granted that interconnection request in July 2022, and the Thunderhead Wind Project began commercial operations in late 2022.

As a result of these changes in circumstances, the Thunderhead Wind Project is no longer an indirect effect of the R-Project because it is neither caused by the R-Project, nor does the R-Project make the Thunderhead Wind Project more likely to occur. However, the fact that the R-Project is not in service does have some minor implications for Thunderhead Wind Project operations. NPPD provides the following summary of those implications for USFWS's consideration.

II. Thunderhead Project Operations

The Southwest Power Pool (SPP) initially identified the R-Project as a Previous Network Upgrade that was needed for the Thunderhead Wind Project to be allowed to operate up to 300 MWs without restrictions. That meant that, without additional studies or remedial actions, the Thunderhead Wind Project would not be allowed to generate and inject any energy onto the transmission system without the completion of the R-Project.

Because of the delay in completing the R-Project, the developer of the Thunderhead Wind Project requested that SPP conduct a Limited Operations Impact Study (LOIS). Based on the results of the LOIS, the Thunderhead Wind Project was allowed to generate up to 195 MW until such time as the R-Project facilities are completed.

However, in order to be allowed to inject up to the full output of the Thunderhead Wind Project before completion of the R-Project, the project developer requested a temporary

Remedial Action Scheme (RAS). A RAS was approved by SPP in August 2022. Under this RAS, the output of the Thunderhead Wind Project is limited to 195 MW only when the RAS detects that the Grand Island-Holt 345 kV line is out of service. At all other times, the Thunderhead Wind Project can operate at its full 300 MW output level, subject to other unrelated reliability constraints on the transmission system.

The RAS is currently allowed for a maximum of two years from the time it is placed in-service. If the R-Project or equivalent upgrades to the grid are not completed at that point, the RAS may be extended based on the applicable Transmission Provider policies and processes for temporary RAS systems. Once the R-Project or equivalent upgrades are completed, the restrictions imposed by the LOIS and the temporary RAS, if it is still in place, will be removed.

In sum, under normal conditions, the Thunderhead Wind Project is currently able to operate at its full output level of 300 MW even in the absence of the R-Project. In the limited situation when the Grand Island-Holt 345 kV line is out of service, the Thunderhead Wind Project's output will temporarily be limited to 195 MW until that line is back in service. This restriction will not be in place once the R-Project is constructed.

21299900_v1

Appendix F
Soils Technical Supplement

This technical supplement includes supplemental data and information on soils in the related renewable energy projects study area. Soil characteristics for the related renewable energy projects study area were evaluated using data obtained from the Natural Resources Conservation Service (NRCS) soils surveys (USDA, NRCS 2023) for Holt, Cheyenne, Jefferson, York, and Greeley counties and for the Prairie Hills Wind, Big Blue Nebraska, and Thunderhead project areas.

Erosion Potential

Soil characteristics, including wind erodibility, K Factor[1], T Factor[2], and slope, were used to evaluate erosion potential (Tables 1 through 8). In general, susceptibility to water erosion is relatively low because of the highly permeable nature of sandy soils, except where slopes are steep.

Table 1. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, by County (Erodibility by Wind)

Total Acreage in County or Project Area	Erosion Factors (acres [percentage of area])			
	Low (5,6,7,8)	Moderate (3,4,4L)	Severe (1,2)	Not Rated Acres
Cheyenne County				
765,108	515,071 (67%)	222,194 (29%)	26,595 (3%)	1,248 (less than 1%)
Greeley County				
364,952	223,492 (61%)	51,420 (14%)	88,170 (24%)	1,871 (less than 1%)
Holt County				
1,546,632	159,658 (10%)	353,315 (23%)	1,019,013 (66%)	14,647 (less than 1%)
Jefferson County				
368,261	346,026(94%)	17,204(5%)	0 (0%)	5,032 (1%)
York County				
368,263	366,730 (99%)	22 (less than 1%)	0 (0%)	1,511 (less than 1%)

Source: gSSURGO 2023

Notes: Wind erodibility indicates the potential for wind erosion based on slope, soil types, and wind characteristics. The SSURGO database divides wind erodibility into eight categories, and it is assumed that Groups 1 through 4 represent high to moderately wind-erodible soils with rates ranging from greater than 310 tons per acre per year (Group 1) to 86 tons per acre per year (Group 4). The range for Groups 5 through 8 is from 56 to 0 tons per acre per year.

[1] K Factor is the index used to measure a soil's potential to erode and also the rate of runoff as measured compared to a standard condition. Soil K Factors can range from 0.02 to 0.6 (DOE 2003). Low K Factors were assumed to range from 0.02 to 0.25, moderate K Factors from 0.25 to 0.37, and high K Factors greater than 0.37.

[2] T Factor is an indicator of soil loss tolerance, or the amount of soil loss that can be tolerated for a soil to remain productive. The T Factors are integer values from 1 through 5 tons per acre per year. The factor of 1 ton per acre per year is for shallow or otherwise fragile soils and 5 tons per acre per year is for deep soils that are least subject to damage by erosion.

Table 2. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, Known Project Areas (Erodibility by Wind)

Total Acreage in County or Project Area	Erosion Factors (percentage of area)			
	Low (5,6,7,8)	Moderate (3,4,4L)	Severe (1,2)	Not Rated Acres
Big Blue Nebraska (Jefferson County)				
20,544	19,517 (95%)	749 (4%)	0 (0%)	277 (1%)
Prairie Hills Wind (Custer County)				
40,965	25,293 (62%)	15,651 (38%)	0 (0%)	21 (less than 1%)
Thunderhead (Holt, Antelope, and Wheeler Counties)				
48,842.5	7,525 (15.4%)	5,806 (11.9%)	35,488 (72.7%)	23 (less than 1%)

Source: gSSURGO 2023

Notes: Wind erodibility indicates the potential for wind erosion based on slope, soil types, and wind characteristics. The SSURGO database divides wind erodibility into eight categories, and it is assumed that Groups 1 through 4 represent high to moderately wind-erodible soils with rates ranging from greater than 310 tons per acre per year (Group 1) to 86 tons per acre per year (Group 4). The range for Groups 5 through 8 is from 56 to 0 tons per acre per year.

Table 3. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, by County (K factor)

Total Acreage in County or Project Area	Erosion Factors (acres [percentage of area])		
	K-Factor (Whole Soils) > = 0.37) (high)	K-Factor (Whole Soil) <.37) (low to moderate)	Not Rated
Cheyenne County			
765,108	421,711 (55%)	335,553 (44%)	7,845 (1%)
Greeley County			
364,952	137,412 (38%)	225,479 (62%)	2,061 (1%)
Holt County			
1,546,632	85,923 (6%)	1,426,343 (92%)	34,366 (2%)
Jefferson County			
368,261	240,753 (65%)	122,387(33%)	5,122(1%)
York County			
368,263	362,697 (99%)	3,123 (less than 1%)	2,442 (less than 1%)

Source: gSSURGO 2023

Notes: K Factor is the index used to measure a soil's potential to erode and also the rate of runoff as measured compared to a standard condition. Soil K Factors can range from 0.02 to 0.6 (DOE 2003). Low K Factors were assumed to range from 0.02 to 0.25, moderate K Factors from 0.25 to 0.37, and high K Factors greater than 0.37.

Table 4. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, Known Project Areas (K factor)

Total Acreage in County or Project Area	Erosion Factors (acres [percentage of area])		
	K-Factor (Whole Soils) > = 0.37) (high)	K-Factor (Whole Soil) <.37) (low to moderate)	Not Rated
Big Blue Nebraska (Jefferson County)			
20,544	11,833 (58%)	8,434 (41%)	277 (1%)
Prairie Hills Wind (Custer County)			
40,965	26,090 (64%)	14,034 (34%)	21 (less than 1%)
Thunderhead (Holt, Antelope, and Wheeler Counties)			
48,842	4,971 (10.2%)	43,789 (89.7%)	83 (less than 1%)

Source: gSSURGO 2023

Notes: K Factor is the index used to measure a soil's potential to erode and also the rate of runoff as measured compared to a standard condition. Soil K Factors can range from 0.02 to 0.6 (DOE 2003). Low K Factors were assumed to range from 0.02 to 0.25, moderate K Factors from 0.25 to 0.37, and high K Factors greater than 0.37.

Table 5. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, by County (T factor)

Total Acreage in County or Project Area	Erosion Factors (acres [percentage of area])					
	1	2	3	4	5	Not Rated
Cheyenne County						
765,108	0 (0%)	108,451 (14%)	80,242 (10%)	177,146 (23%)	391,661 (51%)	7,609 (1%)
Greeley County						
364,952	0 (0%)	198 (Less than 1%)	2,549 (Less than 1%)	9,444 (3%)	350,890 (96%)	1,871 (Less than 1%)
Holt County						
1,546,632	0 (0%)	171 (Less than 1%)	104,718 (7%)	253,826 (16%)	58,945 (4%)	1,118,270 (72%)
Jefferson County						
368,261	0 (0%)	4,675 (1%)	9,047 (2%)	46,272 (13%)	14,957 (4%)	288,277 (78%)
York County						
368,263	0 (0%)	0 (0%)	40,951 (11%)	23 (Less than 1%)	325,778 (88%)	1,511 (Less than 1%)

Source: gSSURGO 2023

Notes: T Factor is an indicator of soil loss tolerance, or the amount of soil loss that can be tolerated for a soil to remain productive. The T Factors are integer values from 1 through 5 tons per acre per year. The factor of 1 ton per acre per year is for shallow or otherwise fragile soils and 5 tons per acre per year is for deep soils that are least subject to damage by erosion. The analysis for the related renewable projects used a loss tolerance of 2 tons per acre per year as a guideline.

Table 6. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, Known Project Areas (T factor)

Total Acreage in County or Project Area	Erosion Factors (acres [percentage of area])					
	1	2	3	4	5	Not Rated
Big Blue Nebraska (Jefferson County)						
20,544	0 (0%)	1 (Less than 1%)	794 (4%)	693 (3%)	18,778 (91%)	277 (1%)
Prairie Hills Wind (Custer County)						
40,965	0 (0%)	0 (0%)	60 (0%)	80 (Less than 1%)	40,804 (99%)	21 (Less than 1%)
Thunderhead (Holt, Antelope, and Wheeler Counties)						
48,842	0 (0%)	37 (Less than 1%)	89 (Less than 1%)	4,612 (9.4%)	44,084 (90.3%)	21 (Less than 1%)

Source: gSSURGO 2023

Notes: T Factor is an indicator of soil loss tolerance, or the amount of soil loss that can be tolerated for a soil to remain productive. The T Factors are integer values from 1 through 5 tons per acre per year. The factor of 1 ton per acre per year is for shallow or otherwise fragile soils and 5 tons per acre per year is for deep soils that are least subject to damage by erosion. The analysis for the related renewable projects used a loss tolerance of 2 tons per acre per year as a guideline.

Table 7. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, by County (Slope)

Total Acreage in County or Project Area	Erosion Factors (acres [percentage of area])		
	Slope >= 15%	Slope < 15%	Not Rated
Cheyenne County			
765,108	57,195 (7%)	707,685 (92%)	229 (Less than 1%)
Greeley County			
364,952	85,126 (23%)	277,843 (76%)	1,983 (Less than 1%)
Holt County			
1,546,632	117,063 (8%)	1,420,316 (92%)	9,253 (Less than 1%)
Jefferson County			
368,261	33,806 (9%)	331,062 (90%)	3,394 (1%)
York County			
368,263	7,836 (2%)	359,248 (98%)	1,178 (Less than 1%)

Source: gSSURGO 2023

Notes: Soil disturbance on steep slopes would be more prone to soil erosion. To assess the areas of related renewable projects with steep slopes, a slope inclination of 15% or greater was used to define steep slopes for the related renewable projects.

Table 8. Soil Erosion Factors in the Related Renewable Energy Projects Study Area, Known Project Areas (T factor)

Total Acreage in County or Project Area	Erosion Factors (acres [percentage of area])		
	Slope >= 15%	Slope < 15%	Not Rated
Big Blue Nebraska (Jefferson County)			
20,544	725 (4%)	19,542 (95%)	277 (1%)
Prairie Hills Wind (Custer County)			
40,965	23,755 (58%)	17,186 (42%)	23 (Less than 1%)
Thunderhead (Holt, Antelope, and Wheeler Counties)			
48,842	1,675 (3.4%)	47,146 (96.5%)	21 (Less than 1%)

Source: gSSURGO 2023

Notes: Soil disturbance on steep slopes would be more prone to soil erosion. To assess the areas of related renewable projects with steep slopes, a slope inclination of 15% or greater was used to define steep slopes for the related renewable projects.

Prime Farmland

Prime farmland contains soils with the best physical and chemical characteristics for the production of food, feed, forage, fiber, and oilseed crops (7 CFR 657.5(a)(1)). It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. Undeveloped land with high crop production potential may be classified as prime farmland. The State Conservationist can designate specific soil map units as farmland of statewide importance. Tables 9 and 10 show the percentage of prime farmland, prime farmland if drained, prime farmland if irrigated, and farmland of statewide importance in the study area as mapped by USDA.

Table 9. Prime Farmland[a] in the Related Renewable Energy Projects Study Area, by County

Total Acreage in County or Project Area	Sensitive Soils (acres [percentage of area])[b]				
	Prime Farmland (acres)	Prime Farmland if Drained	Prime Farmland if Irrigated	Farmland of Statewide Importance	Not prime farmland
Holt County					
1,546,632	70,412 (5%)	7,366 (Less than 1%)	49,755 (3%)	85,754 (6%)	1,133,344 (73%)
Cheyenne County					
765,108	0 (0%)	0 (0%)	545,041 (71%)	0 (0%)	220,067 (29%)
Jefferson County					
368,261	235,692 (64%)	4,871 (1%)	0 (0%)	24,356 (7%)	103,342 (28%)
York County					
368,263	296,277 (82%)	15,355 (4%)	0 (0%)	1 (less than 1%)	56,630 (15%)

Total Acreage in County or Project Area	Sensitive Soils (acres [percentage of area])[b]				
	Prime Farmland (acres)	Prime Farmland if Drained	Prime Farmland if Irrigated	Farmland of Statewide Importance	Not prime farmland
Greeley County					
364,952	83,141 (23%)	1,921 (Less than 1%)	0 (0%)	0 (0%)	279,890 (77%)

Notes:
[a] Prime farmland data from SSURGO (USDA, NRCS 2023)
[b] Totals may not be exact as not all land uses are included in the table

Table 10. Prime Farmland[a] in the Related Renewable Energy Projects Study Area, Known Project Areas

Total Acreage in County or Project Area	Sensitive Soils ((acres [percentage of area])[b]				
	Prime Farmland (acres)	Prime Farmland if Drained	Prime Farmland if Irrigated	Farmland of Statewide Importance	Not prime farmland
Prairie Hills Wind (Custer County)					
40,965	3,872 (9%)	0 (0%)	0 (0%)	0 (0%)	37,093 (90%)
Big Blue Nebraska (Jefferson County)					
20,544	13,077 (64%)	419 (2%)	0 (0%)	4,902 (24%)	2,955 (14%)
Thunderhead (Holt, Antelope, and Wheeler Counties)					
48,842	9,897 (20%)	31 (Less than 1%)	0 (0.0%)	14,071 (29%)	24,844 (51%)

Notes:
[a] Prime farmland data from SSURGO (USDA, NRCS 2023).
[b] Totals may not be exact as not all land uses are included in the table.

Soil Restoration Potential

Soil restoration potential indicates the ability of the soil to recover from degradation, which is often referred to as soil resilience. The ability to recover from degradation means the ability to restore functional and structural integrity after a disturbance. Several soil factors were used to evaluate the soil's restoration potential for the related renewable projects, including soil compaction potential, amount of hydric soil, and a soil revegetation potential model.

Soil compaction tends to reduce water infiltration, which 1) affects plant production and composition, 2) increases runoff (generally resulting in increased erosion rates), and 3) affects organisms living in the soil. Compaction is predominantly influenced by moisture content, but it is also influenced by depth to saturation; percent of sand, silt, and clay; soil structure; organic matter content; and content of coarse fragments. Although all soil is susceptible to compaction to varying degrees, wet soils are more readily compacted than dry, and clay loam or finer soils with poor drainage characteristics were assumed to be highly compaction prone. As a conservative measure, it was assumed that if the soil is disturbed by construction equipment or operation vehicles, soil compaction is a possibility. For purposes of this analysis, highly compactable soils are defined as fine-textured soils (sandy clay, silty clay, and clay) (USDA, NRCS 1993) and soils with somewhat poorly drained to very poorly drained characteristics.

Hydric soils are formed under saturation, flooding, or ponding for a sufficient period to develop anaerobic characteristics in the upper soil horizon. Hydric soils, combined with surface water or shallow groundwater and indicative vegetation species, are necessary indicators of wetlands (see SEIS Section 3.4, *Wetlands*). Disturbance of hydric soils may result in decreased water storage capacity of soil, decreased soil porosity, and decreased ability to replace hydrophytic vegetation.

A soil revegetation potential model was used to examine the Sodium Absorption Ratio (SAR), Electrical Conductivity (EC), and pH attributes of the soils in the study area to classify whether the soil has a high, moderate, or low potential for revegetation.

Tables 11 and 12 show soil restoration factors in the related renewable energy projects study area. Tables 13 and 14 show soil revegetation factors in the related renewable energy projects study area.

Table 11. Soil Restoration Factors in the Related Renewable Energy Projects Study Area, by County

Total Acreage in County or Project Area	Factors Affecting Restoration (percent of area)	
	Highly Compaction Prone[a]	All Hydric Soils[b]
Cheyenne County		
765,108	Less than 1%	1%
Greeley County		
364,952	1%	2%
Holt County		
1,546,632	2%	11%
Jefferson County		
368,261	41%	1%
York County		
368,263	14%	5%

Notes:
[a] Includes coarse-textured soils (sands and loamy sands) and moderately to excessively well-drained soils.
[b] All hydric and predominantly hydric soils data from SSURGO, which includes overlap with NWI wetlands.

Table 12. Soil Restoration Factors in the Related Renewable Energy Projects Study Area, Known Project Areas

Total Acreage in County or Project Area	Factors Affecting Restoration (percent of area)	
	Highly Compaction Prone[a]	All Hydric Soils[b]
Big Blue II (Jefferson County)		
20,544	49%	1%
Prairie Hills Wind (Custer County)		
40,965	3%	1%
Thunderhead Wind Energy Center		
48,842	Less than 1%	1%

Notes:
[a] Includes coarse-textured soils (sands and loamy sands) and moderately to excessively well-drained soils.
[b] All hydric and predominantly hydric soils data from SSURGO, which includes overlap with NWI wetlands.

Table 13. Soil Revegetation Potential in the Related Renewable Energy Projects Study Area, by County[a]

Total Acreage in County or Project Area	Factors Affecting Restoration (acres, percent of area)			
	High	Moderate	Low	Not Rated
Cheyenne County				
765,108	759,734 (99%)	4,389 (Less than 1%)	(0%)	985 (Less than 1%)
Greeley County				
364,952	361,865 (99%)	1,133 (Less than 1%)	(0%)	1,953 (Less than 1%)
Holt County				
1,546,632	1,519,251 (98%)	9,655 (Less than 1%)	6,440 (Less than 1%)	11,286 (Less than 1%)
Jefferson County				
368,261	362,675 (98%)	465 (Less than 1%)	(0%)	5,122 (1%)
York County				
368,263	366,566 (99%)	186 (Less than 1%)	(0%)	1,511 (Less than 1%)

Notes:
[a] The Revegetation Potential model populates the Sodium Adsorption Ratio (SAR), the Electrical Conductivity (EC), and the pH attributes. SAR: A measure of the amount of Sodium (Na) relative to Calcium (Ca) and Magnesium (Mg) in the water from saturated soil paste. EC: The electrical conductivity of an extract from saturated soil paste. pH: The negative logarithm to the base 10, of the hydrogen ion activity in the soil using the 1:1 soil-water ratio method. A numerical expression of the relative acidity or alkalinity of a soil sample. It then uses these attributes to classify soils by revegetation potential (ReVegPot):
Low: SAR >= 13 OR EC >= 4 OR (pH >= 9 or pH <= 4.4).
Moderate: (SAR >= 6 and SAR < 13) OR (EC >= 2 and EC < 4) OR (pH >= 8.5 and pH < 9) OR (pH <= 5 and pH > 4.4).
High: ReVegPot is null and (SAR is not null OR EC is not null or pH is not null).

Table 14. Soil Revegetation Potential in the Related Renewable Energy Projects Study Area[a]

Total Acreage in County or Project Area	Factors Affecting Restoration (acres, percent of area)			
	High	Moderate	Low	Not Rated
Big Blue II				
20,544	20,234 (98%)	32 (Less than 1%)	(0%)	277 (1%)
Prairie Hills Wind				
40,965	40,943 (99%)	(0%)	(0%)	21 (Less than 1%)
Thunderhead Wind Energy Center				
48,842	48,821 (99%)	(0%)	(0%)	21 (Less than 1%)

Notes:
[a] The Revegetation Potential model populates the Sodium Adsorption Ratio (SAR), the Electrical Conductivity (EC), and the pH attributes. SAR: A measure of the amount of Sodium (Na) relative to Calcium (Ca) and Magnesium (Mg) in the water from saturated soil paste. EC: The electrical conductivity of an extract from saturated soil paste. pH: The negative logarithm to the base 10, of the hydrogen ion activity in the soil using the 1:1 soil-water ratio method. A numerical expression of the relative acidity or alkalinity of a soil sample. It then uses these attributes to classify soils by revegetation potential (ReVegPot):
Low: SAR >= 13 OR EC >= 4 OR (pH >= 9 or pH <= 4.4).
Moderate: (SAR >= 6 and SAR < 13) OR (EC >= 2 and EC < 4) OR (pH >= 8.5 and pH < 9) OR (pH <= 5 and pH > 4.4).
High: ReVegPot is null and (SAR is not null OR EC is not null or pH is not null).

References

Gridded Soil Survey Geographic (gSSURGO), Soil Survey Staff. Database for Nebraska. United States Department of Agriculture, Natural Resources Conservation Service. Available online at http://datagateway.nrcs.usda.gov/. 20220908 (202301 official release). Accessed September 8, 2023.

Appendix G
Section 106 Coordination and Correspondence

This appendix includes correspondence conducted in accordance with Section 106 of the National Historic Preservation Act following the court decision in 2020 (Oregon-California Trails Association v. Walsh, 1:19-cv-01945-WJM, D. Colo 2020). The appendix also includes a summary of Section 106 meetings hosted by the Service.

Section 106 Correspondence

The following attachments are included and provide a record of Section 106 correspondence associated with the proposed action.

- Letter from SHPO to POWER Engineers in response to the 2018 survey report, dated January 28, 2019
- Letter from SHPO to POWER Engineers in response to the 2019 survey report, dated January 9, 2020
- Letter from the ACHP to USFWS, dated October 19, 2022
- Letter from USFWS to the ACHP in response to the letter received on October 19, 2022, dated December 22, 2022
- Section 106 Initiation Letters sent to SHPO, Tribal representatives, and Section 106 consulting parties, dated July 10, 2023
- Letter from SHPO to FWS indicating concurrence on the proposed APE, dated July 21, 2023

The distribution list for the Initiation of Section 106 Consultation letters, dated July 10, 2023, is as follows:

- Linda Tracey, Southerland History Center
- John Briggs, Oregon-California Trails Association
- Tom Kent, NPPD
- James Griffin, Lincoln County Historical Museum
- Ryan Saltzgiver, Church History Department – The Church of Jesus Christ of Latter-Day Saints
- Michael Kelly
- James Haugland
- Alexis Clark, ACHP
- Lisa Burke, Visit North Platte
- Jordan Jarrett, National Park Service – National Trails
- James Fleecs
- Betty Gillespie, Nebraska State Historic Preservation Office
- Rosebud Sioux Tribe
- Northern Cheyenne Tribe
- Cheyenne and Arapaho Tribes, Oklahoma
- Santee Sioux Nation of Nebraska

- Ponca Tribe of Nebraska
- Otoe-Missouria Tribe
- Iowa Tribe of Kansas and Nebraska
- Omaha Tribe of Nebraska
- Ponca Tribe of Oklahoma
- Winnebago Tribe of Nebraska
- Oglala Sioux Tribe
- Meskwaki Nation
- Sac and Fox Nation of Oklahoma
- Sac and Fox Nation of Missouri in Kansas and Nebraska
- Cheyenne River Sioux Tribe of the Cheyenne River Reservation, South Dakota
- Yankton Sioux Tribe of South Dakota
- Lower Brule Sioux Tribe
- Pawnee Nation of Oklahoma
- Apache Tribe of Oklahoma
- Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, Montana
- Standing Rock Sioux Tribe of North and South Dakota
- Spirit Lake Tribe, North Dakota
- Cherokee Nation
- Flandreau Santee Sioux Tribe of South Dakota
- Lower Sioux Indian Community in the State of Minnesota
- Prairie Island Indian Community in the State of Minnesota
- Upper Sioux Community, Minnesota
- Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota
- Northern Arapaho Tribe
- Shakopee Mdewakanton Sioux Community of Minnesota
- Crow Creek Sioux Tribe of the Crow Creek Reservation

Table 1 provides a summary of supplemental cultural resource correspondence received from Tribes regarding Section 106 coordination efforts after the 2020 court decision, including on the proposed area of potential effects and the cultural resource inventory report.

Table 1. Tribal Correspondence Specific to Section 106 Coordination Efforts after the 2020 Court Decision[a]

Organization	Date(s) Received	Method	Content
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, Montana	9/8/2022	Email attachment	Deferred to the Nebraska Sioux Tribes for comment
Cheyenne River Sioux Tribe of the Cheyenne River Reservation, South Dakota	07/13/2023	Email	No comment or concern at this time; defer to Native Nation closer to the project; provided updates to tribal contact; requested notification of any changes to the proposed project
Flandreau Santee Sioux Tribe of South Dakota	07/17/2023	Email	Does not have an issue with your project as designed; requested immediate contact if the project inadvertently disturbs any human remains and or cultural material
Iowa Tribe Of Kansas and Nebraska	11/20/2023	Phone Call	The project is outside of the historic range of the Iowa Tribe
Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana	01/13/2023	Email	Requested involvement with the project
Pawnee Nation of Oklahoma	08/03/2023 12/08/2023	Email attachment	Stated that the proposed project should not adversely affect the cultural landscape of the Pawnee Nation; requested reporting of undiscovered properties encountered Requested additional information about specific sites referenced in survey reports
Shakopee Mdewakanton Sioux Community of Minnesota	11/30/2022 07/13/2023	Email	Deferred to local area Federally Recognized Tribes of the State of Nebraska and any other Federally Recognized Tribe with interest and with historical ties; would like to receive updates
Winnebago Tribe of Nebraska	07/19/2023	Email	Stated that the project will not affect any known sites; no questions or concerns regarding the proposed undertaking

[a] The Service continues to consult with Tribes that have deferred comment to Nebraska Tribes or have identified no impacts to cultural resources. Several of these Tribes have been active participants in public meetings and have provided important insights about the historical setting.

History NEBRASKA

Preserving the past. Building the future.

Ken Bedingfield, M.A., RPA
Senior Archaeologist
POWER Engineers, Inc.
3900 S. Wadsworth Blvd.
Lakewood, CO 80235

January 28, 2019

RE: HP# 1602-140-01; **Cultural Resource Survey Report# 19-0001**; Nebraska Public Power District (NPPD) R-Project - **2018 Cultural Resources Survey of the R-Project 345 kV Transmission Line**; Antelope, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Rock, Thomas, Wheeler Counties

Dear Mr. Bedingfield:

Thank you for submitting the cultural resource survey report regarding the above referenced project for Nebraska State Historic Preservation Office (NeSHPO) review and comment under Section 106 of the National Historic Preservation Act of 1966, as amended in 2014 (Title 54 U.S.C. § 306108 [formerly 16 U.S.C. § 470f]), and its implementing regulations at 36 CFR § 800.

Nebraska Public Power District (NPPD) has proposed an undertaking to construct a 225-mile-long 345 kilovolt transmission line (R-Project) through areas that require an Incidental Take Permit for the federally endangered American burying beetle. The permit, requested from the U.S. Fish and Wildlife Service, requires consultation and coordination with the NeSHPO under Section 106 of the National Historic Preservation Act.

As part of Section 106 compliance, POWER Engineering Inc., on behalf of NPPD, conducted an intensive cultural resources inventory of an additional 645 acres along the 225-mile transmission line to identify historic properties that may be affected by the undertaking. The results of the 2018 survey identified 10 cultural resources (8 archeological sites and 2 isolated finds) that include: 3 historic artifact scatters (25LN94, 25LN105, RPCM-1), 1 prehistoric camp site (25LN1132), 2 farmstead sites (RCPM-2, RCPM 3), 1 former sod schoolhouse site (RCKB-12), 1 segment of Oregon-California National Historic Trail (RPKB-13), and 2 historic period isolated finds (RP-IF-KB5, RP-IF-KB6).

NO ADVERSE EFFECT

Based on the documentation provided, the NeSHPO *concurs* with the recommendations that sites **25LN94, 25LN105, RPCM-1, RPCM-2, RPCM-3** and isolated finds **RP-IF-KB5** and **RP-IFKB6** do not meet the evaluative criteria for listing on the Nation Register of Historic Places (NRHP), and the proposed undertaking will have *No Adverse Effect* on these resources.

NO ADVERSE EFFECT WITH CONDITIONS

25LN113 – *Birdwood Creek Prehistoric Site*
Based on the documentation provided, the NeSHPO *concurs* with the recommendation that the proposed undertaking will have *No Adverse Effect* on site 25LN113, and that the site does meet the evaluative criteria for potential listing on the NRHP under Criterion D.

History NEBRASKA

Preserving the past. Building the future.

Conditional Action
The NeSHPO also concurs with the recommendations presented in the report that: "the newly proposed structure location be subjected to archaeological testing and that monitoring of construction activity on the surrounding landform be conducted by a qualified archaeologist" (p.37). However, the NeSHPO requests that NPPD submit a report detailing the results of both the archeological survey of the new structure location and the construction monitoring activities.

It is requested that prior to initiating the survey of the new structure location, the NeSHPO receive a map of the new Cultural Survey Corridor for review. This map shall include: 1) the defined boundaries for sites 25LN94 and 25LN113 in relation to the new placement of the transmission line support structure, and 2) the location of any proposed maintenance/two-track roads, support structures, or additional ground disturbing work activities.

RPKB-12 - *Ballagh Schoolhouse*
Based on the documentation provided, the NeSHPO *concurs* with the recommendation that the proposed undertaking will have *No Adverse Effect* on site RPKB-12, and that the site does meet the evaluative criteria for potential listing on the NRHP under Criterion D.

Conditional Action
The NeSHPO also concurs that prior to construction the final location of the transmission line support structure will be subsurface tested for cultural resources.

In addition, it is required that no transmission line support structure, vehicle two-track, or any other ground disturbing activity take place within the established boundary of site RPKB-12 or within a buffer of 100-feet of said boundary. If ground disturbing actions are required within this boundary/buffer, NPPD will consult with the NeSHPO prior to construction to discuss avoidance, minimization, or mitigation strategies. Upon completion of this new testing, a report documenting the findings will be submitted to the NeSHPO for review.

ADVERSE EFFECT

RPKB-13 - *Oregon-California National Historic Trail*
Based on the documentation provided, the NeSHPO concurs with the recommendation that the proposed undertaking will have an *Adverse Effect* on the 14 segments of Oregon-California trial defined at site RPKB-13.

While the NeSHPO does agree that this site does meet the evaluative criteria for potential listing on the NRHP under Criterion A, it also argues that this site meets the requirement for listing under Criterion D as well. This is based on: 1) the likely presence of subsurface artifacts discarded from passing wagon trains, 2) the spatial integrity of discarded artifacts due to the absence of agriculture activities, and 3) the routine archeological study of how prehistoric and historic trails impact the lives of individuals, cultures, and societies who use them (e.g., Chaco Canyon [Friedman et al. 2017], Rome [Lawrence 1999], Appalachian Trail [Goldberg et al. 2008]).

2

History NEBRASKA

Preserving the past. Building the future.

Resolution of Adverse Effects

The NeSHPO concurs with the determination that the superposition of the R-Project transmission line on site RPKB-13 will create an adverse visual, auditory, and atmospheric effect that will be detrimental to the significance and integrity of the site's cultural resources. To alleviate these adverse effects, the NeSHPO makes the recommendation that this section of overlapping transmission line be relocated >5.0 miles east or west of its proposed location.

While the NeSHPO acknowledges the financial and scheduling inconvenience caused by this adjustment, it does not acknowledge the argument stated in this report that "avoidance is not currently considered an option" (p.72). Since NPPD has agreed to participate in the Section 106 process in good faith, avoidance should not be preemptively removed from Step 4 (Resolve Adverse Effect) of the Section 106 process due to perceived inconvenience.

With that said, the NeSHPO does appreciate the mitigation measures suggested in this report. It also looks forward to continuing the consultation process with NPPD and other appropriate parties (state, federal, public) to resolve the issues of adverse effect on these and any future cultural resources.

Be advised that this determination does not necessarily reflect the opinion of Native American Tribes that may have an interest in the area or resources, nor does it to pertain to Traditional Cultural Properties, if they exist in the area.

Should you have any questions, please do not hesitate to call this office at 402-471-2609 or by email at John.Rissetto@nebraska.gov.

Sincerely,

John Rissetto, Ph.D.
Preservation Archeologist

Jill Dolberg
Deputy SHPO

References Cited

Friedman, Richard A., Anna Sofaer, and Robert S. Weiner
2017 Remote Sensing of Chaco Roads Revisited: Lidar Documentation of the Great North Road, Pueblo Alto Landscape, and Aztec Airport Mesa Road. *Advances in Archaeological Practice*, Volume 5, Issue 4, pp. 365-381

Goldenberg, Marni & Hill, Eddie & Freidt, Barbara
2008 Why Individuals Hike the Appalachian Trail: A Qualitative Approach to Benefits. *Recreation: Journal of Experiential Education*, Volume 30, No. 3 pp. 277–281

Laurence, Ray
1999 *The Roads of Roman Italy: Mobility and Cultural Change*. Routedge. pp. 58–59

3

History NEBRASKA

Preserving the past. Building the future.

Ken Bedingfield, M.A., RPA
Senior Archaeologist
POWER Engineers, Inc.
3900 S. Wadsworth Blvd.
Lakewood, CO 80235

January 9, 2020

RE: HP# 1602-140-19; **Survey Report# 20-0003;** *NEBRASKA PUBLIC POWER DISTRICT, R-Project 2019 Cultural Resources Survey of the R-Project 345 kV* Transmission Line: Nebraska.

Dear Mr. Bedingfield:

Thank you for submitting the cultural resource survey report for the above referenced project for Nebraska State Historic Preservation Office (NeSHPO) review and comment under Section 106 of the National Historic Preservation Act of 1966, as amended in 2014 (Title 54 U.S.C. § 306108 [formerly 16 U.S.C. § 470f]), and its implementing regulations at 36 CFR§800.

This report, submitted by Power Engineers on behalf of Nebraska Public Power District, documents the results of a cultural resources survey that took place during 2019 and covered 230 acres of the remaining unevaluated acres associated with the R-Project transmission line project right-of-way.

This report thoroughly documents that: **1)** no new prehistoric or historic properties were identified in during the 2019 survey in the area of potential effect (APE), **2)** two previously documented resources that were revisited for the subsurface testing (25LN94, 25LN113) should be combined into a single multi-component site, **3)** site 25LN113 received 12 additional shovel tests located in and near the proposed lattice tower footings (all were negative for cultural materials), and **4)** based on the presence of intact, subsurface prehistoric cultural horizons and displaced historic artifacts, 25LN113 should maintain its eligibility recommendation for the National Register of Historic Places under Criterion D.

NeSHPO RECOMMENDATIONS

Based on the information provided, the NeSHPO concurs with the recommendations that:

1) that sites 25LN94 and 25LN113 should be unified as a single, multi-component (historic/prehistoric) site recorded as 25LN113
2) the boundary of 25LN113 can exclude the disturbance area associated with proposed lattice tower
3) that site 25LN113 should maintain its eligibility recommendation for the National Register of Historic Places under Criterion D, and
4) that the boundary of site 25LN113 will be clearly fenced during construction activities for the proposed lattice tower

History NEBRASKA

Preserving the past. Building the future.

The NeSHPO looks forward to reviewing and commenting on the results of the remaining cultural resources survey reports that cover the final portions of currently unsurveyed APE.

Be advised that this opinion does not necessarily reflect that of any Native American Tribes that might have an interest in the area, nor does it to pertain to Traditional Cultural Properties, if they exist in the area.

If required, please submit this letter to the project's lead federal agency to fulfill the statutory obligation of Section 106 consultation with the Nebraska State Historic Preservation Office. Should you have any questions regarding this determination, please contact this office by phone at 402-471-2609 or by email at John.Rissetto@Nebraska.Gov.

Sincerely,

John Rissetto, Ph.D.
Preservation Archeologist

October 19, 2022

Mark Porath
Nebraska Project Leader/Field Supervisor
Ecological Services, Mountain-Prairie Region
United States Fish and Wildlife Service
9325 S. Alda Rd. STE B
Wood River, NE 68883

Ref: *R-Project Transmission Line*
Multiple Counties, Nebraska
ACHP Project Number: 018830

Dear Mr. Porath:

On August 29, 2022, the Advisory Council on Historic Preservation (ACHP) received your notification for the proposed development of a Supplemental Environmental Impact Statement for the referenced undertaking. Our comments were requested regarding the National Environmental Policy Act (NEPA) review. We have no comments pursuant to NEPA at this time.

In order to ensure compliance with Section 106 of the National Historic Preservation Act, the ACHP encourages the U.S. Fish and Wildlife Service (USFWS) to consider the Section 106 process at its earliest convenience. In June 2019, the USFWS, Nebraska State Historic Preservation Officer, Nebraska Public Power District, and the ACHP executed a Programmatic Agreement (PA) for the R-Project Transmission Line. In June 2020, the U.S. District Court for the District of Colorado issued a decision challenging the approval of the Incidental Take Permit for the referenced undertaking. In its ruling, the court vacated and remanded the permit back to USFWS. Based on this notification we understand how you are addressing the reevaluation under NEPA, however it is unclear how you intend to address Section 106. We request USFWS provide us with an update on how the undertaking has changed, if applicable or appropriate, and how you plan to address the executed PA with the new Section 106 consultation.

Should you have any questions or require additional assistance, please contact Ms. Alexis Clark at (202) 517-0208 or by e-mail at aclark@achp.gov and reference the ACHP Project Number above.

Sincerely,

Christopher Koeppel
Assistant Director
Office of Federal Agency Programs
Federal Property Management Section

ADVISORY COUNCIL ON HISTORIC PRESERVATION
401 F Street NW, Suite 308 • Washington, DC 20001-2637
Phone: 202-517-0200 • Fax: 202-517-6381 • achp@achp.gov • www.achp.gov

United States Department of the Interior

FISH AND WILDLIFE SERVICE
9325 S. Alda Rd. STE B
Wood River, Nebraska 68883

In Reply Refer to:
R-Project Transmission Line (ACHP PN: 018830)

December 22, 2022

Mr. Christopher Koeppel
Assistant Director, Office of Federal Agency Programs
Advisory Council on Historic Preservation
401 F Street Northwest, Suite 308
Washington, DC 20001

Dear Mr. Koeppel,

This responds to your October 19, 2022, request for additional information from the U.S. Fish and Wildlife Service (Service) pertaining to Section 106 of the National Historic Preservation Act (NHPA) for the R-Project Transmission Line in Nebraska (known as the R-Project). Specifically, your request for information on the relationship between the Programmatic Agreement (PA) executed in 2019 and the current Section 106 consultation, resulting from the U.S. District Court for the District of Colorado remand of the incidental take permit (permit) for the R-Project in June 2020.

The R-Project proponent, Nebraska Public Power District, intends to resubmit a permit application. For the Service's permit decision, the Service needs to address the shortcomings addressed by the U.S. District Court. The Service does not intend to restart activities for the existing PA; rather, the Service intends to revisit the Section 106 process at its initial steps which include: 1) working through any necessary changes to the Area of Potential Effect; 2) considering additional historic properties which could include revisiting the effects analysis; and 3) sharing agency determinations with consulting parties. We plan to discuss this approach with the State Historic Preservation Officer and the Advisory Council on Historic Preservation in a January 17, 2023, meeting with agency representatives.

We look forward to meeting with agency representatives on January 17, 2023, in partial fulfillment of our responsibilities under NHPA. Should you have any questions about this project or have additional questions, please contact Jeff Runge by phone at 308-216-0384 or by e-mail jeff_runge@fws.gov.

Sincerely,

MARK PORATH Digitally signed by MARK PORATH Date: 2022.12.22 08:48:59 -06'00'

Mark Porath
Nebraska Project Leader/Field Supervisor
Ecological Services, Mountain-Prairie Region

cc: Alexis Clark; Historic Preservation Specialist; Advisory Council on Historic Preservation

Sample Letter #1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
9325 South Alda Road
Wood River, Nebraska 68883

IN REPLY REFER TO:
R-Project
Section 106

July 10, 2023

Honorable Janet Alkire, Chairperson
Standing Rock Sioux Tribe of North and South Dakota
PO Box D
Fort Yates, ND 58535

Subject: Initiation of the Section 106 process; Request for input on the Area of Potential Effects (APE); identification of historic properties and Traditional Cultural Properties in the APE; invitation to be a consulting party.

Dear Chairperson Alkire,

The Nebraska Public Power District (NPPD) is proposing to construct, maintain, and operate an approximately 226-mile-long, 345-kilovolt transmission line that crosses Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler counties, Nebraska (undertaking or R-Project). NPPD is resubmitting an incidental take permit (ITP) application to the U.S. Fish and Wildlife Service (the Service) for the take of the American burying beetle that would result from the R-Project. The issuance of the ITP by the Service is the federal involvement that triggers compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), 54 U.S.C. § 306108, and its implementing regulations, 36 CFR Part 800. As such, the R-Project is an undertaking as defined in 36 CFR 800.16(y), and the Service is the lead agency for compliance with Section 106 of the NHPA.

The Service has an open invitation to your tribe to consult with us on a government-to-government basis and invited your tribe to participate as a cooperating agency or to submit comments under the National Environmental Policy Act (NEPA). In addition to our open invitation, the Service is initiating Section 106 consultation and inviting parties to review and provide input on the revised delineation of the R-Project Area of Potential Effects (APE) pursuant to 36 CFR 800.4. This letter includes a summary of the background on this project, a project description, and a description of the proposed APE. Please see the attachments to this letter, which include Enclosure 1, a summary of the R-Project history; Enclosure 2, a location and vicinity map; and Enclosure 3, the proposed APE. In addition to reviewing the APE, the Service is inviting parties to provide input on the identification of historic properties and Traditional Cultural Properties in the APE.

Background

A general description of the R-project's history is included as Enclosure 1 of this letter and summarized here:

> Section 106 consultation for the R-Project was initiated in 2016 and resulted in the execution of the *Programmatic Agreement among the U.S. Fish and Wildlife Service – Mountain-Prairie Region, the Nebraska State Historic Preservation Officer, Nebraska Public Power District, and the Advisory Council on Historic Preservation regarding the Construction, Maintenance, and Operation of the R-Project 345-Kilovolt Transmission Line, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler Counties, Nebraska*, on April 10, 2019.
>
> The Service also analyzed potential environmental impacts associated with the issuance of an ITP for the R-Project in a final environmental impact statement (FEIS) published in 2018 in accordance with the National Environmental Policy Act of 1969 (NEPA). Following the Service's issuance of an ITP for the R-Project in 2019, a lawsuit was filed to challenge the Service's decision. In June 2020, the U.S. District Court for the District of Colorado determined the Service made decision-making errors and vacated the ITP that was issued to NPPD (Civil Action No. 19-cv-1945-WJM).

NPPD is currently working with the Service to address the court ruling and resubmit an ITP application. As the action of issuing an ITP to NPPD is considered an undertaking (36 CFR 800. 16[y]), the Service is reinitiating the Section 106 process. As the Service discussed with NPPD, History Nebraska, and the Advisory Council on Historic Preservation on January 17, 2023, the goal of this current Section 106 process is to amend the existing Programmatic Agreement. Additionally, the Service must comply with NEPA for the potential action of issuing an ITP to NPPD. Therefore, the Service is developing a supplemental environmental impact statement (SEIS), which will address issues identified in the court ruling. The SEIS will ensure a thorough evaluation of the potential effects of the Service's proposed action on the human environment. As part of the SEIS, the Service is re-analyzing potential effects to historic properties and addressing alternatives to avoid, minimize, or mitigate potential adverse effects to historic properties.

NPPD's current purpose and need for the R-Project is generally the same as described in the 2018 FEIS:

- provide for significant reliability benefits to the existing western Nebraska area transmission system by increasing the west-east power transfer capability across the NPPD system;
- reduce significant congestion issues by providing an additional outlet path from Gerald Gentleman Station (GGS) Substation near Sutherland, Nebraska, and;
- provide transmission capacity to renewable energy resources (e.g., wind and solar projects) in an area of Nebraska with renewable energy resources.

The proposed route of the 226-mile-long R-Project consists of a 101-mile-long north/south segment which begins in Lincoln County at the GGS. From this station, the route extends north

following U.S. Highway 83 through Logan County to Thomas County where it connects to the Thedford Substation Expansion near Thedford, Nebraska. The route then turns east and extends 125 miles though Blaine, Loup, and Garfield counties, where it terminates at the newly constructed Holt County Substation in Holt County, Nebraska. See Enclosure 2 for a location and vicinity map of the R-project.

Area of Potential Effects

Based on the current Undertaking, the Service has redefined the APE and is requesting your review and input (Enclosure 3). The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties (36 CFR 800.16 (d)).

The Service defined the APE by taking into account the application of the terms "direct" and "indirect" effects under Section 106, which have changed since the 2019 programmatic agreement for the R-Project due to a court decision in 2019 (National Parks Conservation Assoc. v. Semonite, No. 18-5179 (D.C. Cir. 2019)). Direct effects to historic properties include physical as well as visual, audible, and atmospheric effects that would diminish the integrity of those historic properties. The Service has developed an APE for direct effects, which has been broken down into 3 categories: physical, audible, and visual:

- **APE for Physical Effects:** The APE for direct, physical effects is defined as 150 feet on either side of the proposed R-Project centerline, 50 feet on either side of access routes, and 50 feet around the perimeter of work areas (e.g., pulling and tensioning sites, fly yards/assembly areas, and construction yard/staging areas). Access routes and work areas are not yet defined for the Thedford to Holt County segment of the R-Project centerline. To accommodate this uncertainty, the APE for direct, physical effects in these areas extends 0.5 mile on either side of the proposed R-Project centerline.
- **APE for Audible Effects:** The APE for direct, audible effects is defined as 0.5 mile around the proposed R-Project centerline, access routes, and work areas.
- **APE for Visual Effects:** The APE for direct, visual effects is defined as 10 miles on either side of the proposed R-Project centerline.

Indirect effects to historic properties are those that are caused by an undertaking that may occur later in time or farther removed in distance but are reasonably foreseeable. At this time, the Service has not identified any indirect effects that would be caused by this undertaking; therefore, the APE defined in this letter does not address indirect effects. The Service is aware of potential reasonably foreseeable renewable energy projects that are related to the R-Project; however, these projects are outside of the discretion of the Service.

Conclusion

Your response to this letter, acknowledging your interest in participating in this undertaking as a Section 106 consulting party, providing input on the APE, and in identifying any historic properties, including Traditional Cultural Properties, that may exist within the APE is greatly appreciated. Any information you provide helps ensure the Service will consider all properties in the Section 106 and environmental review process.

All parties involved in the Section 106 process will have a reasonable opportunity to discuss their interest regarding historic properties and provide information regarding effects to historic properties throughout this process. The Service will be hosting meetings to discuss the identification of and effects to historic properties, with meeting times and types/places to be determined. In addition, the Service will be consulting on an amendment to the PA.

Please provide a response within 30 days of receipt of this letter. If you have any questions or need further information on the project, please contact Jeff Runge at (308)382-6468 or by e-mail at jeff_runge@fws.gov.

Sincerely,

Matthew Rabbe
Acting Nebraska Project Leader/Field Supervisor
Ecological Services, Mountain-Prairie Region

Enclosure 1: R-Project Background Summary
Enclosure 2: R-Project Route Location and Vicinity Map
Enclosure 3: R-Project Route APE

Enclosure 1 – R-Project Background Summary

Enclosure 1: R-Project Background Summary

October 2014

- The Service issues a Notice of Intent (NOI) in the Federal Register to inform the public of its intent to prepare an EIS for the R-Project HCP

September 2015

- The Service begins informal communication with Nebraska SHPO regarding Section 106 consultation for the NPPD R-Project HCP EIS

June 2016

- The Service formally initiates Section 106 consultation for the NPPD R-Project HCP EIS

April 2019

- The *Programmatic Agreement among the U.S. Fish and Wildlife Service – Mountain-Prairie Region, the Nebraska State Historic Preservation Officer, Nebraska Public Power District, and the Advisory Council on Historic Preservation regarding the Construction, Maintenance, and Operation of the R-Project 345-Kilovolt Transmission Line, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler Counties, Nebraska*, is executed on April 10, 2019.

June 2019

- The Service issues ITP #TE72710C-0 for the R-Project and associated substations to NPPD.

July 2019

- A lawsuit was filed to challenge the Service's decision to issue an incidental take permit for American burying beetle to the NPPD for their proposed project to construct a 225-mile electrical transmission line through Nebraska, known as the "R-Project." More details about the project can be found at https://rproject.nppd.com/project-status.

June 2020

- The U.S. District Court for the District of Colorado issued a decision. You can find the decision under Civil Action No. 19-cv-1945-WJM, at the following link: https://casetext.com/case/oregon-california-trails-assn-v-walsh.
- The court determined that the Service made some errors in their decision-making process, including:
    - "…inadequately considered the effects of the R-Project on the O'Fallon's Bluff Segment of the Oregon and California Trail;
    - …unlawfully excluded potential wind turbine development in Antelope County, Nebraska from its analysis; and
    - …one portion of a 'programmatic agreement' entered into to address NHPA matters is arbitrary and capricious."
- As a result of this decision, the court set aside the incidental take permit that the Service issued to NPPD. This means the permit was vacated.
- As part of the court order, a supplemental environmental impact statement (SEIS) is being developed to address issues identified in the court ruling. The SEIS will ensure a

thorough evaluation of the effect of the Service's proposed action on the human environment.

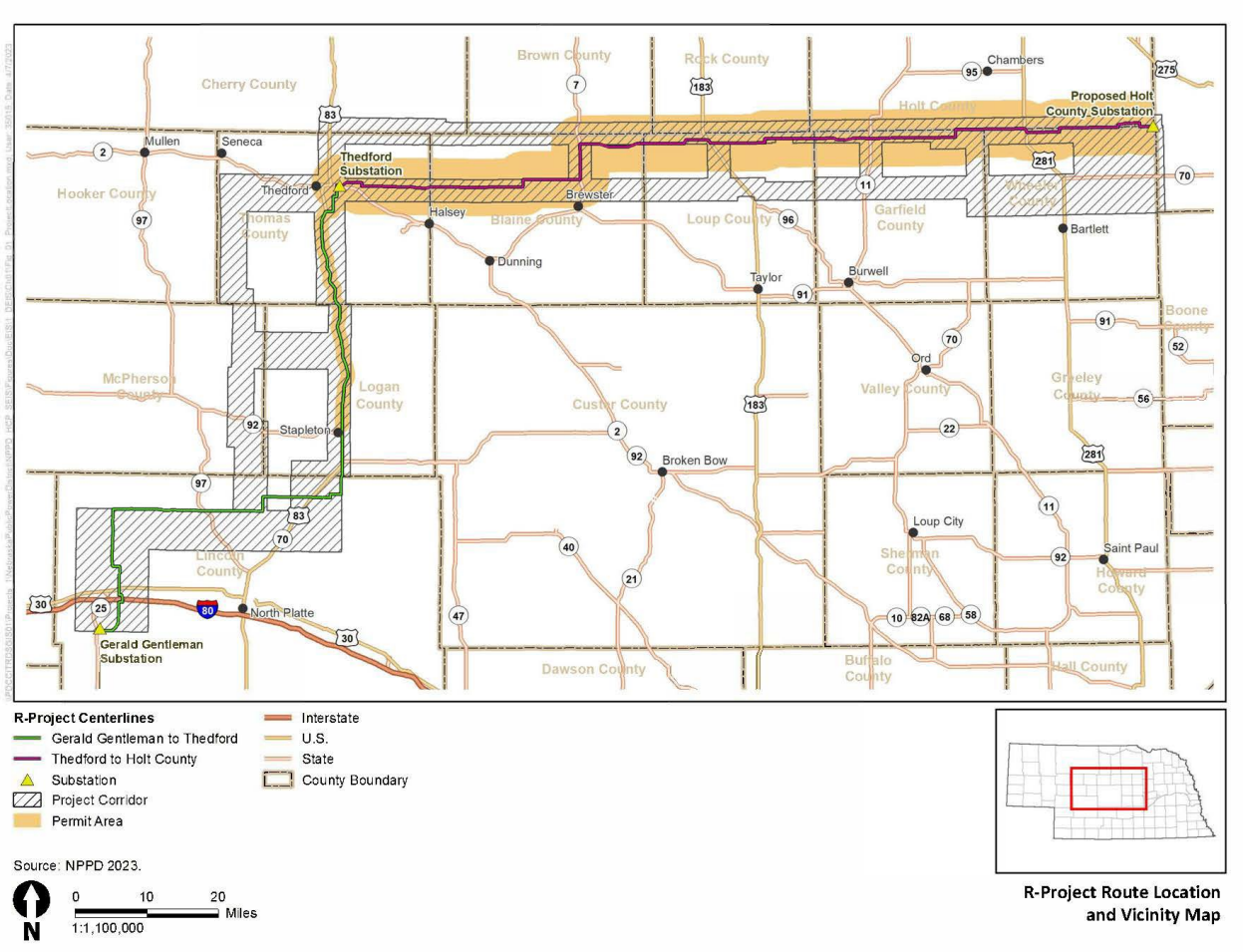
June 2020 – Spring 2022

- The Service conducted outreach to previously identified consulting parties as part of the Section 106 process. The Service notified consulting parties of the court's decision and noted that additional communication would follow after establishing a path forward.

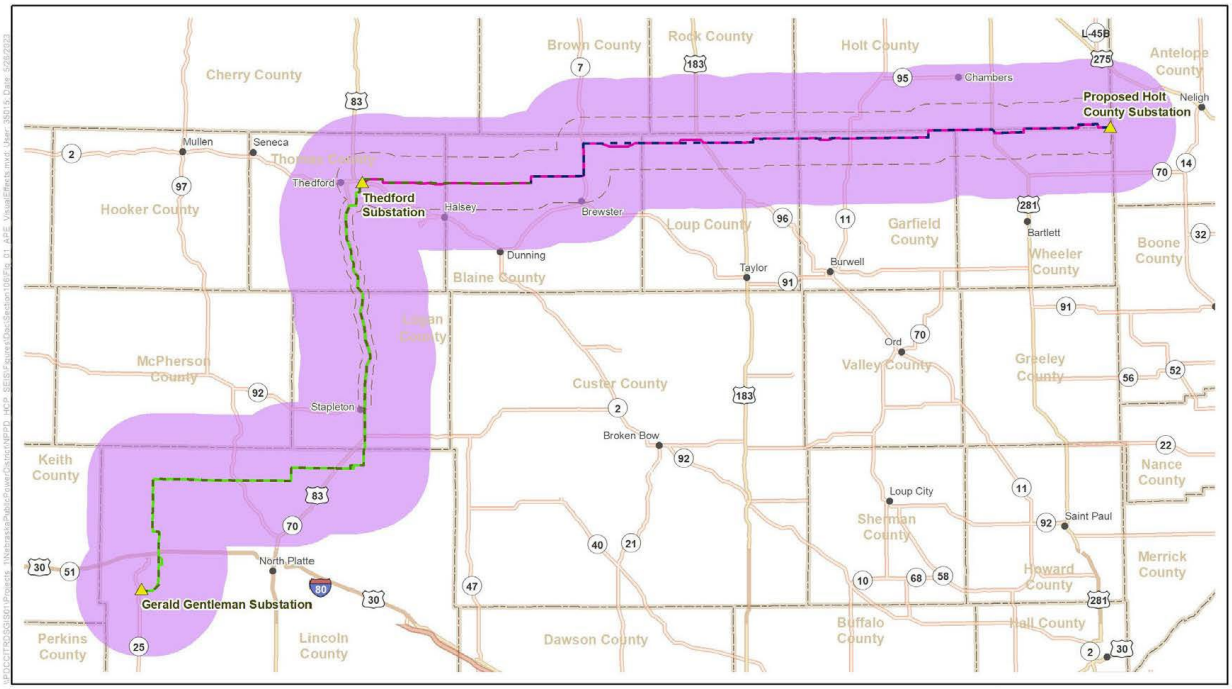
Fall 2022 – Present

- November 18, 2022: The Service published a Notice of Intent (NOI) to prepare an SEIS for the R-Project.
- December 8, 2022: The Service held two virtual public scoping meetings.
- The Service reviewed and considered all scoping comments received and has begun preparing the SEIS, working with cooperating agencies and NPPD to resolve potential impacts from the project as well as the issues identified in the 2020 court decision through the SEIS process.
    - The SEIS will describe potential impacts on cultural resources;
    - The SEIS will consider a range of reasonable alternatives; and
    - The SEIS will include a record of consulting party correspondence and may address and/or analyze any comments from consulting parties as part of the Section 106 process.
- The project team is reaching out to potential consulting parties to solicit input from members of the public, tribes, and groups with historic/cultural interests. Although the Service is the lead Federal Agency for this process, you may be contacted by staff from ICF, an environmental planning and consulting firm, throughout this process.
- The Service is planning to hold virtual and/or in-person meetings with interested parties to discuss cultural resources in the APE, as well as potential effects and mitigation measures.

Enclosure 2 – R-Project Route Location/Vicinity Map


Cherry County
Brown County
Rock County
Chambers
Holt County
Proposed Holt County Substation
Thedford Substation
Mullen
Seneca
Thedford
Hooker County
Thomas County
Halsey
Brewster
Blaine County
Loup County
Garfield County
Wheeler County
Bartlett
Dunning
Taylor
Burwell
Boone County
Ord
McPherson County
Logan County
Custer County
Valley County
Greeley County
Stapleton
Broken Bow
Loup City
Saint Paul
Howard County
Sherman County
Lincoln County
North Platte
Gerald Gentleman Substation
Dawson County
Buffalo County
Hall County
R-Project Centerlines
Gerald Gentleman to Thedford
Thedford to Holt County
Substation
Project Corridor
Permit Area
Interstate
U.S.
State
County Boundary
Source: NPPD 2023.
N
0 10 20 Miles
1:1,100,000
R-Project Route Location and Vicinity Map

Enclosure 3 – R-Project Route APE


Cherry County
Brown County
Rock County
Holt County
Antelope County
Proposed Holt County Substation
Neligh
Chambers
Mullen
Seneca
Thomas County
Thedford
Thedford Substation
Halsey
Brewster
Hooker County
Loup County
Garfield County
Bartlett
Wheeler County
Boone County
Dunning
Blaine County
Taylor
Burwell
Logan County
Ord
Valley County
Greeley County
McPherson County
Custer County
Stapleton
Broken Bow
Keith County
Nance County
Loup City
Sherman County
Saint Paul
North Platte
Gerald Gentleman Substation
Howard County
Merrick County
Perkins County
Lincoln County
Dawson County
Buffalo County
Hall County
R-Project Centerline (2023)
Gerald Gentleman to Thedford
Thedford to Holt County
R-Project Centerline (2018)
Gerald Gentleman to Thedford
Thedford to Holt County
Substation
Permit Area
APE for Visual Effects
Interstate
U.S.
State
County Boundary
Source: NPPD 2023.
0 10 20
Miles
1:1,200,000
N
APE for Visual Effects

Sample Letter #2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
9325 South Alda Road
Wood River, Nebraska 68883

IN REPLY REFER TO:
R-Project
Section 106

July 10, 2023

Betty Gillespie
Deputy State Historic Preservation Officer
Historic Nebraska
1500 R Street
Lincoln, NE 68508

Subject: Initiation of the Section 106 process; Request for concurrence on the Area of Potential Effects

Dear Ms. Gillespie,

The Nebraska Public Power District (NPPD) is proposing to construct, maintain, and operate an approximately 226-mile-long, 345-kilovolt transmission line that crosses Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler counties, Nebraska (undertaking or R-Project). NPPD is resubmitting an incidental take permit (ITP) application to the U.S. Fish and Wildlife Service (the Service) for the take of the American burying beetle that would result from the R-Project. The issuance of the ITP by the Service is the federal involvement that triggers compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), 54 U.S.C. § 306108, and its implementing regulations, 36 CFR Part 800. As such, the R-Project is an undertaking as defined in 36 CFR 800.16(y), and the Service is the lead agency for compliance with Section 106 of the NHPA.

The Service is initiating Section 106 consultation with History Nebraska and requests that your office provide review and concurrence on the revised delineation of the R-Project Area of Potential Effects (APE) pursuant to 36 CFR 800.4. This letter includes a summary of the background on this project, a project description, and a description of the proposed APE. Please see the attachments to this letter, which include Enclosure 1, a summary of the R-Project history; Enclosure 2, a location and vicinity map; and Enclosure 3, the proposed APE. In addition to History Nebraska, the Service is inviting parties to provide input on the identification of historic properties and Traditional Cultural Properties in the APE.

Background

A general description of the R-project's history is included as Enclosure 1 of this letter and summarized here:

Section 106 consultation for the R-Project was initiated in 2016 and resulted in the execution of the *Programmatic Agreement among the U.S. Fish and Wildlife Service – Mountain-Prairie Region, the Nebraska State Historic Preservation Officer, Nebraska Public Power District, and the Advisory Council on Historic Preservation regarding the Construction, Maintenance, and Operation of the R-Project 345-Kilovolt Transmission Line, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler Counties, Nebraska*, on April 10, 2019.

The Service also analyzed potential environmental impacts associated with the issuance of an ITP for the R-Project in a final environmental impact statement (FEIS) published in 2018 in accordance with the National Environmental Policy Act of 1969 (NEPA). Following the Service's issuance of an ITP for the R-Project in 2019, a lawsuit was filed to challenge the Service's decision. In June 2020, the U.S. District Court for the District of Colorado determined the Service made decision-making errors and vacated the ITP that was issued to NPPD (Civil Action No. 19-cv-1945-WJM).

NPPD is currently working with the Service to address the court ruling and resubmit an ITP application. As the action of issuing an ITP to NPPD is considered an undertaking (36 CFR 800. 16[y]), the Service is reinitiating the Section 106 process. As the Service discussed with NPPD, History Nebraska, and the Advisory Council on Historic Preservation on January 17, 2023, the goal of this current Section 106 process is to amend the existing Programmatic Agreement. Additionally, the Service must comply with NEPA for the potential action of issuing an ITP to NPPD. Therefore, the Service is developing a supplemental environmental impact statement (SEIS), which will address issues identified in the court ruling. The SEIS will ensure a thorough evaluation of the potential effects of the Service's proposed action on the human environment. As part of the SEIS, the Service is re-analyzing potential effects to historic properties and addressing alternatives to avoid, minimize, or mitigate potential adverse effects to historic properties.

NPPD's current purpose and need for the R-Project is generally the same as described in the 2018 FEIS:

- Provide for significant reliability benefits to the existing western Nebraska area transmission system by increasing the west-east power transfer capability across the NPPD system;
- reduce significant congestion issues by providing an additional outlet path from Gerald Gentleman Station (GGS) Substation near Sutherland, Nebraska, and;
- provide transmission capacity to renewable energy resources (e.g., wind and solar projects) in an area of Nebraska with renewable energy resources.

The proposed route of the 226-mile-long R-Project consists of a 101-mile-long north/south segment which begins in Lincoln County at the GGS. From this station, the route extends north following U.S. Highway 83 through Logan County to Thomas County where it connects to the Thedford Substation Expansion near Thedford, Nebraska. The route then turns east and extends 125 miles though Blaine, Loup, and Garfield counties, where it terminates at the newly constructed Holt County Substation in Holt County, Nebraska. See Enclosure 2 for a location and vicinity map of the R-project.

Area of Potential Effects
Based on the current Undertaking, the Service has redefined the APE and is requesting your concurrence (Enclosure 3).

The Service defined the APE by taking into account the application of the terms "direct" and "indirect" effects under Section 106, which have changed since the 2019 programmatic agreement for the R-Project due to a court decision in 2019 (National Parks Conservation Assoc. v. Semonite, No. 18-5179 (D.C. Cir. 2019)). Direct effects to historic properties include physical as well as visual, audible, and atmospheric effects that would diminish the integrity of those historic properties. The Service has developed an APE for direct effects, which has been broken down into 3 categories: physical, audible, and visual:

- **APE for Physical Effects:** The APE for direct, physical effects is defined as 150 feet on either side of the proposed R-Project centerline, 50 feet on either side of access routes, and 50 feet around the perimeter of work areas (e.g., pulling and tensioning sites, fly yards/assembly areas, and construction yard/staging areas). Access routes and work areas are not yet defined for the Thedford to Holt County segment of the R-Project centerline. To accommodate this uncertainty, the APE for direct, physical effects in these areas extends 0.5 mile on either side of the proposed R-Project centerline.
- **APE for Audible Effects:** The APE for direct, audible effects is defined as 0.5 mile around the proposed R-Project centerline, access routes, and work areas.
- **APE for Visual Effects:** The APE for direct, visual effects is defined as 10 miles on either side of the proposed R-Project centerline.

Indirect effects to historic properties are those that are caused by an undertaking that may occur later in time or farther removed in distance but are reasonably foreseeable. At this time, the Service has not identified any indirect effects that would be caused by this undertaking; therefore, the APE defined in this letter does not address indirect effects. The Service is aware of potential reasonably foreseeable renewable energy projects that are related to the R-Project; however, these projects are outside of the discretion of the Service. The Service requests further discussion on these projects through the Section 106 consultation.

Conclusion

Pursuant to 36 CFR § 800.4(a), the Service is seeking your concurrence on the APE determination. All parties involved in the Section 106 process will have a reasonable opportunity to discuss their interest regarding historic properties and provide information regarding effects to historic properties throughout this process. The Service will be hosting meetings to discuss the identification of and effects to historic properties, with meeting times and types/places to be determined. In addition, the Service will be consulting on an amendment to the PA.

Please provide a response within 30 days of receipt of this letter. If you have any questions or need further information on the project, please contact Jeff Runge at (308)382-6468 or by e-mail at jeff_runge@fws.gov.

4

Sincerely,

Matthew Rabbe
Acting Nebraska Project Leader/Field Supervisor
Ecological Services, Mountain-Prairie Region

Enclosure 1: R-Project Background Summary
Enclosure 2: R-Project Route Location and Vicinity Map
Enclosure 3: R-Project Route APE

5

Enclosure 1 – R-Project Background Summary

Enclosure 1: R-Project Background Summary

October 2014

- The Service issues a Notice of Intent (NOI) in the Federal Register to inform the public of its intent to prepare an EIS for the R-Project HCP

September 2015

- The Service begins informal communication with Nebraska SHPO regarding Section 106 consultation for the NPPD R-Project HCP EIS

June 2016

- The Service formally initiates Section 106 consultation for the NPPD R-Project HCP EIS

April 2019

- The *Programmatic Agreement among the U.S. Fish and Wildlife Service – Mountain-Prairie Region, the Nebraska State Historic Preservation Officer, Nebraska Public Power District, and the Advisory Council on Historic Preservation regarding the Construction, Maintenance, and Operation of the R-Project 345-Kilovolt Transmission Line, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler Counties, Nebraska*, is executed on April 10, 2019.

June 2019

- The Service issues ITP #TE72710C-0 for the R-Project and associated substations to NPPD.

July 2019

- A lawsuit was filed to challenge the Service's decision to issue an incidental take permit for American burying beetle to the NPPD for their proposed project to construct a 225-mile electrical transmission line through Nebraska, known as the "R-Project." More details about the project can be found at https://rproject.nppd.com/project-status.

June 2020

- The U.S. District Court for the District of Colorado issued a decision. You can find the decision under Civil Action No. 19-cv-1945-WJM, at the following link: https://casetext.com/case/oregon-california-trails-assn-v-walsh.
- The court determined that the Service made some errors in their decision-making process, including:
    - "…inadequately considered the effects of the R-Project on the O'Fallon's Bluff Segment of the Oregon and California Trail;
    - …unlawfully excluded potential wind turbine development in Antelope County, Nebraska from its analysis; and
    - …one portion of a 'programmatic agreement' entered into to address NHPA matters is arbitrary and capricious."
- As a result of this decision, the court set aside the incidental take permit that the Service issued to NPPD. This means the permit was vacated.
- As part of the court order, a supplemental environmental impact statement (SEIS) is being developed to address issues identified in the court ruling. The SEIS will ensure a

thorough evaluation of the effect of the Service's proposed action on the human environment.

June 2020 – Spring 2022

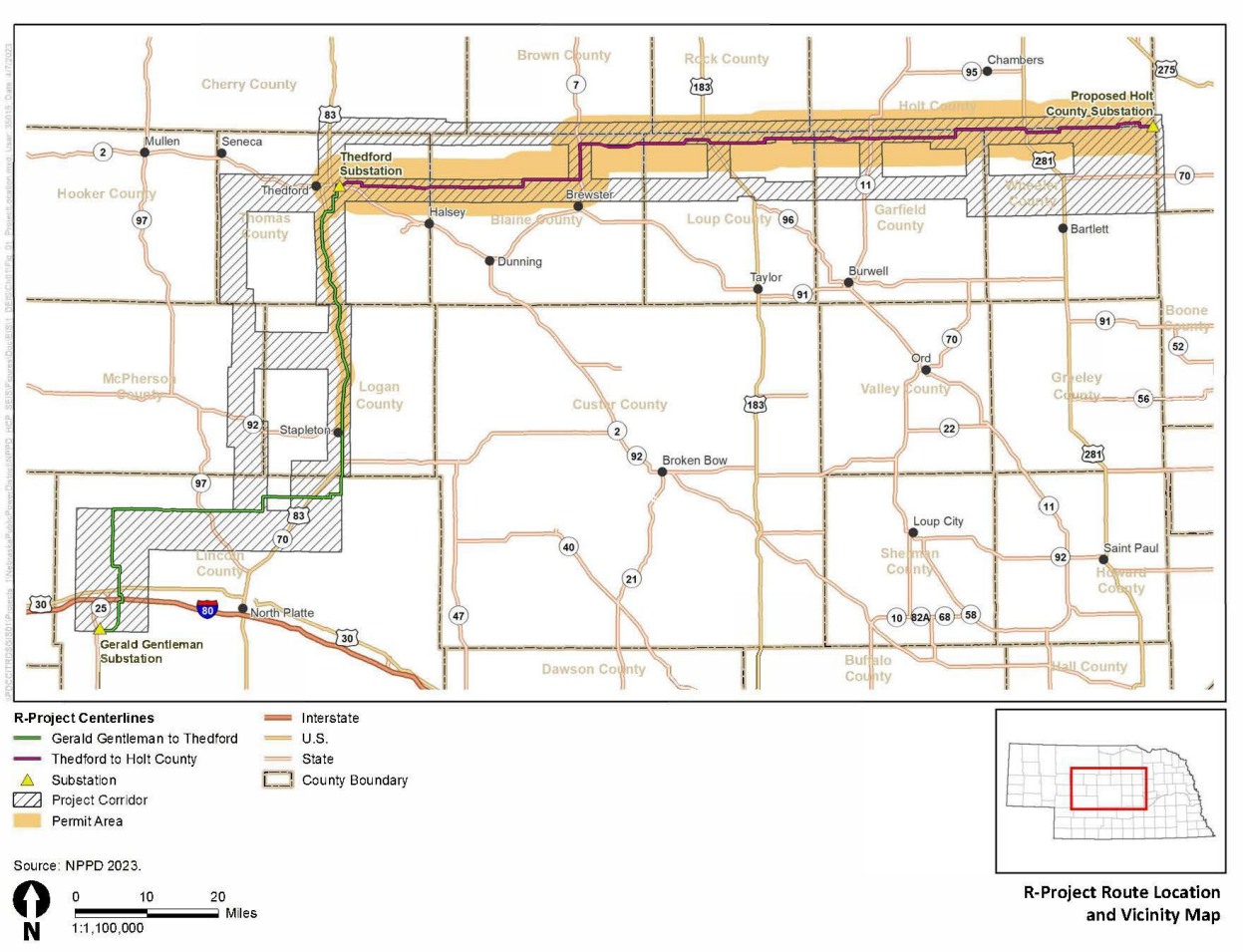
- The Service conducted outreach to previously identified consulting parties as part of the Section 106 process. The Service notified consulting parties of the court's decision and noted that additional communication would follow after establishing a path forward.

Fall 2022 – Present

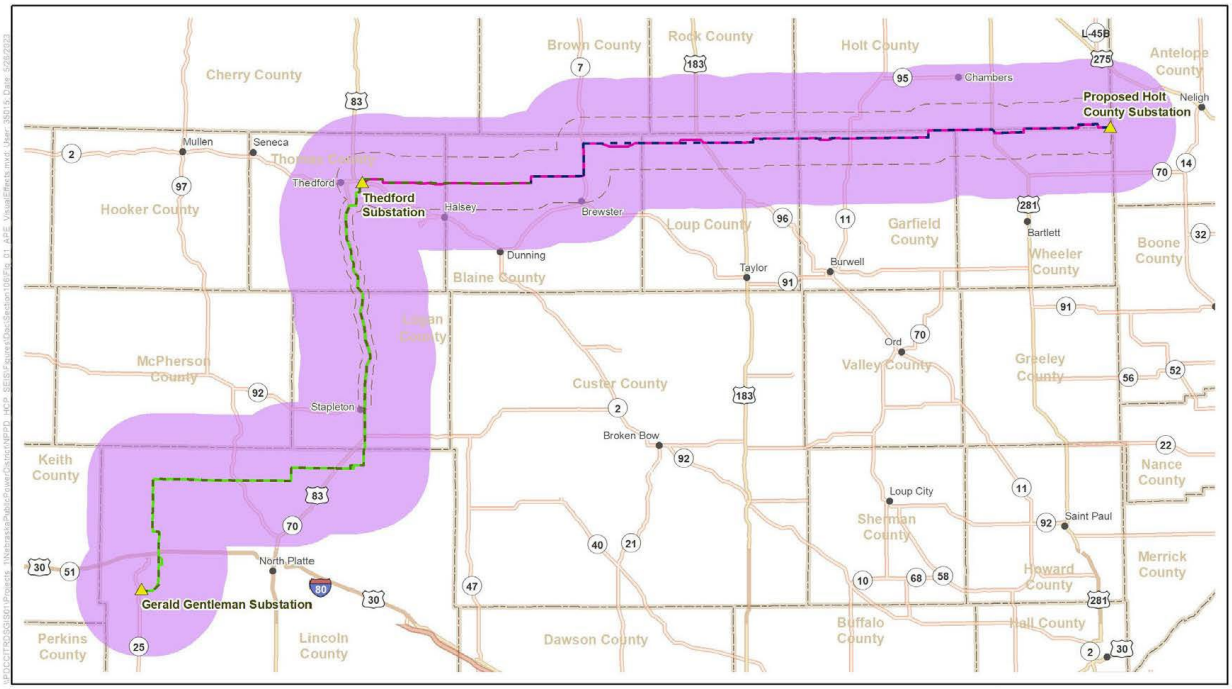
- November 18, 2022: The Service published a Notice of Intent (NOI) to prepare an SEIS for the R-Project.
- December 8, 2022: The Service held two virtual public scoping meetings.
- The Service reviewed and considered all scoping comments received and has begun preparing the SEIS, working with cooperating agencies and NPPD to resolve potential impacts from the project as well as the issues identified in the 2020 court decision through the SEIS process.
    - The SEIS will describe potential impacts on cultural resources;
    - The SEIS will consider a range of reasonable alternatives; and
    - The SEIS will include a record of consulting party correspondence and may address and/or analyze any comments from consulting parties as part of the Section 106 process.
- The project team is reaching out to potential consulting parties to solicit input from members of the public, tribes, and groups with historic/cultural interests. Although the Service is the lead Federal Agency for this process, you may be contacted by staff from ICF, an environmental planning and consulting firm, throughout this process.
- The Service is planning to hold virtual and/or in-person meetings with interested parties to discuss cultural resources in the APE, as well as potential effects and mitigation measures.

6

Enclosure 2 – R-Project Route Location/Vicinity Map


Cherry County
Brown County
Rock County
Chambers
Holt County
Proposed Holt County Substation
Thedford Substation
Mullen
Seneca
Thedford
Hooker County
Thomas County
Halsey
Brewster
Blaine County
Loup County
Garfield County
Wheeler County
Bartlett
Dunning
Taylor
Burwell
Boone County
Ord
McPherson County
Logan County
Custer County
Valley County
Greeley County
Stapleton
Broken Bow
Loup City
Saint Paul
Howard County
Sherman County
Lincoln County
North Platte
Gerald Gentleman Substation
Dawson County
Buffalo County
Hall County
R-Project Centerlines
Gerald Gentleman to Thedford
Thedford to Holt County
Substation
Project Corridor
Permit Area
Interstate
U.S.
State
County Boundary
Source: NPPD 2023.
N
0 10 20 Miles
1:1,100,000
R-Project Route Location and Vicinity Map

Enclosure 3 – R-Project Route APE


Cherry County
Brown County
Rock County
Holt County
Antelope County
Proposed Holt County Substation
Neligh
Chambers
Mullen
Seneca
Thomas County
Thedford
Thedford Substation
Halsey
Brewster
Hooker County
Loup County
Garfield County
Bartlett
Wheeler County
Boone County
Dunning
Blaine County
Taylor
Burwell
Logan County
Ord
Valley County
Greeley County
McPherson County
Custer County
Stapleton
Broken Bow
Keith County
Nance County
Loup City
Sherman County
Saint Paul
North Platte
Howard County
Merrick County
Gerald Gentleman Substation
Perkins County
Lincoln County
Dawson County
Buffalo County
Hall County
R-Project Centerline (2023)
Gerald Gentleman to Thedford
Thedford to Holt County
R-Project Centerline (2018)
Gerald Gentleman to Thedford
Thedford to Holt County
Substation
Permit Area
APE for Visual Effects
Interstate
U.S.
State
County Boundary
Source: NPPD 2023.
N
0 10 20
Miles
1:1,200,000
APE for Visual Effects

Sample Letter #3

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
9325 South Alda Road
Wood River, Nebraska 68883

IN REPLY REFER
TO: R-Project
Section 106

July 10, 2023

John Briggs
Oregon-California Trails Association
P.O. Box 1019
Independence, MO 64051

Subject: Initiation of the Section 106 process; Request for input on the Area of Potential Effects (APE); identification of historic properties and Traditional Cultural Properties in the APE; invitation to be a consulting party.

Dear Mr. Briggs,

The Nebraska Public Power District (NPPD) is proposing to construct, maintain, and operate an approximately 226-mile-long, 345-kilovolt transmission line that crosses Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler counties, Nebraska (undertaking or R-Project). NPPD is resubmitting an incidental take permit (ITP) application to the U.S. Fish and Wildlife Service (the Service) for the take of the American burying beetle that would result from the R-Project. The issuance of the ITP by the Service is the federal involvement that triggers compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), 54 U.S.C. § 306108, and its implementing regulations, 36 CFR Part 800. As such, the R-Project is an undertaking as defined in 36 CFR 800.16(y), and the Service is the lead agency for compliance with Section 106 of the NHPA.

The Service is initiating Section 106 consultation and inviting parties to review and provide input on the revised delineation of the R-Project Area of Potential Effects (APE) pursuant to 36 CFR 800.4. This letter includes a summary of the background on this project, a project description, and a description of the proposed APE. Please see the attachments to this letter, which include Enclosure 1, a summary of the R-Project history; Enclosure 2, a location and vicinity map; and Enclosure 3, the proposed APE. In addition to reviewing the APE, the Service is inviting parties to provide input on the identification of historic properties and Traditional Cultural Properties in the APE.

Background

A general description of the R-project's history is included as Enclosure 1 of this letter and summarized here:

Section 106 consultation for the R-Project was initiated in 2016 and resulted in the execution of the *Programmatic Agreement among the U.S. Fish and Wildlife Service – Mountain-Prairie Region, the Nebraska State Historic Preservation Officer, Nebraska Public Power District, and the Advisory Council on Historic Preservation regarding the Construction, Maintenance, and Operation of the R-Project 345-Kilovolt Transmission Line, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler Counties, Nebraska*, on April 10, 2019.

The Service also analyzed potential environmental impacts associated with the issuance of an ITP for the R-Project in a final environmental impact statement (FEIS) published in 2018 in accordance with the National Environmental Policy Act of 1969 (NEPA). Following the Service's issuance of an ITP for the R-Project in 2019, a lawsuit was filed to challenge the Service's decision. In June 2020, the U.S. District Court for the District of Colorado determined the Service made decision-making errors and vacated the ITP that was issued to NPPD (Civil Action No. 19-cv-1945-WJM).

NPPD is currently working with the Service to address the court ruling and resubmit an ITP application. As the action of issuing an ITP to NPPD is considered an undertaking (36 CFR 800. 16[y]), the Service is reinitiating the Section 106 process. As the Service discussed with NPPD, History Nebraska, and the Advisory Council on Historic Preservation on January 17, 2023, the goal of this current Section 106 process is to amend the existing Programmatic Agreement. Additionally, the Service must comply with NEPA for the potential action of issuing an ITP to NPPD. Therefore, the Service is developing a supplemental environmental impact statement (SEIS), which will address issues identified in the court ruling. The SEIS will ensure a thorough evaluation of the potential effects of the Service's proposed action on the human environment. As part of the SEIS, the Service is re-analyzing potential effects to historic properties and addressing alternatives to avoid, minimize, or mitigate potential adverse effects to historic properties.

NPPD's current purpose and need for the R-Project is generally the same as described in the 2018 FEIS:

- provide for significant reliability benefits to the existing western Nebraska area transmission system by increasing the west-east power transfer capability across the NPPD system;
- reduce significant congestion issues by providing an additional outlet path from Gerald Gentleman Station (GGS) Substation near Sutherland, Nebraska, and;
- provide transmission capacity to renewable energy resources (e.g., wind and solar projects) in an area of Nebraska with renewable energy resources.

The proposed route of the 226-mile-long R-Project consists of a 101-mile-long north/south segment which begins in Lincoln County at the GGS. From this station, the route extends north following U.S. Highway 83 through Logan County to Thomas County where it connects to the Thedford Substation Expansion near Thedford, Nebraska. The route then turns east and extends 125 miles though Blaine, Loup, and Garfield counties, where it terminates at the newly constructed Holt County Substation in Holt County, Nebraska. See Enclosure 2 for a location and vicinity map of the R-project.

Area of Potential Effects

Based on the current Undertaking, the Service has redefined the APE and is requesting your review and input (Enclosure 3). The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties (36 CFR 800.16 (d)).

The Service defined the APE by taking into account the application of the terms "direct" and "indirect" effects under Section 106, which have changed since the 2019 programmatic agreement for the R-Project due to a court decision in 2019 (National Parks Conservation Assoc. v. Semonite, No. 18-5179 (D.C. Cir. 2019)). Direct effects to historic properties include physical as well as visual, audible, and atmospheric effects that would diminish the integrity of those historic properties. The Service has developed an APE for direct effects, which has been broken down into 3 categories: physical, audible, and visual:

- **APE for Physical Effects:** The APE for direct, physical effects is defined as 150 feet on either side of the proposed R-Project centerline, 50 feet on either side of access routes, and 50 feet around the perimeter of work areas (e.g., pulling and tensioning sites, fly yards/assembly areas, and construction yard/staging areas). Access routes and work areas are not yet defined for the Thedford to Holt County segment of the R-Project centerline. To accommodate this uncertainty, the APE for direct, physical effects in these areas extends 0.5 mile on either side of the proposed R-Project centerline.
- **APE for Audible Effects:** The APE for direct, audible effects is defined as 0.5 mile around the proposed R-Project centerline, access routes, and work areas.
- **APE for Visual Effects:** The APE for direct, visual effects is defined as 10 miles on either side of the proposed R-Project centerline.

Indirect effects to historic properties are those that are caused by an undertaking that may occur later in time or farther removed in distance but are reasonably foreseeable. At this time, the Service has not identified any indirect effects that would be caused by this undertaking; therefore, the APE defined in this letter does not address indirect effects. The Service is aware of potential reasonably foreseeable renewable energy projects that are related to the R-Project; however, these projects are outside of the discretion of the Service.

Conclusion

Your response to this letter, acknowledging your interest in participating in this undertaking as a Section 106 consulting party, providing input on the APE, and in identifying any historic properties, including Traditional Cultural Properties, that may exist within the APE is greatly appreciated. Any information you provide helps ensure the Service will consider all properties in the Section 106 and environmental review process.

All parties involved in the Section 106 process will have a reasonable opportunity to discuss their interest regarding historic properties and provide information regarding effects to historic properties throughout this process. The Service will be hosting meetings to discuss the

identification of and effects to historic properties, with meeting times and types/places to be determined. In addition, the Service will be consulting on an amendment to the PA.

Please provide a response within 30 days of receipt of this letter. If you have any questions or need further information on the project, please contact Jeff Runge at (308)382-6468 or by e-mail at jeff_runge@fws.gov.

Sincerely,

Matthew Rabbe
Acting Nebraska Project Leader/Field Supervisor
Ecological Services, Mountain-Prairie Region

Enclosure 1: R-Project Background Summary
Enclosure 2: R-Project Route Location and Vicinity Map
Enclosure 3: R-Project Route APE

Enclosure 1 – R-Project Background Summary

Enclosure 1: R-Project Background Summary

October 2014

- The Service issues a Notice of Intent (NOI) in the Federal Register to inform the public of its intent to prepare an EIS for the R-Project HCP

September 2015

- The Service begins informal communication with Nebraska SHPO regarding Section 106 consultation for the NPPD R-Project HCP EIS

June 2016

- The Service formally initiates Section 106 consultation for the NPPD R-Project HCP EIS

April 2019

- The *Programmatic Agreement among the U.S. Fish and Wildlife Service – Mountain-Prairie Region, the Nebraska State Historic Preservation Officer, Nebraska Public Power District, and the Advisory Council on Historic Preservation regarding the Construction, Maintenance, and Operation of the R-Project 345-Kilovolt Transmission Line, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler Counties, Nebraska*, is executed on April 10, 2019.

June 2019

- The Service issues ITP #TE72710C-0 for the R-Project and associated substations to NPPD.

July 2019

- A lawsuit was filed to challenge the Service's decision to issue an incidental take permit for American burying beetle to the NPPD for their proposed project to construct a 225-mile electrical transmission line through Nebraska, known as the "R-Project." More details about the project can be found at https://rproject.nppd.com/project-status.

June 2020

- The U.S. District Court for the District of Colorado issued a decision. You can find the decision under Civil Action No. 19-cv-1945-WJM, at the following link: https://casetext.com/case/oregon-california-trails-assn-v-walsh.
- The court determined that the Service made some errors in their decision-making process, including:
    - "…inadequately considered the effects of the R-Project on the O'Fallon's Bluff Segment of the Oregon and California Trail;
    - …unlawfully excluded potential wind turbine development in Antelope County, Nebraska from its analysis; and
    - …one portion of a 'programmatic agreement' entered into to address NHPA matters is arbitrary and capricious."
- As a result of this decision, the court set aside the incidental take permit that the Service issued to NPPD. This means the permit was vacated.
- As part of the court order, a supplemental environmental impact statement (SEIS) is being developed to address issues identified in the court ruling. The SEIS will ensure a

thorough evaluation of the effect of the Service's proposed action on the human environment.

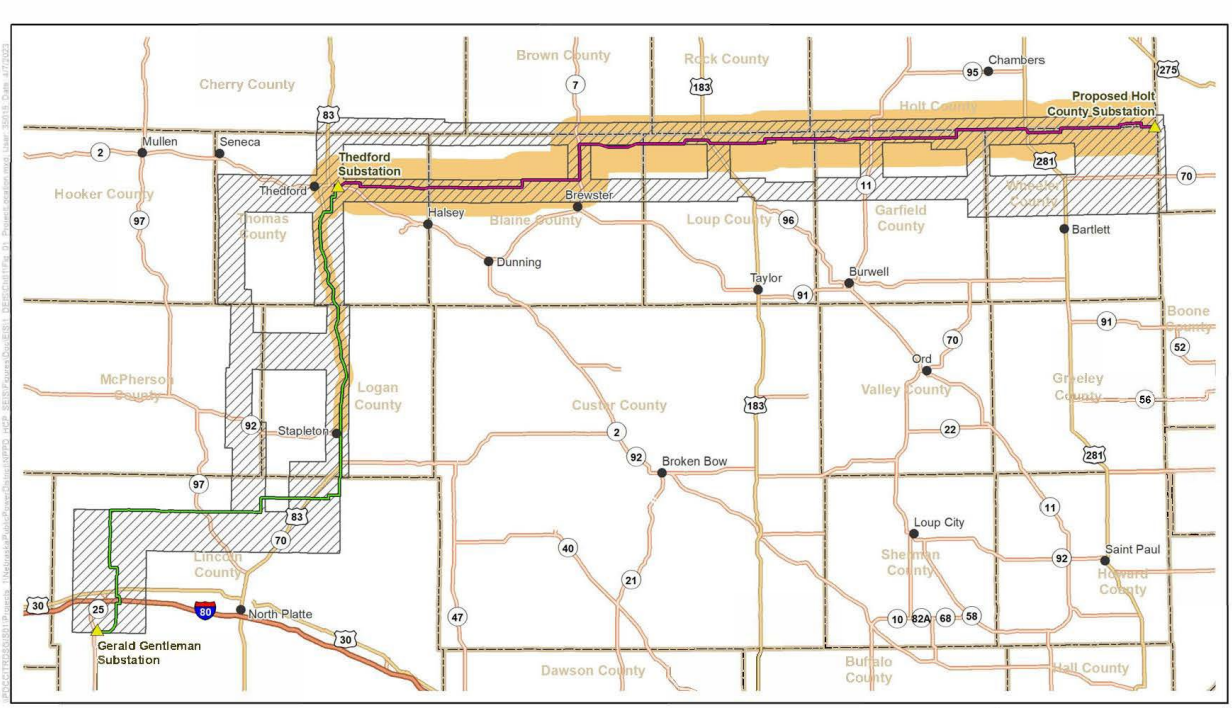
June 2020 – Spring 2022

- The Service conducted outreach to previously identified consulting parties as part of the Section 106 process. The Service notified consulting parties of the court's decision and noted that additional communication would follow after establishing a path forward.

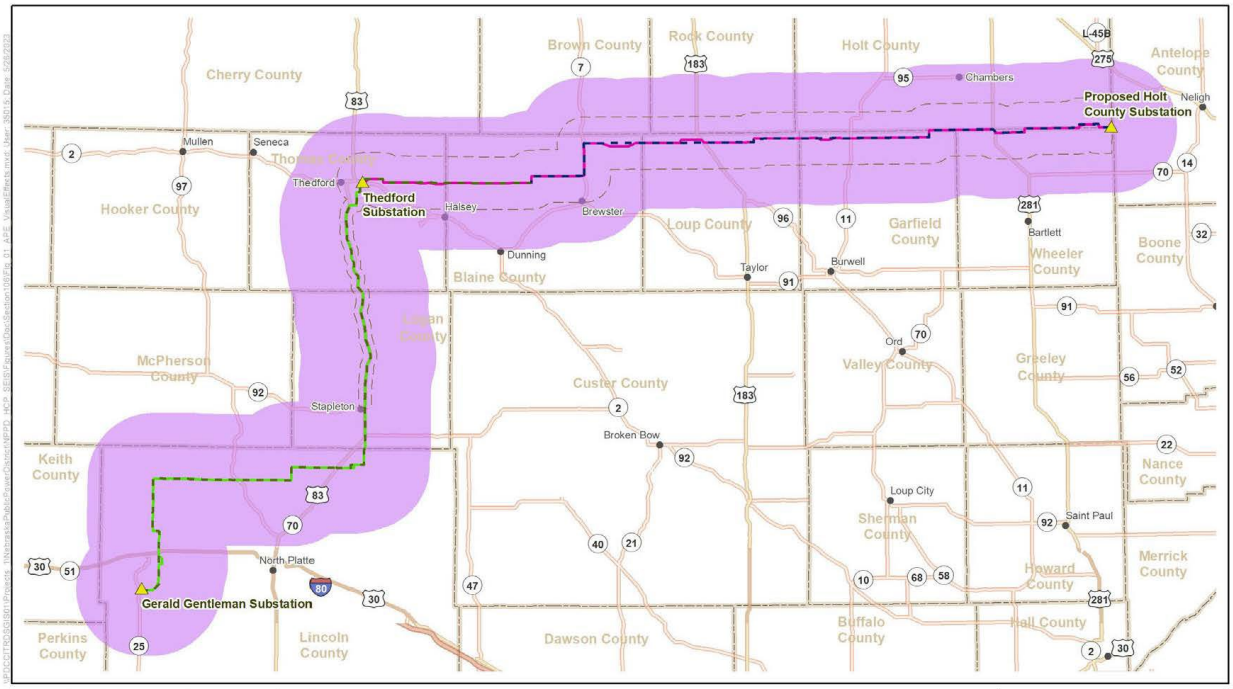
Fall 2022 – Present

- November 18, 2022: The Service published a Notice of Intent (NOI) to prepare an SEIS for the R-Project.
- December 8, 2022: The Service held two virtual public scoping meetings.
- The Service reviewed and considered all scoping comments received and has begun preparing the SEIS, working with cooperating agencies and NPPD to resolve potential impacts from the project as well as the issues identified in the 2020 court decision through the SEIS process.
    - The SEIS will describe potential impacts on cultural resources;
    - The SEIS will consider a range of reasonable alternatives; and
    - The SEIS will include a record of consulting party correspondence and may address and/or analyze any comments from consulting parties as part of the Section 106 process.
- The project team is reaching out to potential consulting parties to solicit input from members of the public, tribes, and groups with historic/cultural interests. Although the Service is the lead Federal Agency for this process, you may be contacted by staff from ICF, an environmental planning and consulting firm, throughout this process.
- The Service is planning to hold virtual and/or in-person meetings with interested parties to discuss cultural resources in the APE, as well as potential effects and mitigation measures.

Enclosure 2 – R-Project Route Location/Vicinity Map


Cherry County
Brown County
Rock County
Chambers
Holt County
Proposed Holt County Substation
Thedford Substation
Mullen
Seneca
Thedford
Hooker County
Thomas County
Halsey
Brewster
Blaine County
Loup County
Garfield County
Wheeler County
Bartlett
Dunning
Taylor
Burwell
Boone County
Ord
McPherson County
Logan County
Custer County
Valley County
Greeley County
Stapleton
Broken Bow
Loup City
Saint Paul
Howard County
Sherman County
Lincoln County
North Platte
Gerald Gentleman Substation
Dawson County
Buffalo County
Hall County
R-Project Centerlines
Gerald Gentleman to Thedford
Thedford to Holt County
Substation
Project Corridor
Permit Area
Interstate
U.S.
State
County Boundary
Source: NPPD 2023.
N
0 10 20 Miles
1:1,100,000
R-Project Route Location and Vicinity Map

Enclosure 3 – R-Project Route APE



R-Project Centerline (2023)
- Gerald Gentleman to Thedford
- Thedford to Holt County

R-Project Centerline (2018)
- Gerald Gentleman to Thedford
- Thedford to Holt County

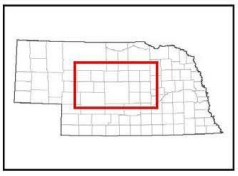
- Substation
- Permit Area
- APE for Visual Effects
- Interstate
- U.S.
- State
- County Boundary

Source: NPPD 2023.

N

0 10 20 Miles

1:1,200,000



APE for Visual Effects

History NEBRASKA

Preserving the past. Building the future.

July 21, 2023

Matthew Rabbe
U.S. Fish and Wildlife Service
VIA EMAIL

RE: HP# 1602-140-01; R-Project Transmission Area of Potential Effects, Blaine, Garfield, Holt, Lincoln, Logan, Loup, Thomas, and Wheeler Counties, Nebraska

Mr. Rabbe,

Thank you for submitting the redefined Area of Potential Effects (APE) for the above referenced project for our review and comment. Our comment on this project and its potential to affect historic properties is required by Section 106 of the National Historic Preservation Act of 1966, as amended, and implementing regulations 36 CFR Part 800.

The Nebraska State Historic Preservation Office concurs with the APE for direct effects determination for the above referenced project.

Please retain this correspondence and your documented finding in order to show compliance with Section 106 of the National Historic Preservation Act, as amended. If you have any questions, please contact me at john.swigart@nebraska.gov or 402-560-0574.

Sincerely,

John Swigart
Preservation Archeologist

1500 R Street
Lincoln, NE 68508-1651
P: 402.471.3270
P: 800.833.6747
F: 402.471.3100
history.nebraska.gov

Section 106 Consultation Meetings

August 2023

The Service hosted two Section 106 consultation meetings on August 17 and 18, 2023. The meetings were held virtually, and the meeting invitation was extended to those parties listed above in the section entitled *Section 106 Correspondence*.

The meeting on August 17, 2023, was open to all Section 106 consulting parties, project team members, and additional interested parties. The meeting's purpose was to discuss the proposed APE and solicit input on known historic properties and TCPs within that boundary. The primary concerns raised by meeting participants were related to the effects of the undertaking on O'Fallon's Bluff and the Mormon Trail Ruts from the revised transmission line alignment and the distance of the centerline to the Mormon Trail Ruts in particular. No new historic properties were identified by the participants during the call.

The meeting on August 18, 2023, was a closed meeting for tribal representatives, intended to create a platform where tribal representatives may feel comfortable sharing sensitive information, should they choose. Meeting attendees expressed the following concerns regarding the need to survey and inventory of the entirety of the area of potential effects (APE) (both physical and visual); a need to conduct TCP surveys; dissatisfaction with government-to-government consultation with tribal representatives during the pre-2019 EIS efforts; concern that all/enough tribal nations were contacted regarding the Section 106 consultation meeting; how tribal input will be addressed in this second round of Section 106 consultation; timelines for when tribal representatives could review the CRIR; how tribal representatives can review previous surveys conducted for this project; and how to improve communication through emails, follow-up phone calls, and in-person meetings. Participants noted the traditional and cultural importance of the Ogallala Aquifer, stating that water is used in ceremony, water is medicine, and water is life.

December 2023

The Service hosted a virtual Section 106 consultation meeting on December 8, 2023, to discuss the Draft Cultural Resources Inventory Report (CRIR). The meeting invitation was extended to those parties listed above in the section entitled Section 106 Correspondence. Meeting attendees expressed concerns regarding the field methodology and lack of opportunity for Tribal input and participation in the 2015-2019 cultural resources surveys and eligibility recommendations. Attendees also requested clarity regarding how Tribal Nations can be included as cooperating agencies; if prior agreements and comments are still valid; where the potential effects to wildlife, plants, sensitive species, and water resources will be addressed; and how the Service plans to mitigate adverse effects to historic properties. Participants indicated that the Nebraska SHPO cultural resources data may not include all cultural resources known to Tribal Nations. Participants also noted the cultural significance of rocks, plant communities, and landscapes and that confluences of rivers and streams are important places to Tribal Nations for trade, ceremonies, and meetings.