

Appendix D

Aquatic Resource Desktop Delineation Report



**Big Stone South
to Hankinson to Bison**

Big Stone South to Hankinson to Bison Transmission Line Project

Aquatic Resource Desktop Delineation Report

Otter Tail Power Company
September 2026

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Executive Summary

The desktop aquatic resources delineation was conducted in accordance with the US Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (USACE 2010). The desktop delineation report was completed in accordance with the USACE Engineers Revised Guidance Letter (Effective Date: November 1, 2019) and the USACE Minimum Standards for Aquatic Resource Delineation Reports.

For ordinary high-water mark (OHWM) delineations, the USACE National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams was used.

The desktop aquatic resources delineation was completed for the Facility by Alex Brazeal of HDR, Inc (HDR) in May 2026. A total of 31 streams were identified, totaling 12.24 acres (ac), and 217 wetlands covering approximately 161.8 ac were identified and mapped within the Facility.

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List of Acronyms and Abbreviations

ac	acres
BSSHB Project	Big Stone South to Hankinson to Bison 345 kV Transmission Line Project
Commission	South Dakota Public Utilities Commission
Facility	South Dakota portion of the Big Stone South to Hankinson to Bison 345 kV Transmission Line Project
ft.	Feet
GIS	Geographic Information System
kV	Kilovolt
LiDAR	Light Detection and Ranging
mi	Miles
NAIP	National Agriculture Imagery Program
NHD	National Hydrography Dataset
NWI	National Wetland Inventory
OHWM	Ordinary High-Water Mark
OTP	Otter Tail Power Company
USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey

1.0 Introduction

1.1 Project Background

Otter Tail Power Company (OTP) is planning to develop, construct, and co-own a new 345 kilovolt (kV) transmission line called Big Stone South to Hankinson to Bison (BSSHB Project). The Project will run from an existing substation north of Hankinson, North Dakota, to an existing substation near Big Stone City, South Dakota. The BSSHB Project will be a 345 kV, high-voltage transmission line that will improve electric reliability, increase resiliency to extreme weather events, reduce transmission congestion, and increase access to low-cost energy in the region.

OTP is submitting an Application to the Public Utilities Commission of the State of South Dakota (Commission) for a Facility Permit for the portion of the BSSHB Project that is located within South Dakota (Facility).

OTP is responsible for compliance with Section 404 and 401 under the Clean Water Act, and as a part of this compliance process, OTP contracted HDR Engineering, Inc (HDR) to perform desktop aquatic resource delineations along the Facility. This report details the methods and results used to complete an aquatic resource desktop delineation of the Facility. The information from the desktop delineation will be used to describe existing conditions and quantify potential impacts in the Facility Permit. Additionally, the data collected from this desktop effort will inform field delineations which are planned for the 2026/2027 field seasons.

1.2 Study Area and Proposed Route

The Facility is defined as the area encompassing the proposed 345 kV transmission line and an associated 150-foot (ft) buffer, 75 ft on either side of the route centerline covering approximately 1,270.3 ac (Figure 1).

The Facility passes through Roberts County South Dakota, and Grant County South Dakota for approximately 70 miles (mi), spanning the west side of the Minnesota River. The Facility is located in Townships 121-129, R47-50 in South Dakota.

The Facility primarily consists of cultivated crops (62.1%) followed by developed space (13.6%), hay/pasture (11.7%), emergent herbaceous wetlands (7.8%), and grassland/herbaceous (2.3%). All other land cover types account for 1 percent or less of the proposed route. (Table 1; Appendix A). USGS 2024].

Figure 1. Location Map of the Facility

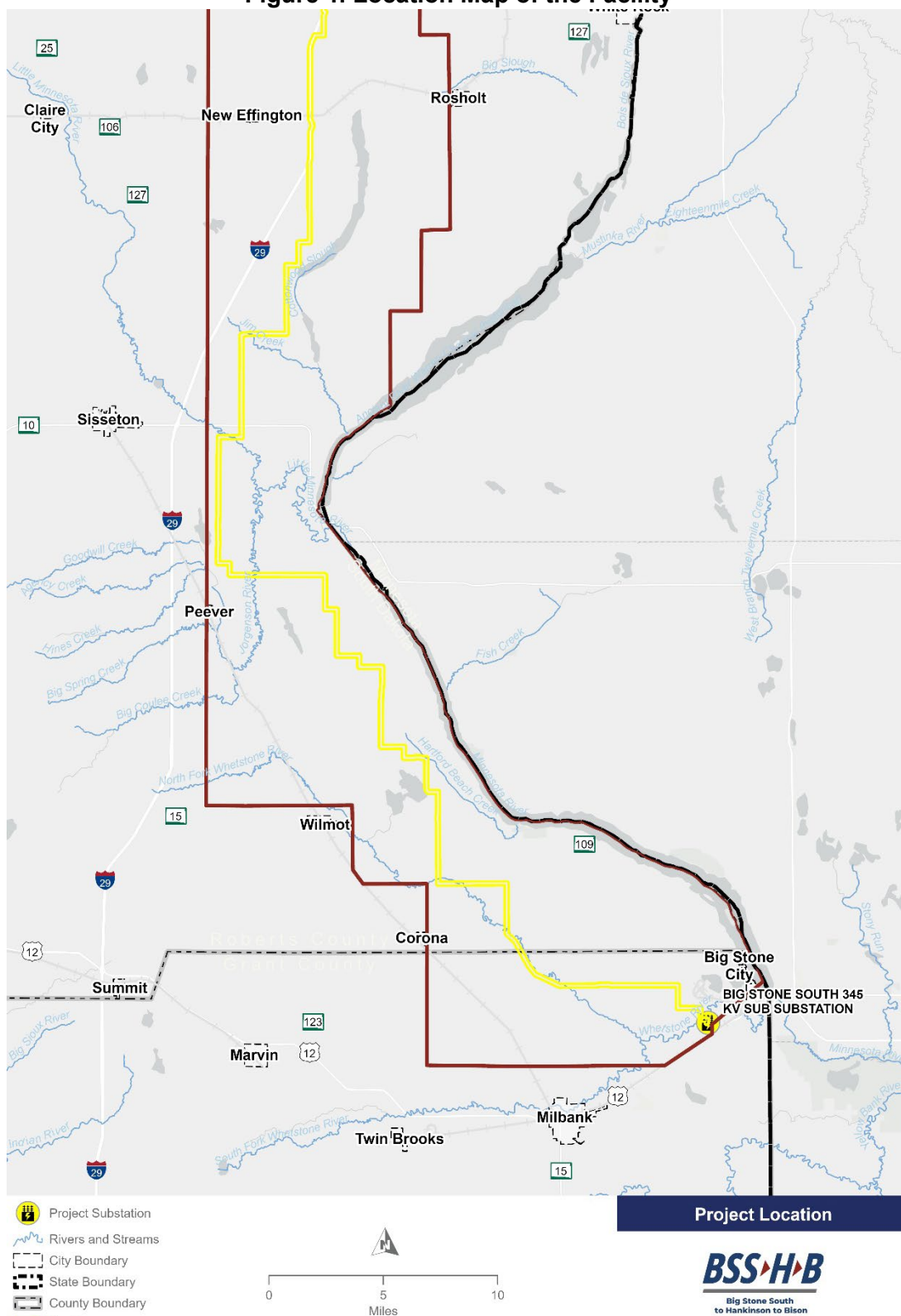


Table 1. Land cover types within the Facility

Land Cover Type	Acres	Percentage
Barren Land	14.1	1.1%
Cultivated Crops	789.4	62.1%
Deciduous Forest	1.5	0.1%
Developed, Low/Medium/Open Intensity	172.9	13.6%
Emergent Herbaceous Wetlands	98.7	7.8%
Hay/Pasture	148.7	11.7%
Herbaceous	28.8	2.3%
Mixed Forest	0.1	<0.1%
Open Water	16.1	1.3%
Woody Wetlands	0.2	<0.1%
TOTAL	~1,270 Acres	100.0%

2.0 Methods

The desktop aquatic resources delineation was conducted in accordance with the USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the USACE Wetland Delineation Manual: Great Plains Region (Version 2.0) (USACE 2010). The desktop delineation was conducted in accordance with the USACE Revised Guidance (Effective Date: November 1, 2019) and the USACE Minimum Standards for Aquatic Resource Delineation Reports.

For ordinary high-water mark (OHWM) delineations, the USACE National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams was used.

A desktop delineation was completed for the Facility in May 2026.

Aquatic resources boundaries within the Facility were determined by interpreting publicly available imagery from the National Agriculture Imagery Program (NAIP) and comparing it to currently available imagery from Google Earth.

Available spatial data from the National Hydrography Dataset (NHD) and the National Wetland Inventory – Version 2 (NWI) were used to inform the location and boundaries of historic aquatic resources, and 248 aquatic resources were identified within the Facility (U.S. Geological Survey [USGS] 2026, U.S. Fish and Wildlife Service [USFWS] 2026, Appendix C).

Soil data from the Web Soil Survey classify soils by the percentage of components within the soil map unit that are identified as hydric. These six classifications are mapped as follows: Not Hydric soils containing <1 percent hydric soil components within the map unit, Partially Hydric (1%-25%), Partially Hydric (26%-50%), Mostly Hydric (51%-75%), Mostly Hydric (76% - 95%), and All Hydric soils containing (>95%) hydric soil components within the map unit. This data highlights areas with primarily hydric soil, indicating a potential aquatic resource for the field delineation (Soil Survey Staff 2021, Appendix C).

Elevation mapping with 10 ft. contours produced from publicly available light detection and ranging (LiDAR) data aids in identifying areas with geomorphic position indicating potential aquatic resources (USGS 2026, Appendix D).

3.0 Results

3.1 Wetlands

During the desktop delineation, 217 wetlands totaling 161.8 acres were identified and mapped (Appendix E, Appendix F). Most of the wetlands identified during the desktop delineation are isolated wetlands consistent with the prairie pothole region, with fewer amounts of slope wetlands associated with the drainages of the Minnesota River.

3.2 Other Waters

The desktop delineation resulted in 31 mapped other waters, totaling approximately 12.24 ac in the Facility (Appendix E, Appendix F). The Whetstone River and several associated tributaries make up most of the other waters identified during the desktop delineation.

4.0 Conclusion

217 wetlands and 31 other waters have been delineated within the Facility based on the desktop delineation. The aquatic resources within the Facility primarily consist of depressional “pothole” wetlands within or adjacent to cultivated crop fields as well as drainages and tributaries for the Whetstone River.

The purpose of this report is to request a preliminary jurisdictional determination from the USACE. Aquatic resources located within the Facility, which are determined to be jurisdictional or are on a USFWS conservation easement, are anticipated to be field delineated within the upcoming months once access is approved, the growing season is initiated, and weather conditions allow. The geographic information system (GIS) spatial files will be used during route refinement to mitigate impacts to wetlands, including avoidance and minimization strategies as part of future development plans.

5.0 References

Google Earth Imagery. Available Online [URL]: <https://earth.google.com/web/>. Accessed May 2026.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available Online [URL]: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed May 2026.

U.S. Army Corps of Engineers (USACE). 1987. US Army Corps of Engineers Wetlands Delineation Manual. Available Online [URL]: <http://www.wetlands.com/regs/tlpge02e.htm>

- U.S. Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)*. Available Online [URL]: http://www.usace.army.mil/missions/civilworks/regulatoryprogramandpermits/reg_supp.aspx. March 2010.
- U.S. Fish and Wildlife Service (USFWS). 2026. National Wetlands Inventory. Available Online [URL]: <http://www.fws.gov/wetlands/Data/Mapper.html>. Accessed May 2026.
- U.S. Geological Survey (USGS). 2026. Topographic Map. Available Online [URL]: <http://viewer.nationalmap.gov/viewer/>. Accessed May 2026.
- U.S. Geological Survey (USGS). 2024. Annual National Land Cover Database (NLCD) Collection 1 Science Products, Version 1.2 (June 2026). U.S. Geological Survey, Earth Resources Observation and Science Center, Sioux Falls, South Dakota. Available at: <https://doi.org/10.5066/P94UXNTS>.
- U.S. Geological Survey (USGS). 2001. National Hydrography Dataset (NHD). U.S. Geological Survey. <https://doi.org/10.3133/70046927>.

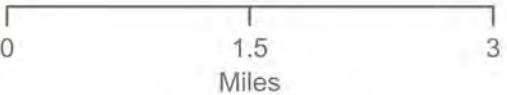
Appendix A. National Land Cover Dataset Land Cover Map

National Land Cover
Dataset (NLCD)

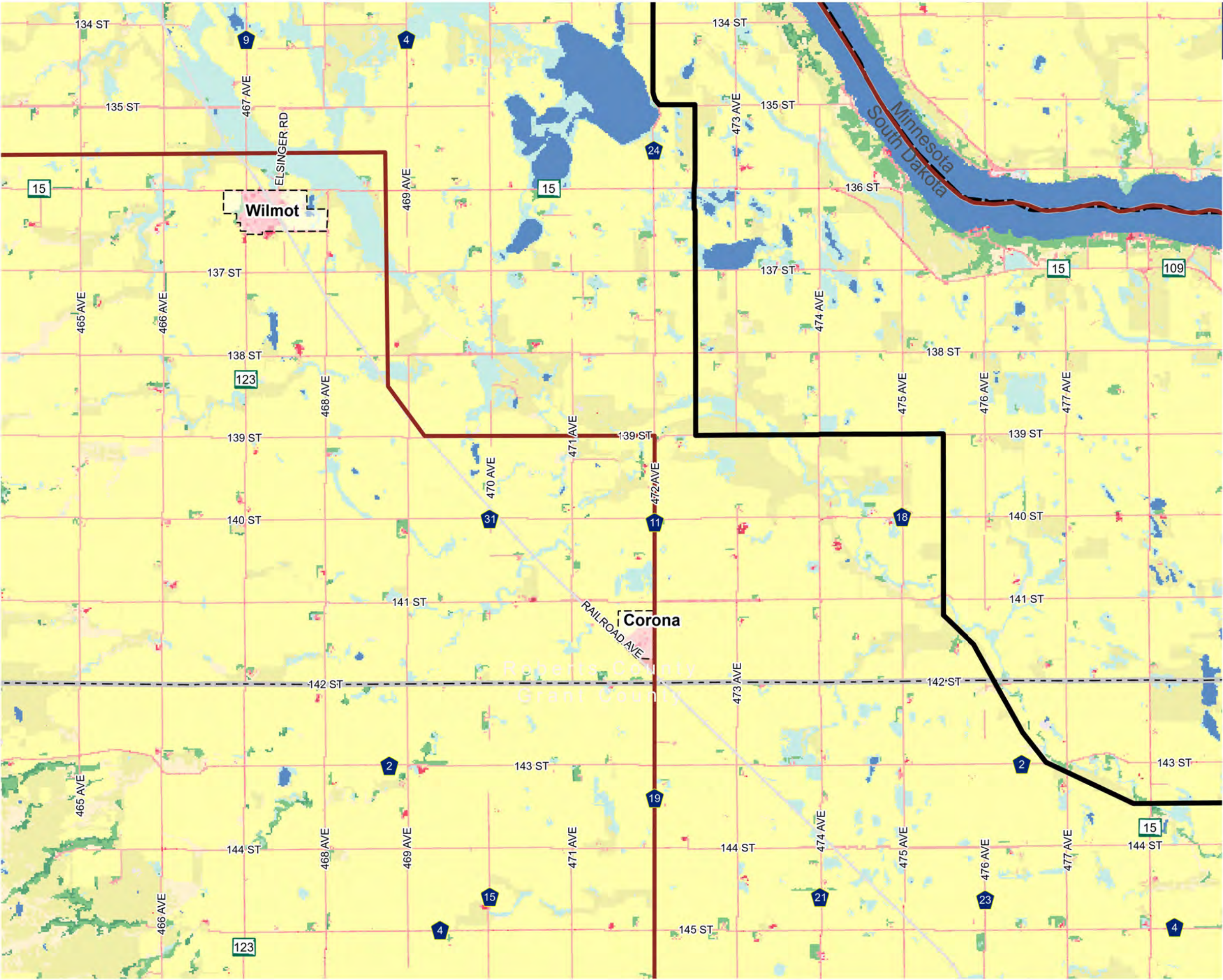
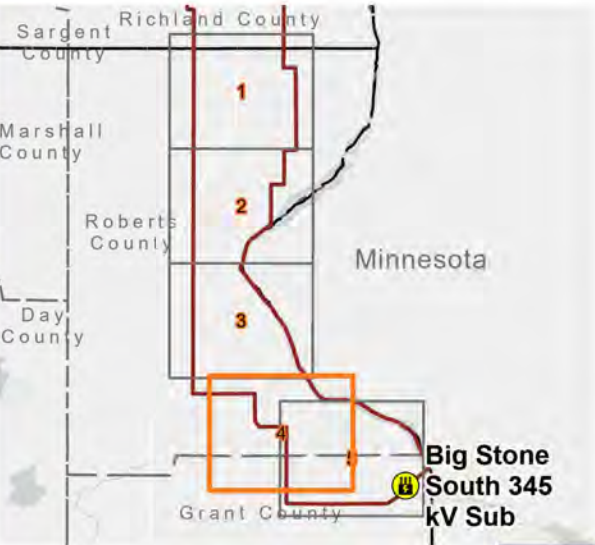


BIG STONE SOUTH TO
HANKINSON TO BISON
TRANSMISSION LINE PROJECT

- | | | | |
|--|-------------------------------|--|------------------------------------|
| | City Boundary | | Barren Land |
| | County Boundary | | Deciduous Forest |
| | State Boundary | | Evergreen Forest |
| | Facility | | Mixed Forest |
| | Study Area | | Shrub/Scrub |
| | Open Water | | Grassland/
Herbaceous |
| | Developed Open
Space | | Pasture/Hay |
| | Developed Low
Intensity | | Cultivated Crops |
| | Developed
Medium Intensity | | Woody Wetlands |
| | Developed High
Intensity | | Emergent
Herbaceous
Wetlands |



Data Current as of: 6/23/2026
*Preliminary routes subject to change



Appendix B. NWI/NHD Aquatic Resources Map

Appendix C. USDA NRCS Hydric Soils Map

Appendix D. Contour Map based on LiDAR

Appendix E. Map of Desktop-Delineated Wetlands and Other Waters of the U.S.

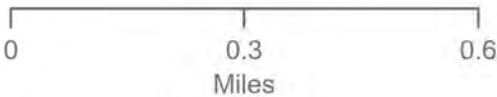
Desktop Delineated Wetlands and
Other Waters of the U.S.



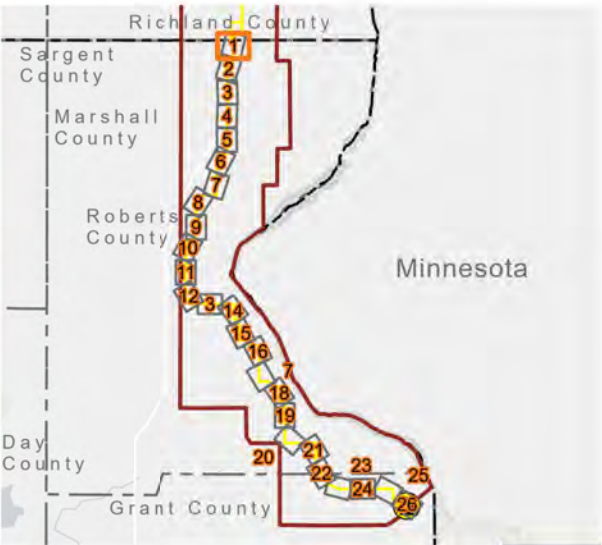
Big Stone South
to Hankinson to Bison

BIG STONE SOUTH TO
HANKINSON TO BISON
TRANSMISSION LINE PROJECT

- County Boundary
- PLSS Sections
- State Boundary
- Study Area
- Facility
- Delineated Wetlands



Data Current as of: 7/13/2026
*Preliminary routes subject to change



Desktop Delineated Wetlands and
Other Waters of the U.S.



Big Stone South
to Hankinson to Bison

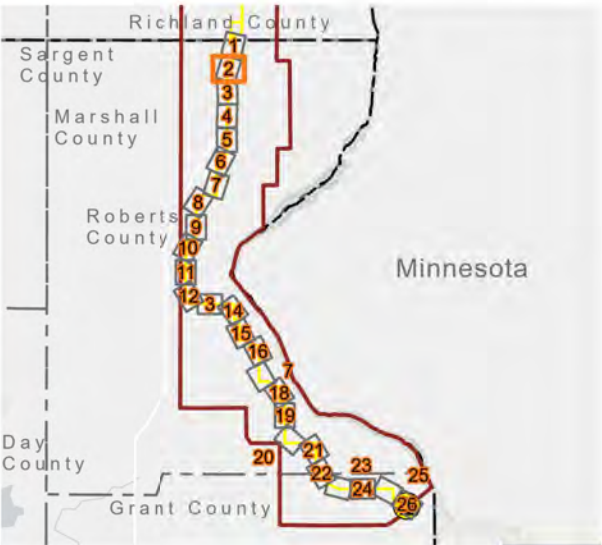
BIG STONE SOUTH TO
HANKINSON TO BISON
TRANSMISSION LINE PROJECT

- County Boundary
- PLSS Sections
- State Boundary
- Study Area
- Facility
- Delineated Wetlands



0 0.3 0.6
Miles

Data Current as of: 7/13/2026
*Preliminary routes subject to change



Desktop Delineated Wetlands and
Other Waters of the U.S.



Big Stone South
to Hankinson to Bison

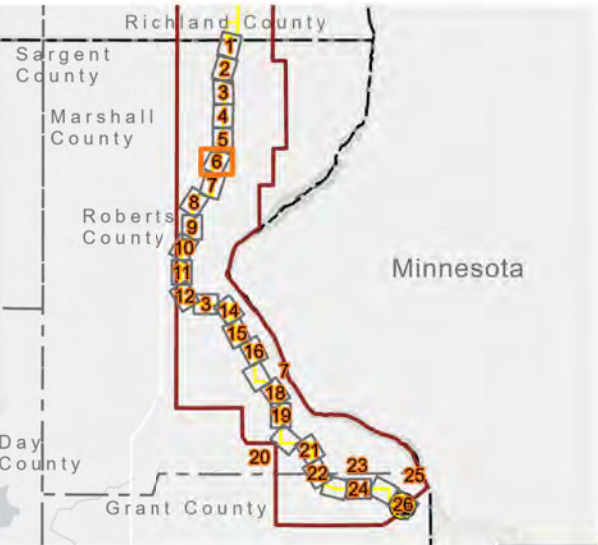
BIG STONE SOUTH TO
HANKINSON TO BISON
TRANSMISSION LINE PROJECT

- County Boundary
- PLSS Sections
- State Boundary
- Study Area
- Facility
- Delineated Wetlands
- Delienated Streams



0 0.3 0.6
Miles

Data Current as of: 7/13/2026
*Preliminary routes subject to change



Desktop Delineated Wetlands and
Other Waters of the U.S.



Big Stone South
to Hankinson to Bison

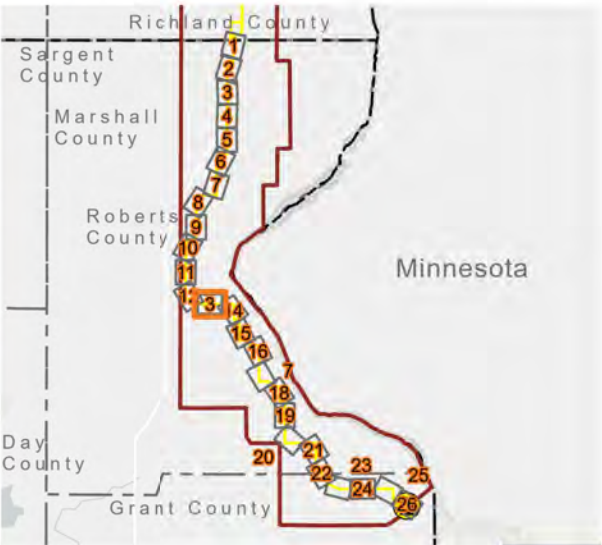
BIG STONE SOUTH TO
HANKINSON TO BISON
TRANSMISSION LINE PROJECT

- County Boundary
- PLSS Sections
- State Boundary
- Study Area
- Facility
- Delineated Wetlands
- Delienated Streams



0 0.3 0.6
Miles

Data Current as of: 7/13/2026
*Preliminary routes subject to change



Desktop Delineated Wetlands and
Other Waters of the U.S.



Big Stone South
to Hankinson to Bison

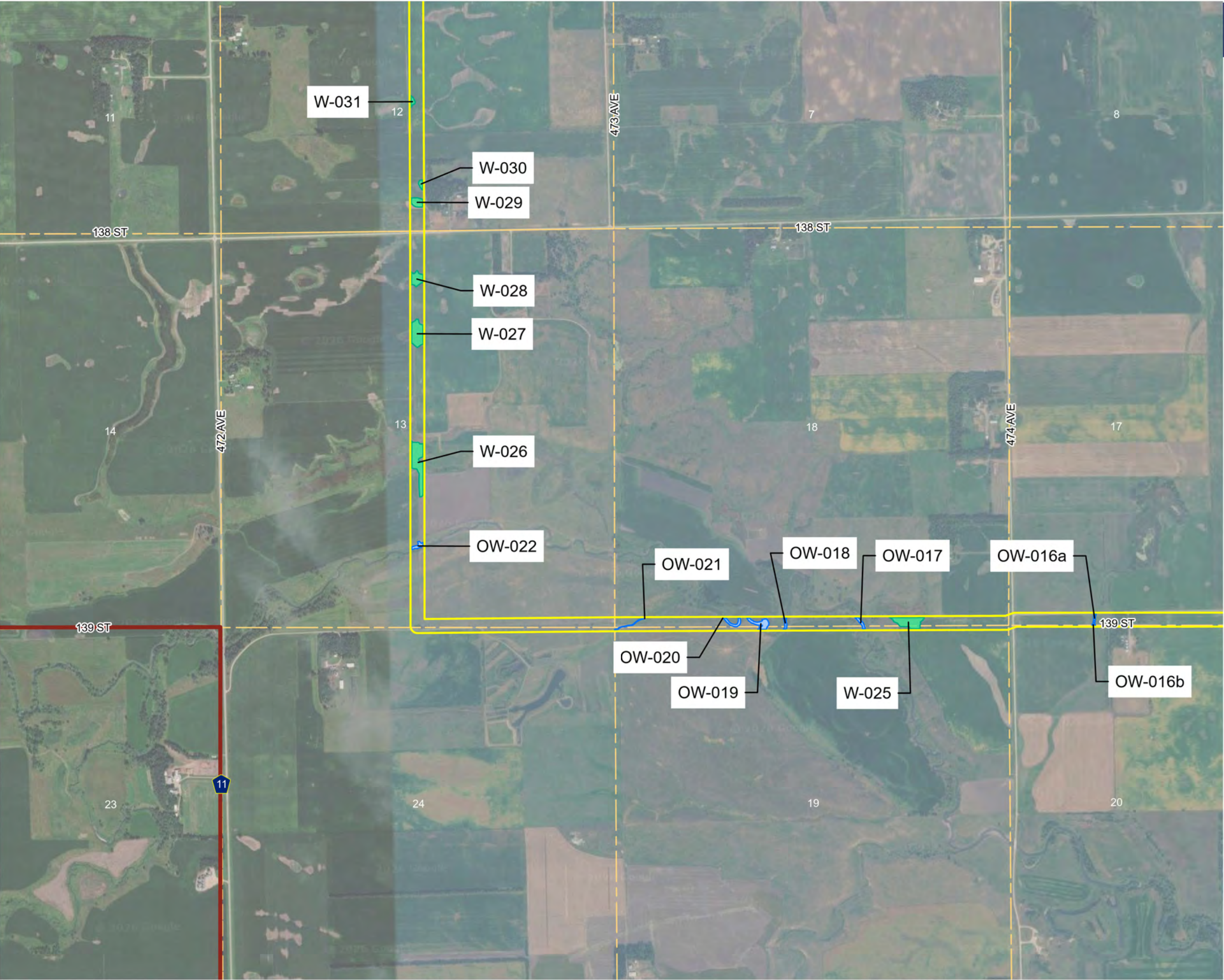
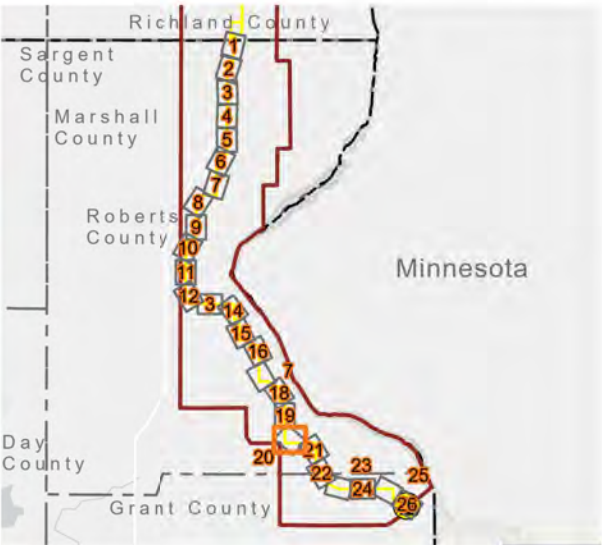
BIG STONE SOUTH TO
HANKINSON TO BISON
TRANSMISSION LINE PROJECT

- County Boundary
- PLSS Sections
- State Boundary
- Study Area
- Facility
- Delineated Wetlands
- Delienated Streams



0 0.3 0.6
Miles

Data Current as of: 7/13/2026
*Preliminary routes subject to change



Appendix F. Table of Desktop-Delineated Wetlands and Other Waters of the U.S.

Resource ID	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)	Latitude (DD_ _Y_ _)	Longitude (DD_ _X_ _)	Delineation Method (Field/Desktop)	Delineated Resource Area (Acres)	Resource Type
OW-001	Section 404	45.283246	-96.510341	Desktop	0.44	Other Waters of the U.S.
OW-002	Section 404	45.290231	-96.514606	Desktop	0.41	Other Waters of the U.S.
OW-003	Section 404	45.290419	-96.516944	Desktop	0.56	Other Waters of the U.S.
OW-004	Section 404	45.290537	-96.518796	Desktop	0.27	Other Waters of the U.S.
OW-005	Section 404	45.290362	-96.531338	Desktop	0.85	Other Waters of the U.S.
OW-006	Section 404	45.292669	-96.535019	Desktop	0.09	Other Waters of the U.S.
OW-007	Section 404	45.305155	-96.594435	Desktop	2.42	Other Waters of the U.S.
OW-008	Section 404	45.305306	-96.596949	Desktop	0.68	Other Waters of the U.S.
OW-009	Section 404	45.30549	-96.60335	Desktop	2.32	Other Waters of the U.S.
OW-010	Section 404	45.304955	-96.635815	Desktop	0.16	Other Waters of the U.S.
OW-011	Section 404	45.308031	-96.650179	Desktop	0.37	Other Waters of the U.S.
OW-012	Section 404	45.308978	-96.653216	Desktop	0.06	Other Waters of the U.S.
OW-014	Section 404	45.336194	-96.685575	Desktop	0.24	Other Waters of the U.S.
OW-015	Section 404	45.34088	-96.688438	Desktop	0.57	Other Waters of the U.S.
OW-013	Section 404	45.325336	-96.674825	Desktop	0.08	Other Waters of the U.S.
OW-016a	Section 404	45.369993	-96.714915	Desktop	0.06	Other Waters of the U.S.
OW-016b	Section 404	45.369754	-96.714956	Desktop	0.02	Other Waters of the U.S.
OW-017	Section 404	45.369837	-96.72699	Desktop	0.13	Other Waters of the U.S.
OW-018	Section 404	45.369821	-96.730889	Desktop	0.10	Other Waters of the U.S.
OW-019	Section 404	45.369815	-96.732156	Desktop	0.45	Other Waters of the U.S.
OW-020	Section 404	45.369782	-96.733666	Desktop	0.21	Other Waters of the U.S.
OW-021	Section 404	45.369758	-96.738938	Desktop	0.06	Other Waters of the U.S.
OW-022	Section 404	45.372674	-96.749864	Desktop	0.17	Other Waters of the U.S.
OW-023a	Section 404	45.449294	-96.760379	Desktop	0.05	Other Waters of the U.S.
OW-023b	Section 404	45.449191	-96.760068	Desktop	0.01	Other Waters of the U.S.
OW-024	Section 404	45.565177	-96.913772	Desktop	0.67	Other Waters of the U.S.
OW-25a	Section 404	45.652496	-96.93744	Desktop	0.26	Other Waters of the U.S.
OW-25b	Section 404	45.652398	-96.936345	Desktop	0.27	Other Waters of the U.S.
OW-25c	Section 404	45.652257	-96.934315	Desktop	0.01	Other Waters of the U.S.
OW-25d	Section 404	45.652336	-96.932732	Desktop	0.23	Other Waters of the U.S.
OW-026	Section 404	45.760177	-96.886227	Desktop	0.03	Other Waters of the U.S.
W-001	Section 404	45.290654	-96.520049	Desktop	0.46	Wetlands
W-002	Section					

W-020	Section 404	45.347377	-96.688475	Desktop	0.05	Wetlands
W-021	Section 404	45.356252	-96.688389	Desktop	1.09	Wetlands
W-022	Section 404	45.362873	-96.688355	Desktop	0.93	Wetlands
W-023	Section 404	45.369999	-96.689969	Desktop	1.09	Wetlands
W-024	Section 404	45.369758	-96.690387	Desktop	0.31	Wetlands
W-025	Section 404	45.369861	-96.724517	Desktop	1.05	Wetlands
W-026	Section 404	45.375686	-96.749843	Desktop	1.58	Wetlands
W-027	Section 404	45.380406	-96.749885	Desktop	1.08	Wetlands
W-028	Section 404	45.382403	-96.749895	Desktop	0.55	Wetlands
W-029	Section 404	45.385191	-96.74987	Desktop	0.38	Wetlands
W-030	Section 404	45.385849	-96.749674	Desktop	0.11	Wetlands
W-031	Section 404	45.388871	-96.750101	Desktop	0.11	Wetlands
W-032	Section 404	45.393108	-96.749703	Desktop	0.11	Wetlands
W-033	Section 404	45.396013	-96.750081	Desktop	0.20	Wetlands
W-034	Section 404	45.396578	-96.749783	Desktop	0.24	Wetlands
W-035	Section 404	45.398244	-96.75007	Desktop	0.20	Wetlands
W-036	Section 404	45.399976	-96.749907	Desktop	2.12	Wetlands
W-037	Section 404	45.401174	-96.750014	Desktop	0.43	Wetlands
W-038	Section 404	45.402835	-96.749946	Desktop	0.65	Wetlands
W-039	Section 404	45.409001	-96.750015	Desktop	1.42	Wetlands
W-040	Section 404	45.41186	-96.750157	Desktop	3.06	Wetlands
W-041	Section 404	45.413965	-96.750045	Desktop	1.79	Wetlands
W-042	Section 404	45.422883	-96.750009	Desktop	0.21	Wetlands
W-042.1	Section 404	45.426207	-96.74992	Desktop	1.47	Wetlands
W-043	Section 404	45.427581	-96.749765	Desktop	0.13	Wetlands
W-044	Section 404	45.427648	-96.755102	Desktop	0.15	Wetlands
W-044.1	Section 404	45.431823	-96.760403	Desktop	0.30	Wetlands
W-045	Section 404	45.439877	-96.760475	Desktop	0.23	Wetlands
W-046	Section 404	45.444732	-96.760448	Desktop	0.23	Wetlands
W-047	Section 404	45.449342	-96.760309	Desktop	0.05	Wetlands
W-048	Section 404	45.449355	-96.760765	Desktop	0.23	Wetlands
W-049	Section 404	45.449258	-96.760066	Desktop	0.01	Wetlands
W-050	Section 404	45.449078	-96.760073	Desktop	0.03	Wetlands
W-051	Section 404	45.449813	-96.767855	Desktop	0.40	Wetlands
W-052	Section 404	45.449787				

W-073	Section 404	45.504336	-96.800084	Desktop	0.22	Wetlands
W-074	Section 404	45.50695	-96.80667	Desktop	0.21	Wetlands
W-075	Section 404	45.507008	-96.81774	Desktop	0.47	Wetlands
W-076	Section 404	45.507416	-96.820707	Desktop	0.60	Wetlands
W-077	Section 404	45.509984	-96.820734	Desktop	0.84	Wetlands
W-078	Section 404	45.51408	-96.824413	Desktop	1.41	Wetlands
W-079	Section 404	45.514321	-96.824807	Desktop	0.30	Wetlands
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W-081	Section 404	45.514323	-96.835526	Desktop	0.08	Wetlands
W-082	Section 404	45.518326	-96.84081	Desktop	0.11	Wetlands
W-083	Section 404	45.527048	-96.840781	Desktop	1.66	Wetlands
W-084	Section 404	45.532421	-96.840779	Desktop	2.45	Wetlands
W-085	Section 404	45.536212	-96.840573	Desktop	0.24	Wetlands
W-086	Section 404	45.543409	-96.840752	Desktop	0.10	Wetlands
W-087	Section 404	45.543169	-96.84072	Desktop	0.14	Wetlands
W-088	Section 404	45.543554	-96.843682	Desktop	0.15	Wetlands
W-089	Section 404	45.543564	-96.847582	Desktop	0.15	Wetlands
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W-092	Section 404	45.564985	-96.855648	Desktop	0.14	Wetlands
W-093	Section 404	45.565121	-96.860074	Desktop	0.74	Wetlands
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W-095	Section 404	45.565145	-96.877148	Desktop	2.14	Wetlands
W-096	Section 404	45.565115	-96.886687	Desktop	0.75	Wetlands
W-097	Section 404	45.565156	-96.893229	Desktop	0.71	Wetlands
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W-098	Section 404	45.56519	-96.901213	Desktop	1.34	Wetlands
W-099	Section 404	45.565169	-96.903737	Desktop	0.57	Wetlands
W-100	Section 404	45.565179	-96.914029	Desktop	2.07	Wetlands
W-101	Section 404	45.565304	-96.926083	Desktop	4.37	Wetlands
W-102	Section 404	45.56966	-96.937338	Desktop	2.98	Wetlands
W-103	Section 404	45.57266	-96.939101	Desktop	0.80	Wetlands
W-104	Section 404	45.572589	-96.945285	Desktop	1.32	Wetlands
W-105						

