

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request2-1
Date Received 8/26/2013

REQUEST: In addition to the notifications provided in response to DR1-1, is the Applicant aware of any similar requirements for Deuel County?

RESPONSE: Deuel County Approvals were inadvertently left off Applicant's response to DR1. Below are likely requirements for Deuel County:

Agency	Permit/Approval	Description	Status
Deuel County	Special Exception For Essential Services	Similar to a Conditional Use Permit	Will be submitted once route is determined.
	County Road Driveway Permit	Permit required for any access roads abutting county roads	Will be obtained after final design is complete, if necessary.
	County Highway ROW Occupancy	Permit required for use within county roads ROW	Will be obtained after final design is complete, if necessary.
	Application for Permit to Move Loads on Restricted Highways	Permit required for heavy equipment transport over restricted county highways during construction	Will be obtained after final design is complete, if necessary.
	Utility Permit for Lines Crossing Road Right of Ways	Permit required for any utility crossing of county roads	Will be obtained after final design is complete, if necessary.

Response By: Chris Rogers
Title: Principal Land Rights Agent
Department: Siting and Land Rights
Telephone: 612 330 6078

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
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South Dakota Docket EL13-020
Data Request 2-2
Date Received - 8/26/2013

REQUEST: Please provide an electronic copy of the MISO study mentioned in response to DR1-2.

RESPONSE: https://www.misoenergy.org/_layouts/miso/ecm/redirect.aspx?id=123567

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-3
Date Received - 8/26/2013

REQUEST: For each of the factors analyzed in the route selection process (as identified in section 8.1 of the application), please provide an analysis or demonstration that compares the preferred route to the alternative route segments reviewed, using measures that the Applicant deems appropriate.

RESPONSE: The Applicants routing process began by identifying a project study area, then mapping all existing linear features within the project study area and identifying them as potential "opportunities". These potential route segments included linear features such as roads, railroads, section lines, existing transmission lines, and pipeline corridors (see Figure 1).

The Applicants then collected Geographic Information System (GIS) data from local, state and federal agencies, and other publically available data. The data, along with input from public comment and agency coordination was used to compare potential route segments.

Segments were removed from consideration if their directional orientation did not support the general direction of the project, or if they were located in close proximity to dense clusters of sensitivities (residences, conservation easements, cultural resources etc). The remaining opportunities were then grouped together to form longer segments. These segments were then iteratively compared to one another based on routing criteria. Segments having the lowest number of sensitivities affected were carried forward (see Figure 2).

Throughout the routing process, the Applicants continually refreshed datasets and acquired additional information about sensitivities within the project study area. The comparative evaluation narrowed down the available segments. As shown on Figure 3, the project study area was split into three sections and the route segment options within each section were compared against each other. These comparisons identified which route segment options impacted the least amount of sensitivities and those segments were carried forward.

Figure 4 presents two complete routes developed through the comparative analysis. The routes shown on Figure 4 are also the routes that were displayed at the October 2012 public open houses. Table 1 presents routing criteria for the two complete routes shown on Figure 4.

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After the two complete routes were developed, the Proposed Route was selected and refined based on an analysis of routing criteria, the additional public input received at the open houses and through landowner contacts for right-of-way acquisitions. Figure 5 identifies the Proposed Route submitted in the application.

Figures 1-5 and Route Comparison Table Attached

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

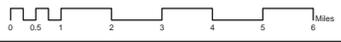


Legend

- Project End Point
 - ~ SDPUC Certified Route
 - Opportunities
 - Project Study Area
 - Municipal Boundary
 - Township Boundary
 - Section Boundary
 - County Boundary
- Sensitivities**
- Airport
 - VOR
 - ▲ FCC Tower
 - + Cemetery
 - ✛ Church
 - ✎ School
 - ✚ Hospital
 - ▤ Boat Ramp
 - ◆ Underground Storage Tank
 - State Public Shooting Area
 - Nursing Home
 - Oil/Gas Well
 - ★ National Register of Historic Places
 - ◆ Local Park
 - ~ Scenic Byways
 - ~ River/Stream
 - ~ Lake
 - ~ NWI Wetland
 - ~ Flood Zone
 - State Game Refuge
 - Game Production Area
 - Park and Recreation Area
 - Walk in Hunting Area
 - SDSU Research Station
 - National Wildlife Refuge
 - Waterfowl Production Area
 - Agricultural Land
 - Forested Area

Figure 1
DR2-3

DRAFT

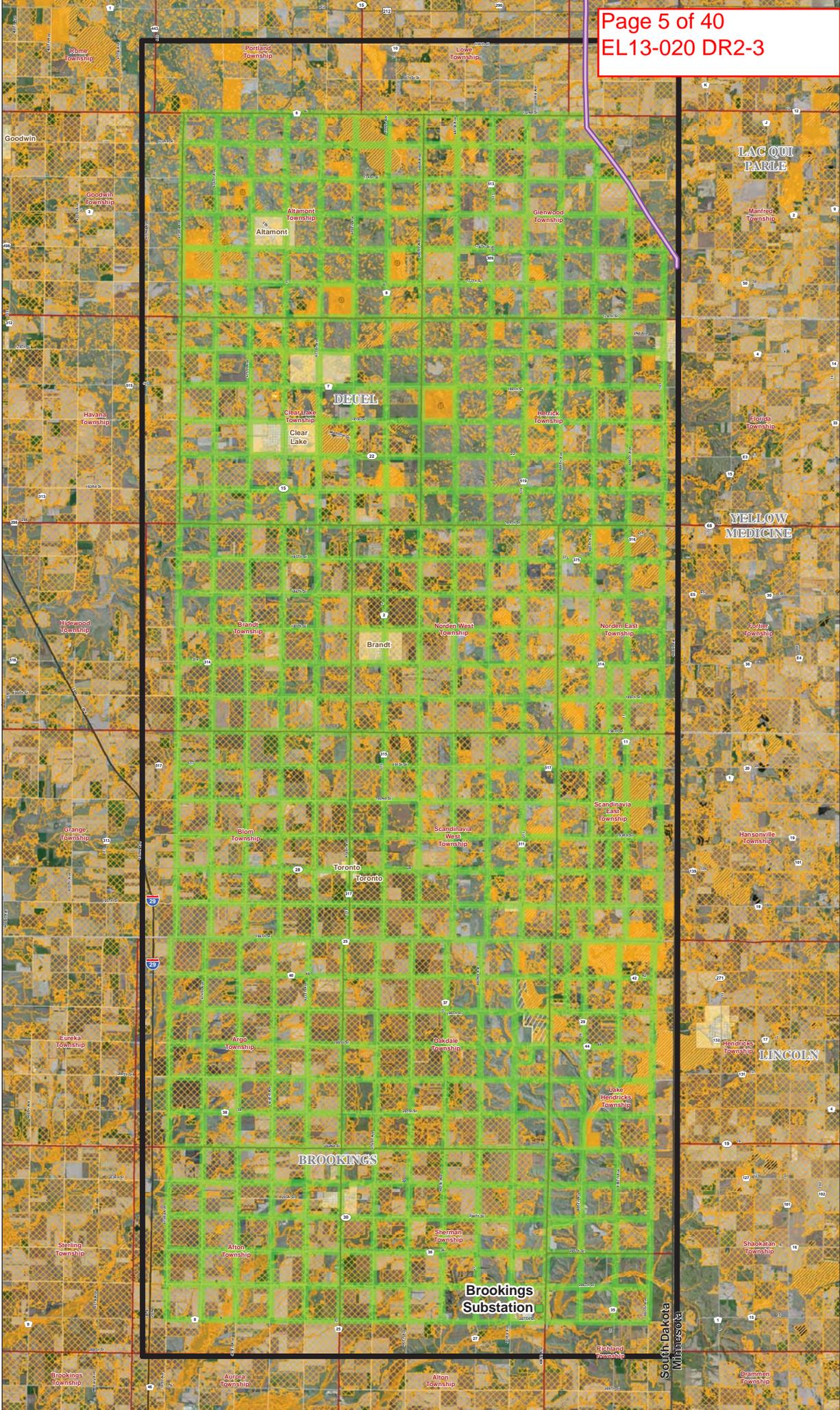


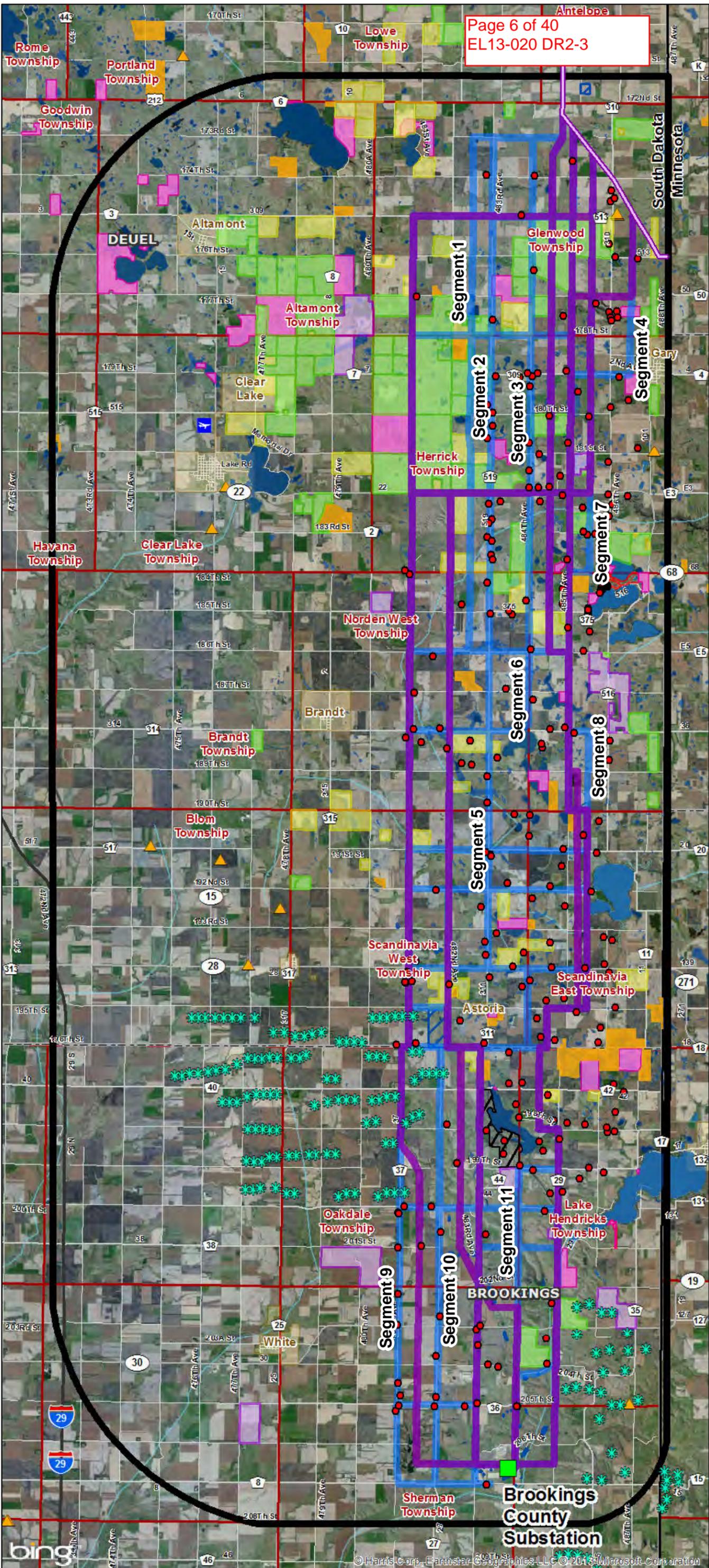
Big Stone to Brookings Project Composite Opportunities and Sensitivities

Date: 04/16/2012

Drawn by: MLTEICHERT

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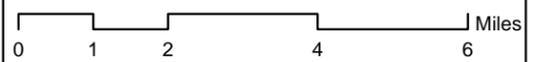
Legend

- Project End Point
- SDPUC Certificated Route
- Potential Route Alternatives
- Route Options Studied
- Project Study Area
- Municipal Boundary
- Township Boundary
- County Boundary
- ✈ Airport
- ▲ FCC Antenna Structure
- ✪ Existing Windturbine
- Residence
- USFWS Waterfowl Production Area
- USFWS Conservation Easement
- USFWS Grassland Easement
- USFWS Wetland Easement
- State Game Refuge
- State Game Production Area
- Park and Recreation Area
- SDSU Research Station
- Known Archaeological Site
- 🌊 Lake

Figure 2
DR2-3



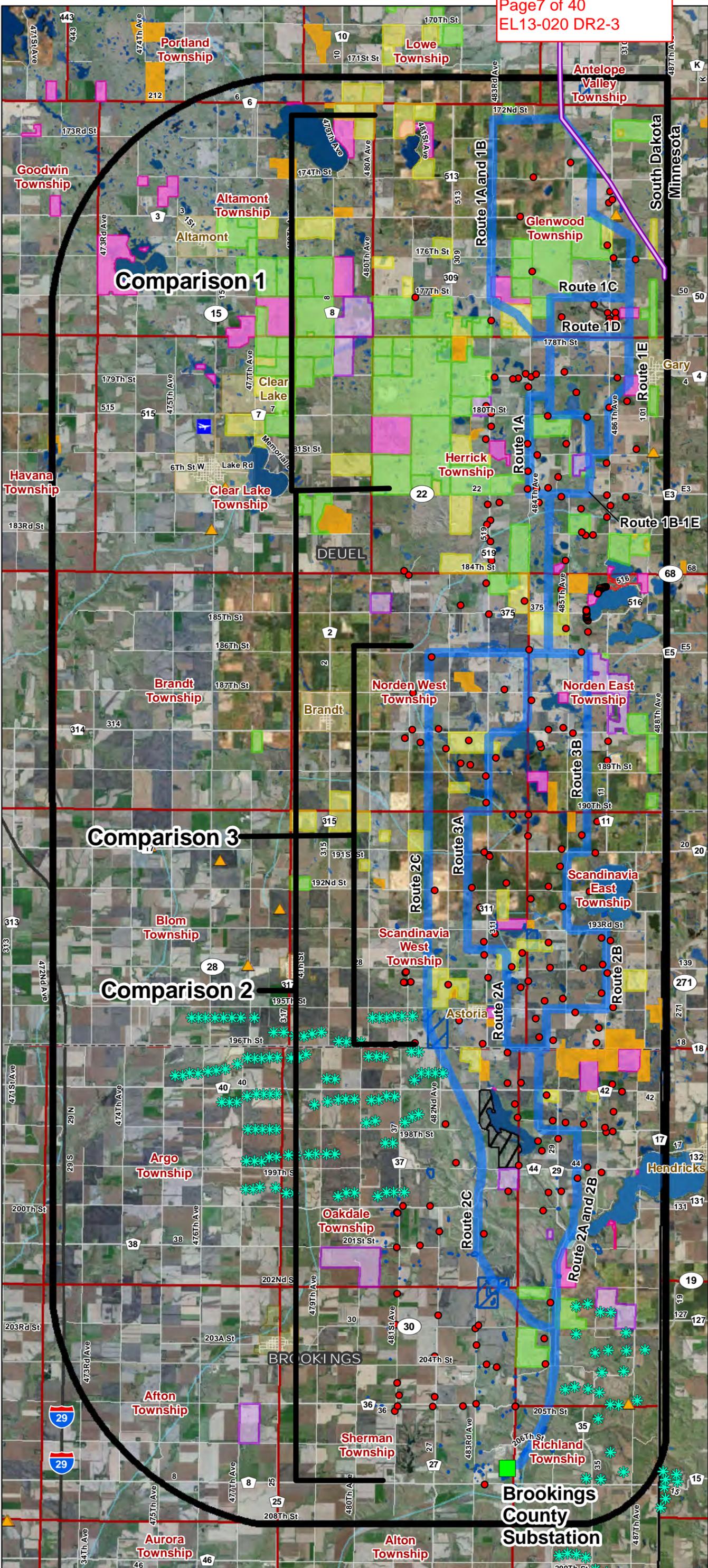
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Big Stone South to Brookings County Project Potential Route Options

DRAWN BY: MLTEICHERT DATE: 05/30/12

Xcel\Big_Stone\GIS\MXD\2012\05\Routing_Capx_B_Routes_Map_11x17.mxd



Legend

- Project End Point
- SDPUC Certificated Route
- Preliminary Proposed Routes
- Project Study Area
- Municipal Boundary
- Township Boundary
- County Boundary
- ✈ Airport
- ▲ FCC Antenna Structure
- ✱ Existing Windturbine
- Residence
- USFWS Waterfowl Production Area
- USFWS Conservation Easement
- USFWS Grassland Easement
- USFWS Wetland Easement
- State Game Refuge
- State Game Production Area
- Park and Recreation Area
- SDSU Research Station
- Known Archaeological Site
- 🌊 Lake

Figure 3
DR2-3

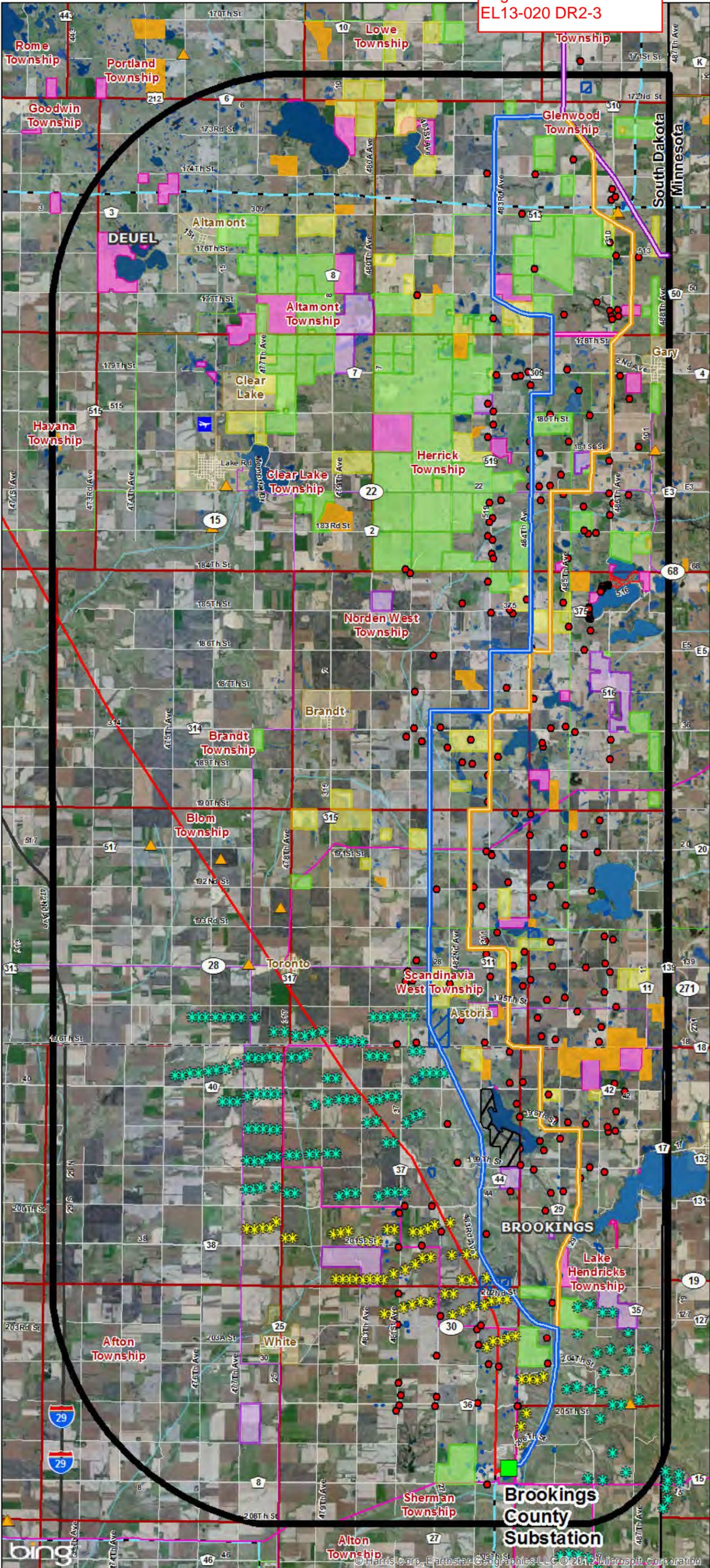


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Big Stone South to Brookings County Project Route Comparisons

DRAWN BY: MLTEICHERT DATE: 08/13/12
Xcel\0159818 Big_Stone\GIS\MXD\2012\08\Routing_Capx_B_Routing_Map_August.mxd



Legend

- Project End Point
 - Primary Route
 - Alternate Route
 - Segment Option
 - SDPUC Certificated Route
 - Project Study Area
 - Municipal Boundary
 - Township Boundary
 - County Boundary
 - ✈ Airport
 - ▲ FCC Antenna Structure
 - ✪ Existing Wind Turbine
 - ✪ Permitted Wind Turbine
 - Residence
 - USFWS Waterfowl Production Area
 - USFWS Conservation Easement
 - USFWS Grassland Easement
 - USFWS Wetland Easement
 - State Game Refuge
 - State Game Production Area
 - Park and Recreation Area
 - SDSU Research Station
 - Known Archaeological Site
 - 🌊 Lake
- Existing Transmission Line**
- 345 (kV)
 - 230 (kV)
 - 115 (kV)
 - 69 (kV)
 - 41 (kV)

Figure 4
DR2-3



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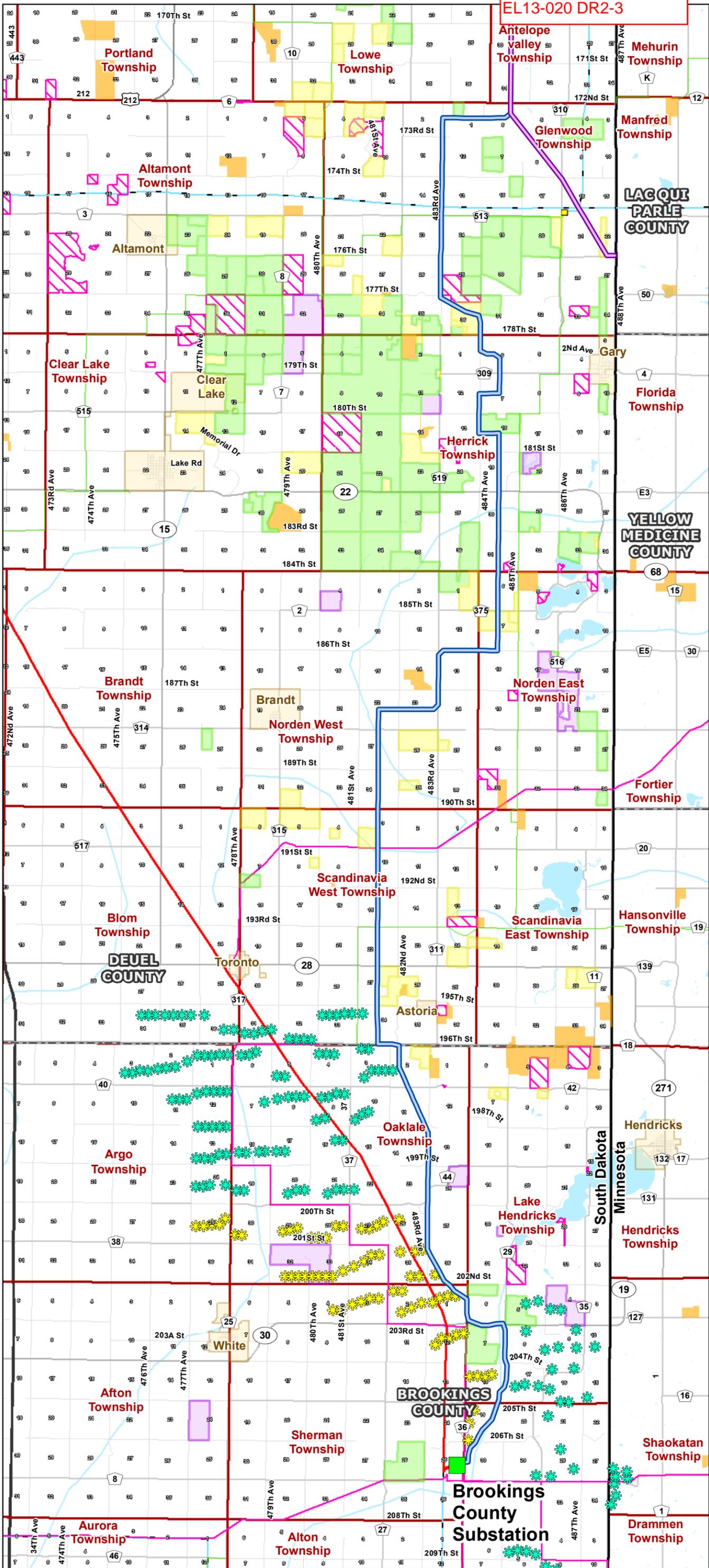
Big Stone South to Brookings County Project Proposed Route

DRAWN BY: MLTEICHERT DATE: 10/16/12

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Route Comparison (150 ft ROW)				
		Primary Route (150 ft ROW)	Alternate Route (150 ft ROW)	Segment Option (150 ft ROW)
	Segment Length	41.84	41.81	1.71
	Corridor Acres	761	760	31.41
	Proximity to Existing/Permitted Wind Turbine (Ft)	645	1325	0
	Number of Parcel Affected	155	154	9
	Number of Landowners Affected	117	107	8
USFWS National Wildlife Refuges	Number of National Wildlife Refuge in ROW	0	0	0
	Acres of National Wildlife Refuge in ROW	0.00	0.00	0.00
	Percent of ROW - National Wildlife Refuge	0%	0%	0%
Waterfowl Production Areas	Number of Waterfowl Production Area in ROW	0	0	0
	Acres of Waterfowl Production Area in ROW	0.00	0.00	0.00
	Percent of ROW - Waterfowl Production Area	0%	0%	0%
USFWS Easements	Number of Wetland Easements in ROW	6	6	0
	Length Crossing (Mi) - Wetland Easements	1.36	1.64	0.00
	Acres of Wetland Easements in ROW	32.90	30.67	0.00
	Percent of ROW - Wetland Easements	4%	4%	0%
	Number of Grassland Easements in ROW	3	3	0
	Length Crossing (Mi) - Grassland Easements	0.00	0.00	0.00
	Acres of Grassland Easements in ROW	2.70	4.30	0.00
	Percent of ROW - Grassland Easements	0%	1%	0%
	Number of Conservation Easements in ROW	0	1	0
	Length Crossing (Mi) - Conservation Easements	0.00	0.00	0.00
State Wildlife Refuges	Number of State Wildlife Refuges in ROW	0	0	0
	Acres of State Wildlife Refuges in ROW	0.00	0.00	0.00
	Percent of ROW - State Wildlife Refuges	0%	0%	0%
State Game Production Areas	Number of State Game Production Area in ROW	1	2	0
	Acres of State Game Production Area in ROW	1.13	4.76	0.00
	Percent of ROW - State Game Production Area	0%	0%	0%
State Park & Recreation Lands	Number of Park & Recreation Land in ROW	0	0	0
	Acres of Park & Recreation Land in ROW	0.00	0.00	0.00
	Percent of ROW - Park & Recreation Land	0%	0%	0%
Public School Lands	Number of Public School Land in ROW	0	0	0
	Acres of Public School Land in ROW	0.00	0.00	0.00
	Percent of ROW - Public School Land	0%	0%	0%
NWI Wetlands	Number of NWI Wetlands in ROW	91	102	6
	Acres of NWI Wetlands in ROW	35.78	43.80	0.74
	Percent of ROW - NWI Wetlands	5%	6%	2%
	Number of NWI Freshwater Emergent Wetlands in ROW	83	96	6
	Acres of NWI Freshwater Emergent Wetlands in ROW	32.58	41.03	0.74
	Percent of ROW - NWI Freshwater Emergent Wetlands	4%	5%	2%
	Number of NWI Freshwater Forested/Shrub Wetlands in ROW	2	4	0
	Acres of NWI Freshwater Forested/Shrub Wetlands in ROW	1.67	2.38	0.00
	Percent of ROW - NWI Freshwater Forested/Shrub Wetlands	0%	0%	0%
	Number of Freshwater Pond Wetlands in ROW	6	2	0
	Acres of Freshwater Pond Wetlands in ROW	1.54	0.39	0.00
	Percent of ROW - Freshwater Pond Wetlands	0%	0%	0%
	Number of NWI Riverine Wetlands in ROW	0	0	0
	Acres of NWI Riverine Wetlands in ROW	0.00	0.00	0.00
	Percent of ROW - NWI Riverine Wetlands	0%	0%	0%
Lakes	Number of Lakes in ROW	33	25	0
	Acres of Lakes in ROW	17.85	17.64	0.00
	Percent of ROW - Lakes	2%	2%	0%
Floodplain	Acres of Floodplain in ROW	45.48	47.42	0.00
	Percent of ROW - Floodplain	6%	6%	0%
SDSU Reserch Station	Number of SDSU Reserch Station in ROW	0	0	0
	Acres of SDSU Reserch Station in ROW	0.00	0.00	0.00
	Percent of ROW - SDSU Reserch Station	0%	0%	0%
The Nature Conservancy Lands	Number of The Nature Conservancy Lands in ROW	0	0	0
	Acres of The Nature Conservancy Lands in ROW	0.00	0.00	0.00
	Percent of ROW - The Nature Conservancy Lands	0%	0%	0%
General	Number of Streams in ROW	60	52	1
	Number of Water Wells in ROW	0	1	0
	Number of Federally Listed Specities in ROW	0	0	0
	Number of State Listed Specities in ROW	0	0	0
	Number of Airports in ROW	0	0	0
	Number of VOR Sites in ROW	0	0	0
	Number of Antenna Structures in ROW	0	0	0
	Number of Cemeteries in ROW	0	0	0
	Number of Churches in ROW	0	0	0
	Number of Hospitals in ROW	0	0	0
	Number of Schools in ROW	0	0	0
	Number of Landfills/Dumps in ROW	0	0	0
	Number of Boat Ramps in ROW	0	0	0
	Number of Oil Wells in ROW	0	0	0
	Number of Nursing Homes in ROW	0	0	0
	Number of Shooting Ranges in ROW	0	0	0
	Number of Underground Storage Tanks in ROW	0	0	0
Number of Scenic Byways in ROW	0	0	0	
Cultural and Historic Resources	Number of National Register of Historic Places in ROW	0	0	0
	Number of Known Historic Structures (SHPO) in ROW	2	3	0
	Number of Known Archaeological Sites (SHPO) in ROW	4	1	0
Landuse/Land Cover	Acres of Cultivated Crops in ROW	224.41	272.93	0.00
	Percent of ROW - Cultivated Crops	29%	36%	0%
	Acres of Forested Areas in ROW	0.00	3.91	0.00
Zoning	Acres of Agricultural Zoning in ROW	377.36	389.98	28.76
	Percent of ROW - Agricultural Zoning	50%	51%	92%
	Acres of Aquifer Protection Zoning in ROW	337.85	322.65	2.65
	Percent of ROW - Aquifer Protection Zoning	44%	42%	8%
	Acres of Commercial Zoning in ROW	0.00	0.00	0.00
	Percent of ROW - Commercial Zoning	0%	0%	0%
	Acres of Floodplain Zoning in ROW	45.48	47.42	0.00
	Percent of ROW - Floodplain Zoning	6%	6%	0%
	Acres of Lake Park District Zoning in ROW	0.00	0.00	0.00
	Percent of ROW - Lake Park District Zoning	0%	0%	0%
	Acres of Natural Resources District Zoning in ROW	0.13	0.00	0.00
	Percent of ROW - Natural Resources District Zoning	0%	0%	0%
	Acres of Municipal Zoning in ROW	0.00	0.00	0.00
Percent of ROW - Municipal Zoning	0%	0%	0%	
Number of Residences / Non-Residences within Proximity to ROW	Number of Residential Structures within 0-75 Feet of Alignment	0	0	0
	Number of Residential Structures within 75-150 Feet of Alignment	0	1	0
	Number of Residential Structures within 150-300 Feet of Alignment	4	3	0
	Number of Residential Structures within 300-500 Feet of Alignment	1	2	0
	Total Number of Residential Structures within 500 Feet of Alignment	5	6	0
	Number of Non-Residential Structures within 500 Feet of Alignment	33	32	0
Collocation	Length of Route (miles)	41.84	41.81	1.71
	Length Paralleling Existing ROWs (miles)	10.43	14.82	1.71
	Percent of Route Paralleling Existing ROWs	25%	35%	100%
	Length Paralleling Existing Linear Features (miles)	28.30	31.25	1.71
	Percent Paralleling Existing Linear Features	68%	75%	100%

Route Comparison (1,000 ft Corridor)				
		Primary Route (1,000 ft Corridor)	Alternate Route (1,000 ft Corridor)	Segment Option (1,000 ft Corridor)
	Segment Length	41.84	41.81	1.71
	Corridor Acres	5073	5064	224.72
	Proximity to Existing/Permitted Wind Turbine (Ft)	645	1325	0
	Number of Parcel Affected	155	154	9
	Number of Landowners Affected	117	107	8
USFWS National Wildlife Refuges	Number of National Wildlife Refuge in Corridor	0	0	0
	Acres of National Wildlife Refuge in Corridor	0.00	0.00	0.00
	Percent of ROW - National Wildlife Refuge	0%	0%	0%
Waterfowl Production Areas	Number of Waterfowl Production Area in Corridor	0	0	0
	Acres of Waterfowl Production Area in Corridor	0.00	0.00	0.00
	Percent of ROW - Waterfowl Production Area	0%	0%	0%
USFWS Easements	Number of Wetland Easements in Corridor	6	6	0
	Length Crossing (Mi) - Wetland Easements	1.36	1.64	0.00
	Acres of Wetland Easements in Corridor	258.66	221.62	0.00
	Percent of ROW - Wetland Easements	5%	4%	0%
	Number of Grassland Easements in Corridor	7	3	0
	Length Crossing (Mi) - Grassland Easements	0.00	0.00	0.00
	Acres of Grassland Easements in Corridor	131.57	58.25	0.00
	Percent of ROW - Grassland Easements	3%	1%	0%
	Number of Conservation Easements in Corridor	0	1	0
	Length Crossing (Mi) - Conservation Easements	0.00	0.00	0.00
State Wildlife Refuges	Number of State Wildlife Refuges in Corridor	0	0	0
	Acres of State Wildlife Refuges in Corridor	0.00	0.00	0.00
	Percent of ROW - State Wildlife Refuges	0%	0%	0%
State Game Production Areas	Number of State Game Production Area in Corridor	1	2	0
	Acres of State Game Production Area in Corridor	30.33	80.53	0.00
	Percent of ROW - State Game Production Area	1%	2%	0%
State Park & Recreation Lands	Number of Park & Recreation Land in Corridor	0	0	0
	Acres of Park & Recreation Land in Corridor	0.00	0.00	0.00
	Percent of ROW - Park & Recreation Land	0%	0%	0%
Public School Lands	Number of Public School Land in Corridor	0	0	0
	Acres of Public School Land in Corridor	0.00	0.00	0.00
	Percent of ROW - Public School Land	0%	0%	0%
NWI Wetlands	Number of NWI Wetlands in Corridor	277	300	14
	Acres of NWI Wetlands in Corridor	299.86	354.31	5.63
	Percent of ROW - NWI Wetlands	6%	7%	3%
	Number of NWI Freshwater Emergent Wetlands in Corridor	254	273	12
	Acres of NWI Freshwater Emergent Wetlands in Corridor	262.28	313.38	4.54
	Percent of ROW - NWI Freshwater Emergent Wetlands	5%	6%	2%
	Number of NWI Freshwater Forested/Shrub Wetlands in Corridor	8	9	1
	Acres of NWI Freshwater Forested/Shrub Wetlands in Corridor	10.87	7.26	0.74
	Percent of ROW - NWI Freshwater Forested/Shrub Wetlands	0%	0%	0%
	Number of Freshwater Pond Wetlands in Corridor	15	17	1
	Acres of Freshwater Pond Wetlands in Corridor	26.71	31.19	0.35
	Percent of ROW - Freshwater Pond Wetlands	1%	1%	0%
	Number of NWI Riverine Wetlands in Corridor	0	1	0
	Acres of NWI Riverine Wetlands in Corridor	0.00	2.47	0.00
	Percent of ROW - NWI Riverine Wetlands	0%	0%	0%
Lakes	Number of Lakes in Corridor	77	66	2
	Acres of Lakes in Corridor	145.51	167.17	0.67
	Percent of ROW - Lakes	3%	3%	0%
Floodplain	Acres of Floodplain in Corridor	221.36	271.99	0.00
	Percent of ROW - Floodplain	4%	5%	0%
SDSU Reserch Station	Number of SDSU Reserch Station in Corridor	0	0	0
	Acres of SDSU Reserch Station in Corridor	0.00	0.00	0.00
	Percent of ROW - SDSU Reserch Station	0%	0%	0%
The Nature Conservancy Lands	Number of The Nature Conservancy Lands in Corridor	1	0	0
	Acres of The Nature Conservancy Lands in Corridor	11.01	2.10	0.00
	Percent of ROW - The Nature Conservancy Lands	0%	0%	0%
General	Number of Streams in Corridor	90	96	4
	Number of Water Wells in Corridor	0	1	0
	Number of Federally Listed Specities in Corridor	0	0	0
	Number of State Listed Specities in Corridor	25	21	10
	Number of Airports in Corridor	0	0	0
	Number of VOR Sites in Corridor	0	0	0
	Number of Antenna Structures in Corridor	0	0	0
	Number of Cemeteries in Corridor	0	0	0
	Number of Churches in Corridor	0	0	0
	Number of Hospitals in Corridor	0	0	0
	Number of Schools in Corridor	2	0	0
	Number of Landfills/Dumps in Corridor	2	0	0
	Number of Boat Ramps in Corridor	0	0	0
	Number of Oil Wells in Corridor	0	0	0
	Number of Nursing Homes in Corridor	0	0	0
	Number of Shooting Ranges in Corridor	0	0	0
	Number of Underground Storage Tanks in Corridor	0	0	0
Number of Scenic Byways in Corridor	0	0	0	
Cultural and Historic Resources	Number of National Register of Historic Places in Corridor	0	0	0
	Number of Known Historic Structures (SHPO) in Corridor	19	25	0
	Number of Known Archaeological Sites (SHPO) in Corridor	9	4	0
Landuse/Land Cover	Acres of Cultivated Crops in Corridor	1740.10	2099.55	43.14
	Percent of ROW - Cultivated Crops	34%	41%	19%
	Acres of Forested Areas in Corridor	9.66	20.86	0.30
Zoning	Acres of Agricultural Zoning in Corridor	2575.66	2669.90	192.29
	Percent of ROW - Agricultural Zoning	51%	53%	86%
	Acres of Aquifer Protection Zoning in Corridor	2248.14	2108.39	32.43
	Percent of ROW - Aquifer Protection Zoning	44%	42%	14%
	Acres of Commercial Zoning in Corridor	0.00	0.00	0.00
	Percent of ROW - Commercial Zoning	0%	0%	0%
	Acres of Floodplain Zoning in Corridor	221.37	272.00	0.00
	Percent of ROW - Floodplain Zoning	4%	5%	0%
	Acres of Lake Park District Zoning in Corridor	0.00	0.00	0.00
	Percent of ROW - Lake Park District Zoning	0%	0%	0%
	Acres of Natural Resources District Zoning in Corridor	27.09	13.69	0.00
	Percent of ROW - Natural Resources District Zoning	1%	0%	0%
	Acres of Municipal Zoning in Corridor	0.00	0.00	0.00
Percent of ROW - Municipal Zoning	0%	0%	0%	
Number of Residences / Non-Residences within Proximity to ROW	Number of Residential Structures within 0-75 Feet of Alignment	0	0	0
	Number of Residential Structures within 75-150 Feet of Alignment	0	1	0
	Number of Residential Structures within 150-300 Feet of Alignment	4	3	0
	Number of Residential Structures within 300-500 Feet of Alignment	1	2	0
	Total Number of Residential Structures within 500 Feet of Alignment	5	6	0
	Number of Non-Residential Structures within 500 Feet of Alignment	33	32	0
Collocation	Length of Route (miles)	41.84	41.81	1.71
	Length Paralleling Existing ROWs (miles)	10.43	14.82	1.71
	Percent of Route Paralleling Existing ROWs	25%	35%	100%
	Length Paralleling Existing Linear Features (miles)	28.30	31.25	1.71
	Percent Paralleling Existing Linear Features	68%	75%	100%



Legend

- Project End Point
 - Proposed Route
 - SDPUC Certificated Route
 - Municipal Boundary
 - Township Boundary
 - County Boundary
 - ✪ Existing Windturbine
 - ✪ Permitted Wind Turbine
 - USFWS Waterfowl Production Area
 - USFWS Conservation Easement
 - USFWS Grassland Easement
 - USFWS Wetland Easement
 - State Game Production Area
- Existing Transmission Line**
- 345 kV
 - 230 kV
 - 115 kV
 - 69 kV

Figure 5
DR 2-3



1:155,000



Big Stone South to Brookings County Project Proposed Route

DRAWN BY: MLTEICHERT DATE: 05/06/13

Xcel\0159818 Big_Stone\GIS\MXD\2013\031App_Maps_CapxB_App_Overview.mxd

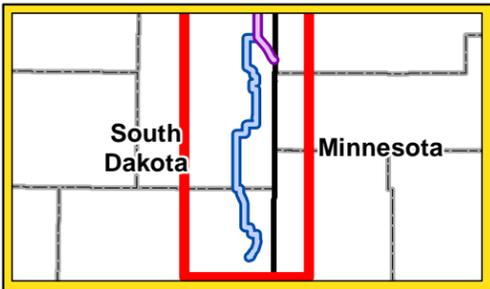
South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-4
Date Received - 8/26/2013

REQUEST: Please provide cross sections of the bedrock geology and surficial geology to depict the major subsurface variations in accordance with ARSD 20:10:22:14(3). An example from docket EL09-015 is attached.

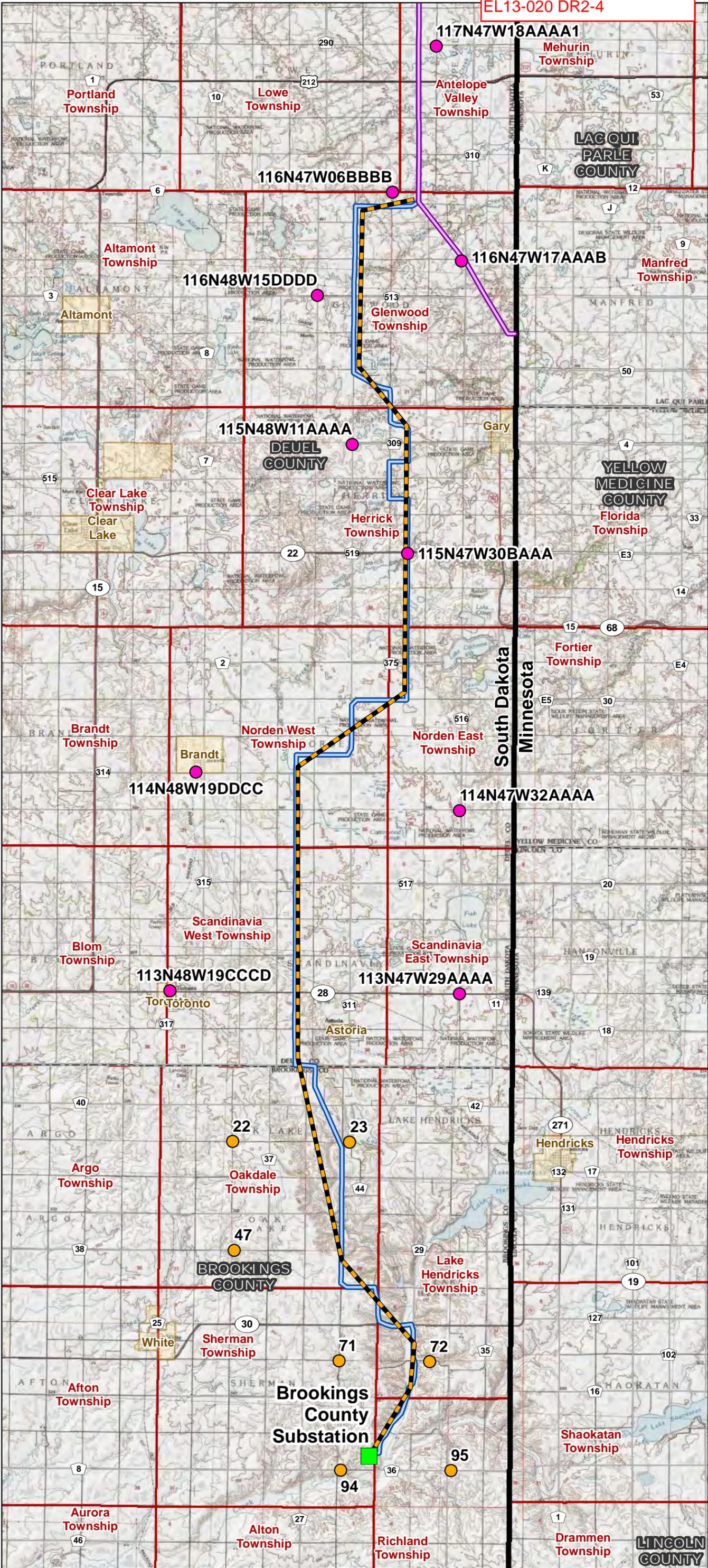
RESPONSE: –Bedrock geology map attached. (2 Figures)

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

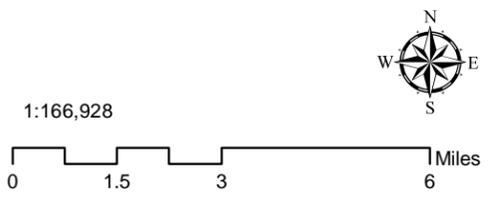


Legend

- Project End Point
- Proposed Route
- SDPUC Certificated Route
- Geologic Cross Section
- Borehole**
- From Beissel, 1987
- From Schultz, 2009
- State Boundary
- County Boundary
- Township Boundary
- Section Boundary
- Municipal Boundary

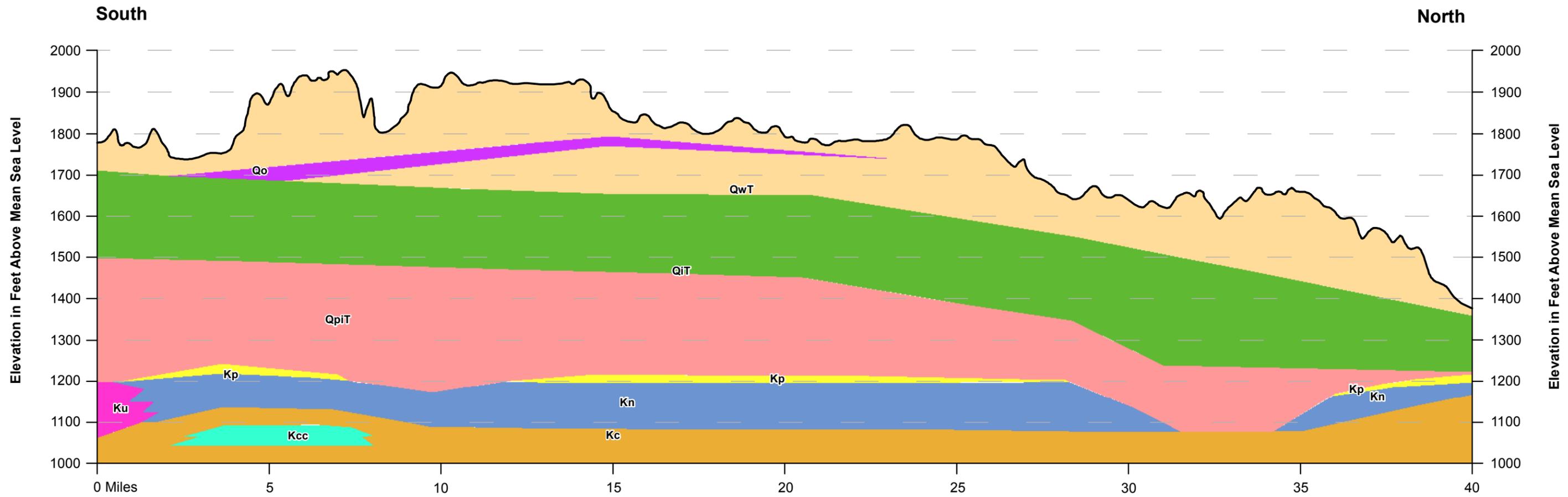


DRAFT



Big Stone South to Brookings County Project Geologic Cross Section





Schultz, L.D., Jarrett, M.J., *Bulletin 40: Geology of Brookings and Kingsbury Counties, South Dakota*, South Dakota Dept. of Environment and Natural Resources, Plate 3, 2009.
Beissel, D.R., Gilbertson, J.P., *Bulletin 27: Geology and Water Resources of Deuel and Hamlin Counties, South Dakota, Part 1: Geology*, South Dakota Dept. of Water and Natural Resources, Plate 2, 1987.

Big Stone South to Brookings County Project Geologic Cross Section

- Legend**
- QwT - Wisconsin Till
 - Qo - Undifferentiated Outwash
 - QiT - Illinois Till
 - QpiT - Pre Illinois Till
 - Kp - Pierre Shale
 - Kn - Niobrara Formation
 - Ku - Cretaceous Undifferentiated
 - Kc - Carlile Shale
 - Kcc - Codell Sandstone Member



10/07/2013
Drawn By: MLT

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-5
Date Received - 8/26/2013

REQUEST: Per ARSD 20:10:22:14(7), please provide a summary of the subsidence potential along the proposed route.

RESPONSE: The subsidence potential along the proposed route is considered low. The overall subsidence hazard risk from sinkholes that form in karst terrain is considered low. Deep (generally 50 feet or more) glacial drift deposits overlie the carbonate Niobrara Formation in southeastern South Dakota. This deep and interbedded glacial material matrix limits the potential for sinkholes to cause fractures and soil displacement at the surface. Additionally, South Dakota is relatively geologically stable with low potential (10%) for a major earthquake in any one 50-year period based on U.S. Geological Survey estimates. Landslides may also be a method for subsidence risk; however, eastern South Dakota is considered low risk for number of incidents of landslides and overall susceptibility based on the available U.S. Geological Survey data.

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

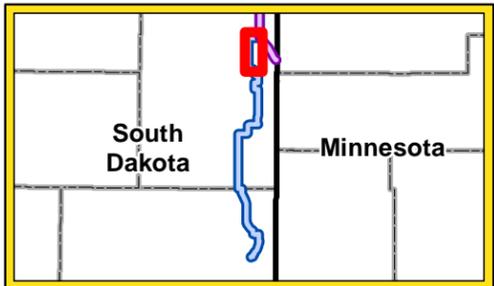
South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-6
Date Received - 8/26/2013

REQUEST: Per ARSD 20:10:22:15(1), please provide a map showing the current water drainage patterns along the proposed route.

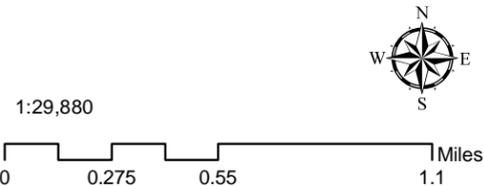
RESPONSE: Drainage map attached. (7 Figures)

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

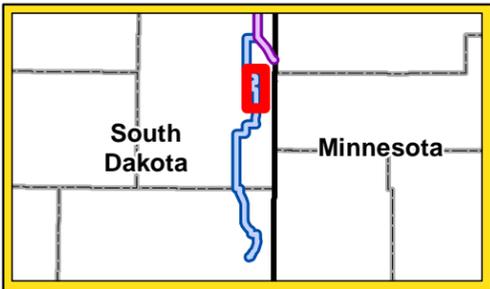


Legend

- Project End Point
 - Proposed Route
 - SDPUC Certificated Route
 - River/Stream
 - Lake
 - County Boundary
 - Municipal Boundary
 - Township Boundary
 - Section Boundary
- Existing Transmission Line**
- 345 kV
 - 230 kV
 - 115 kV
 - 69 kV

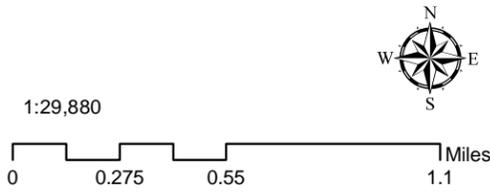


**Big Stone South to
Brookings County Project
Water Drainage Patterns**

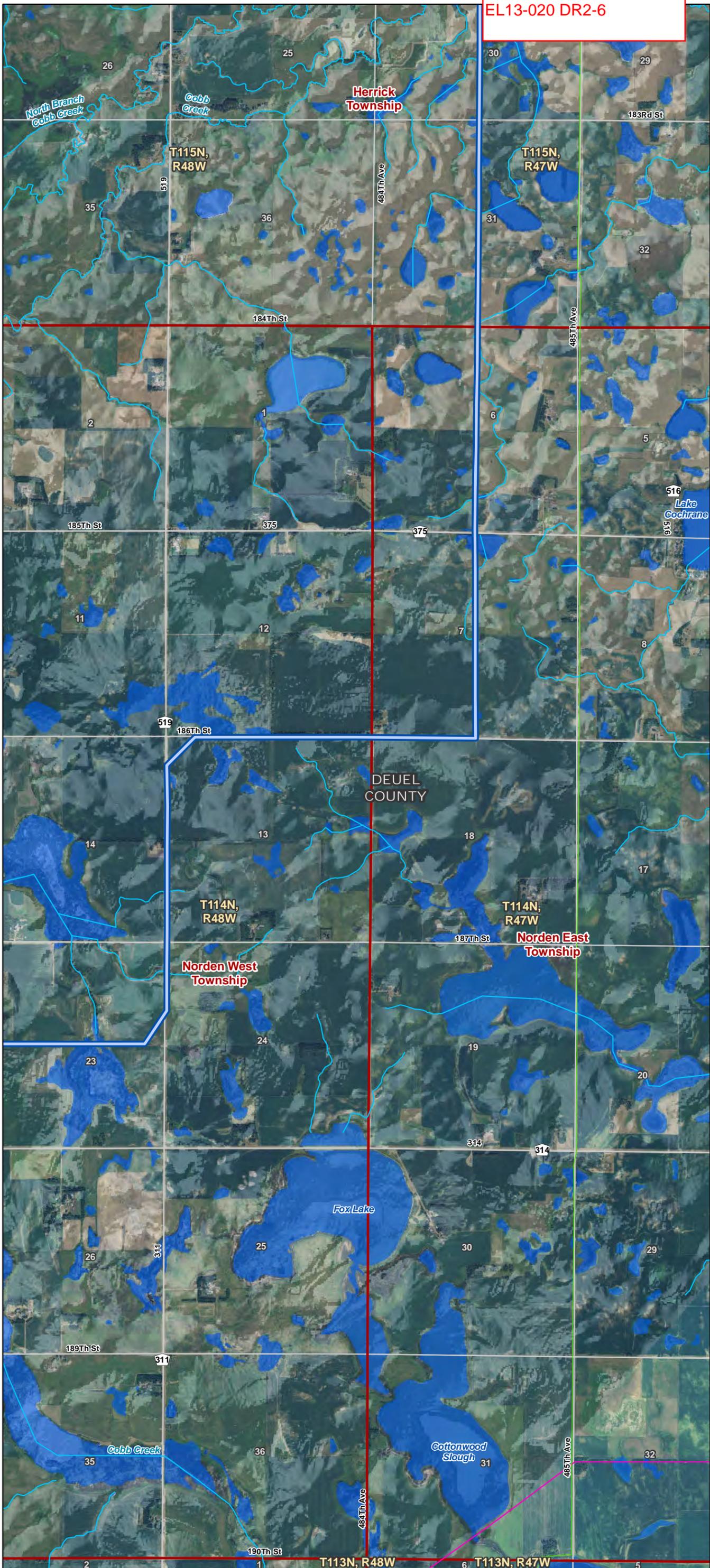


Legend

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 - Proposed Route
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 - River/Stream
 - Lake
 - County Boundary
 - Municipal Boundary
 - Township Boundary
 - Section Boundary
- Existing Transmission Line**
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 - 230 kV
 - 115 kV
 - 69 kV

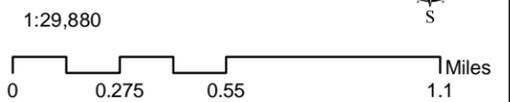


**Big Stone South to
Brookings County Project
Water Drainage Patterns**



Legend

- Project End Point
 - Proposed Route
 - SDPUC Certificated Route
 - River/Stream
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 - Municipal Boundary
 - Township Boundary
 - Section Boundary
- Existing Transmission Line**
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 - 230 kV
 - 115 kV
 - 69 kV



**Big Stone South to
 Brookings County Project
 Water Drainage Patterns**

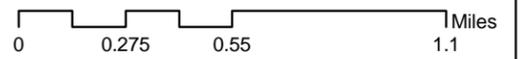


Legend

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 - Proposed Route
 - SDPUC Certificated Route
 - River/Stream
 - Lake
 - County Boundary
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 - Township Boundary
 - Section Boundary
- Existing Transmission Line**
- 345 kV
 - 230 kV
 - 115 kV
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1:29,880

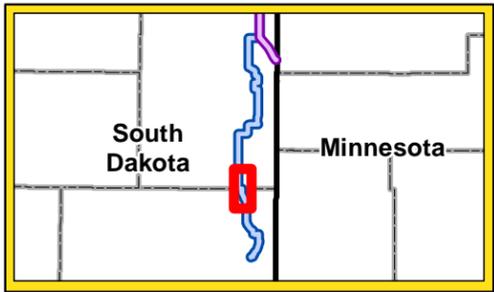


**Big Stone South to
Brookings County Project
Water Drainage Patterns**

DRAWN BY: MLT

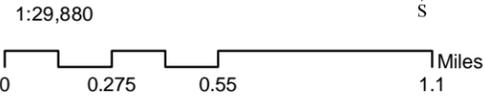
DATE: 10/07/13

Xcel\0159818 Big_Stone\GIS\
MXD\2013\09\DataRequest2\
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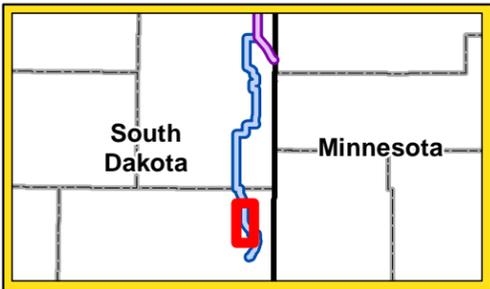
Legend

- Project End Point
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 - Municipal Boundary
 - Township Boundary
 - Section Boundary
- Existing Transmission Line**
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 - 230 kV
 - 115 kV
 - 69 kV



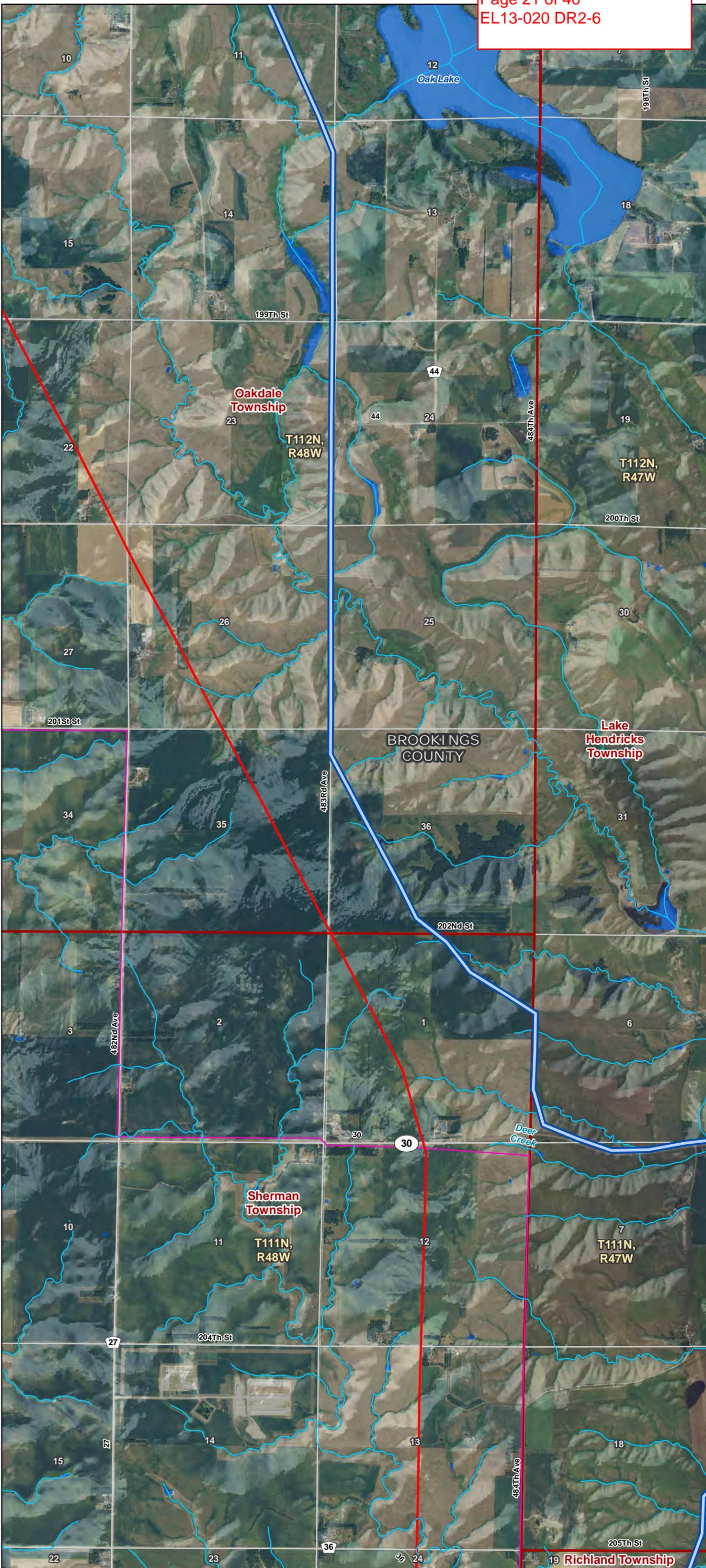
Big Stone South to Brookings County Project Water Drainage Patterns

Xcel\0159818 Big_Stone\GIS\MXD\2013\09\DataRequest2\CapxB_DR2_Water_Drainage.mxd

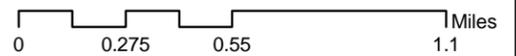


Legend

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Big Stone South to Brookings County Project Water Drainage Patterns

DRAWN BY: MLT	DATE: 10/07/13
Xcel\0159818 Big_Stone\GIS\MXD\2013\09\DataRequest2\CapxB_DR2_Water_Drainage.mxd	6

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-7
Date Received - 8/26/2013

REQUEST: Per ARSD 20:10:22:18(1), please provide a land use map showing irrigated lands, undisturbed native grasslands, existing and potential extractive nonrenewable resources, other major industries, municipal water supply and water sources for ongoing rural water systems, and noise sensitive areas along the proposed route. To the extent these categories were included on map(s) previously provided, please expressly state how they were defined on the map(s).

RESPONSE:

Irrigated Lands – Irrigated lands were determined by aerial photo examination. There are no lands irrigated by large scale (center pivot) irrigation systems within the vicinity of the proposed transmission line.

Undisturbed Native grasslands - Lands that are currently in a state of a grassland prairie can be found on the Land Use map set as light green shading, labeled in the legend as Grassland/Herbaceous. Lands that have entered into the USFWS Grassland Easement Program, which aims to preserve grassland prairies, are also found on the map as a green cross hatching symbol, labeled in the legend as USFWS Grassland Easement.

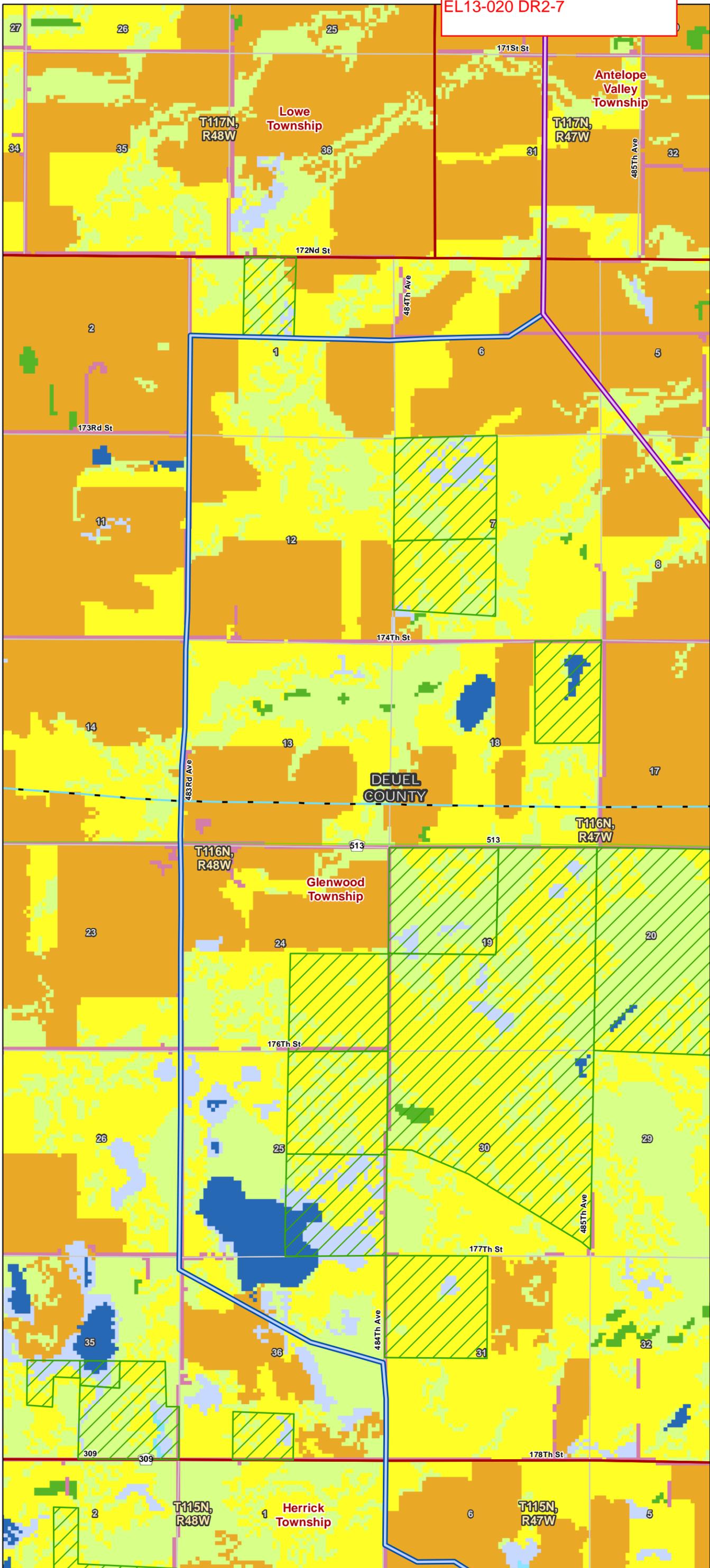
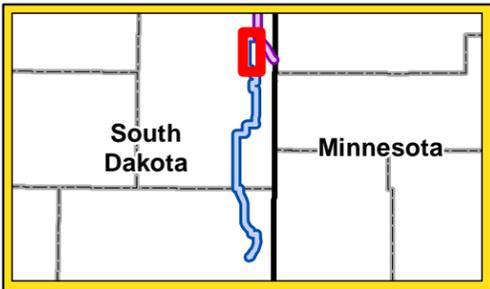
Existing and Potential Extractive Nonrenewable Resources - Oil/Gas wells are symbolized on the Land Uses map set as red points. There is one known operational gravel/quarry pit within the vicinity of the proposed transmission line, which is symbolized on the Land Uses map set as black asterisk. Potential sand and gravel deposits were identified in a map set submitted with data request one.

Municipal Water Supply and Water Sources for Ongoing Rural Water Systems - Water wells are symbolized on the Land Uses map set as blue points. Wellhead Protection Areas are also symbolized on the Land Uses map set as red crosshatched areas.

Noise Sensitive Areas - Noise sensitive areas consisted of municipalities and residences.

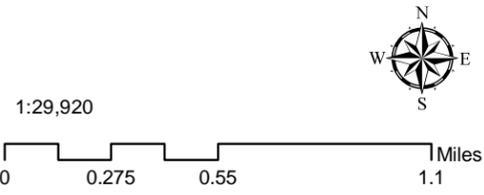
Land Use Map Attached (7 Figures)

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835
Figure 1)

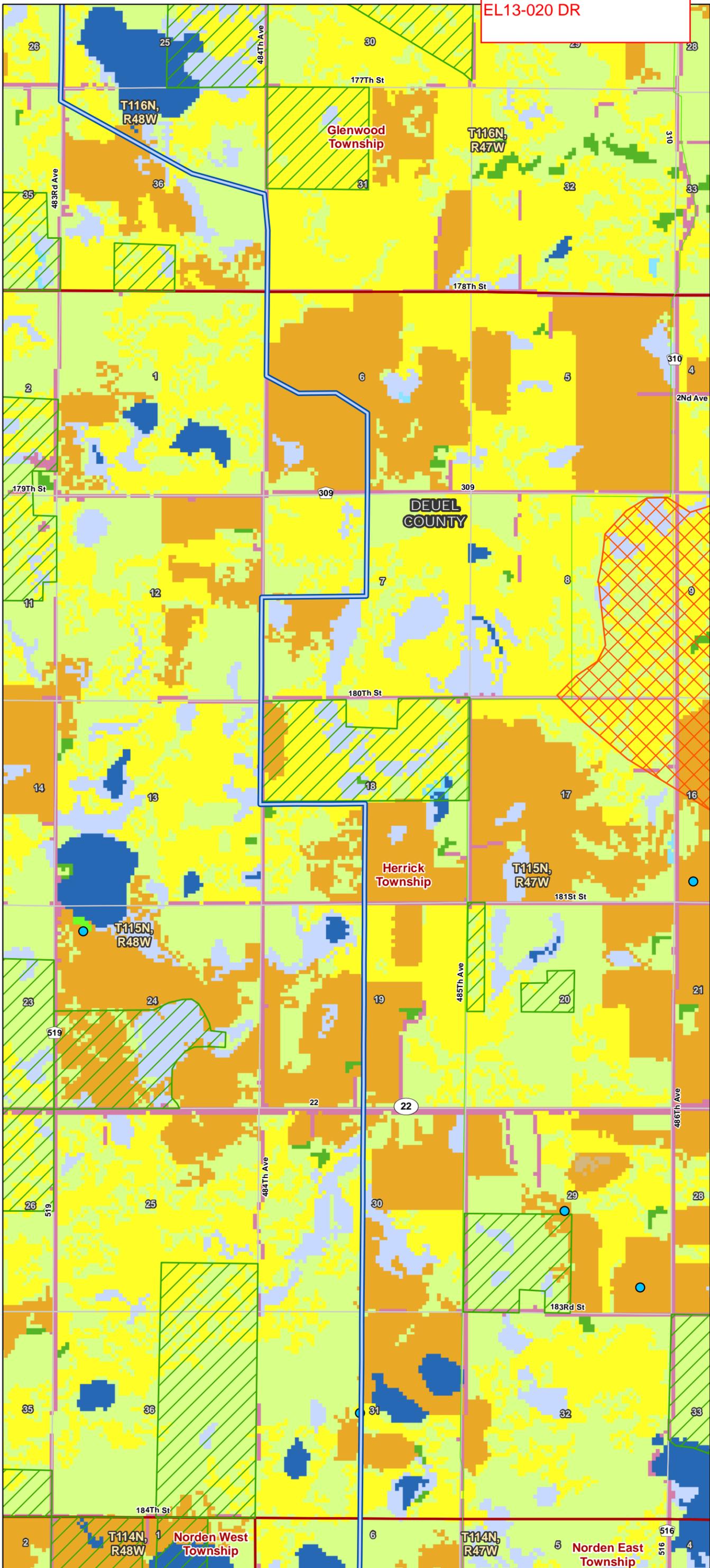
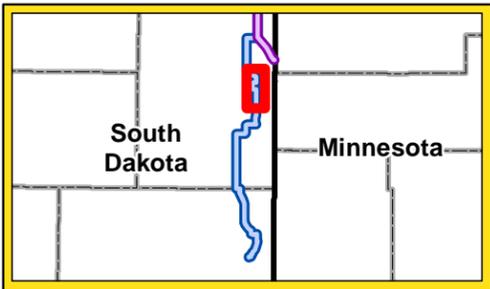


Legend

- Project End Point
 - Proposed Route
 - SDPUC Certificated Route
 - Water Well
 - Oil/Gas Well
 - Known Gravel/Quarry Pit
 - Wellhead Protection Area
 - USFWS Grassland Easement
 - County Boundary
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- Land Use Classification**
- Cultivated Crops
 - Developed, Low Intensity
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 - Developed, High Intensity
 - Developed, Open Space
 - Evergreen Forest
 - Deciduous Forest
 - Open Water
 - Pasture/Hay
 - Grassland/Herbaceous
 - Shrub/Scrub
 - Woody Wetlands
 - Emergent Herbaceous Wetlands
 - Barren Land (Rock/Sand/Clay)

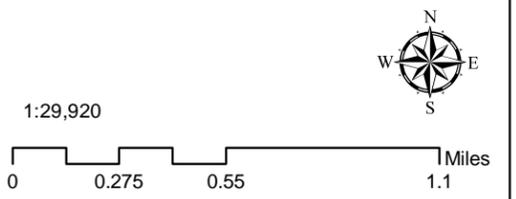


Big Stone South to Brookings County Project Land Uses

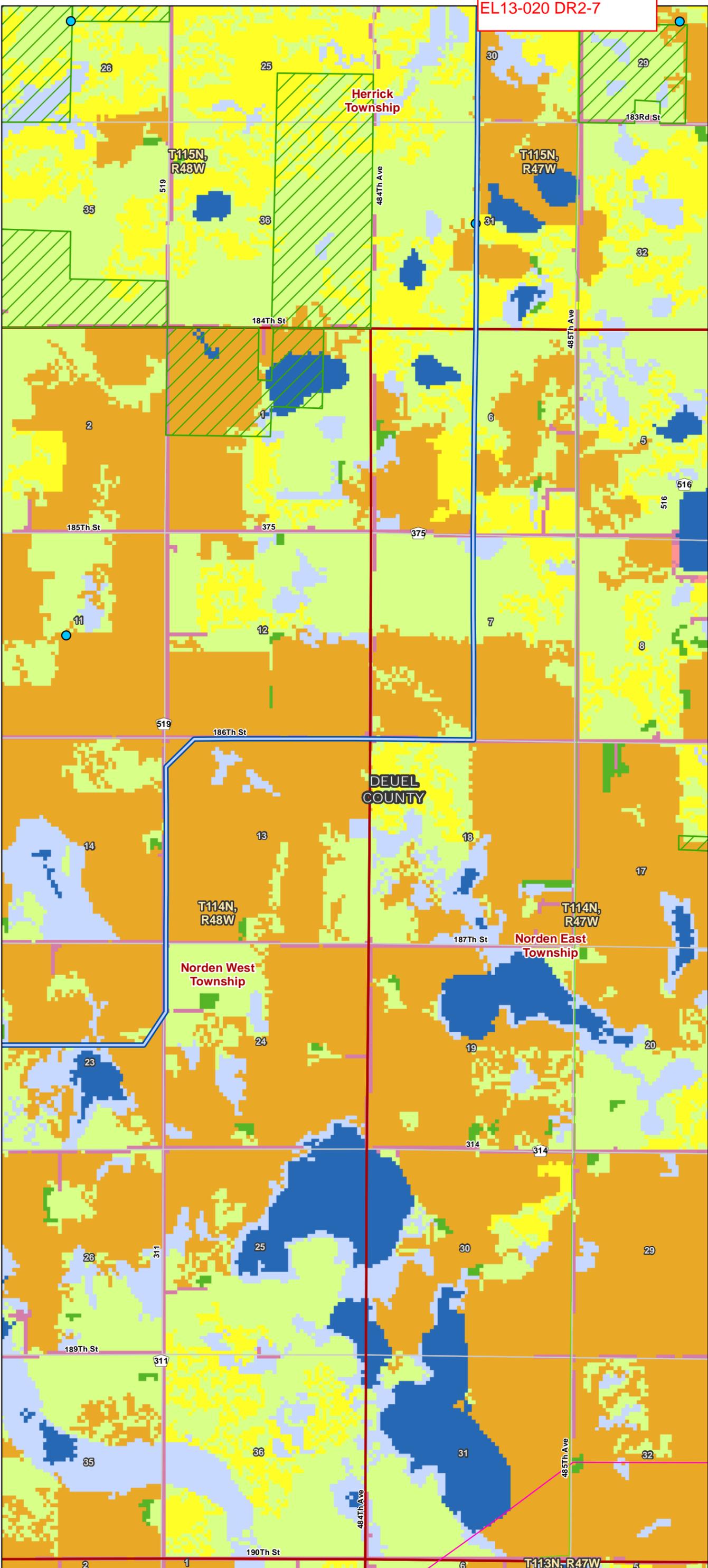
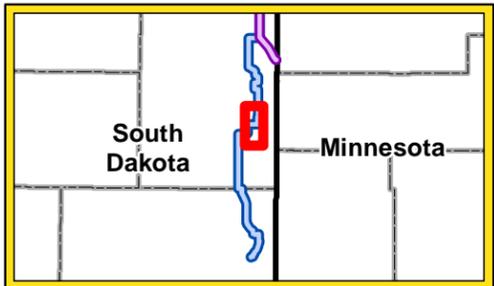


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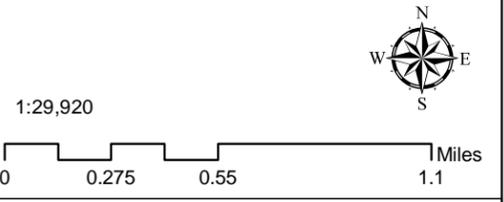


Big Stone South to Brookings County Project Land Uses

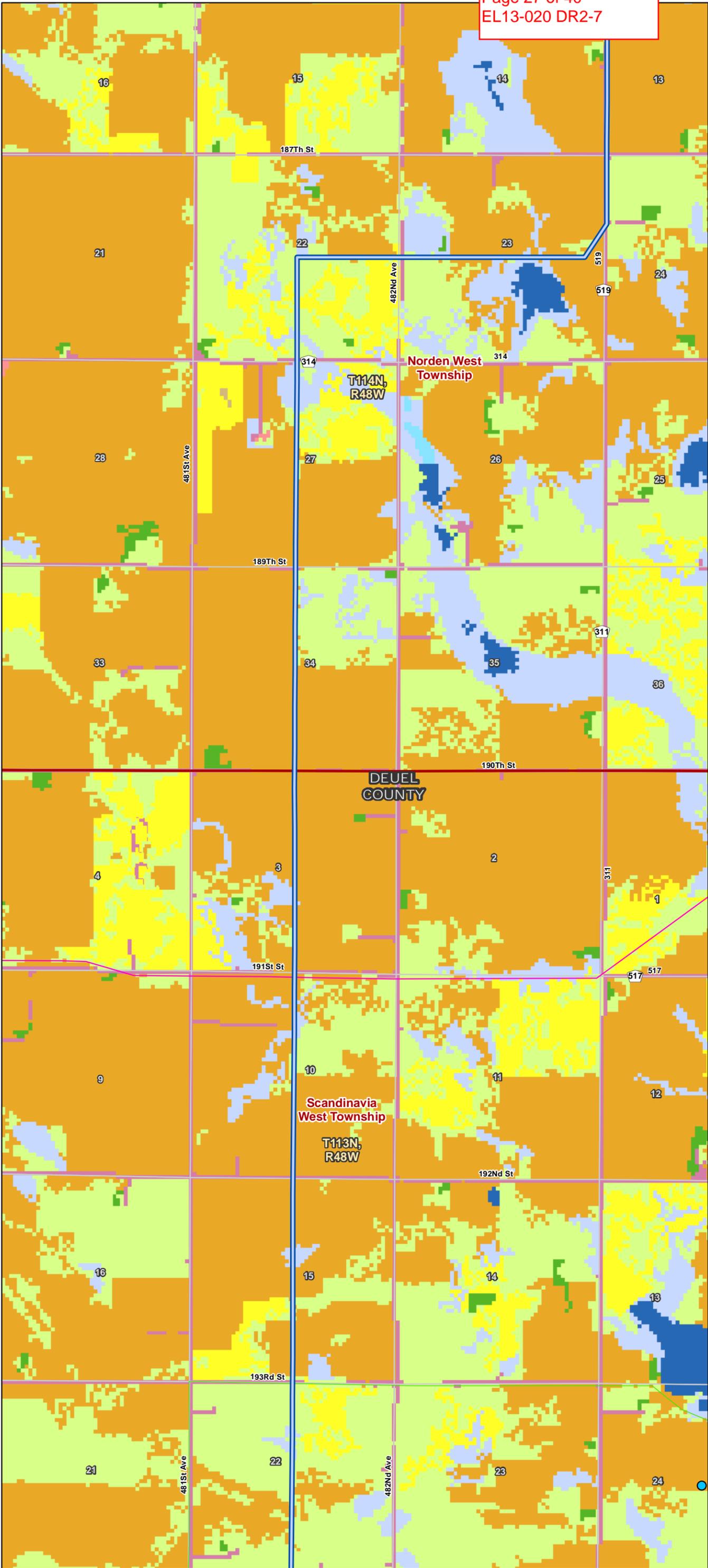
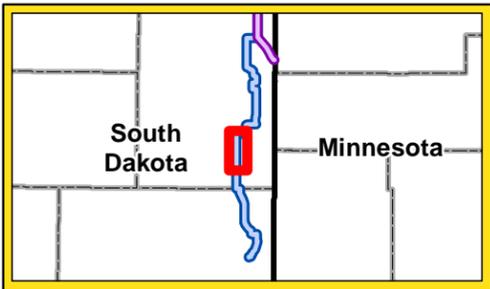


Legend

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**Big Stone South to
Brookings County Project
Land Uses**



Legend

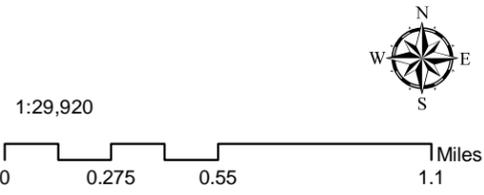
- Project End Point
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Existing Transmission Line

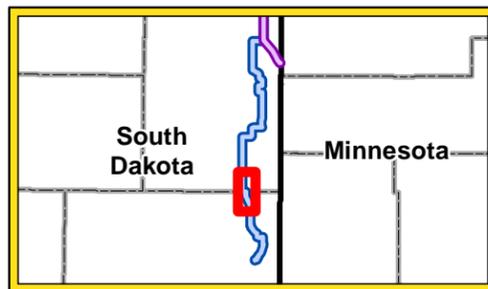
- 345 kV
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- Emergent Herbaceous Wetlands
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**Big Stone South to
Brookings County Project
Land Uses**



Legend

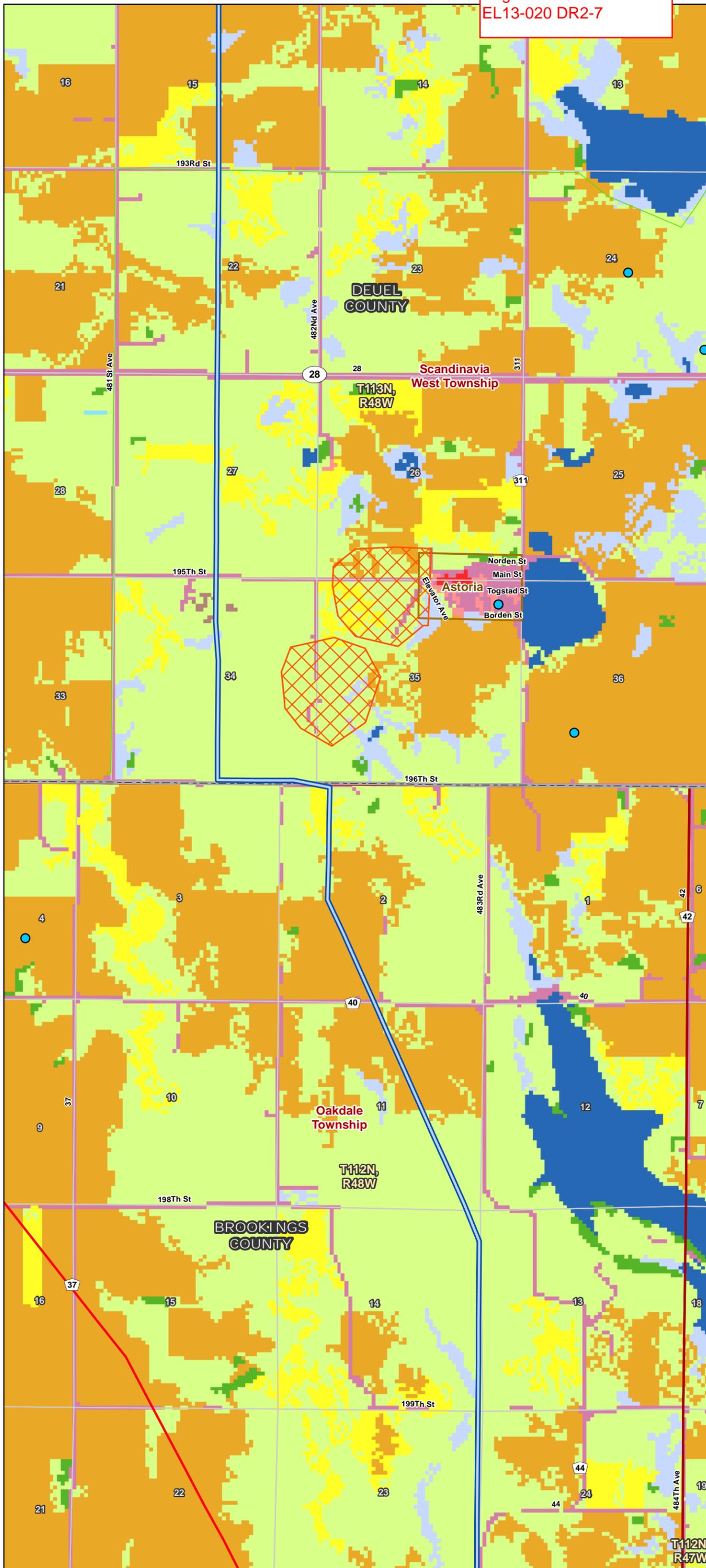
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Existing Transmission Line

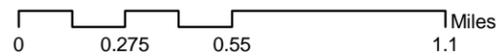
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Land Use Classification

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1:29,920

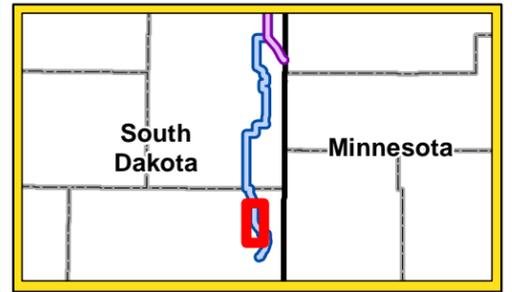


Big Stone South to Brookings County Project Land Uses

DRAWN BY: JPSPHAR

DATE: 10/07/13

Xcel\0159818 Big_Stone\GIS\MXD\2013\09\DataRequest2\CapxB_DR2_Land_Uses.mxd



Legend

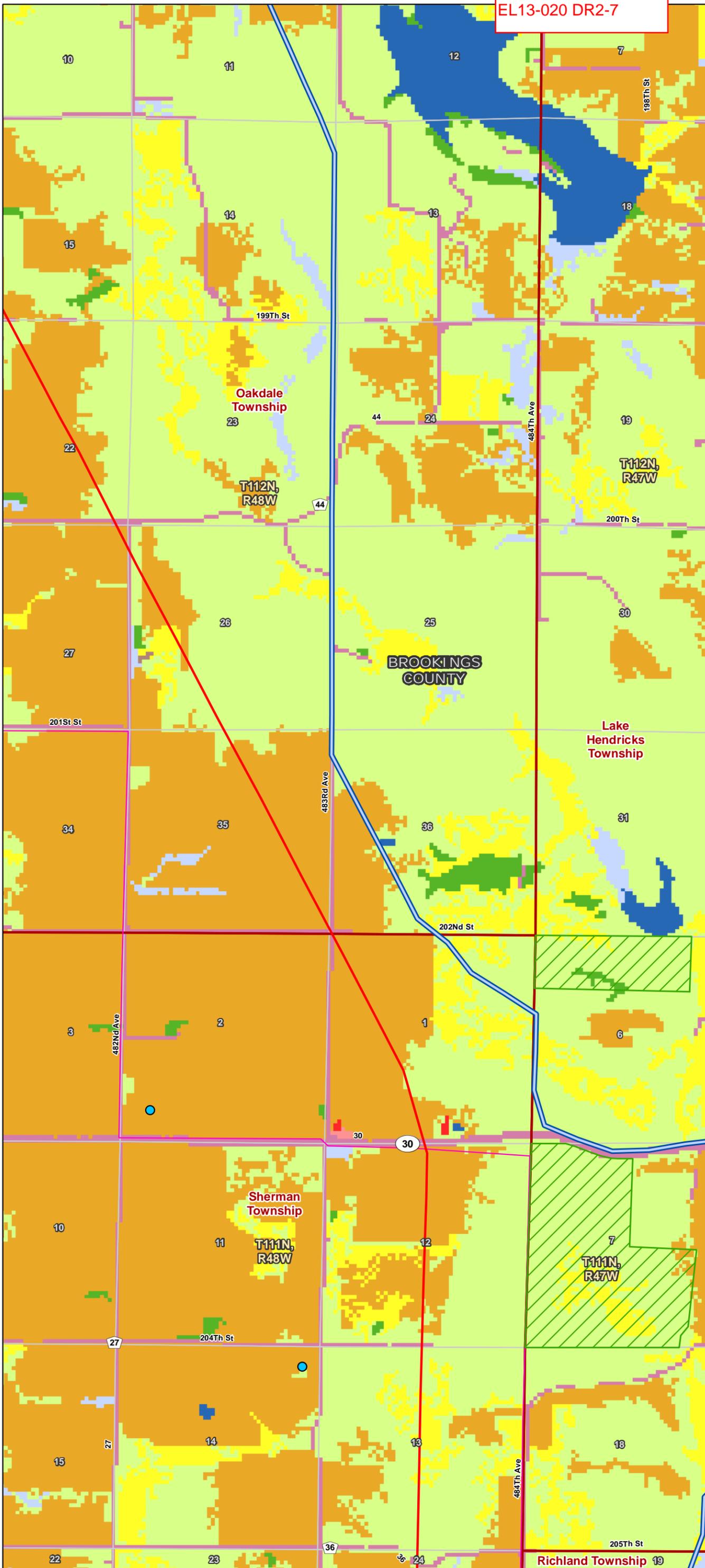
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Existing Transmission Line

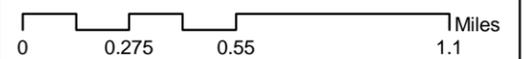
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Land Use Classification

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1:29,920

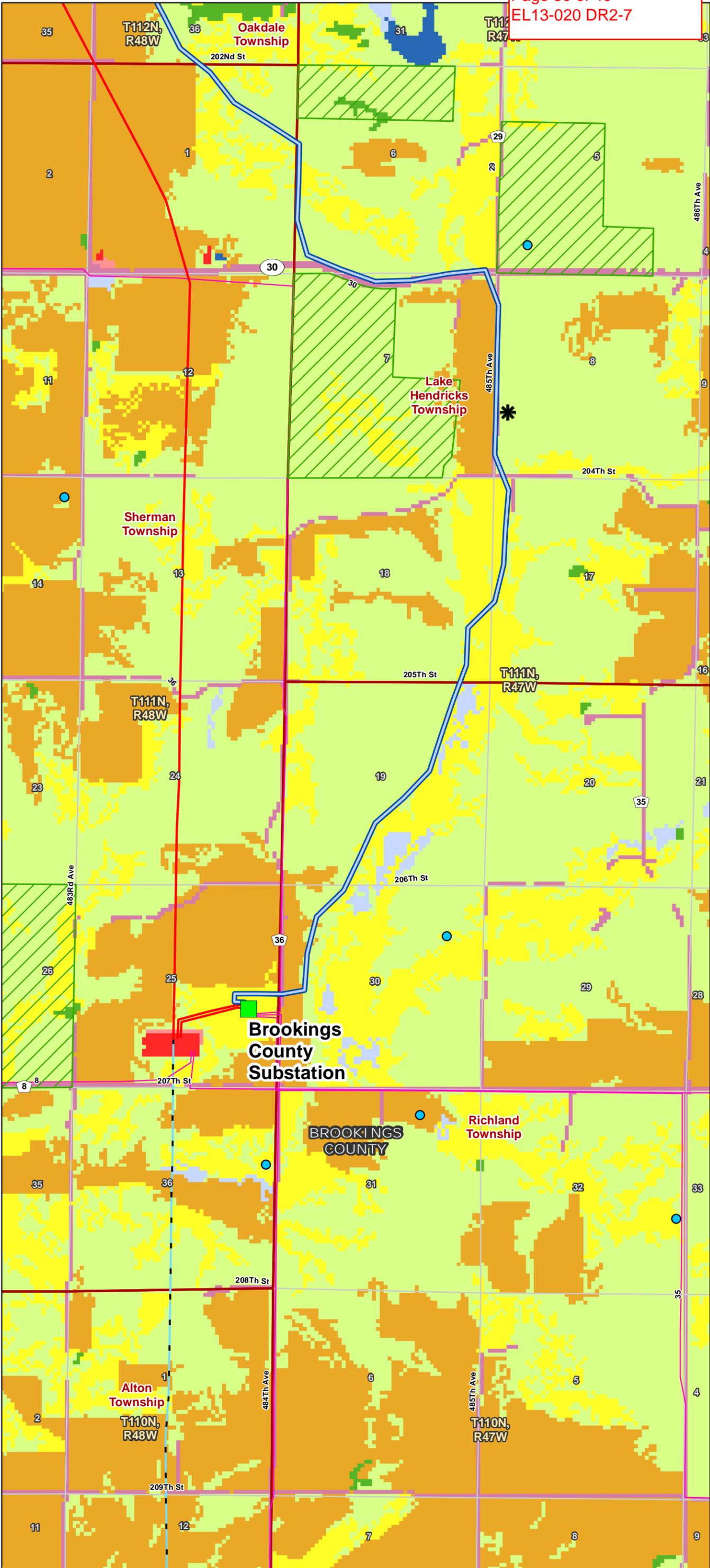
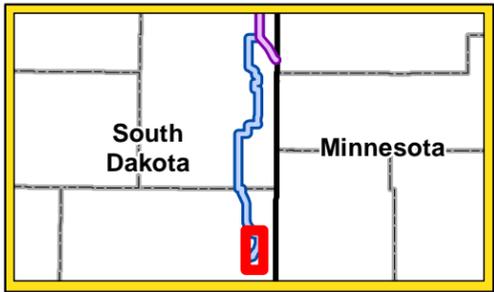
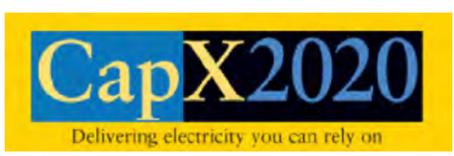


Big Stone South to Brookings County Project Land Uses

DRAWN BY: JPSPHAR

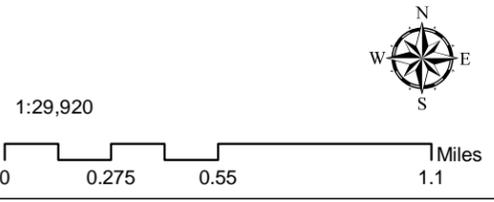
DATE: 10/07/13

Xcel\0159818_Big_Stone\GIS\MXD\2013\09\DataRequest2\CapxB_DR2_Land_Uses.mxd



Legend

- Project End Point
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Big Stone South to Brookings County Project Land Uses

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-8
Date Received - 8/26/2013

REQUEST: Although transmission lines are exempt from property taxes, the Applicants pay a gross receipts tax in lieu of property taxes. Will the proposed project affect the Applicants' gross receipts? If so, to what extent?

RESPONSE:

Investor owned utilities like NSP and OTP pay property tax on all asset types, including transmission lines. In South Dakota, rural coops pay a 2 percent gross receipts tax in lieu of property tax on transmission and distribution property.

Response By:
Title:
Department:
Telephone:

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-9
Date Received - 8/26/2013

REQUEST: In response to DR1-13 (B), it is identified that “[...] new transmission easements may have some impact on the taxable market value of a given property [...].” Please describe what impact a landowner could expect on the taxable market value of their property and quantify such impact if able to do so.

RESPONSE: In agricultural settings, landowners can expect no significant impacts to the taxable market value of their property. Typically, transmission line easements have little or no impact to the taxable market value of agricultural property and impacts to residential or commercial properties can be variable depending on the extent of the easement (size, area, proximity to buildable areas, etc.).

Response By: Chris Rogers
Title: Principal Land Rights Agent
Department: Siting and Land Rights
Telephone: 612 330 6078

South Dakota Public Utilities Commission
Application of Xcel Energy and Ottertail Power Company
EL 13-020
Responses to Commission's Second Data Request

South Dakota Docket EL13-020
Data Request 2-10
Date Received - 8/26/2013

REQUEST: Please provide the Applicant's plans "for the utilization and training of the available labor force in South Dakota by categories of special skills required" and "an assessment of the adequacy of local manpower to meet temporary and permanent labor requirements during construction and operation of the facility and the estimated percentage that will remain within the county and the township in which the facility is located after construction is completed."

RESPONSE: Applicants have not determined who will construct the project and therefore cannot provide a specific answer. General observations for construction labor are provided below.

Applicants are obligated to work with the International Brotherhood of Electrical Workers (IBEW). Regardless of whether Applicant's own work force is utilized or a contractor is hired through the Union. Due to the specific skills required Applicants do not plan to train local workers for this specific project but rather utilize experienced union workers.

Response By: Joe Samuel
Title: Project Manager
Department: Transmission Project Management
Telephone: 612 337 2338

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South Dakota Docket EL13-020
Data Request 2-11
Date Received - 8/26/2013

REQUEST: Please provide a specific list of individual landowner concerns that have been raised with the company. Include the specific location of each concern as well as the Applicant's efforts to address each concern.

RESPONSE:

Landowners requested that single pole structures be used instead of double pole

- NW corner S12, T116N, R48W
- West Section line of Section 12 and 13 T116N, R48W
- NW corner S24, T116N, R48W
- SW corner S31, T116N, R47W
- SW corner S18, T115N, R47W
- NW corner S19, T115N, R47W
- N half S6, T114N, R47W
- N half S13, T114N, R47W
- NE corner S11 112N, R48W

Applicant has preliminary design for single poles for these areas.

Towns of Astoria & Toronto utilize a parcel for tree burning, they have concerns about liability if the burning affects the transmission line.

- SE ¼ of SW1/4 S27, T113N, R48W

Applicant has provided alternative language in the Electric Line Easement document for their review.

Landowner is upset because he won't get the full easement payment until the SDPUC approves the route

- North half of NW quarter S27, T113N, R48W

Applicants explained that full easement payments cannot be made until a route is approved.

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Owners of three parcels requested different alignment to minimize impacts to agriculture, woodlands and potential wind turbine siting.

- S half S36, T112N, R48W and N half S1, T111N, R48W (Gilley's Grove).

Applicants met with these landowners and are working on a new route that attempts to appease these concerns.

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

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South Dakota Docket EL13-020
Data Request 2-12
Date Received - 8/26/2013

REQUEST: It appears extensive tree clearing will be required in Section 13, T115N, R48W and Section 13, T114N, R48W. Please provide an explanation of the extent to which trees will need to be removed in those sections as well as efforts the Applicant has made to mitigate impacts to the property owners.

RESPONSE: Section 13, T115N, R48W – The proposed project follows 484th Avenue along the northern half of the eastern section line at this location. The parcel to the east of 484th is encumbered with a grassland easement that precludes any disturbance to the groundcover. The alignment therefore must be offset to the west side of 484th in this area.

All tall growing tree species within approximately 125 feet of the centerline of 484th Avenue will be removed. Based on an examination of aerial photos, trees in this area are limited to the perimeter of wetlands and are relatively sparse. The landowner did not object to removing the trees on this parcel and no mitigation specific to tree loss was implemented.

Section 13, T114N, R48W - The proposed project follows 483rd Avenue along the western boundary of Section 13. A row of trees approximately 1200 feet in length exists along the southern half of the section line. This entire row of trees would be removed. The landowner did not object to this tree removal and no mitigation specific to tree loss was implemented.

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The lot on the west side of 483rd is conducive to a residential building site so the west side of 483rd was not seen as a good option to avoid trees on the east side of 483rd.

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

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South Dakota Docket EL13-020
Data Request 2-13
Date Received - 8/26/2013

REQUEST: In Section 24, T112N, R48W, the proposed line appears to go near or over an existing shed or building. Please provide an explanation of the expected impacts to the owner of the building as well as efforts the Applicant has made to mitigate any impacts to the property owner.

RESPONSE: The proposed project is planned along the west line of In Section 24, T112N, R48W. There are several small utility buildings approximately 330 feet east of the proposed alignment near the middle of the west section line. There will be no impacts to these buildings.

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

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South Dakota Docket EL13-020
Data Request 2-14
Date Received - 8/26/2013

REQUEST: In Section 30, T111N, R477W, the proposed line appears to go near or over an abandoned farmstead. Please provide an explanation of the expected impacts to the owner of the property as well as efforts the Applicant has made to mitigate any impacts.

RESPONSE: In Section 30, T111N, R477W, the proposed project is planned to traverse the northwest quarter of this section. The alignment stays at least 350 feet from nearest building in the abandoned farmstead. There will be no impact to the abandoned farmstead.

Response By: Tom Hillstrom
Title: Permitting Manager
Department: Siting and Land Rights
Telephone: 612 330 5835

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South Dakota Docket EL13-020
Data Request 2-15
Date Received - 8/26/2013

REQUEST: At the public hearing, one property owner disclosed that they had not received a notification. Please provide a summary of the corrective action taken, if any was required.

RESPONSE: This landowner did receive project notification and she had a copy of one of the letters with her. Her comment at the meeting was that no one had contacted her about acquiring an easement over the property owned by her family. An Xcel Energy Siting and Land Rights Agent met with her later that night and confirmed that the route did not cross her family's property and that no easement rights would be needed.

Response By: Chris Rogers
Title: Principal Land Rights Agent
Department: Siting and Land Rights
Telephone: 612 330 6078