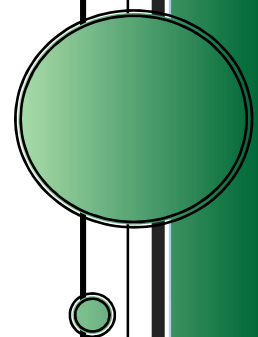


Appendix F – Wetland Delineation Report



Project Site: 85th and Tallgrass



85th and Tallgrass
Lincoln County

Jurisdictional Determination
& Wetland Delineation

August 11, 2022

Submitted to:

Corps of Engineers
South Dakota
Regulatory Office
28563 Powerhouse Road
Pierre, SD 57501

Owner:

Joel Dykstra
2401 W. Trevi Place
Sioux Falls, SD 5710
(605) 310-3398
joel.dykstra@rmbassoc.com

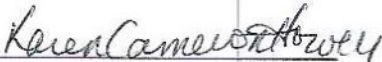
Engineer:


Luke Menden, Scientist SEH
3535 Vadnais Center Drive
St. Paul, MN 55110
lukemenden@sehinc.com
(651) 490-2053

Consultant:

Wetland Specialist Inc.
21281 464th Ave
Volga, SD 57071

Prepared By:


Karen Cameron-Howell
Wetland Specialist
August 11, 2022


Ann Howell
Wetland Delineator
August 11, 2022

WSI WETLAND
SPECIALISTS INC

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Introduction

As requested by Joel Dykstra Wetland Specialists Inc. completed a wetland delineation, on the 12.84-acre property located in the NE1/4 NE1/4 of Section 19-100N-50W in Lincoln County, South Dakota on 7/22/2022. Access to the field is easiest at a road approach located along Tallgrass Avenue.

The property owner is Joel Dykstra and he serves as the Point of Contact as well. His email is joel.dykstra@rmbassoc.com. His physical address is 2401 W. Trevi Place, Sioux Falls, SD 57108. His phone is (605) 310-3398. The point of contact for survey and engineering design is Luke Menden with SEH at 3535 Vadnais Center Drive, St. Paul, MN 55110. His email is lukemenden@sehinc.com and his phone is (651) 490-2053. The project name is “85th & Tallgrass” and is referred to as “The Project” within this report.

The field determination was performed on July 22, 2022, by Wetland Specialists Inc. staff (Wayne Bachman, Soil Scientist and Ann Howell, Certified Wetland Delineator). The delineation was performed in accordance with procedures in the 1987 USACE Wetlands Delineation Manual (Wetlands Research Program Technical Report Y-87-1) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (ERDC/EL TR-10-16). These documents will be referred to as the '87 Manual and the MW Supplement throughout this delineation report.

The MW Supplement is appropriate to use within the boundaries of Land Resource Region M (Central Feed Grain and Livestock Region). LRRM includes MLRA's 102A, 102B, and 102C. This property is found within the boundaries of MLRA 102B. WSI did not find that the project area was within a transitional region and that the correct supplement to use is the Midwest Supplement. Considering the landforms in the local area, the ecosystems present and climatic information WSI concluded that the Midwest Supplement is the correct supplement to use to evaluate potential wetlands within the project area.

Field conditions on 7/22/2022 were hot and windy. Air temperature was above 90 degrees. The field has been planted to corn and was above our heads which made navigating the potential sites difficult but possible given the size of the Review Area (12.84 acres). The area has been intensively farmed for over 80 years. In the past 20 years the crop rotation has been row crop corn and beans with conventional tillage. Climatic and hydrologic conditions are normal for the field date. However normal circumstances are not present due to intensive management of the review area (cropland) along with vegetation removal or management. WSI decided to use offsite information for hydrology because of annual cropping and disturbance plus intensive urbanization on surrounding land. Onsite hydrology is noted where possible and compared to the offsite information for decision concurrence. Analysis of precipitation on the 7/22/2022 field date using procedures in the '87 Manual and the MW Supplement (Ch. 19 Engineering Field Manual), indicated that the field date was within normal climate and hydrologic conditions, but normal circumstance is not present due to the removal and management of vegetation (farming). Direct observation of hydrology and vegetative factors were not used for this reason unless otherwise noted on the data sheets.

The Routine Approach was selected for all potential sample sites because most sample sites were less than 5 acres. A Level 3 approach was chosen to compare on-site information to off-site information due to annual agricultural operations (atypical). All sample points except SP1 and Sp3 are annually farmed, and any onsite vegetation was noted. Sample points 2 and 3 are in the road ditch due to a review of images showing a “wide” ditch. Onsite the width of the ditch is typical, but samples were taken anyway. Long term ecological site plant communities and prevalence index for the specific soil identified by the Soil Scientist. Off-site hydrology was used for the hydrology factor decision. Offsite vegetation preponderance was used for farmed sample points.

Wetlands are shown on the National Wetland Inventory Map (NWI) which is attached to this report (Exhibit 1). One site (PEM1A) is identified on the NWI map, and it was investigated by WSI. All other sites were observed prior to selecting sampling points by the use of offsite: topographic map tools (Exhibit 2), and aerial imagery from 1992-2021 (www.earthexplorer.usgs.gov), Google Earth images, and then by a field. The sampling points were chosen via guidance provided in the '87 Manual and the Midwest Supplement. A Field Base Map (Exhibit 3) was produced based on the off-site tools and on-site reconnaissance. The Field Base Map shows location of sample points.

Land Summary

The project area contains deep well-drained silty and loamy soils that formed in glacial drift and glacial till. The soils are deep well drained and somewhat poorly drained on gently undulating or gently sloping silty soils. The Egan and Viborg soils are on very slight rises and are well drained. The Chancellor soils are in slight swales. Tetonka and Worthing soils are in depressions.

Wetlands Identified by Federal Agencies

There is no existing JD on the project area per communication with the Corps of Engineers in Pierre (Exhibit 4). The area does not have a USDA wetland determination. The USFW Service Wetland Inventory map identified one area as a wetland.

Background Information and Methods

Preliminary Data Gathering and Synthesis ('87 COE Manual Part IV, Section B) information included NWI (Exhibit 1), USGS topographic map tools (Exhibit 2), NRCS Web Soil Survey (Exhibit 5), Hydric Soil List (Exhibit 6) and USDA-NRCS aerial photography and Google Earth. NRCS photography was obtained from the USDA-NRCS Geospatial Data Gateway at www.gdg.sc.egov.usda.gov. Google photography was obtained from Google EarthPro. After review of the off-site information and an on-foot reconnaissance of the project area, WSI decided that the Routine Approach would be used, and a Level 3 (combination of level 1 and 2 methods) inspection was necessary. A Level 3 inspection was chosen due to the agricultural setting (tillage) and time of year. Since the project area contains mostly potential wetlands that are less than 5 acres in size and are uniform in their history a less than 5-acre approach was used.

In the field, sample points' plant communities and landscape were identified and evaluated by traversing the area using and identifying sample observation points on the Field Base Map. Vegetation was noted if there was any onsite, but the vegetative factor decision was based on offsite information since most sample points are in a cropland field. The vegetative factor decision for cropland was based on an ecological site description and calculated prevalence index (NRCS eFOTG) after identification of the specific soil identified to the map unit level found at the sample point (Exhibit 7). However, due to intensive annual crop production, it was decided that the lack of positive indicators on the non-perennially vegetated sites would not be dependable for the vegetative factor due to effects of recent human activities (agricultural crop production), Section F Atypical Situations, Subsection 1 – Vegetation, Step 3, f of the 1987 Manual was utilized. Please refer to the Wetland Determination Data Form – Midwest Region for details. (Exhibit 8) NRCS has calculated a Prevalence Index (PI) for each ecological sites representative plant community.

After any vegetation was noted, the soil pit was observed for hydrology indicators as well as the surrounding area at each sample observation point. Soil from the pit was recorded and measured. Observations were made for primary indicators of hydrology in each pit, but the factor decision was based on offsite methods due to time of year. Hydric Soil Indicators (if any) were recorded on the data sheets. On-site hydrology indicators were recorded and compared to offsite methods due to cropland disturbance.

WSI utilized the 1987 Manual and the MW Supplement and used off-site methods for hydrology for all sample points Per Chapter 5 of the MW Supplement – Difficult Wetland Situations, Step 3, e, f; it refers the reader to a review of aerial photography. Hydrology was evaluated using aerial imagery per off-site procedures outlined in the '87 Manual and the MW Supplement. This was utilized due to the time of year and disturbed conditions. Please see the attached Wetland Hydrology from Aerial Imagery – Recording Form for detailed analysis of wetness signatures from 1992 to 2021 with reference to “dry”, “wet”, and “normal” rainfall years (Exhibit 9). Page 119 of the MW Supplement outlines the procedure for part f: Evaluating multiple years of aerial photography. The 2021 and 2017 photo were obtained from Google Earth Pro. Photos from 2002 to 2020 were obtained from the USDA-NRCS Geospatial Data Gateway. Photos from 1992 to 2001 were obtained from www.earthexplorer.usgs.gov. WSI obtained the USDA-NRCS calculations of “wet,” “normal” and “dry” for most years (Exhibit 10) from the eFOTG website. Photo interpretation by WSI was enhanced by staff experience and formal training from USDA-NRCS and USACE-St Paul Region. Upon completion of the Aerial Imagery recording form, sample points were evaluated to see if they met the 50% hydrology threshold in “normal” year’s imagery (Exhibit 9). Results are displayed in Exhibit 11 in table form.

Onsite soil was evaluated in all cases to determine the presence or absence of hydric soil indicators. WSI (Wayne Bachman, Soil Scientist) identified the actual map unit present to accurately apply the correct Ecological Site Index for the vegetative factor. He was unable to identify the actual soil within the ROW.

Soil, Hydrology and Vegetation

Hydric soil indicators were not found at sample points 2, 3, 4 and 5. These sample points did not have positive indicators for hydrology and vegetation, are not identified on the National Wetland Inventory Maps and are not in water collecting landscape position. All other points are discussed below.

Sample point 1 has an onsite hydric soil indicator and the soil identified onsite as a Chancellor silty clay loam. A Chancellor soil is on the Hydric Soil List and has a subirrigated ecological site description with a prevalence index of 3.3630 and therefore, does not support a wetland plant community under normal circumstance. Further, the imagery review revealed that this sample point had a wetness signature 5.8% of the normal images reviewed from 1992 to 2021. This sample point meets the hydric soil factor but does not meet the vegetative or hydrology factors.

Conclusion

Sample point 1, 2, 3, 4 and 5 do not meet all three wetland factors and are not aquatic resources (Exhibit 11).

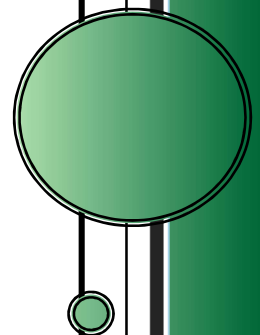
Upon completion of field observations, it has been determined that the project area contains no wetlands in the 12.84-acre review area. Please refer to the Aquatic Resources Wetland Map (Exhibit 12). This map is based on results from the Level 3 wetland delineation process applied to the project area. Also provided is the Aquatic Resource Wetland Table which provides data for all sample sites. (Exhibit 11)

Please see exhibit 13 for site photographs.

References Cited

- Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi.
- Environmental Laboratory. 2010. "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Version 2.0" Wetland Regulatory Assistance Program, U.S. Army Corps of Engineers, Vicksburg, Mississippi
- U.S. Department of Agriculture, Natural Resources Conservation Service. 2010. "Field Indicators of Hydric Soils in the United States, Version 7.0" G.W. Hurt, L.M. Vasilas, and C.V. Noble. USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.
- USDA-NRCS eFOTG, Section II, Climatic Data WETS table <http://agacis.rcc-acis.org/46083/wets>
- USDA-NRCS eFOTG, Section 1, Wetland Guidance, Rainfall
Data https://efotg.sc.egov.usda.gov/references/public/SD/2016_RainfallNormalizationTables_SDTG421.pdf
- USDA-NRCS Web Soil Survey <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- Soil Survey of Lincoln County, South Dakota, SCS, USDA-NRCS
- Aerial photography: www.earthexplorer.usgs.gov
- Geospatial Data Gateway: <https://gdg.sc.egov.usda.gov/>
- United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

Exhibit I: National Wetland Inventory Map (NWI)





U.S. Fish and Wildlife Service
National Wetlands Inventory

85th & Tallgrass



U.S. Fish and Wildlife Service, National Standards and Support Team
wetlands_team@fws.gov

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

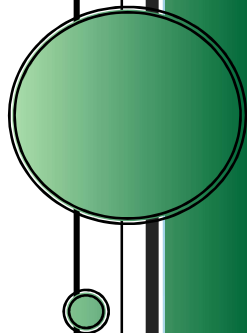
July 8, 2022

Wetlands

- | | | | | | |
|--|--------------------------------|--|-----------------------------------|--|----------|
| | Estuarine and Marine Deepwater | | Freshwater Emergent Wetland | | Lake |
| | Estuarine and Marine Wetland | | Freshwater Forested/Shrub Wetland | | Other |
| | | | Freshwater Pond | | Riverine |

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Exhibit II: Topography Map

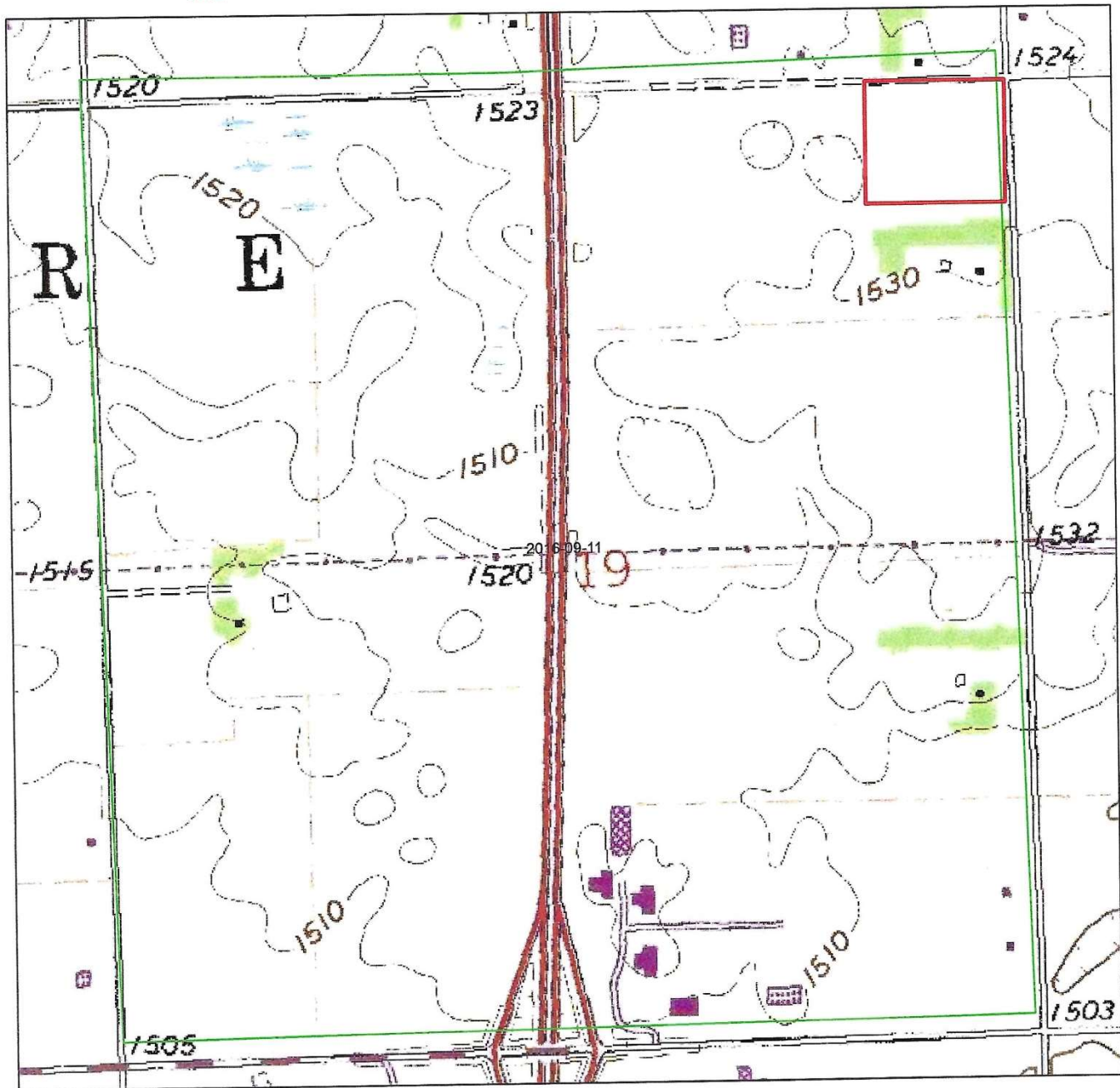




Wetland Specialists Inc.

Producers Name:
County:
Legal Desc:
Completion Date:
Tract:

85th & Tallgrass
Lincoln
NENE 19-100-50
--

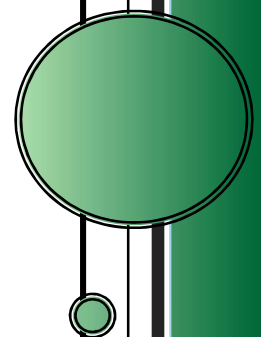


USGS Topographic Map



0 215430 860 1,290 1,720 2,150 2,580
Feet

Exhibit III: Base Map



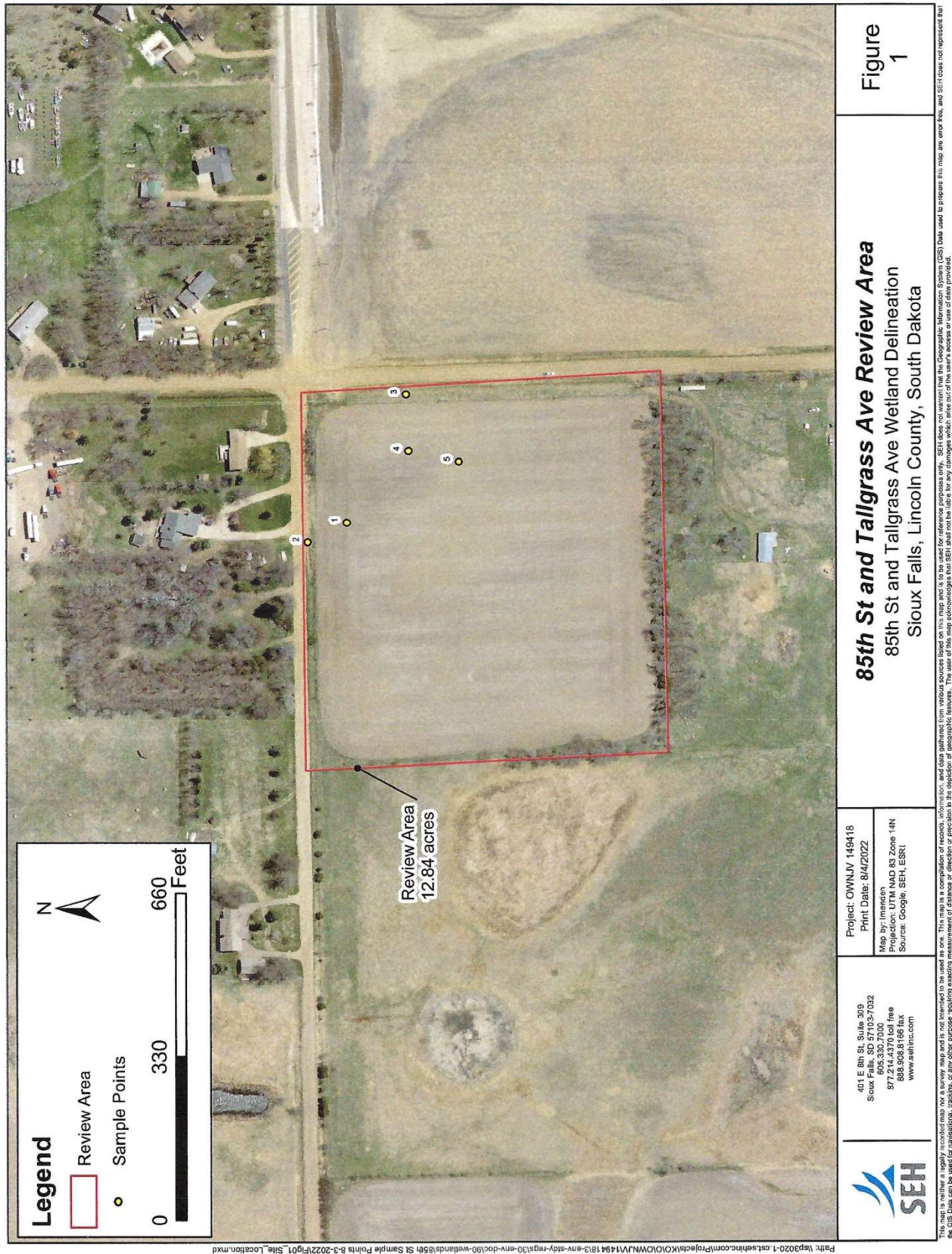
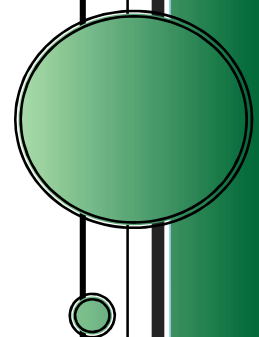


Exhibit IV: COE Communication



RE: 85TH & Tallgrass - Lincoln County

Juhas, Catherine D CIV USARMY CENWO (USA) <Catherine.D.Juhas@usace.army.mil>

Tue 7/12/2022 1:26 PM

To: Karen Cameron-Howell <karen@hydsoil.com>

Hi Karen,

The only action near that area that I'm finding in our database was a JD done for the SD DOT for their I-29/I-229 Interchange and 85th Street upgrades. There's a wetland just to the north of the area you're looking at that was determined to be an isolated wetland. I don't see any JD requests that have been submitted or processed for that area.

Also, FYI – Harry took another position in the Corps and is no longer working in the Regulatory Program. I really miss having him as a coworker, but he's still working out of the Oahe Project Office so it's not all bad. 🙄

Thanks,

Cathy Juhas
U.S. Army Corps of Engineers
South Dakota Regulatory Office
28563 Powerhouse Road, Room 118
Pierre, South Dakota 57501

From: Karen Cameron-Howell <karen@hydsoil.com>

Sent: Friday, July 8, 2022 11:43 AM

To: Juhas, Catherine D CIV USARMY CENWO (USA) <Catherine.D.Juhas@usace.army.mil>; Decker, Harry J CIV USARMY CENWO (USA) <Harry.J.Decker@usace.army.mil>

Subject: [URL Verdict: Neutral][Non-DoD Source] 85TH & Tallgrass - Lincoln County

I've been asked to (potentially) do an on-site delineation on the attached area. It is northwest of Tea and just east of the I-229 and I-29 interchange in Lincoln County.

No one has given me an NWO number or map. But they "think" it has expired. There are several companies involved and the original request for a JD has never been developed.

Please let me know if there is an existing JD for this parcel. If so, please send me a copy. Thank you!
NENE 19-100-50 in Lincoln County. Please see attached maps

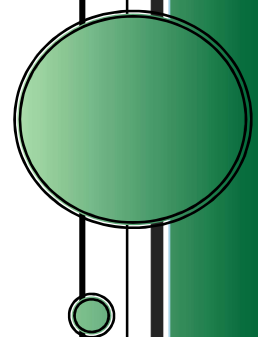
Karen Cameron-Howell

Wetland Specialists, Inc

(605) 695-3189

www.hydsoil.com

Exhibit V: Web Soil Survey



Soil Map—Lincoln County, South Dakota

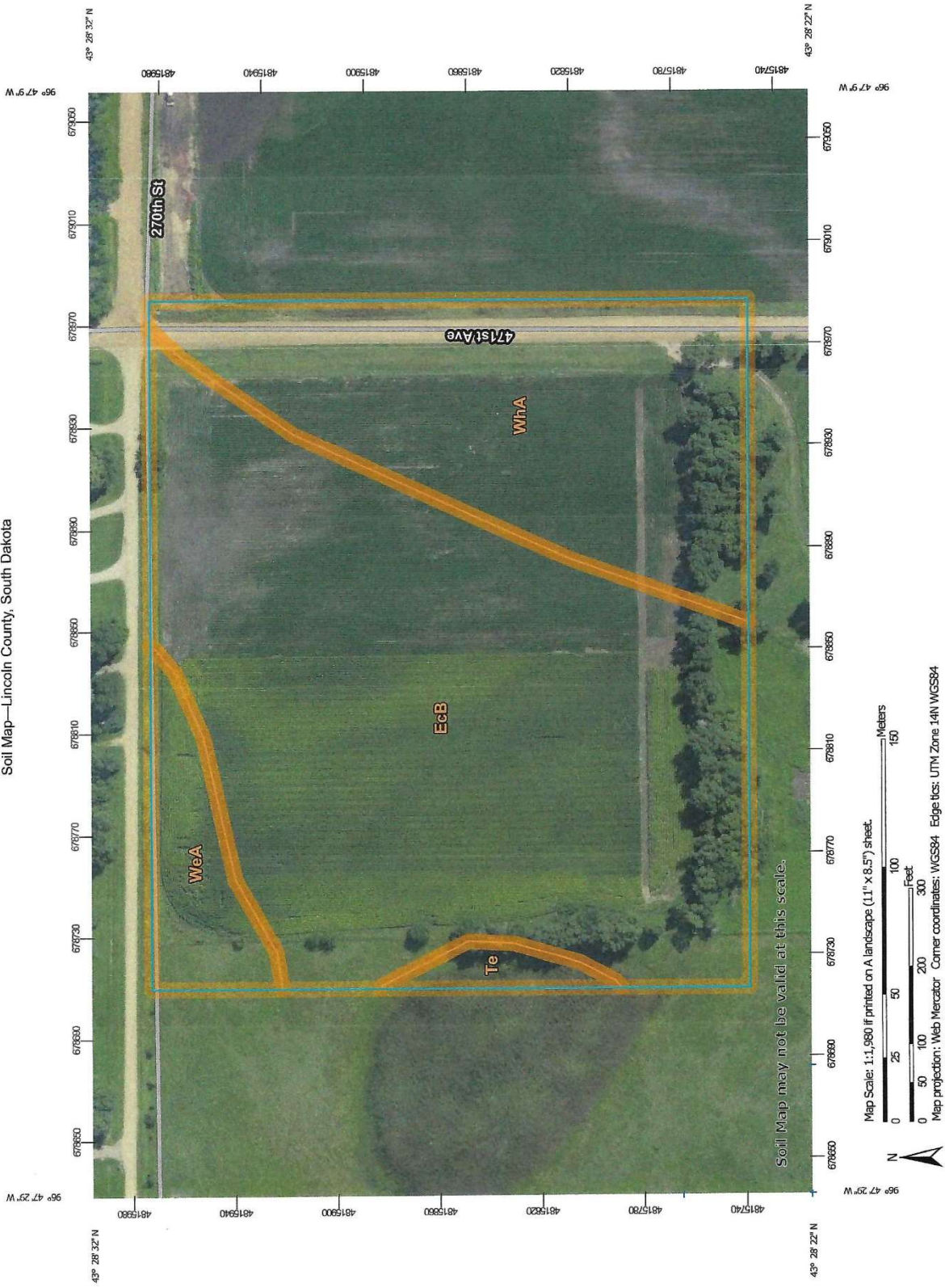
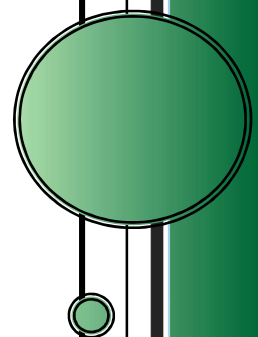


Exhibit VI: Hydric Soil List



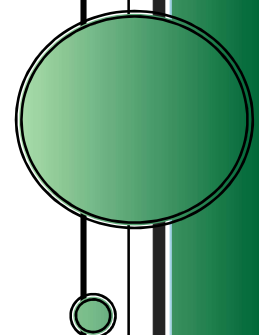
Report—Hydric Soil List - All Components

Hydric Soil List - All Components—SD083-Lincoln County, South Dakota					
Map symbol and map unit name	Component/Local Phase	Comp. pct.	Landform	Hydric status	Hydric criteria met (code)
EcB: Egan-Chancellor silty clay loams, 0 to 4 percent slopes	Egan	50	Till plains	No	—
	Chancellor	30	Drainageways	Yes	2
	Viborg	9	Drainageways	No	—
	Wakonda	4	Rises on swales on till plains	No	—
	Wentworth	4	Till plains	No	—
	Tetonka	2	Closed depressions on till plains	Yes	2,3
	Worthing	1	Potholes on till plains	Yes	2,3
Te: Tetonka silt loam, 0 to 2 percent slopes, frequently ponded	Tetonka-Frequently ponded	85-97	Depressions	Yes	2,3
	Wakonda	3-10	Rims on depressions	No	—
	Chancellor-Frequently flooded	0-5	Drainageways	Yes	2
WeA: Wentworth silty clay loam, 0 to 2 percent slopes	Wentworth	85-95	Hillslopes	No	—
	Chancellor-Frequently flooded	5-10	Drainageways on hillslopes	Yes	2
	Viborg	0-3	Swales on hillslopes	No	—
	Tetonka-Frequently ponded	0-2	Depressions on hillslopes	Yes	2,3
WhA: Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes	Wentworth	55	Till plains	No	—
	Chancellor	25	Drainageways	Yes	2
	Egan	5	Till plains	No	—
	Tetonka	5	Closed depressions on till plains	Yes	2,3
	Viborg	5	Drainageways	No	—
	Wakonda	5	Rises on swales on till plains	No	—

Data Source Information

Soil Survey Area: Lincoln County, South Dakota
 Survey Area Data: Version 23, Sep 13, 2021

Exhibit VII: Ecological Site Description (ESD)



Link to Ecological Site Descriptions in EDIT--Lincoln County, South Dakota					
Map symbol and map unit name	Component	Percent of map unit	Ecological Site ID	Ecological Site Name	Hyperlink to Ecological Site Description in EDIT
EcB--Egan-Chancellor silty clay loams, 0 to 4 percent slopes					
	Egan	50	R102BY010SD	Loamy	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY010SD
	Chancellor	30	R102BY003SD	Subirrigated	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY003SD
	Viborg	9	R102BY020SD	Loamy Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY020SD
	Wakonda	4	R102BY006SD	Limy Subirrigated	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY006SD
	Wentworth	4	R102BY010SD	Loamy	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY010SD
	Tetonka	2	R102BY004SD	Wet Meadow	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY004SD
	Worthing	1	R102BY001SD	Shallow Marsh	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY001SD
Te--Tetonka silt loam, 0 to 2 percent slopes, frequently ponded					
	Tetonka, frequently ponded	90	R102BY004SD	Wet Meadow	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY004SD
	Wakonda	6	R102BY006SD	Limy Subirrigated	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY006SD
	Chancellor, frequently flooded	4	R102BY003SD	Subirrigated	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY003SD

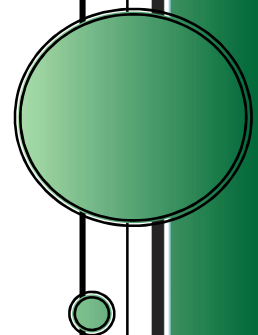
Link to Ecological Site Descriptions in EDIT—Lincoln County, South Dakota					
Map symbol and map unit name	Component	Percent of map unit	Ecological Site ID	Ecological Site Name	Hyperlink to Ecological Site Description in EDIT
WeA—Wentworth silty clay loam, 0 to 2 percent slopes					
	Wentworth	90	R102BY010SD	Loamy	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY010SD
	Chancellor, frequently flooded	7	R102BY003SD	Subirrigated	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY003SD
	Viborg	2	R102BY020SD	Loamy Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY020SD
	Tetonka, frequently ponded	1	R102BY004SD	Wet Meadow	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY004SD
WhA—Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes					
	Wentworth	55	R102BY010SD	Loamy	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY010SD
	Chancellor	25	R102BY003SD	Subirrigated	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY003SD
	Egan	5	R102BY010SD	Loamy	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY010SD
	Tetonka	5	R102BY004SD	Wet Meadow	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY004SD
	Viborg	5	R102BY020SD	Loamy Overflow	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY020SD
	Wakonda	5	R102BY006SD	Limy Subirrigated	https://edit.jornada.nmsu.edu/catalogs/esd/102B/R102BY006SD

Data Source Information

Soil Survey Area: Lincoln County, South Dakota
 Survey Area Data: Version 23, Sep 13, 2021

MLRA 102B and 102C Ecological Site Index		
Ecological Sites, Sorted by Site ID	ESD Vegetative Reference Prevalence Index P.I. < 3 meets hydrophytic vegetation indicator test.	
	Great Plains RS	Midwest RS
R102BY001SD – Shallow Marsh	1.3498	1.2601
R102BY002SD – Linear Meadow	1.6731	1.6048
R102BY003SD – Subirrigated	3.5445	3.3630
R102BY004SD – Wet Meadow	1.8402	1.8690
R102BY006SD – Limy Subirrigated	4.1673	4.0690
R102BY007SD – Saline Lowland	2.6901	2.6901
R102BY008SD – Sands	Not calculated – drier than other sites	
R102BY009SD – Sandy	Not calculated – drier than other sites	
R102BY010SD – Loamy	Not calculated – drier than other sites	
R102BY011SD – Clayey	Not calculated – drier than other sites	
R102BY012SD – Thin Upland	Not calculated – drier than other sites	
R102BY014SD – Shallow to Gravel	Not calculated – drier than other sites	
R102BY016SD – Very Shallow	Not calculated – drier than other sites	
R102BY020SD – Loamy Overflow	4.1040	3.812
R102BY021SD – Clayey Overflow	3.2677	3.2899
R102BY036SD – Saline Subirrigated	3.7308	3.5684

Exhibit VIII: Wetland Determination Data Forms



WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 85th & Tallgrass City/County: Tea Sampling Date: 7/22/2022
 Applicant/Owner: Joel Dykstra State: SD Sampling Point: SP-1
 Investigator(s): WSI (W. Bachman & Ann Howell) Section, Township, Range: 19-100-50
 Landform (hillside, terrace, etc.): footslope Local relief (concave, convex, none): plain
 Slope (%): 2 Lat: 48° 28' 31.798 Long: 96° 47' 17.471 Datum: _____
 Soil Map Unit Name: EcB (Egan-Chancellor silty clay loams) NWI classification: PEM1Ad
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation x, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>x</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>x</u>
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes _____ No <u>x</u>	
Remarks: SP-1 is planted to corn and has been in crop production for 50+ years. NC not present, Atypical methods. SP1 is connected to the road ditch, however the road ditch rises in each direction (E-W) so water does not move from the wetland location.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
		=Total Cover		

Sapling/Shrub Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
		=Total Cover		

Herb Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Comus</u>				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		=Total Cover		

Woody Vine Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
		=Total Cover		

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
 Total Number of Dominant Species Across All Strata: _____ (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: (Include photo numbers here or on a separate sheet.)
 Section F, Subsection 1, Step 3e, NRCS Ecological Site Index for Chancellor silty clay loam - subirrigated ESD, PI= 3.3630, (R102BY003SD) A similar site was not used due to intensive ag use and urban development in the local area.

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100					Loamy/Clayey	sicl, no redox
4-14	10YR 2/1	96	10YR 4/6	4	C	M	Loamy/Clayey	Prominent redox concentrations
14-28	10YR 3/2	91	10YR 4/6	1	C	M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
 This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)
 Soil identified in situ by W. Bachman is a Chancellor silty clay loam.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Per '87 Manual and MW Supplement, offsite methods are due to disturbance and time of year, NC, NEC. Per Ch 5 MW Supplement-Difficult Wetland Situations, Step 3, f, b review of aerial imagery using WETS table and Wet Hydrology from Aerial Imagery form, SP has 5.8% occurrence.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 85th & Tallgrass City/County: Tea Sampling Date: 7/22/2022
 Applicant/Owner: Joel Dykstra State: SD Sampling Point: SP-2
 Investigator(s): WSI (W. Bachman & Ann Howell) Section, Township, Range: 19-100-50
 Landform (hillside, terrace, etc.): footslope Local relief (concave, convex, none): plain
 Slope (%): 2 Lat: 48° 28' 33.912 Long: 96° 47' 15.822 Datum: _____
 Soil Map Unit Name: WeA (Wentworth silty clay loam) NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation x, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>x</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>x</u>
Hydric Soil Present? Yes _____ No <u>x</u>	
Wetland Hydrology Present? Yes _____ No <u>x</u>	
Remarks: SP-2 is in the road ditch that has recently been seeded. NC not present, Atypical methods. Sample point was selected after viewing 2017 image where the road ditch seemed emphasized. Due diligence requires a sample to be sure we are not missing a potential wetland. Results consistent with	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
=Total Cover			

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
=Total Cover			

Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Bromus inermis</u>	<u>100</u>	<u>Yes</u>	<u>FACU</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
<u>100</u> =Total Cover			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
=Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>100</u>	x 4 = <u>400</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>400</u> (B)
Prevalence Index = B/A = <u>4.00</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: (Include photo numbers here or on a separate sheet.)
 MWV Supplement page 105: positive indicators for wetland hydrology and hydric soil are not present, sp2 does not support a wetland plant community.

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	2.5Y 4/3	100					Loamy/Clayey	clay loam, no redox
3-10	10YR 3/1	100					Loamy/Clayey	silty clay loam, no redox
10-29	2.5Y 4/3	100					Loamy/Clayey	clay loam, no redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- | |
|--|
| <input type="checkbox"/> Coast Prairie Redox (A16) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) |
| <input type="checkbox"/> Red Parent Material (F21) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes _____ No x

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

Soil examined in situ has been disturbed with cut and fill layers in the profile. Does not match any soil in the soil survey. The soil profile found does not meet any field hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present?	Yes _____	No <u>x</u>	Depth (inches): _____
Water Table Present?	Yes _____	No <u>x</u>	Depth (inches): _____
Saturation Present?	Yes _____	No <u>x</u>	Depth (inches): _____

 (includes capillary fringe)
Wetland Hydrology Present? Yes _____ No x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Per '87 Manual and MW Supplement, offsite methods are due to disturbance and time of year, NC, NEC. Per Ch 5 MW Supplement-Difficult Wetland Situations, Step 3, f, b review of aerial imagery using WETS table and Wet Hydrology from Aerial Imagery form, SP has 0% occurrence.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 85th & Tallgrass City/County: Tea Sampling Date: 7/22/2022
 Applicant/Owner: Joel Dykstra State: SD Sampling Point: SP-3
 Investigator(s): WSI (W. Bachman & Ann Howell) Section, Township, Range: 19-100-50
 Landform (hillside, terrace, etc.): sideslope Local relief (concave, convex, none): concave
 Slope (%): 2 Lat: 48° 28' 29.171 Long: 96° 47' 15.791 Datum: _____
 Soil Map Unit Name: WhA (Wentworth-Chancellor silty clay loams) NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation x, Soil x, or Hydrology x significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>x</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>x</u>
Hydric Soil Present? Yes _____ No <u>x</u>	
Wetland Hydrology Present? Yes _____ No <u>x</u>	
Remarks: SP-3 is in the road ditch that has recently been seeded. NC not present, Atypical methods and CH 5 MW Supplement (page 105). Positive indicators of wetland hydrology and hydric soil are not present. SP3 does not meet vegetation and vegetation definition.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
=Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
=Total Cover			
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Bromus inermis</u>	<u>100</u>	<u>Yes</u>	<u>FACU</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
<u>100</u> =Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
=Total Cover			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>100</u>	x 4 = <u>400</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>400</u> (B)
Prevalence Index = B/A = <u>4.00</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: (Include photo numbers here or on a separate sheet.)
 87 Manual and MW supplement: Does not meet a positive indicator of wetland hydrology and does not have a hydric soil, then not probable that this SP would meet a positive indicator of vegetation and the definition.

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 2/1	100					Loamy/Clayey	sicl, no redox
7-29	10YR 3/1	100					Loamy/Clayey	sicl, no redox
29-34	2.5Y 4/2	100					Loamy/Clayey	sicl, no redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Iron-Manganese Masses (F12)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Redox Depressions (F8)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u> x </u>
---	---

Remarks:
 This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)
 Soil examined in situ has been disturbed with cut and fill layers in the profile. Does not match any soil in the soil survey.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		

Field Observations: Surface Water Present? Yes _____ No <u> x </u> Depth (inches): _____ Water Table Present? Yes _____ No <u> x </u> Depth (inches): _____ Saturation Present? Yes _____ No <u> x </u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u> x </u>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Per '87 Manual and MW Supplement, offsite methods are due to disturbance and time of year, NC, NEC. Per Ch 5 MW Supplement-Difficult Wetland Situations, Step 3, f, b review of aerial imagery using WETS table and Wet Hydrology from Aerial Imagery form, SP has 0% occurrence.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 85th & Tallgrass City/County: Tea Sampling Date: 7/22/2022
 Applicant/Owner: Joel Dykstra State: SD Sampling Point: SP-4
 Investigator(s): WSI (W. Bachman & Ann Howell) Section, Township, Range: 19-100-50
 Landform (hillside, terrace, etc.): sideslope Local relief (concave, convex, none): convex
 Slope (%): 1 Lat: 48° 28' 28.979 Long: 96° 47' 15.791 Datum: _____
 Soil Map Unit Name: EcB (Egan-Chancellor silty clay loams) NWI classification: upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation x, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>x</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>x</u>
Hydric Soil Present?	Yes _____	No <u>x</u>	
Wetland Hydrology Present?	Yes _____	No <u>x</u>	
Remarks: SP-4 is planted to corn and has been in crop production for 50+ years. NC not present, Atypical methods.			

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
		=Total Cover		

Sapling/Shrub Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
		=Total Cover		

Herb Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Corn</u>				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		=Total Cover		

Woody Vine Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
		=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That
Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species
Across All Strata: _____ (B)

Percent of Dominant Species That
Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation _____

2 - Dominance Test is >50% _____

3 - Prevalence Index is ≤3.0¹ _____

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) _____

Problematic Hydrophytic Vegetation¹ (Explain) _____

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: (Include photo numbers here or on a separate sheet.)
 Section F, Subsection 1, Step 3e, NRCS Ecological Site Index for Viborg silty clay loam - loamy ESD, PI> 3.0, (R102BY020SD) A similar site was not used due to intensive ag use and urban development in the local area.

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR 2/1	100					Loamy/Clayey	sicl, no redox
13-30	10YR 3/1	100					Loamy/Clayey	sicl, no redox
30-35	2.5Y 4/2	100					Loamy/Clayey	sicl, no redox

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (F22) <input type="checkbox"/> Other (Explain in Remarks)
---	--	--

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u> x </u>
---	---

Remarks:
 This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)
 Soil identified in situ by W. Bachman is a Viborg silty clay loam.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>				<u>Secondary Indicators (minimum of two required)</u>			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)		<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)		<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)		<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Geomorphic Position (D2)		<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)						
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)						
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)						
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)						
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)						
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)						

Field Observations: Surface Water Present? Yes _____ No <u> x </u> Depth (inches): _____ Water Table Present? Yes _____ No <u> x </u> Depth (inches): _____ Saturation Present? Yes _____ No <u> x </u> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes _____ No <u> x </u>
---	--	--	--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Per '87 Manual and MW Supplement, offsite methods are due to disturbance and time of year, NC, NEC. Per Ch 5 MW Supplement-Difficult Wetland Situations, Step 3, f, b review of aerial imagery using WETS table and Wet Hydrology from Aerial Imagery form, SP has 11.8% occurrence.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: 85th & Tallgrass City/County: Tea Sampling Date: 7/22/2022
 Applicant/Owner: Joel Dykstra State: SD Sampling Point: SP-5
 Investigator(s): WSI (W. Bachman & Ann Howell) Section, Township, Range: 19-100-50
 Landform (hillside, terrace, etc.): sideslope Local relief (concave, convex, none): convex
 Slope (%): 1 Lat: 48° 28' 28.428 Long: 96° 47' 16.451 Datum: _____
 Soil Map Unit Name: WhA (Wentworth-Chancellor silty clay loams) NWI classification: upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation x, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No x
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>x</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>x</u>
Hydric Soil Present? Yes _____ No <u>x</u>	
Wetland Hydrology Present? Yes _____ No <u>x</u>	
Remarks: SP-5 is planted to corn and has been in crop production for 50+ years. NC not present, Atypical methods.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
		=Total Cover		
Sapling/Shrub Stratum	(Plot size: _____)			
1.				
2.				
3.				
4.				
5.				
		=Total Cover		
Herb Stratum	(Plot size: _____)			
1. <u>Corn</u>				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
		=Total Cover		
Woody Vine Stratum	(Plot size: _____)			
1.				
2.				
		=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0¹

____ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No x

Remarks: (Include photo numbers here or on a separate sheet.)
 Section F, Subsection 1, Step 3e, NRCS Ecological Site Index for Viborg silty clay loam - loamy ESD, PI > 3.0, (R102BY020SD) A similar site was not used due to intensive ag use and urban development in the local area.

Sampling Point: SP-5

HYDROLOGY			
Wetland Hydrology Indicators:			
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		
Field Observations:		Wetland Hydrology Present?	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
Per '87 Manual and MW Supplement, offsite methods are due to disturbance and time of year, NC, NEC. Per Ch 5 MW Supplement-Difficult Wetland Situations, Step 3, f, b review of aerial imagery using WETS table and Wet Hydrology from Aerial Imagery form, SP has 0% occurrence.			

Exhibit IX: Aerial Imagery Recording Form

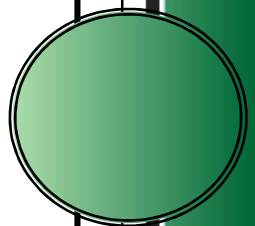


Exhibit 1

Field data sheet reference (if applicable): _____

Wetland Hydrology from Aerial Imagery – Recording Form

Project Name: 85th & Tallgrass Date: 8/4/22 County: LINCOLNInvestigator: WSI (K. Cameron Howell) Legal Description (T, R, S): 100N 50W NENE 19

Summary Table

Date Image Taken (M-D-Y)	Image Source	Climate Condition (wet, dry, normal) ¹	Image Interpretation(s)				
			Area: 1	Area: 2	Area: 3	Area: 4	Area: 5
5/20/21	Google Earth Pro	Normal	NSS	NSS	NSS	NSS	NSS
9/5/20	USDA - NRCS	Dry	NSS	NSS	NSS	NSS	NSS
9/12/18	USDA - NRCS	Wet	SS	NSS	NSS	NSS	NSS
5/17	Google Earth Pro	Normal	NSS	NSS	NSS	SS	NSS
9/11/16	USDA - NRCS	Normal	NSS	NSS	NSS	SS	NSS
9/16/14	USDA - NRCS	Wet	NSS	NSS	NSS	NSS	NSS
7/29/12	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
8/15/10	USDA - NRCS	Wet	WS	NSS	NSS	NSS	NSS
7/29/08	USDA - NRCS	Normal	NSS	NSS	NSS	WS	NSS
7/6/06	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
7/9/05	USDA - NRCS	Wet	NSS	NSS	NSS	NSS	NSS
7/21/04	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
8/14/03	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
8/5/02	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
7/13/01	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
8/7/00	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
7/30/99	USDA - NRCS	Wet	NSS	NSS	NSS	NSS	NSS
8/21/98	USDA - NRCS	Normal	NSS	NSS	NSS	SS	NSS
7/97	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
7/96	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
8/95	USDA - NRCS	Normal	SS	NSS	NSS	NSS	NSS
8/94	USDA - NRCS	Normal	NSS	NSS	NSS	NSS	NSS
8/93	USDA - NRCS	Wet	SS	NSS	NSS	NSS	NSS
8/92	USDA - NRCS	Normal	NSS	NSS	NSS	SS	NSS
Normal Climate Condition			Area: 1	Area: 2	Area: 3	Area: 4	Area: 5
Number			17	17	17	17	17
Number with wet signatures			1	0	0	2	0
Percent with wet signatures			5.8%	0%	0%	11.8%	0%

KEY

WS - wetland signature	SS - soil wetness signature	CS - crop stress
NC - not cropped	AP - altered pattern	NV - normal vegetative cover
DO - drowned out	SW - standing water	NSS - no soil wetness signature

- Other labels or comments:
- Use above key to label image interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in box above.
 - If less than five (5) images taken during normal climate conditions are available, use an equal number of images taken during wet and dry climate conditions and use as many images as you have available. Describe the results using this methodology in your report.

¹ Use <https://www.fws.gov/landmanagement> to determine climate condition when image was taken.

Date 8/4/2022

Weather Station SF Airport

County Lincoln

Soil Name _____

Photo Date 5/1/2017

Landowner 85th & Tallgrass

Legal Location 19-100-50

State SD

Growing Season _____

	Long-term rainfall records			Rainfall	Month Weight	Condition Value
	30% <	Normal	30% >			
1st Prior month April	1.64	2.65	3.20	2.87	3	8.61
2nd Prior month March	1.03	1.81	2.20	0.54	2	1.08
3rd Prior month February	0.26	0.51	0.62	0.49	1	0.49
	7.24				SUM	10.18
						NORMAL

Blank

Date 8/4/2022

Weather Station SF Airport

County Lincoln

Soil Name

Photo Date 9/5/2020

Landowner 85th & Tallgrass

Legal Location 19-100-50

State SD

Growing Season

	Long-term rainfall records			Rainfall	Month Weight	Condition Value
	30% <	Normal	30% >			
1st Prior month	August	1.86	3.01	3.64	3	3.69
2nd Prior month	July	1.84	2.93	3.54	2	4.42
3rd Prior month	June	2.30	3.49	4.19	1	3.42
	11.56		22.19		SUM	11.53

DRY

Blank

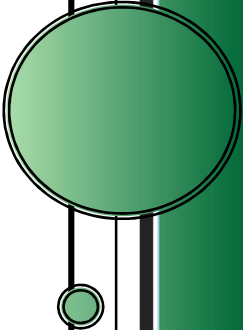
RainfallCalculatorWentworth_June1970

Date	8/4/2022		
Weather Station	SF Airport		
County	Lincoln		
Soil Name			
Photo Date	7/22/2022		
Landowner	85th & Tallgrass		
Legal Location	19-100-50		
State	SD		
Growing Season			

	Long-term rainfall records			Rainfall	Month Weight	Condition Value	
	30% <	Normal	30% >				
1st Prior month	June	2.30	3.49	4.19	1.95	3	5.85
2nd Prior month	May	2.15	3.39	4.09	4.30	2	8.6
3rd Prior month	April	1.64	2.65	3.20	2.20	1	2.2
	12.84		23.95		SUM		16.65
							NORMAL

Blank

Exhibit X: Rainfall Data



Rainfall Data
Sioux Falls AP
Station #SD7667
Minnehaha County, SD

Portion of the table to be used with
the PrecipCategories tool.

Monthly Rainfall Totals in Inches									Monthly Weighted Totals					Slide Indicator Status					Year
Year	March	April	May	June	July	Aug	Sept		June	July	Aug	Sept	Oct	June	July	Aug	Sept	Oct	
1937	1.36	5.19	3.96	3.20	2.63	5.06	1.48		23.62	22.71	18.25	23.64	17.19	WET	NORM	NORM	WET	NORM	1937
1939	0.51	1.67	4.19	6.44	3.00	4.04	1.12		16.42	29.37	26.07	24.56	14.44	NORM	WET	WET	WET	NORM	1939
1940	3.44	3.39	0.39	5.25	2.49	4.17	1.27		11.39	19.92	18.36	22.74	14.64	NORM	NORM	NORM	WET	NORM	1940
1941	0.93	5.45	1.71	3.81	1.64	0.77	1.70		16.96	20.30	14.25	9.40	8.28	NORM	NORM	NORM	WET	WET	1941
1956	2.19	1.29	1.31	6.86	4.02	4.09	0.29		8.70	24.49	27.09	27.17	13.07	WET	WET	WET	WET	NORM	1956
1958	0.95	2.55	0.81	1.48	3.52	0.81	2.11		8.48	8.61	14.33	10.35	11.07	WET	WET	NORM	WET	NORM	1958
1962	1.72	1.70	6.07	3.98	5.50	2.77	3.58		23.33	25.78	30.53	23.29	21.78	WET	WET	WET	WET	WET	1962
1964	2.12	4.03	1.29	1.68	4.03	3.87	4.06		14.05	11.65	16.74	21.35	23.95	NORM	WET	NORM	NORM	WET	1964
1966	0.70	1.71	1.94	2.68	1.54	2.12	6.34		9.94	13.63	11.92	12.12	24.80	WET	NORM	WET	NORM	WET	1966
1968	0.61	4.34	2.69	4.10	2.37	1.70	4.01		17.36	22.02	18.00	13.94	17.80	NORM	NORM	NORM	NORM	NORM	1968
1970	2.03	3.75	4.83	3.81	2.98	0.53	3.14		24.02	24.84	21.39	11.36	13.46	WET	WET	NORM	NORM	NORM	1970
1971	0.85	1.59	1.06	6.10	2.92	0.71	3.23		7.21	22.01	22.02	14.07	14.03	WET	NORM	NORM	NORM	NORM	1971
1972	0.97	2.73	7.25	2.09	3.49	2.65	1.75		28.18	23.50	21.90	17.02	14.04	WET	NORM	NORM	NORM	NORM	1972
1976	1.60	2.15	1.02	1.02	1.53	1.31	0.76		8.96	7.25	7.65	8.01	6.43	WET	WET	WET	WET	WET	1976
1979	3.47	2.75	4.90	3.01	3.13	4.35	4.03		23.67	21.58	20.31	22.32	23.92	WET	NORM	NORM	WET	WET	1979
1980	0.70	0.77	2.52	2.17	1.63	2.92	0.79		9.80	12.32	11.75	14.19	9.84	WET	WET	WET	NORM	NORM	1980
1981	1.86	0.58	0.61	3.90	3.89	2.28	0.50		4.85	13.50	20.08	18.52	9.95	WET	NORM	NORM	NORM	NORM	1981
1982	1.17	1.87	4.72	1.18	4.60	5.23	3.49		19.07	14.85	20.88	26.07	25.53	NORM	NORM	NORM	WET	WET	1982
1983	3.35	2.88	2.92	6.75	1.82	2.00	1.92		17.87	28.97	21.88	16.39	11.58	NORM	WET	NORM	NORM	NORM	1983
1984	1.83	5.79	2.95	8.43	1.63	0.76	1.62		22.26	36.98	24.70	13.97	8.01	WET	WET	WET	WET	WET	1984
1985	2.37	5.18	3.29	2.52	2.70	4.07	3.34		22.60	19.32	16.43	20.13	20.86	WET	NORM	NORM	NORM	WET	1985
1986	1.50	5.15	2.42	3.93	2.59	2.77	9.26		19.06	21.78	18.05	17.42	35.91	NORM	NORM	NORM	NORM	WET	1986
1987	3.27	0.28	2.94	1.78	3.16	1.36	2.05		12.65	11.50	15.98	12.18	12.03	NORM	WET	NORM	NORM	NORM	1987
1988	0.63	3.00	1.54	0.91	0.49	4.02	4.39		11.25	8.81	4.83	13.95	21.70	NORM	WET	WET	NORM	WET	1988
1989	1.07	1.59	1.42	2.50	1.37	2.46	3.39		8.51	11.93	10.53	12.62	16.43	WET	WET	WET	NORM	NORM	1989
1990	1.57	1.86	4.07	4.66	1.77	1.17	0.47		17.50	24.58	19.10	11.91	5.52	NORM	WET	NORM	NORM	WET	1990
1991	0.66	2.21	6.20	6.36	2.26	1.41	3.95		23.88	33.69	25.70	15.11	16.93	WET	WET	WET	NORM	NORM	1991
1992	2.36	2.01	1.80	2.44	8.41	5.29	3.06		11.78	12.93	31.91	35.13	28.17	NORM	NORM	WET	WET	WET	1992
1993	2.04	2.61	8.26	6.43	7.86	3.10	1.88		32.04	38.42	44.70	31.45	19.70	WET	WET	WET	WET	NORM	1993
1994	0.20	3.34	1.26	6.03	1.70	2.66	2.36		10.66	23.95	18.42	17.41	14.10	NORM	NORM	NORM	NORM	NORM	1994
1995	4.06	5.83	4.76	2.70	2.55	5.11	1.86		30.00	23.45	17.81	23.13	18.35	WET	NORM	NORM	WET	NORM	1995
1996	0.82	0.55	5.27	1.14	0.96	1.79	2.82		17.73	14.51	10.43	8.43	13.00	NORM	NORM	WET	WET	NORM	1996
1997	0.23	2.43	3.58	3.77	2.94	1.58	1.59		15.83	20.90	19.94	14.39	10.87	NORM	NORM	NORM	NORM	NORM	1997
1998	4.08	3.57	1.92	4.52	2.66	3.29	1.19		16.98	20.97	18.94	19.71	12.81	NORM	NORM	NORM	NORM	NORM	1998
1999	1.15	4.32	6.20	2.57	4.81	0.80	0.84		28.39	24.43	25.77	14.59	8.93	WET	WET	WET	NORM	WET	1999
2000	0.91	2.27	5.58	3.26	3.22	3.17	1.34		22.13	23.17	21.74	19.21	13.58	WET	NORM	NORM	NORM	NORM	2000
2001	0.78	6.97	1.92	3.13	5.68	1.37	2.25		20.48	20.20	25.82	19.00	15.37	NORM	NORM	WET	NORM	NORM	2001
2002	1.41	2.29	1.82	2.57	1.80	8.28	1.39		11.45	13.64	12.36	30.95	22.49	NORM	NORM	NORM	WET	WET	2002
2003	0.22	3.69	2.64	3.54	1.64	1.82	4.74		15.52	19.59	14.64	12.28	19.50	NORM	NORM	NORM	NORM	NORM	2003
2004	2.03	1.28	8.10	6.00	1.40	3.58	5.12		28.89	35.48	24.30	19.54	23.92	WET	WET	WET	NORM	WET	2004
2005	1.53	3.33	5.22	3.72	4.59	1.36	4.76		23.85	24.93	26.43	16.98	21.59	WET	WET	WET	NORM	WET	2005
2006	2.67	6.17	1.02	3.81	0.68	4.33	3.88		18.07	19.64	10.68	18.16	20.98	NORM	NORM	WET	NORM	WET	2006
2007	4.97	1.93	2.63	3.98	0.32	6.18	2.27		16.72	19.13	11.55	23.16	19.49	NORM	NORM	WET	WET	NORM	2007
2008	1.34	2.68	3.34	3.95	2.52	1.91	1.78		16.72	21.21	18.80	14.72	11.68	NORM	NORM	NORM	NORM	NORM	2008
2009	1.31	1.95	1.43	3.07	3.71	1.93	1.21		9.50	14.02	18.70	16.28	11.20	WET	NORM	NORM	NORM	NORM	2009
2010	1.02	2.65	2.03	7.83	8.55	6.26	4.46		12.41	30.20	43.34	43.71	34.45	NORM	WET	WET	WET	WET	2010
2011	0.74	3.09	5.42	4.26	5.76	1.40	0.20		23.18	26.71	31.22	19.98	9.16	WET	WET	WET	NORM	WET	2011
2012	0.77	2.40	4.60	0.74	0.24	1.75	1.14		19.37	13.82	6.80	6.47	7.16	NORM	NORM	WET	WET	WET	2012
2013	0.88	3.13	6.95	4.28	0.60	3.23	0.77		27.99	29.87	17.31	15.17	9.37	WET	WET	NORM	NORM	WET	2013
2014	0.71	1.17	2.11	13.70	0.80	4.95	2.28		9.38	46.49	31.91	30.15	17.54	WET	WET	WET	WET	NORM	2014
2015	0.33	1.00	4.00	4.29	4.19	6.57	3.24		14.33	21.87	25.15	32.38	27.05	NORM	NORM	WET	WET	WET	2015
2016	2.09	4.82	3.11	1.72	2.32	2.32	7.55		20.66	16.00	13.51	13.32	29.61	NORM	NORM	NORM	NORM	WET	2016
2017	0.54	2.87	3.23	3.29	1.13	5.42	1.62		15.97	19.20	13.20	21.81	16.83	NORM	NORM	NORM	NORM	NORM	2017
2018	2.08	3.34	2.48	7.29	4.94	5.33	7.32		16.18	30.17	31.88	33.16	37.56	NORM	WET	WET	WET	WET	2018

Month	30% Lower Bound	N	30% Upper Bound
March	0.99	1.81	2.20
April	1.59	2.65	3.21
May	2.09	3.39	4.11
June	2.24	3.49	4.20
July	1.79	2.93	3.55
August	1.80	3.01	3.65
Sept.	1.40	2.58	3.15
Jun-MAM	10.44	17.28	20.95
Jul-JMA	12.49	19.90	24.03
Aug-JJM	11.94	19.16	23.16
Sep-AJJ	11.22	18.38	22.25
Oct-SAJ	9.59	16.69	20.30

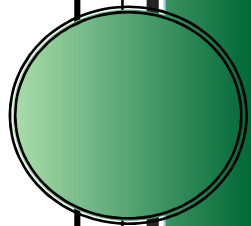
Normals are for 1971-2000 data
March 1.81
April 2.65
May 3.39
June 3.49
July 2.93
August 3.01
Sept. 2.58

NOTE:

Sioux Falls AP NWS Station (SD7667) has not collected data as of 2012.

Sioux Falls AP NWS Station (SD7667) has been replaced with Sioux Falls Foss FLD NWS Station (SD944).

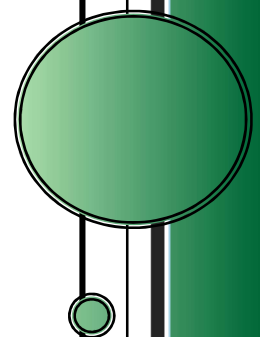
Exhibit XI: Aquatic Resource
Table



Wetland Determination Data Form Summary Table

	1	2	3	4	5
Veg					
Offsite	No	-	-	No	No
Soil					
Onsite	Yes	No	No	No	No
Hydrology					
Onsite	No				
Offsite	No 5.8%	No 0%	No 0%	No 11.8%	No 0%
NWI	PEMIAd	-	-	-	-
Aquatic Resource?	No			No	No

Exhibit XII: Aquatic Resource Map





**Wetland
Specialists Inc.**

Producers Name:
County:
Legal Desc:
Completion Date:
Tract:

85th & Tallgrass
Lincoln
NENE 19-100-50
--



Aquatic Resource Map



0 70 140 280 420 560 700 840
Feet

Exhibit XIII: Site Photographs

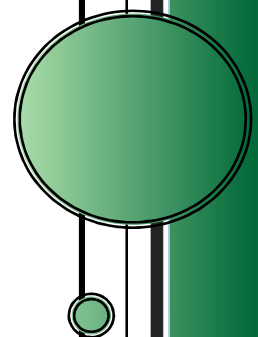




Photo 1

Date Taken: 7/22/22

Sample Unit: 1

Latitude: 43.28°30.798

Longitude: 96.47°17.471



Photo 2

Date Taken: 7/22/22

Sample Unit: 2

Latitude: 43.28°33.912

Longitude: 96.47°15.822



Photo 3

Date Taken: 7/22/22

Sample Unit: 3

Latitude: 43.28'29.171

Longitude: 96.47'14.340



Photo 4

Date Taken: 7/22/22

Sample Unit: 4

Latitude: 43.28'28.979

Longitude: 96.47'15.791



Photo 5

Date Taken: 7/22/22

Sample Unit: 5

Latitude: 43.28'28.428

Longitude: 96.47'16.451

**U.S. ARMY CORPS OF ENGINEERS
REQUEST FOR CORPS JURISDICTIONAL DETERMINATION**

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332. **Principal Purpose:** The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above. **Routine Uses:** This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website. **Disclosure:** Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

CORPS USE ONLY:
DATE RECEIVED:

PROJECT NO.:

1. PROPERTY LOCATION:

Street Address: 85th Street/I-29 Interchange
City/Township/Parish: Sioux Falls / Delapre Township
County: Lincoln State: South Dakota
Acreage of Parcel/Review Area for JD: 451
Section: 14 Township: 100 Range: 51
Latitude: -96.796455 Longitude: -96.796455

(For linear projects, please include the center point of the proposed alignment.)

2. REQUESTOR CONTACT INFORMATION:

Typed or Printed Name: Bailey Nelson (Agent)
Company Name: SEH
Street Address: 3535 Vadnais Center Drive
City: St. Paul State: MN ZIP: 55110
Phone Number: (651) 490-2116
E-mail: bnelson@sehinc.com

3. MAP: Please attach a survey/plat map and vicinity map identifying location and review area for the JD.

4. REASON FOR REQUEST (check as many as applicable):

- ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
- ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
- ☒ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
- ☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
- ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
- ☒ A Corps JD is required in order to obtain my local/state authorization.
- ☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
- ☐ I believe that the site may be comprised entirely of dry land.
- ☐ Other: _____

5. TYPE OF DETERMINATION BEING REQUESTED:

- ☒ I am requesting an approved JD.
- ☐ I am requesting a preliminary JD.
- ☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
- ☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

6. OWNERSHIP DETAILS:

- ☐ I currently own this property.
- ☐ I plan to purchase this property.
- ☒ I am an agent/consultant acting on behalf of the requestor.
- ☐ Other (please explain:)

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

Signature: Bailey Nelson

Date: 1/6/2020



Wetland Delineation Report

85th Street Business District Joint Venture Group

85th Street Interchange

Lincoln County, South Dakota

OWNJV 149418 | January 2020



Building a Better World
for All of Us®

Engineers | Architects | Planners | Scientists



Building a Better World
for All of Us®

January 6, 2020

RE: 85th Street Interchange
Lincoln County, South Dakota
Wetland Delineation Report
SEH No. OWNJV 149418 30.90

Joel Dykstra
RMB, PO Box 2524
Sioux Falls, SD 57101

Dear Mr. Joel Dykstra:

Please find enclosed the Wetland Delineation Report for 85th Street Interchange in Sioux Falls and Delapre Township in Lincoln County, South Dakota. This Report presents the results of the field delineation for wetlands performed on November 25, 2018 and July 25, 2019 completed by Rebecca Beduhn (PWS #2758, CPSS # 333315). The field delineation included on-site identification, classification, and boundary determinations of wetland basins following the 1987 U.S. Army Corps of Engineers *Wetlands Delineation Manual* and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010).

Thank you for the opportunity to provide wetland services to the 85th Street Business District Joint Venture Group. Short Elliott Hendrickson Inc. (SEH®) is pleased to provide you with this information for your records and review. If you have any questions, please contact me directly at 651.490.2146 or via e-mail at rbeduhn@sehinc.com.

Sincerely,

Rebecca Beduhn
Professional Wetland Scientist
Certified Professional Soil Scientist

Wetland Delineation Report

85th Street Interchange

Prepared for:
85th Street Business District Joint Venture Group
RMB, PO Box 2524
Sioux Falls, SD 57101

Prepared by:
Short Elliott Hendrickson Inc.
3535 Vadnais Center Drive
St. Paul, MN 55110-5196
651.490.2000

The procedures described in this report and the field methods used constitute an official wetland delineation in accordance with the 1987 U.S. Army Corps of Engineers *Wetlands Delineation Manual* and applicable *Regional Supplement*.

The field delineation was completed by Rebecca Beduhn. The methodology meets the standards and criteria described in the manual, and conforms to the applicable standards and regulations in force at the time the fieldwork was completed. The results reflect conditions present at the time of the delineation.

I hereby certify that this report was prepared by me or under my direct supervision.

Prepared by: Bailey Nelson 9/16/2019
Bailey Nelson, Wetland Biologist Date
Minnesota Certified Wetland Delineator, No. 5279

Reviewed by: Rebecca Q. Beduhn 9/25/2019
Rebecca Beduhn, Wetland Scientist Date
Professional Wetland Scientist, No. 2758
Certified Professional Soil Scientist, No. 333315



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Letter of Transmittal
Certification
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Wetland Delineation Report

85th Street Interchange

Prepared for 85th Street Business District Joint Venture Group

1 Introduction

The purpose of this study was to investigate the project area, identify areas meeting the technical criteria for wetlands, delineate the jurisdictional extent of the wetland basins, and classify the wetland habitat as part of the completion of an Environmental Assessment (EA) for potential impacts associated with the upgrade of the 85th Street interchange along Interstate 29 (I-29). This field delineation will be the basis on which wetland impacts from the proposed project will be determined.

This report describes the methodology and results of the field delineation performed on November 13, 2018. Wetlands were verified in July 2019 to ensure the placement of the boundary was correct. All wetlands remained unchanged, and wetland hydrology indicators were observed. Figures referred to in the text are included at the end of the report.

1.1 Site Description

The project site is located in Sioux Falls and Delapre Township in Lincoln County, South Dakota as shown on **Figure 1**.

Table 1 is a summary of the project location based on the Public Land Survey System. The project site is located in the following townships, sections, and ranges:

Township	Section	Range
100	13	51
100	14	51
100	18	50
100	19	50

Figure 2 shows the site on a 2016 aerial photograph background. The project corridor is defined by potential alignments for a new interchange along I-29 for 85th Street. The approximately 465-acre area of interest is bounded on the north by 269th Street (CR 102), on the east by Tallgrass Avenue, on the south by 271st Street (CR 106), and on the west by 469th Avenue (CR 111). The site is located in the Lower Big Sioux Watershed.

The project site consists of a variety of upland and wetland plant communities. The wetland and upland communities onsite are described in more detail in the following sections.

2 Wetland Delineation

2.1 Wetlands Definition

Wetlands are defined in federal Executive Order 11990 as follows:

“Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

According to U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010), one positive indicator (except in certain situations) from each of three elements must be present in order to make a positive wetland determination, which are as follows:

- Greater than 50 percent dominance of hydrophytic plant species.
- Presence of hydric soil.
- The area is either permanently or periodically inundated, or soil is saturated to the surface during the growing season of the dominant vegetation.

2.2 Methodology

Level 1 (onsite inspection unnecessary) delineation was applied where the wetlands were not accessible. Level 2 (onsite inspection necessary) delineation was applied for all other areas within the corridor.

2.2.1 Level 1 Resource Review

Various data sets were collected in order to aid in the identification of wetland areas including:

Aerial Photography:

- U.S. Geological Survey black and white aerial photographs (2016) (**Figure 2**).

Elevation Data:

- MNDNR LiDAR data for South Dakota (**Figure 5**).

Ancillary Data:

- The Natural Resources Conservation Service (NRCS) Soil Survey Geographic Maps (SSURGO) for Lincoln County (**Figure 4**).
- U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) (**Figure 3**).

Wetland boundary lines were digitized using a compilation of the data described above. The general process involved identifying areas that are potential wetland and then determining a boundary for those wetlands. Once an area was identified as wetland, the DEM and higher resolution aerial photographs were used to aid in boundary determination.

2.2.2 Level 2 Delineation Field Procedures

The project site was examined on November 13, 2018 for areas meeting the technical wetland criteria in accordance with the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE 2010). The site was revisited on July 25th, 2019 to verify that wetlands delineated late in the season were accurate under normal conditions. No changes to boundaries or types were made during the 2nd visit.

The delineation procedures in the Corps *Manual* (i.e., the Routine Onsite Determination Method), in combination with wetland indicators and guidance provided in the *Regional Supplement* were applied for this delineation. Where differences in the two documents occur, the *Regional Supplement* takes precedence over the Corps *Manual* for applications in the *Midwest Region* (USACE 2010).

Field notes, samples, and photographs were taken at representative locations in each wetland basin, with data transect locations following spacing guidelines in the *Regional Supplement*. The respective wetland and upland plots for each wetland were documented on Wetland Determination Data Forms (**Appendix A**). Relevant photographs of the site and representative sample locations are included in **Appendix B**; all other photographs will be retained on file at SEH.

The locations of the delineated wetland boundaries were collected with a sub-meter accuracy Global Positioning System (GPS) unit and mapped. The results of the delineation are shown on **Figures 6 and 7**. The sample points noted identify where data was collected.

2.2.3 Previously Delineated Wetlands

Wetlands 4, 5, 6, 10, 11, 12, 13, 30, 31, 32, and 34 were previously delineated by others and approved by the USACE. The boundaries were verified and in most cases additional data was collected. If additional data was collected, data forms were prepared and a HGM assessment was done. A map showing these wetlands in addition to supplemental documents from the USACE for these delineations are included in **Appendix E**.

2.3 Hydrophytic/Wetland Vegetation

Wetland plant species nomenclature follows the *National Wetland Plant List* (USACE 2016). Identification was aided when necessary with field guides for the region. Vegetation was sampled in nested circular plots: 5-ft radius for herbaceous species, 15-ft radius for shrubs, and 30-ft radius for trees and vines.

2.4 Hydric/Wetland Soils

Soils were observed for hydric soil characteristics. Soils were examined in cores taken with a Dutch auger. Soil profiles were observed at a depth necessary to confirm hydric soil characteristics. Typical soil profile depths are typically within 18-24 inches below ground surface to allow for: (1) observation of an adequate portion of the soil profile to determine presence/absence of hydric soil characteristics; (2) observation of hydrology including depth to the water table and saturated soils; and, (3) identification of disturbances (e.g., buried horizon, plow line, etc.). Soil color determinations were made using Munsell Soil Color Charts (Gretag-Macbeth 1994). Site soil characteristics were compared to those mapped and described in the

Soil Survey for Lincoln County (USDA 2019). Hydric soil characteristics were compared to those identified in the *Midwest Regional Supplement* (USACE 2010) and the most recent version of the NRCS publication *Field Indicators of Hydric Soils in the United States, Version 8.1* (USDA 2017).

2.5 Hydrology

Primary and secondary indicators of hydrology were identified in the field to determine the presence or absence of wetland hydrology, as described in the *Midwest Regional Supplement* (USACE 2010), and are listed in each wetland description. However, saturation and/or water tables were not able to be observed as the water was frozen at the time of the first site visit. Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

3 Hydrogeomorphic (HGM) Assessment

The Hydrogeomorphic (HGM) Approach is a method to assess the functional condition of wetlands by using data from a range of physical characteristics of the wetland collected during the field delineation. The HGM Approach incorporates data collected from the wetlands by using mathematic models to provide a level of wetland condition for each function. When combined in an aggregation equation, these functions produce a functional capacity index (FCI), a measure of the functional capacity of a wetland relative to reference standard wetlands on a scale of 0.0 – 1.0. A low FCI indicates that the wetland is performing a function at a level that is below that characteristic of reference standard.

While the FCI scores alone define relationships between variables of the wetland, when they are combined with the area of the wetland, a Functional Capacity Unit (FCU) score is generated. The FCU provides a basis for determination of impact and mitigation.

The HGM Approach was utilized on the 34 field delineated wetland basins described above. HGM was not used on wetlands that were previously delineated by others where new data was not taken. HGM scores were calculated as required for the wetland delineation. A summary table of the HGM scores is included below. Full calculations for HGM can be found in the Hydrogeomorphic Model Worksheets in **Appendix D**. The total HGM score for the site is 858.50 FCUs.

The Prairie Pothole and Slope models were used for the wetlands in this project. Those that were mostly linear wetlands on low gradient slopes were characterized under the slope HGM model. Wetlands that were characterized under the Prairie Pothole HGM model were those that are within closed-contours.

Please see **Appendix D** for the HGM results table.

4 Results

At the time of the delineation, the active growing season for the area had concluded, but plants were identifiable as were the soil and hydrology indicators. The *Regional Supplement* (USACE 2010) describes several criteria for an active growing season, which include fresh growth on wetland herbaceous vegetative species, bud break on trees or shrubs, and/or active flowering plants.

The field delineation was conducted under precipitation conditions that were normal as compared to the historical average for the region according to National Weather Service (**Appendix C**). Most of the vegetation was identifiable, including all dominant species.

43 wetland basins were identified, delineated, and classified (**Figures 6 and 7**). The Wetland Determination Data Forms (**Appendix A**) indicate the dominant species of vegetation and the soil and hydrologic characteristics at representative locations around each basin. **Table 1** is a summary of the size and classification of each wetland basin delineated using Level 1 delineation methods and **Table 2** is a summary of the size and classification of each wetland basin delineated using Level 2 delineation methods.

The wetlands are grouped by HGM classification followed by Cowardin classification below **Table 2**.

4.1 Level 1 Delineation

Table 1 – Level 1 Wetland and Aquatic Resources

Wetland ID	Figure	Size (acres) ¹	HGM Classification	Latitude	Longitude
Wetland 33	Figure 6-2	0.0000 ²	Prairie Pothole	43.4861	-96.7958
Wetland 35	Figures 6-1 and 6-2	0.2186	Slope	43.4829	-96.7971
Wetland 36	Figure 6-1	0.2915	Slope	43.4685	-96.7963
Wetland 37	Figure 6-1	0.0000 ²	Prairie Pothole	43.4664	-96.7961

¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated.

² Project area has been revised since original site visit in 2018. This basin is no longer within the project limits.

* Previously Delineated Wetland by others

4.2 Level 2 Delineation

Table 2 – Level 1 Wetland and Aquatic Resources

Wetland ID	Figure	Size (acres) ¹	HGM Classification	Lat	Long
Wetland 1	Figures 6-1 and 6-2	1.0355	Prairie Pothole	43.4760	-96.7945
Wetland 2	Figures 6-1 and 6-2	2.0282	Slope	43.4763	-96.7956
Wetland 3	Figures 6-1 and 6-2	0.6978	Slope	43.4760	-96.7927
Wetland 4*	Figure 6-2	0.0994	Slope	43.4818	-96.7948
Wetland 5*	Figures 6-1 and 6-2	1.4022	Prairie Pothole	43.4748	-96.7946

Wetland ID	Figure	Size (acres) ¹	HGM Classification	Lat	Long
Wetland 6*	Figure 6-1	2.0970	Prairie Pothole	43.4749	-96.7923
Wetland 7	Figure 6-1	0.0000 ²	Prairie Pothole	43.4720	-96.7941
Wetland 8	Figure 6-1	0.2329	Prairie Pothole	43.4721	-96.7957
Wetland 9	Figure 6-1	0.2507	Prairie Pothole	43.4735	-96.7956
Wetland 10*	Figure 6-1	1.5382	Slope	43.4749	-96.7999
Wetland 11*	Figures 6-1, 6-2, and 6-3	5.9340	Slope	43.4778	-96.7979
Wetland 12*	Figures 6-1 and 6-3	3.3435	Prairie Pothole	43.4750	-96.8026
Wetland 13*	Figures 6-1 and 6-3	0.0319	Prairie Pothole	43.4752	-96.8053
Wetland 14	Figures 6-3 and 6-4	0.7490	Prairie Pothole	43.4758	-96.8114
Wetland 15	Figures 6-3 and 6-4	0.3751	Slope	43.4754	-96.8107
Wetland 16	Figure 6-4	0.4261	Slope	43.4757	-96.8145
Wetland 17	Figure 6-4	0.7141	Slope	43.4758	-96.8171
Wetland 18	Figure 6-4	0.1251	Slope	43.4754	-96.8174
Wetland 19	Figure 6-4	0.4161	Slope	43.4757	-96.8223
Wetland 20	Figure 6-4	0.0940	Slope	43.4754	-96.8221
Wetland 21	Figure 6-4	0.0793	Slope	43.4754	-96.8248
Wetland 22	Figure 6-2	0.0000 ²	Slope	43.4865	-96.8003
Wetland 23	Figures 6-2 and 6-3	1.7661	Slope	43.4822	-96.7981
Wetland 24	Figures 6-2 and 6-3	0.1306	Slope	43.4817	-96.7994
Wetland 25	Figure 6-3	2.0234	Slope	43.4811	-96.7994
Wetland 26	Figure 6-3	1.6802	Slope	43.4843	-96.8067
Wetland 27	Figure 6-3	2.9032	Slope	43.4811	-96.8067
Wetland 28	Figure 6-3	0.2129	Prairie Pothole	43.4820	-96.8060
Wetland 29	Figure 6-3	0.9682	Prairie Pothole	43.4872	-96.8068
Wetland 30*	Figure 6-1	0.2320	Prairie Pothole	43.4896	-96.8060
Wetland 31*	Figure 6-1	0.0995	Prairie Pothole	43.4704	-96.7982
Wetland 32*	Figure 6-1	0.5616	Prairie Pothole	43.4695	-96.7977
Wetland 33	Figure 6-2	0.0000 ²	Prairie Pothole	43.4861	-96.7958
Wetland 34*	Figure 6-2	5.4493	Slope	43.4907	-96.7807
Wetland 38	Figures 6-1 and 6-2	0.0312	Slope	43.4755	-96.7981

Wetland ID	Figure	Size (acres) ¹	HGM Classification	Lat	Long
Wetland 39	Figures 6-1 and 6-2	0.0176	Slope	43.4756	-96.8023
Wetland 40	Figure 6-3	0.1701	Slope	43.4756	-96.8088
Wetland 41	Figure 6-4	0.1690	Slope	43.4755	-96.8153
Wetland 42	Figure 6-3	0.0924	Slope	43.4894	-96.8064
Wetland 43	Figure 6-3	0.1069	Slope	43.4770	-96.8064

¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated.

² Project area has been revised since original site visit in 2018. This basin is no longer within the project limits.

* Previously Delineated Wetland by others

4.2.1 Prairie Pothole HGM Class Wetlands

Table 3 – Summary of Prairie Pothole Wetlands

Wetland ID	Figure	Cowardin Classification	Size (acres) ¹
Wetland 1	Figures 6-1 and 6-2	PEM1C	1.0355
Wetland 5	Figures 6-1 and 6-2	PEM1A	1.4022
Wetland 6	Figure 6-1	PEM1C	2.0970
Wetland 8	Figure 6-1	PEM1B	0.2329
Wetland 9	Figure 6-1	PEM1C	0.2507
Wetland 12	Figures 6-1 and 6-3	PEM1B	3.3435
Wetland 13*	Figures 6-1 and 6-3	PEM1C	0.0319
Wetland 14	Figures 6-3 and 6-4	PUBH	0.7490
Wetland 28	Figure 6-3	PEM1B	0.2129
Wetland 29	Figure 6-3	PEM1B	0.9682
Wetland 30*	Figure 6-1	PEM1A	0.2320
Wetland 31*	Figure 6-1	PEM1A	0.0995
Wetland 32*	Figure 6-1	PEM1C	0.5616
Total acreage			11.2169

¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated.

¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated.

² Project area has been revised since original site visit in 2018. This basin is no longer within the project limits.

* Previously Delineated Wetland by others

4.2.1.1 PEM1A

Wetlands 5, 30, and 31 are PEM1A classified wetlands located within the project limits (**Figure 6**). Data was not taken for Wetlands 30 and 31, as they were previously delineated by others, and it presumed site conditions had not changed.

The dominant vegetation in Wetland 5 included lakebank sedge (*Carex lacustris* – OBL) and northern water-plantain (*Alisma triviale* – OBL) in the herbaceous stratum.

The soil profile of the wetland met technical hydric soil indicator F6 – Redox Dark Surface. The Lincoln County soil survey identifies soils in this wetland as predominantly nonhydric, inconsistent with field observations. This contradiction is likely due to the accuracy of the soil survey and the disturbed soils on site associated with farming practices.

Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

The wetland boundary placement was primarily based upon a topographic change and a change in vegetation dominance. Dominant vegetation in the upland included soybeans (*Glycine max* – NI). Upland soils did not meet for hydric soils criteria. Hydrology indicators were not observed in the upland.

4.2.1.2 PEM1B

Wetlands 8, 12, 28, and 29 are PEM1B classified wetlands located within the project limits (**Figures 6-1 through 6-4**).

The dominant vegetation in these wetlands included northern water plantain, reed canary grass (*Phalaris arundinacea* – FACW), and freshwater cordgrass (*Spartina pectinata* – FACW), in the herbaceous stratum.

The soil profile of these wetlands met technical hydric soil indicator F6 – Redox Dark Surface. The Lincoln County soil survey identifies soils in this wetland as predominantly hydric or partially hydric, consistent with field observations.

Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

The wetland boundary placement was primarily based upon a topographic change and a change in vegetation dominance. Dominant vegetation in the upland included corn (*Zea mays* – NI) and soybeans. Upland soils did not meet hydric soils criteria. Hydrology indicators were not observed in the upland.

4.2.1.3 PEM1C

Wetlands 1, 9, 13, and 32 are PEM1C classified wetlands located within the project limits (**Figures 6-1 through 6-4**). Data was not taken for Wetlands 13 and 32, as they were previously delineated by others.

The dominant vegetation in these wetlands included narrow-leaf cat-tail (*Typha angustifolia* – OBL), Kentucky blue grass (*Poa pratensis* – FAC), soybeans, and blunt spike-rush (*Eleocharis obtusa* – OBL) in the herbaceous stratum.

The soil profile of these wetlands met technical hydric soil indicator F6 – Redox Dark Surface. The Lincoln County soil survey identifies soils in this wetland as predominantly hydric or partially hydric, consistent with field observations.

Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

The wetland boundary placement was primarily based upon a topographic change and a change in vegetation dominance. Dominant vegetation in the upland included yellow bristle grass (*Setaria pumila* – FAC), an unidentifiable sedge species (*Carex spp.*), and soybeans. Upland soils did not meet hydric soils criteria. Hydrology indicators were not observed in the upland.

4.2.1.4 PUBH

Wetland 14 is a PUBH classified wetland located within the project limits (**Figures 6-3 and 6-4**).

The dominant vegetation in this wetland included reed canary grass.

The soil profile in this wetland met technical hydric soil indicator F6 – Redox Dark Surface. The Lincoln County soil survey identifies soils in this wetland as predominantly hydric, consistent with field observations.

Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

The wetland boundary placement was primarily based upon a topographic change and a change in vegetation dominance. Dominant vegetation in the upland included Kentucky blue grass. Upland soils did not meet hydric soils criteria. Hydrology indicators were not observed in the upland.

4.2.2 Slope HGM Class Wetlands

Table 4 – Summary of Slope Wetlands

Wetland ID	Figure	Cowardin Classification	Size (acres) ¹
Wetland 2	Figures 6-1 and 6-2	PEM1C	2.0282
Wetland 3	Figures 6-1 and 6-2	PEM1B	0.6978
Wetland 4	Figure 6-2	PEM1B	0.0994
Wetland 10	Figure 6-1	PEM1A	1.5382
Wetland 11	Figures 6-1, 6-2, and 6-3	PEM1B / PEM1C	5.9340
Wetland 15	Figures 6-3 and 6-4	PEM1A	0.3751
Wetland 16	Figure 6-4	PEM1B	0.4261
Wetland 17	Figure 6-4	PEM1C	0.7141
Wetland 18	Figure 6-4	PEM1C	0.1251
Wetland 19	Figure 6-4	PEM1C	0.4161
Wetland 20	Figure 6-4	PEM1B	0.0940
Wetland 21	Figure 6-4	PEM1B	0.0793
Wetland 23	Figures 6-2 and 6-3	PEM1C	1.7661

Wetland ID	Figure	Cowardin Classification	Size (acres) ¹
Wetland 24	Figures 6-2 and 6-3	PEM1A	0.1306
Wetland 25	Figure 6-3	PEM1B	2.0234
Wetland 26	Figure 6-3	PEM1B	1.6802
Wetland 27	Figure 6-3	PEM1B	2.9032
Wetland 38	Figures 6-1 and 6-2	PEM1B	0.0312
Wetland 39	Figures 6-1 and 6-2	PEM1C	0.0176
Wetland 40	Figure 6-3	PEM1B	0.1701
Wetland 41	Figure 6-4	PEM1B	0.1690
Wetland 42	Figure 6-3	PEM1B	0.0924
Wetland 43	Figure 6-3	PEM1B	0.1069
Total acreage			21.6181
¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated. ¹ Size includes areas of wetland within the area of investigation only. Wetlands may extend beyond the limits of the area investigated and actual wetland size may be larger than that indicated. ² Project area has been revised since original site visit in 2018. This basin is no longer within the project limits. * Previously Delineated Wetland by others			

4.2.2.1 PEM1A

Wetlands 10, 15, and 24 are PEM1A classified wetlands located within the project limits (**Figures 6-1 through 6-6**).

The dominant vegetation in the wetlands included freshwater cord grass, dark green bulrush (*Scirpus atrovirens* – OBL), curly dock (*Rumex crispus* – FAC), reed canary grass, and corn.

The soil profiles of the fresh (wet) meadow communities met technical hydric soil indicator F6 – Redox Dark Surface. The Lincoln County soil survey identifies soils in these wetlands as predominantly hydric and predominantly hydric, partially consistent with field observations.

Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

The wetland boundary placement was primarily based upon a topographic change and a change in vegetation dominance. Dominant vegetation in the upland included soybeans, Kentucky blue grass, and corn. Upland soils did not meet hydric soils criteria. Hydrology indicators were not observed in the upland.

4.2.2.2 PEM1B

Wetlands 3, 4, 16, 20, 21, 25, 26, 27, 38, 40, 41, 42, 43 and a portion of 11 are PEM1B classified wetlands located within the project limits (**Figures 6-1 through 6-6**).

The dominant vegetation in the wetlands included reed canary grass, corn, tall scouring-rush (*Equisetum hyemale* – FACW), narrow-leaf cat-tail, and uptight (*Carex stricta* – OBL).

The soil profiles of the fresh (wet) meadow communities met technical hydric soil indicators F7 – Depleted Dark Surface and/or F6 – Redox Dark Surface. The Lincoln County soil survey identifies soils in this wetland as predominantly hydric, partially hydric, and predominantly hydric, partially consistent with field observations.

Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

The wetland boundary placement was primarily based upon a topographic change and a change in vegetation dominance. Dominant vegetation in the upland included yellow bristle grass, an unidentifiable sedge species, corn, soybeans, and Kentucky blue grass. Upland soils did not meet hydric soils criteria. Hydrology indicators were not observed in the upland.

4.2.2.3 PEM1C

Wetlands 2, 17, 18, 19, 23, and 39 are PEM1C classified wetlands located within the project limits (**Figures 6-1 through 6-6**).

The dominant vegetation in the wetlands included narrow-leaf cat-tail, reed canary grass, dark-green bulrush, and Kentucky blue grass.

The soil profiles of the fresh (wet) meadow communities met technical hydric soil indicators F7 – Depleted Dark Surface and/or F6 – Redox Dark Surface. The Lincoln County soil survey identifies soils in this wetland as predominantly hydric and predominantly hydric, partially consistent with field observations.

Wetlands were verified during the 2019 growing season, and wetland hydrology indicators were observed.

The wetland boundary placement was primarily based upon a topographic change and a change in vegetation dominance. Dominant vegetation in the upland included yellow bristle grass, an unidentifiable sedge species, corn, soybeans, and Kentucky blue grass. Upland soils did not meet hydric soils criteria. Hydrology indicators were not observed in the upland.

5 Regulatory Considerations

Wetlands in the project area are regulated by agencies at the local, regional, state, and federal levels including the USACE and the EPA at the federal level. It is presumed that the USACE has jurisdiction over all the wetlands in the project area due to their and connectivity proximity to the River. The primary state agencies involved in wetlands protection include the South Dakota Department of Environment and Natural Resources (SDDENR), South Dakota Department of Game, Fish, and Parks (SDGFP), and the South Dakota Department of Agriculture (SDDA). These agencies may require a field review of the wetland delineation.

Construction plans that propose any direct alteration or indirect impact to wetlands or watercourses within the project area will require permits from the appropriate regulatory agencies. Violation of wetland regulations can result in substantial civil and/or criminal penalties.

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Figures

Figure 1 – Site Location and Topography

Figure 2 – 2016 Aerial Photograph

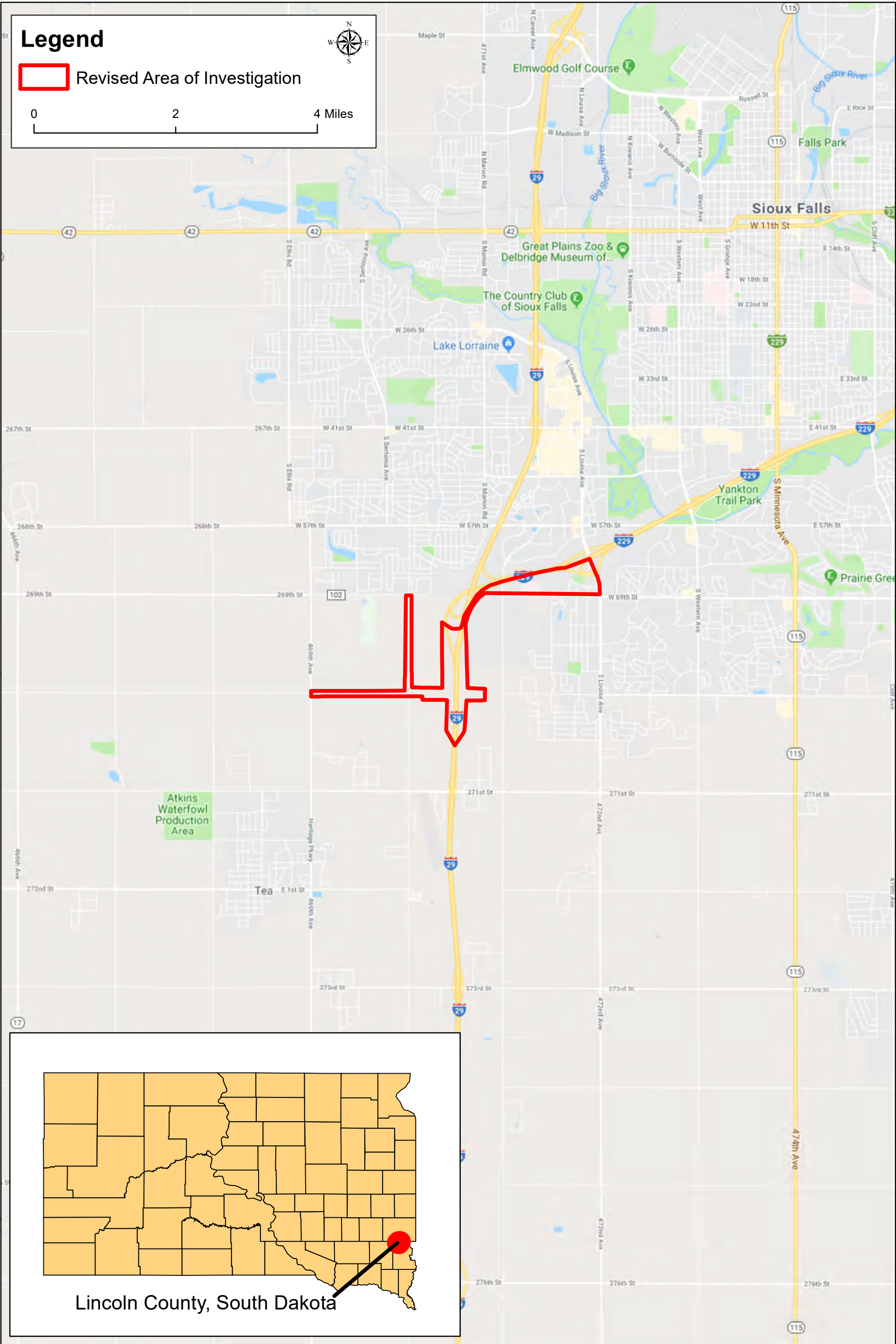
Figure 3 – National Wetlands Inventory (NWI)

Figure 4 – NRCS Web Soil Survey Map

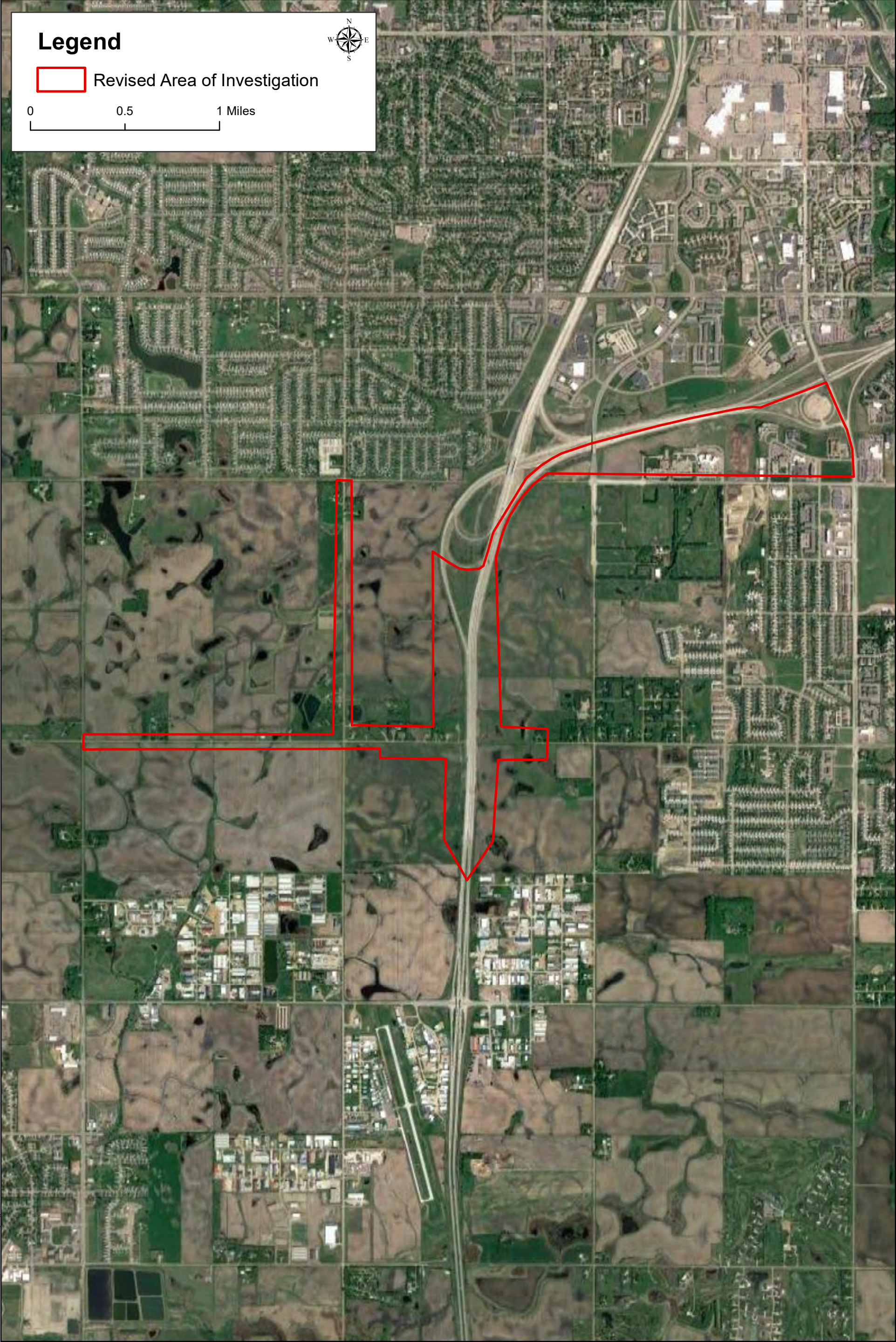
Figure 5 – LIDAR Topography

Figure 6 – Wetland Delineation Results

Figure 7 – Wetland Community Type

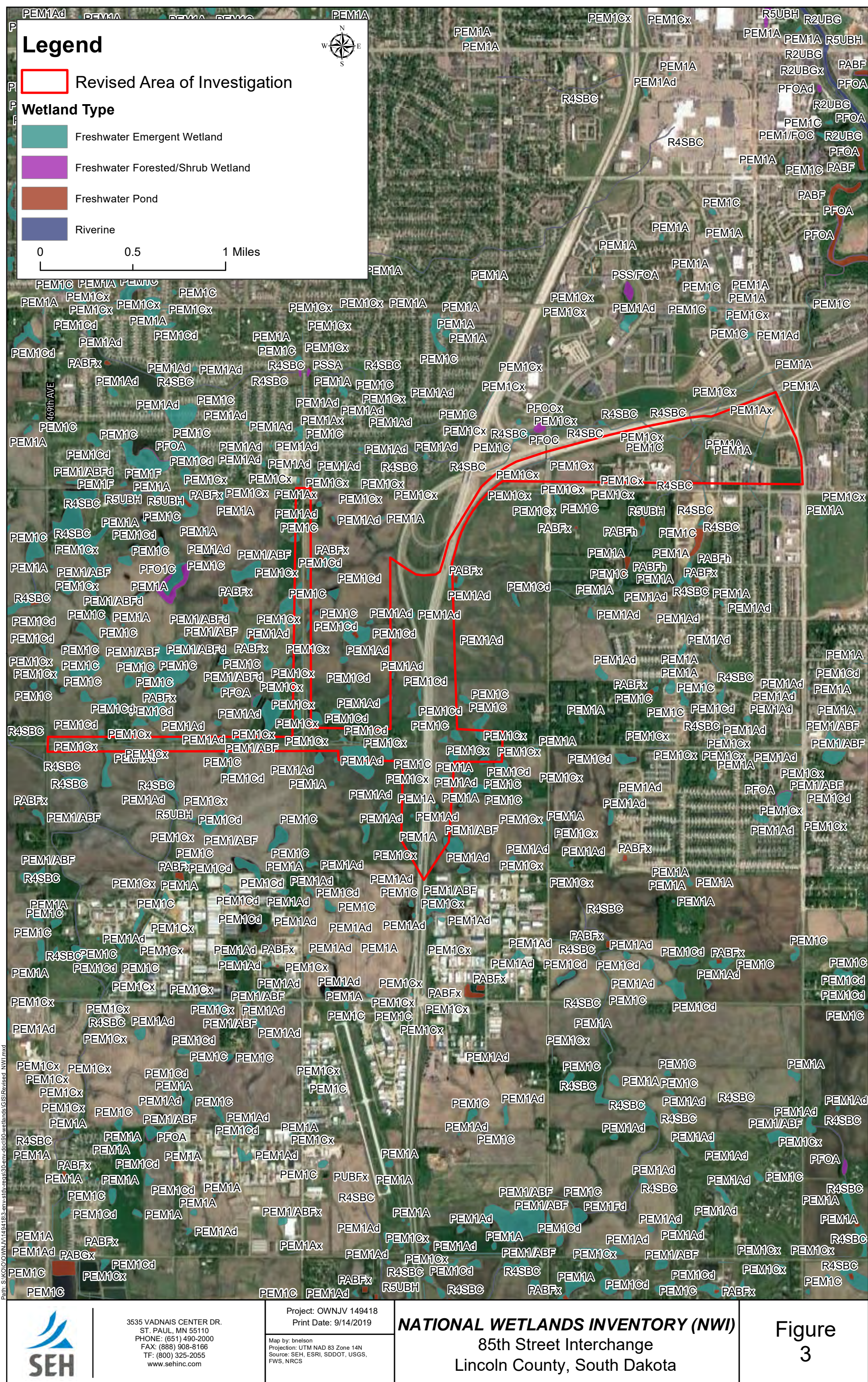


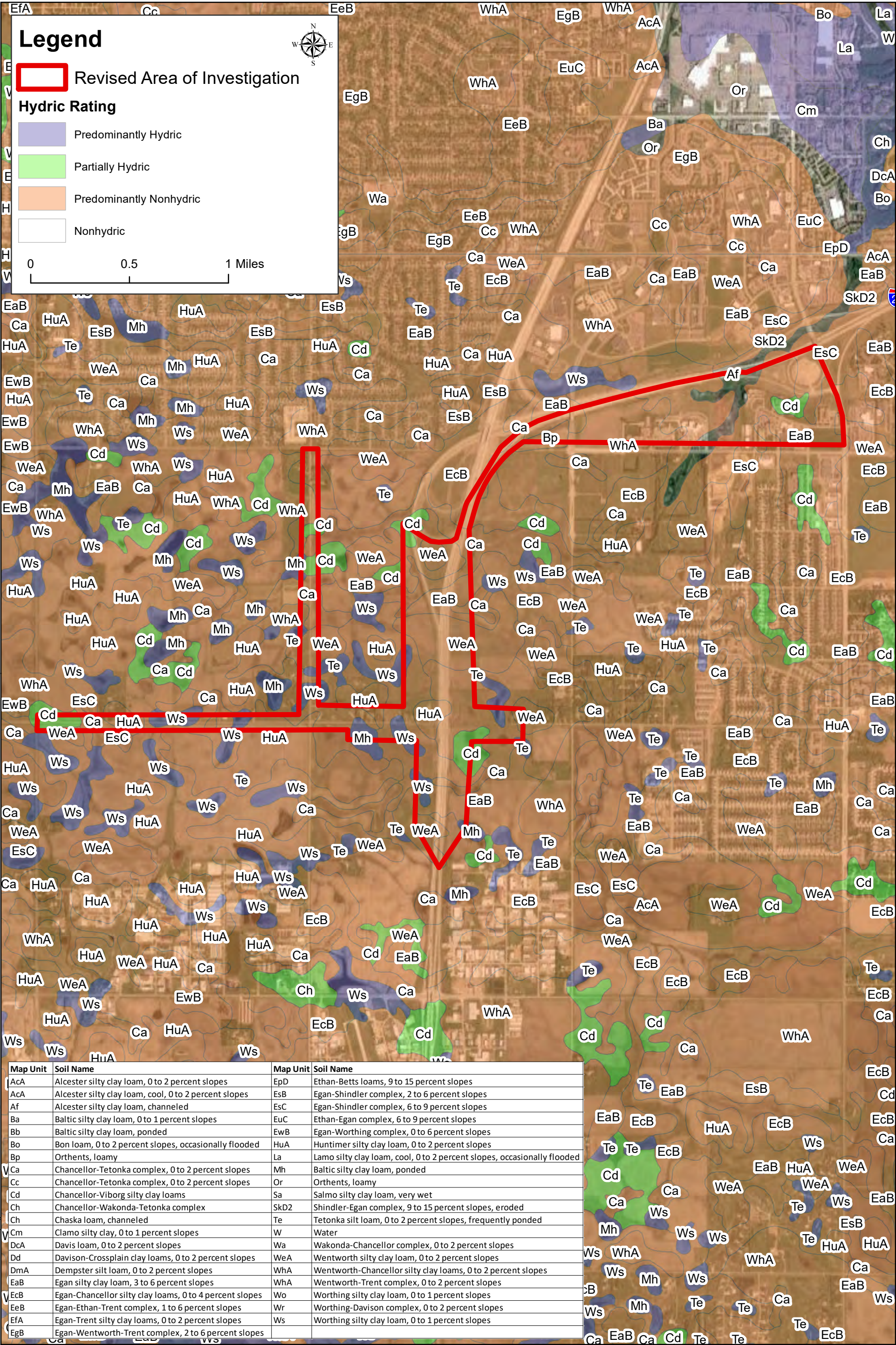
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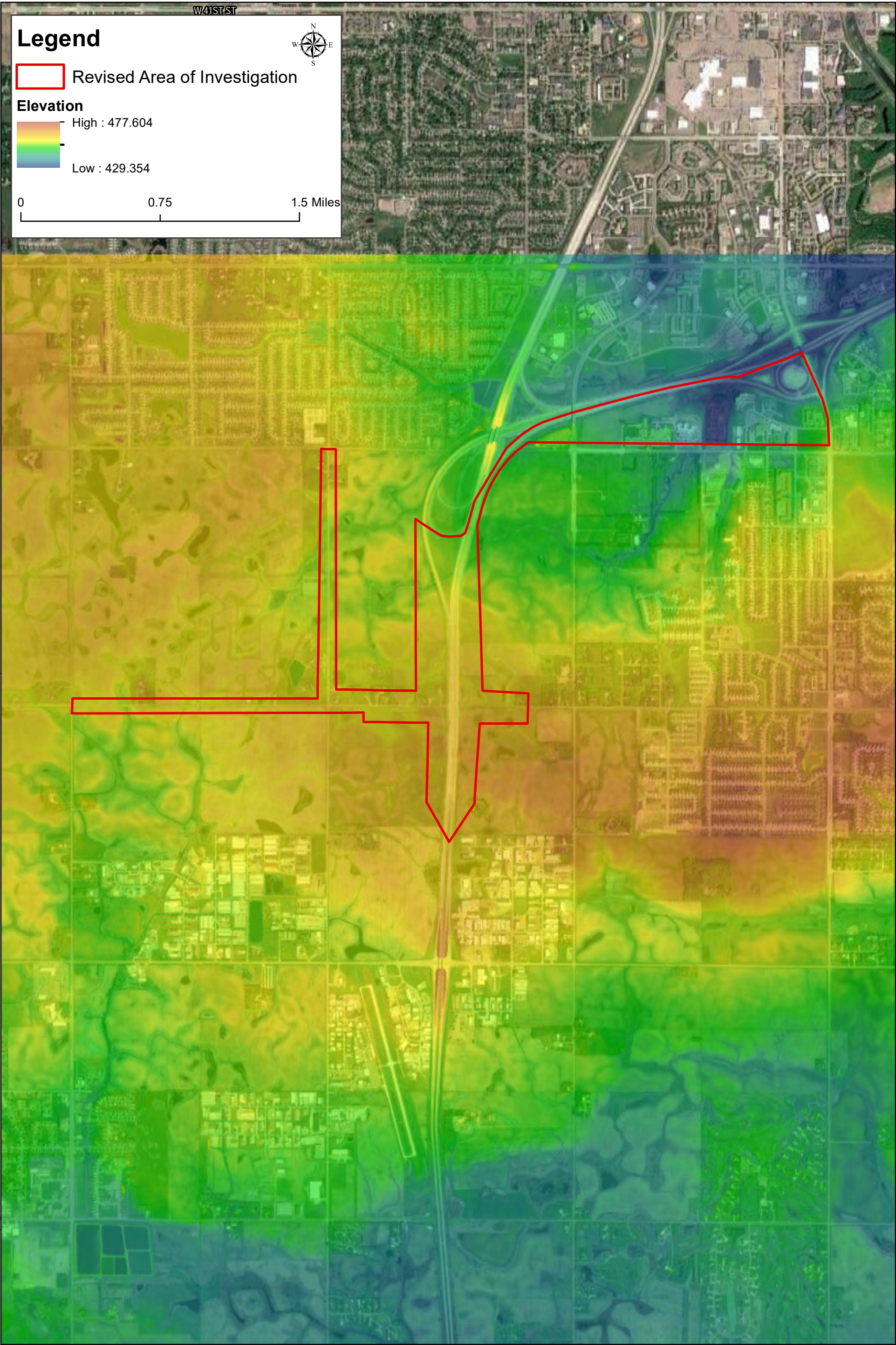
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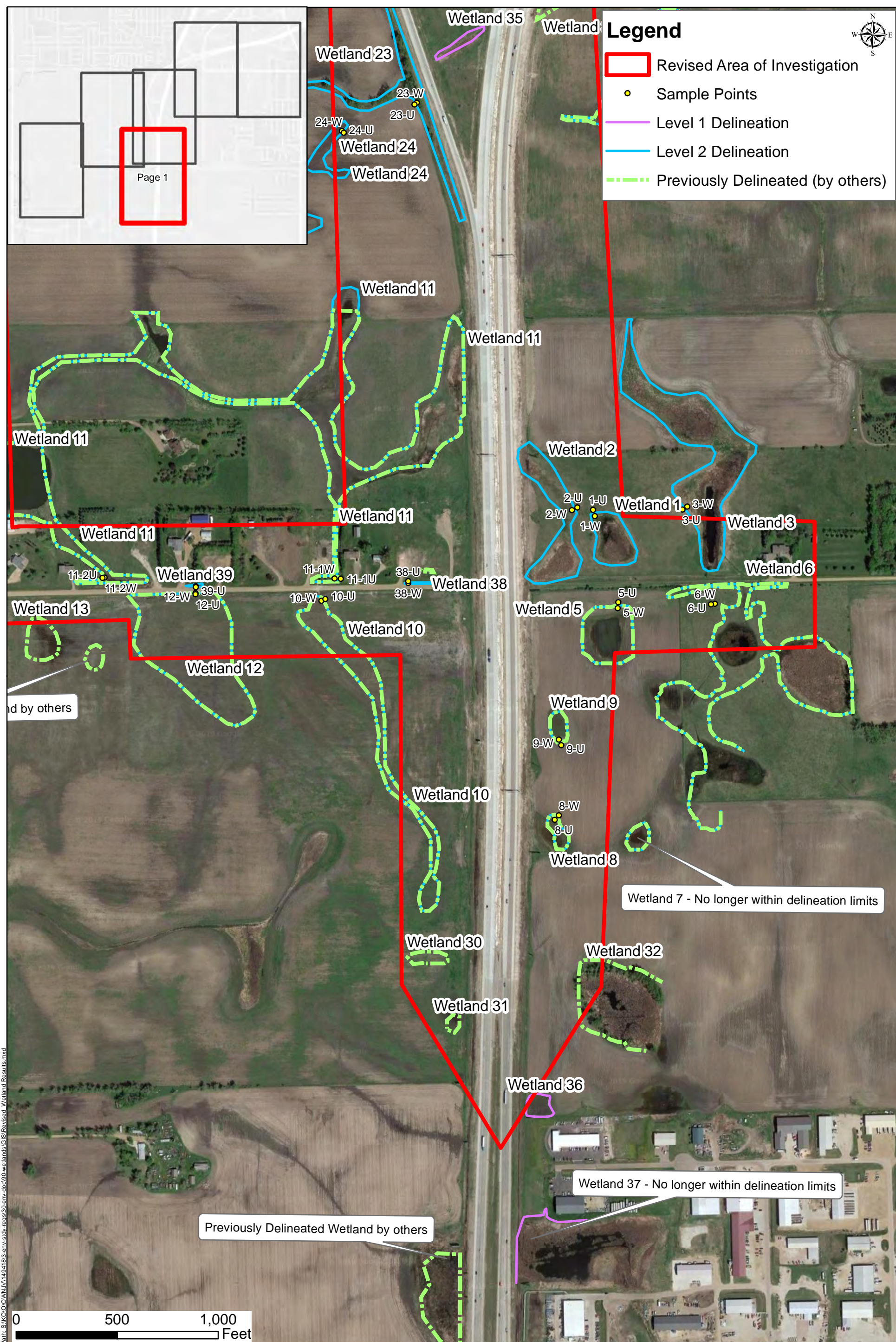


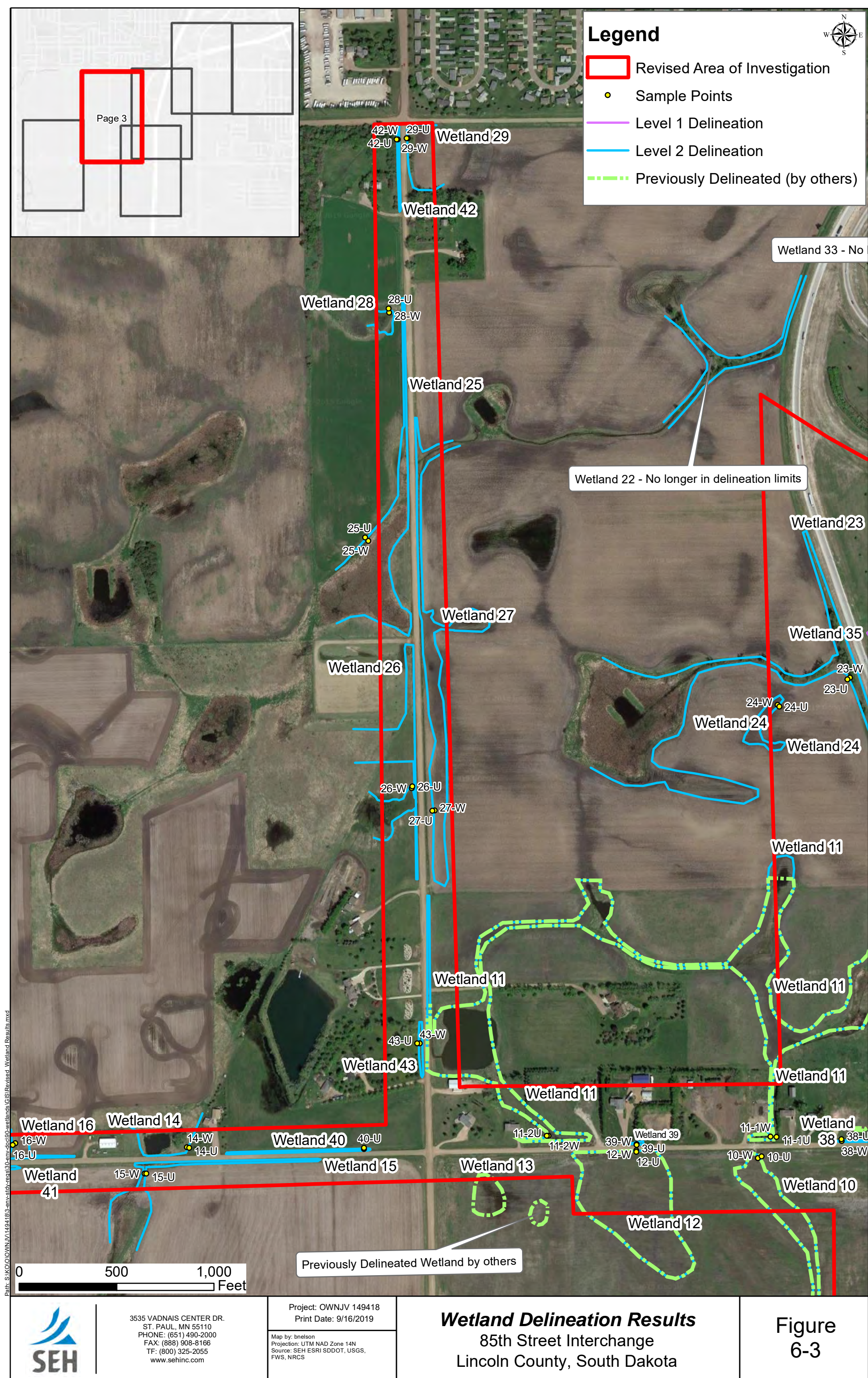


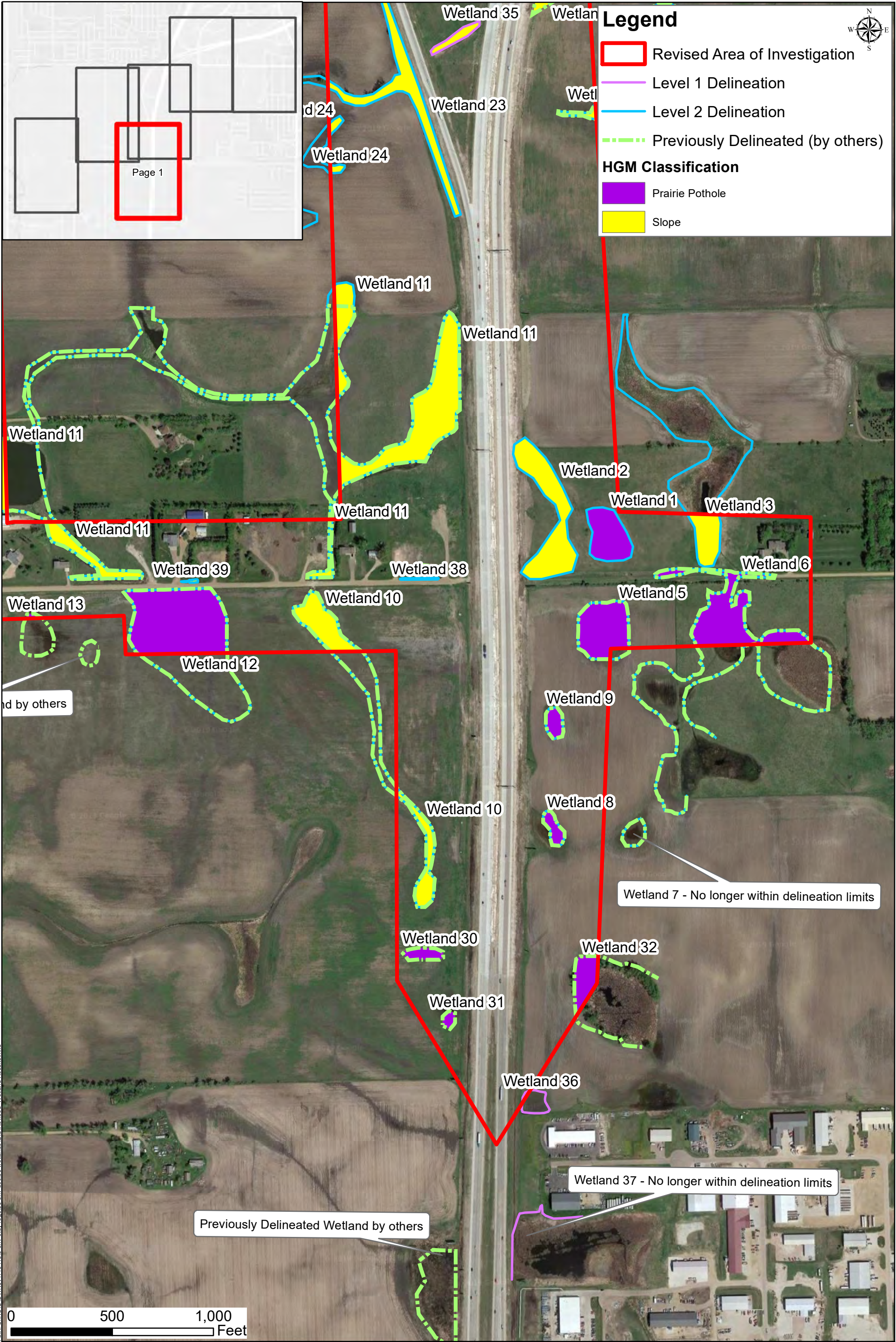
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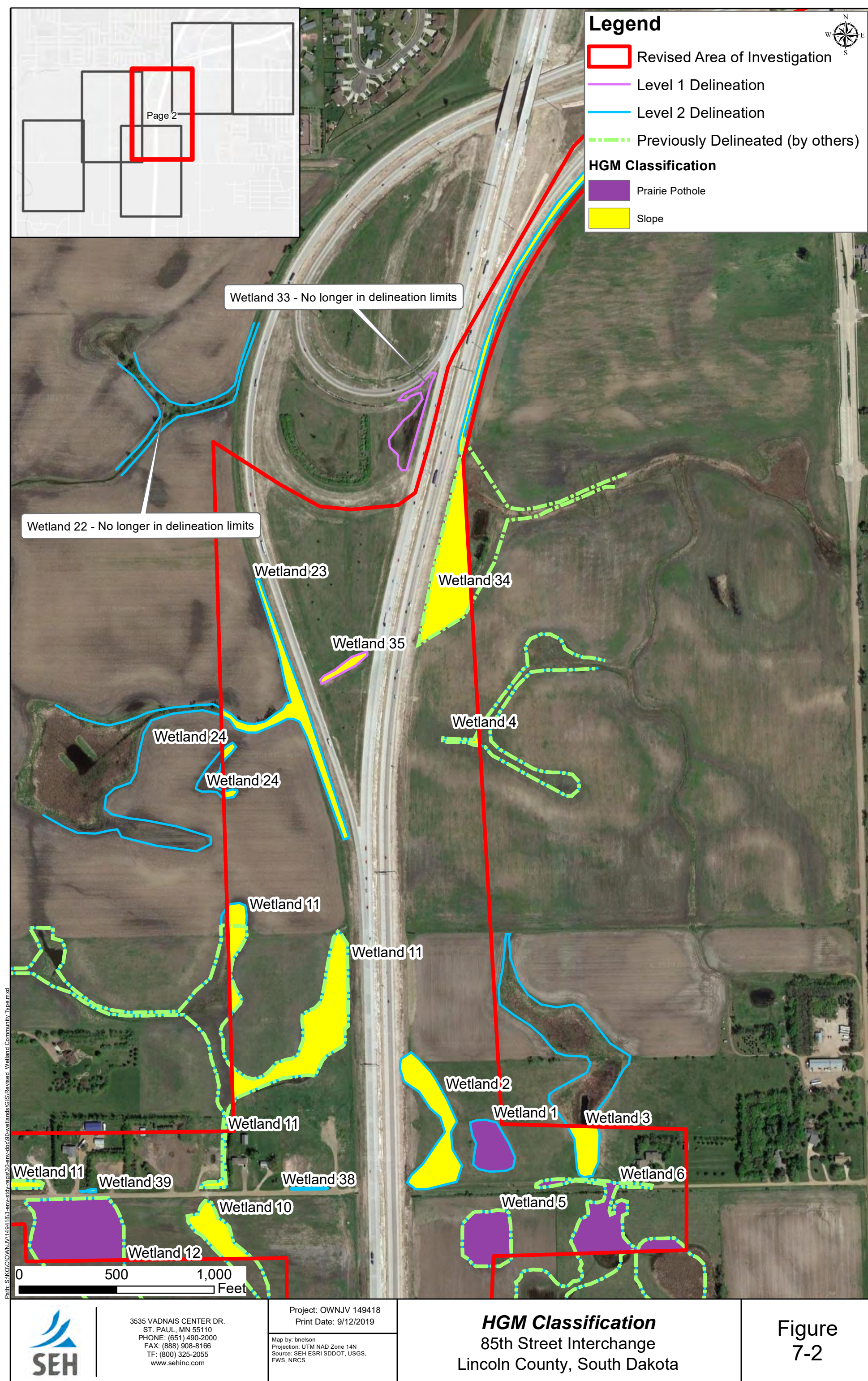
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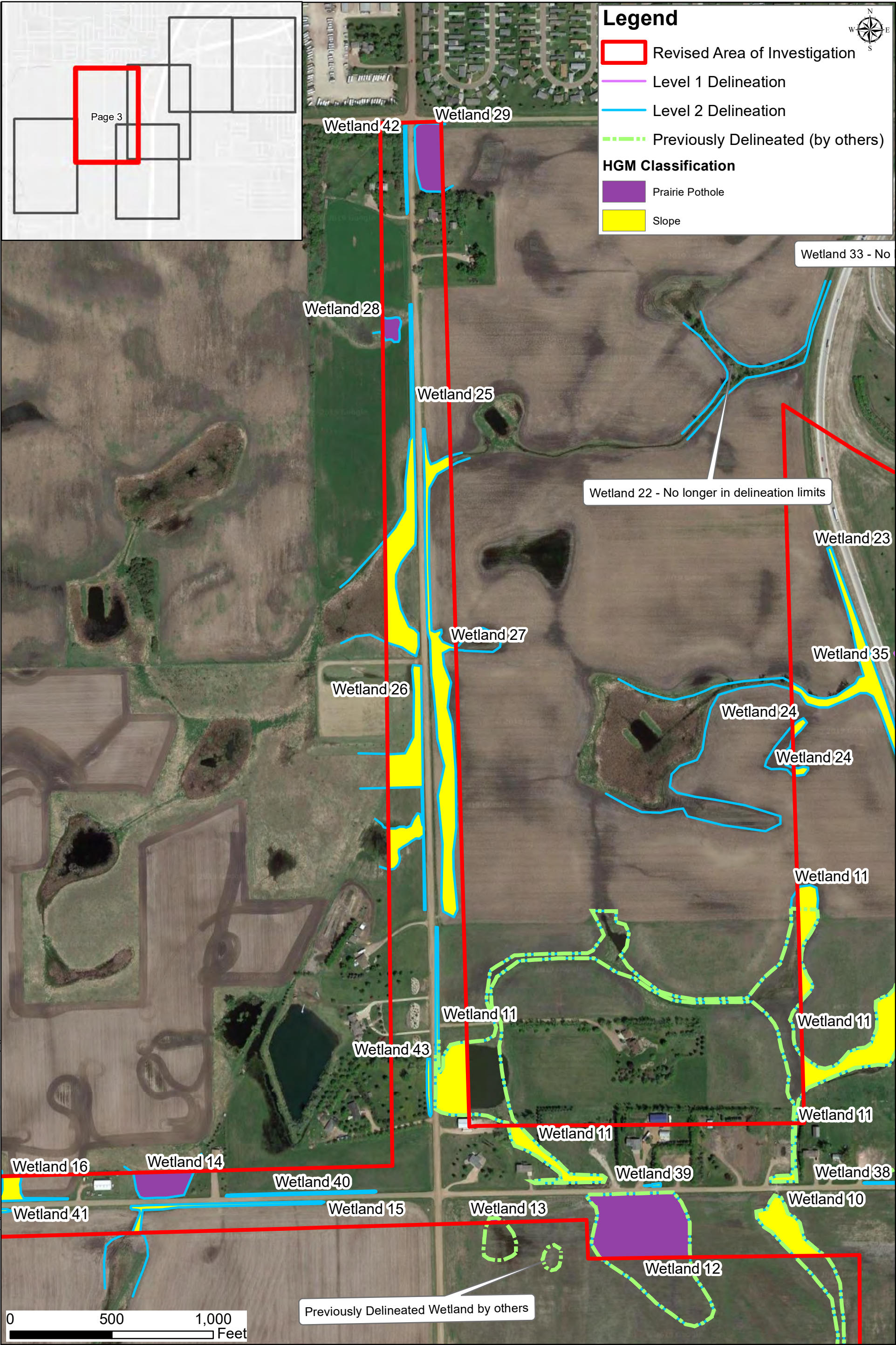






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Appendix A

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 1-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 3 Lat: 43.4765 Long: -96.7949 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Chancellor silty clay loams, 0 to 4 percent slopes NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>80</u> (A) <u>240</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Setaria pumila</u> <u>--</u> <u>Yellow Bristle Grass</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Carex spp.</u> <u>--</u>	<u>20</u>	<u>Y</u>	<u>NI</u>	
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 1-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 1-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.4764 Long: -96.7948 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Chancellor silty clay loams, 0 to 4 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 1</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)			
1	<u>Typha angustifolia -- Narrow-Leaf Cat-Tail</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>
2	<u>Poa pratensis -- Kentucky Blue Grass</u>	<u>15</u>	<u>N</u>	<u>FAC</u>
3	<u>Carex lacustris -- Lakebank Sedge</u>	<u>15</u>	<u>N</u>	<u>OBL</u>
4	<u>Spartina pectinata -- Freshwater Cord Grass</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
6	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across all Strata: 1 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>75</u>	x 1 =	<u>75</u>
FACW species	<u>10</u>	x 2 =	<u>20</u>
FAC species	<u>15</u>	x 3 =	<u>45</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>100</u> (A)		<u>140</u> (B)

Prevalence Index = B/A = 1.40

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 1-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	7.5YR 2.5/2	100					Silty Clay Loam	
4-16	10YR 2/1	95	10YR 3/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 2-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 3 Lat: 43.47649503 Long: -96.79514624 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Chancellor silty clay loams, 0 to 4 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Herb stratum	(Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Setaria pumila</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>
2	<u>Carex spp.</u>	<u>20</u>	<u>Y</u>	<u>NI</u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
6	<u> </u>	<u> </u>	<u> </u>	<u> </u>
7	<u> </u>	<u> </u>	<u> </u>	<u> </u>
8	<u> </u>	<u> </u>	<u> </u>	<u> </u>
9	<u> </u>	<u> </u>	<u> </u>	<u> </u>
10	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		

Woody vine stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across all Strata: 2 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>80</u>	x 3 =	<u>240</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>80</u>	(A)	<u>240</u> (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation
 Dominance test is >50%
X Prevalence index is ≤3.0*
 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 Problematic hydrophytic vegetation* (explain)
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
 Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 2-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 2-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47645947 Long: -96.79525073 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Chancellor silty clay loams, 0 to 4 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 2</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)			
1	<u><i>Typha angustifolia</i> -- Narrow-Leaf Cat-Tail</u>	<u>80</u>	<u>Y</u>	<u>OBL</u>
2	<u><i>Carex lacustris</i> -- Lakebank Sedge</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
3	<u><i>Poa pratensis</i> -- Kentucky Blue Grass</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
4	<u><i>Spartina pectinata</i> -- Freshwater Cord Grass</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
6	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>90</u>	x 1 =	<u>90</u>
FACW species	<u>5</u>	x 2 =	<u>10</u>
FAC species	<u>5</u>	x 3 =	<u>15</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>100</u> (A)		<u>115</u> (B)

Prevalence Index = B/A = 1.15

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

 Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

 Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 2-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	5YR 3/1	100					Silty Clay Loam	
6-18	10YR 2/1	95	2.5YR 3/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 3-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 4 Lat: 43.47642718 Long: -96.79318805 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Tentonka silt loam, 0 to 2 percent slopes, frequently ponded NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Herb stratum	(Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Setaria pumila</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>
2	<u>Carex spp.</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
6	<u> </u>	<u> </u>	<u> </u>	<u> </u>
7	<u> </u>	<u> </u>	<u> </u>	<u> </u>
8	<u> </u>	<u> </u>	<u> </u>	<u> </u>
9	<u> </u>	<u> </u>	<u> </u>	<u> </u>
10	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		

Woody vine stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet			
Number of Dominant Species that are OBL, FACW, or FAC:	<u>2</u>	(A)	
Total Number of Dominant Species Across all Strata:	<u>2</u>	(B)	
Percent of Dominant Species that are OBL, FACW, or FAC:	<u>100.00%</u>	(A/B)	

Prevalence Index Worksheet			
Total % Cover of:			
OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>20</u>	x 2 =	<u>40</u>
FAC species	<u>80</u>	x 3 =	<u>240</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>100</u>	(A)	<u>280</u> (B)
Prevalence Index = B/A =		<u>2.80</u>	

Hydrophytic Vegetation Indicators:	
<u> </u> Rapid test for hydrophytic vegetation	
<u>X</u>	Dominance test is >50%
<u>X</u>	Prevalence index is ≤3.0*
Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
Problematic hydrophytic vegetation* (explain)	
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	

Hydrophytic vegetation present?	
<u>Y</u>	

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 3-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 3-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47646679 Long: -96.79309889 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Tentonka silt loam, 0 to 2 percent slopes, frequently ponded NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 3</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>15</u> x 1 = <u>15</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>115</u> (A) <u>230</u> (B) Prevalence Index = B/A = <u>2.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea -- Reed Canary Grass</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Spartina pectinata -- Freshwater Cord Grass</u>	<u>20</u>	<u>N</u>	<u>FACW</u>	
3	<u>Typha angustifolia -- Narrow-Leaf Cat-Tail</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4	<u>Scirpus cyperinus -- Cottongrass Bulrush</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
5	<u>Hordeum jubatum -- Fox-Tail Barley</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
6	<u>Asclepias syriaca -- Common Milkweed</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
7	<u>Aster spp. --</u>	<u>5</u>	<u>N</u>	<u>N/A</u>	
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>120</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		
Hydrophytic vegetation present? <u>Y</u>					

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 3-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/2	95	2.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	4-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS18R50W		
Landform (hillslope, terrace, etc.):	Backslope	Local relief (concave, convex, none):	None		
Slope (%):	4	Lat:	43.4821618	Long:	-96.79437184
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Chancellor-Tetonka complex, 0 to 2 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	(Plot size: 30' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Sapling/Shrub stratum					
1	(Plot size: 15' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Herb stratum					
1	(Plot size: 5' Radius)	--			
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100 = Total Cover		
Woody vine stratum					
1	(Plot size: 30' Radius)	--			
2		--			
			0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column totals 0 (A) 0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 4-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-15	10YR 2/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 4-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.48211507 Long: -96.79428685 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 4</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>45</u> (A) <u>115</u> (B) Prevalence Index = B/A = <u>2.56</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Zea mays</u> <u>--</u> <u>Corn</u>	<u>60</u>	<u>Y</u>	<u>NI</u>	
2	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Arctium minus</u> <u>--</u> <u>Lesser Burdock</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4	<u>Rumex crispus</u> <u>--</u> <u>Curly Dock</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>105</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
 Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 4-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	90	10YR 4/6	10	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	5-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS19R50W		
Landform (hillslope, terrace, etc.):	footslope	Local relief (concave, convex, none):	None		
Slope (%):	2	Lat:	43.47519242	Long:	-96.79443002
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan-Chancellor silty clay loams, 0 to 4 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum			Absolute % Cover	Dominant Species	Indicator Status
1	<i>Glycine max</i>	-- <i>Soybeans</i>	60	Y	NI
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			60	= Total Cover	
Woody vine stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 5-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 2/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 5-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS19R50W
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47511001 Long: -96.79444333 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Chancellor silty clay loams, 0 to 4 percent slopes NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 5</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)			
1	<u>Carex lacustris -- Lakebank Sedge</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>
2	<u>Alisma triviale -- Northern Water-Plantain</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>
3	<u>Rumex crispus -- Curly Dock</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
4	<u>Hordeum jubatum -- Fox-Tail Barley</u>	<u>5</u>	<u>N</u>	<u>FAC</u>
5	<u>Persicaria lapathifolia -- Dock-Leaf Smartweed</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
6	<u>Scirpus atrovirens -- Dark-Green Bulrush</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
7	<u>Schoenoplectus tabernaemontani -- Soft-Stem Club-Rush</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
8	<u>Glycine max -- Soybeans</u>	<u>5</u>	<u>N</u>	<u>NI</u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>110</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>90</u>	x 1 =	<u>90</u>
FACW species	<u>5</u>	x 2 =	<u>10</u>
FAC species	<u>10</u>	x 3 =	<u>30</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>105</u> (A)		<u>130</u> (B)

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

 Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 5-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	7.5YR 3/1	95	7.5YR 5/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>3</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	6-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS19R50W		
Landform (hillslope, terrace, etc.):	footslope	Local relief (concave, convex, none):	None		
Slope (%):	5	Lat:	43.47513194	Long:	-96.79269862
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan-Chancellor silty clay loams, 0 to 4 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u> N </u>	Is the sampled area within a wetland? <u> N </u> If yes, optional wetland site ID: _____
Hydric soil present?	<u> N </u>	
Indicators of wetland hydrology present?	<u> N </u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum		(Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratum		(Plot size: 15' Radius)			
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Herb stratum		(Plot size: 5' Radius)			
1	<i>Glycine max</i>	-- <i>Soybeans</i>	50	Y	NI
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			50	= Total Cover	
Woody vine stratum		(Plot size: 30' Radius)			
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 6-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 6-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS19R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.4751389 Long: -96.79263129 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Chancellor silty clay loams, 0 to 4 percent slopes NWI Classification: None
 Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 6</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>55</u> x 1 = <u>55</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>110</u> (A) <u>180</u> (B) Prevalence Index = B/A = <u>1.64</u>
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Schoenoplectus tabernaemontani</u> -- <u>Soft-Stem Club-Rush</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	
2	<u>Phalaris arundinacea</u> -- <u>Reed Canary Grass</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Spartina pectinata</u> -- <u>Freshwater Cord Grass</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4	<u>Rumex crispus</u> -- <u>Curly Dock</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5	<u>Hordeum jubatum</u> -- <u>Fox-Tail Barley</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
6	<u>Xanthium strumarium</u> -- <u>Rough Cocklebur</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7	<u>Carex lacustris</u> -- <u>Lakebank Sedge</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>110</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 6-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 2/1	100					Silty Clay Loam	
5-18	10YR 2/2	90	10YR 5/6	10	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- ☐ Iron-Manganese Masses (F12) (**LRR K, L, M**)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)

- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

(includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	8-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS19R50W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	3	Lat:	43.47225829	Long:	-96.79572263
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan silty clay loam, 3 to 6 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum			Absolute % Cover	Dominant Species	Indicator Status
1	<i>Glycine max</i>	-- <i>Soybeans</i>	100	Y	NI
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 8-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 8-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS19R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47232063 Long: -96.79564298 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan silty clay loam, 3 to 6 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 8</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>85</u> x 1 = <u>85</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>95</u> (A) <u>110</u> (B) Prevalence Index = B/A = <u>1.16</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Alisma triviale -- Northern Water-Plantain</u>	<u>75</u>	<u>Y</u>	<u>OBL</u>	
2	<u>Typha angustifolia -- Narrow-Leaf Cat-Tail</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
3	<u>Hordeum jubatum -- Fox-Tail Barley</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4	<u>Poa palustris -- Fowl Blue Grass</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5	<u>Eleocharis obtusa -- Blunt Spike-Rush</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>95</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 8-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-2	2.5YR 2.5/2	100					Silty Clay Loam	
2-16	10YR 2/1	95	10YR 3/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	9-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS19R50W		
Landform (hillslope, terrace, etc.):	footslope	Local relief (concave, convex, none):	None		
Slope (%):	2	Lat:	43.47326979	Long:	-96.79556719
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Chancellor-Viborg silty clay loams	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	(Plot size: 30' Radius)				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum					
1	(Plot size: 15' Radius)				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum					
1	(Plot size: 5' Radius)				
2	<i>Glycine max</i>	-- <i>Soybeans</i>	70	Y	NI
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			70	= Total Cover	
Woody vine stratum					
1	(Plot size: 30' Radius)				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column totals 0 (A) 0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 9-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 3/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	9-W
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS19R50W		
Landform (hillslope, terrace, etc.):	toeslope	Local relief (concave, convex, none):	Concave		
Slope (%):	0	Lat:	43.47334944	Long:	-96.79560556
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Chancellor-Viborg silty clay loams	NWI Classification:	None		

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 9</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum					
1	<i>Poa pratensis</i>	-- Kentucky Blue Grass	30	Y	FAC
2	<i>Glycine max</i>	-- Soybeans	10	Y	NI
3	<i>Eleocharis obtusa</i>	-- Blunt Spike-Rush	10	Y	OBL
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			50	= Total Cover	
Woody vine stratum					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>10</u>	x 1 =	<u>10</u>
FACW species	<u>0</u>	x 2 =	<u>0</u>
FAC species	<u>30</u>	x 3 =	<u>90</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>40</u>	(A)	<u>100</u> (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

 Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 9-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 3/2	90	10YR 5/6	10	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 10-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS19R50W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): None
 Slope (%): 5 Lat: 43.4753405 Long: -96.79989607 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: PEM1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Glycine max</u> -- <u>Soybeans</u>	<u>100</u>	<u>Y</u>	<u>NI</u>	
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>N</u>
1	--				
2	--				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 10-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 10-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS19R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47531934 Long: -96.79996803 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: PEM1C

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 10</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)			
1	<u>Spartina pectinata</u> -- <u>Freshwater Cord Grass</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>
2	<u>Scirpus atrovirens</u> -- <u>Dark-Green Bulrush</u>	<u>10</u>	<u>Y</u>	<u>OBL</u>
3	<u>Rumex crispus</u> -- <u>Curly Dock</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
4	<u>Persicaria lapathifolia</u> -- <u>Dock-Leaf Smartweed</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
5	<u>Typha angustifolia</u> -- <u>Narrow-Leaf Cat-Tail</u>	<u>5</u>	<u>N</u>	<u>OBL</u>
6	<u>Glycine max</u> -- <u>Soybeans</u>	<u>5</u>	<u>N</u>	<u>NI</u>
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>50</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet
 Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
 Total Number of Dominant Species Across all Strata: 3 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet
 Total % Cover of:
 OBL species 15 x 1 = 15
 FACW species 20 x 2 = 40
 FAC species 10 x 3 = 30
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column totals 45 (A) 85 (B)
 Prevalence Index = B/A = 1.89

Hydrophytic Vegetation Indicators:
 Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 10-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 3/1	100					Silty Clay Loam	
5-18	10YR 2/1	95	10YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 11-1U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 2 Lat: 43.47561 Long: -96.79959 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: PEM1Cx

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Poa pratensis</u> <u>--</u> <u>Kentucky Blue Grass</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 11-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 11-1W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47561 Long: -96.79971 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: PEM1Cd

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 11</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Phalaris arundinacea</u>	<u>--</u>	<u>Reed Canary Grass</u>	<u>100</u>		<u>Y</u>	<u>FACW</u>
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
6	<u>--</u>						
7	<u>--</u>						
8	<u>--</u>						
9	<u>--</u>						
10	<u>--</u>						
		<u>100</u>	= Total Cover				
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>		
1	<u>--</u>						
2	<u>--</u>						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 11-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 2/1	90	10YR 5/8	5	C	M	Silty Clay Loam	
			10YR 5/2	5	D	M		
8-16	10YR 2/1	95	10YR 5/8	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input checked="" type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- ☐ Iron-Manganese Masses (F12) (**LRR K, L, M**)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)

- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

(includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 11-2U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 4 Lat: 43.47571024 Long: -96.80404252 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Worthing complex, 0 to 6 percent slopes NWI Classification: PEM1Cx

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)						
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Poa pratensis</u>	<u>--</u>	<u>Kentucky Blue Grass</u>	<u>100</u>		<u>Y</u>	<u>FAC</u>
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
6	<u>--</u>						
7	<u>--</u>						
8	<u>--</u>						
9	<u>--</u>						
10	<u>--</u>						
		<u>100</u>	= Total Cover		Hydrophytic vegetation present? <u>Y</u>		
Woody vine stratum	(Plot size: <u>30' Radius</u>)						
1	<u>--</u>						
2	<u>--</u>						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 11-2U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 11-2W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47571184 Long: -96.80400468 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Worthing complex, 0 to 6 percent slopes NWI Classification: PEM1Cx

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 11</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.) Typhj	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>85</u> x 1 = <u>85</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>115</u> (B) Prevalence Index = B/A = <u>1.15</u>
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Typha angustifolia</u> -- <u>Narrow-Leaf Cat-Tail</u>	<u>70</u>	<u>Y</u>	<u>OBL</u>	
2	<u>Scirpus atrovirens</u> -- <u>Dark-Green Bulrush</u>	<u>15</u>	<u>N</u>	<u>OBL</u>	
3	<u>Phragmites australis</u> -- <u>Common Reed</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	--				
2	--				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 11-2W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 2/2	85	10YR 5/8	10	C	M	Silty Clay Loam	
			10YR 5/2	5	D	M		
8-16	10YR 2/1	95	10YR 5/8	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input checked="" type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	12-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS18R50W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	4	Lat:	43.47545196	Long:	-96.80231414
				Datum:	UTM NAD 83 Zone 14N
Soil Map Unit Name	Baltic silty clay loam, ponded	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum			Absolute % Cover	Dominant Species	Indicator Status
1	<i>Glycine max</i>	-- <i>Soybeans</i>	100	Y	NI
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 12-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 12-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47547072 Long: -96.80231417 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Baltic silty clay loam, ponded NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 12</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>210</u> (B) Prevalence Index = B/A = <u>2.10</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<i>Phalaris arundinacea</i> -- <i>Reed Canary Grass</i>	60	Y	FACW	
2	<i>Spartina pectinata</i> -- <i>Freshwater Cord Grass</i>	30	Y	FACW	
3	<i>Poa pratensis</i> -- <i>Kentucky Blue Grass</i>	10	N	FAC	
4	<i>Glycine max</i> -- <i>Soybeans</i>	10	N	NI	
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
		<u>110</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	--				
2	--				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 12-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	95	10YR 5/8	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 14-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 5 Lat: 43.47567538 Long: -96.8109661 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Poa pratensis</u> <u>--</u> <u>Kentucky Blue Grass</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 14-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 14-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): Concave
 Slope (%): 3 Lat: 43.47568483 Long: -96.81100629 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: PEM1/ABF

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 14</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>190</u> (B) Prevalence Index = B/A = <u>1.90</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Typha angustifolia</u> <u>--</u> <u>Narrow-Leaf Cat-Tail</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)
 Center of basin is unvegetated--open water.

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 14-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 3/1	95	10YR 4/6	5	C	M	Silty Clay Loam	
10-16	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	15-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS14R51W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	4	Lat:	43.47532942	Long:	-96.81180722
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Worthing silty clay loam, 0 to 1 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum		(Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratum		(Plot size: 15' Radius)			
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Herb stratum		(Plot size: 5' Radius)			
1	<i>Poa pratensis</i>	-- Kentucky Blue Grass	100	Y	FAC
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum		(Plot size: 30' Radius)			
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

☐ Rapid test for hydrophytic vegetation
☒ Dominance test is >50%
☒ Prevalence index is ≤3.0*

☐ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
☐ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 15-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-10	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 15-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS14R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47533006 Long: -96.81184058 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 15</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 15-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/2	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	16-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS13R51W		
Landform (hillslope, terrace, etc.):	Backslope	Local relief (concave, convex, none):	None		
Slope (%):	5	Lat:	43.47577956	Long:	-96.81437875
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan-Worthing complex, 0 to 6 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum			Absolute % Cover	Dominant Species	Indicator Status
1	<i>Glycine max</i>	-- <i>Soybeans</i>	100	Y	NI
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 16-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 16-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): Lat: 43.47580546 Long: -96.81432842 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Worthing complex, 0 to 6 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u> Hydric soil present? <u>Y</u> Indicators of wetland hydrology present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 16</u>
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	
1	<u>Phalaris arundinacea</u> -- <u>Reed Canary Grass</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Equisetum hyemale</u> -- <u>Tall Scouring-Rush</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Typha angustifolia</u> -- <u>Narrow-Leaf Cat-Tail</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
6	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
7	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
8	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
9	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
10	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u>	= Total Cover		

Dominance Test Worksheet
 Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
 Total Number of Dominant Species Across all Strata: 3 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet
 Total % Cover of:

OBL species	<u>25</u>	x 1 =	<u>25</u>
FACW species	<u>75</u>	x 2 =	<u>150</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>100</u>	(A)	<u>175</u> (B)

 Prevalence Index = B/A = 1.75

Hydrophytic Vegetation Indicators:
 Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 Problematic hydrophytic vegetation* (explain)
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 16-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 2/1	100					Silty Clay Loam	
4-18	10YR 2/1	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	17-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS13R51W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	4	Lat:	43.47571582	Long:	-96.81768613
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Worthing silty clay loam, 0 to 1 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum			Absolute % Cover	Dominant Species	Indicator Status
1	<i>Glycine max</i>	-- <i>Soybeans</i>	100	Y	NI
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column totals 0 (A) 0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

____ Rapid test for hydrophytic vegetation

____ Dominance test is >50%

____ Prevalence index is ≤3.0*

____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 17-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 17-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.4756712 Long: -96.81761364 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 17</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>45</u> x 1 = <u>45</u> FACW species <u>55</u> x 2 = <u>110</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>155</u> (B) Prevalence Index = B/A = <u>1.55</u>
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<i>Phalaris arundinacea</i> -- <i>Reed Canary Grass</i>	50	Y	FACW	
2	<i>Typha angustifolia</i> -- <i>Narrow-Leaf Cat-Tail</i>	25	Y	OBL	
3	<i>Scirpus atrovirens</i> -- <i>Dark-Green Bulrush</i>	20	Y	OBL	
4	<i>Persicaria lapathifolia</i> -- <i>Dock-Leaf Smartweed</i>	5	N	FACW	
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	--				
2	--				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 17-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	7.5YR 2.5/2	100					Silty Clay Loam	
4-16	10YR 2/1	95	10YR 3/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 18-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS14R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 3 Lat: 43.4754002 Long: -96.8171921 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u> </u>
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic vegetation present? <u>N</u>
1	<u>Zea mays</u> <u>--</u> <u>Corn</u>	<u>100</u>	<u>Y</u>	<u>NI</u>	
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
6	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
10	<u>--</u>	<u>100</u>			
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 18-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	5YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/25/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 18-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47544078 Long: -96.81721188 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 18</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>75</u> x 1 = <u>75</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>130</u> (B) Prevalence Index = B/A = <u>1.30</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Typha angustifolia -- Narrow-Leaf Cat-Tail</u>	<u>75</u>	<u>Y</u>	<u>OBL</u>	
2	<u>Phalaris arundinacea -- Reed Canary Grass</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
3	<u>Rumex crispus -- Curly Dock</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4	<u>Persicaria lapathifolia -- Dock-Leaf Smartweed</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		
Hydrophytic vegetation present? <u>Y</u>					

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 18-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/2	90	2.5YR 4/6	10	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 19-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): None
 Slope (%): 5 Lat: 43.47567347 Long: -96.82195162 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)		
1	--						
2	--						
3	--						
4	--						
5	--						
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u> </u>		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)						
1	--						
2	--						
3	--						
4	--						
5	--						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Zea mays</u>	--	<u>Corn</u>	<u>100</u>		<u>Y</u>	<u>NI</u>
2	--						
3	--						
4	--						
5	--						
6	--						
7	--						
8	--						
9	--						
10	--						
		<u>100</u>	= Total Cover				
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>N</u>		
1	--						
2	--						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 19-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-15	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/25/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 19-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.4756402 Long: -96.82199103 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 19</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)			
1	<u>Typha angustifolia</u> -- <u>Narrow-Leaf Cat-Tail</u>	<u>80</u>	<u>Y</u>	<u>OBL</u>
2	<u>Phalaris arundinacea</u> -- <u>Reed Canary Grass</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
6	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across all Strata: 2 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>80</u>	x 1 =	<u>80</u>
FACW species	<u>20</u>	x 2 =	<u>40</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>100</u> (A)		<u>120</u> (B)

Prevalence Index = B/A = 1.20

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 Problematic hydrophytic vegetation* (explain)
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

 Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 19-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/2	95	2.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	20-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS13R51W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	4	Lat:	43.47542369	Long:	-96.82199032
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Chancellor-Tetanka complex, 0 to 2 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	(Plot size: 30' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Sapling/Shrub stratum					
1	(Plot size: 15' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Herb stratum					
1	(Plot size: 5' Radius)	--			
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100 = Total Cover		
Woody vine stratum					
1	(Plot size: 30' Radius)	--			
2		--			
			0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column totals 0 (A) 0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 20-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 20-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47542369 Long: -96.82199032 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 20</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 20-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2	100					Silty Clay Loam	
6-18	10YR 2/2	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	21-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS13R51W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	5	Lat:	43.47544156	Long:	-96.82459694
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Chancellor-Viborg silty clay loams	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	(Plot size: 30' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratum					
1	(Plot size: 15' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Herb stratum					
1	(Plot size: 5' Radius)				
2	<i>Zea mays</i>	-- <i>Corn</i>	100	Y	NI
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum					
1	(Plot size: 30' Radius)	--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 21-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/25/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 21-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47546259 Long: -96.82460011 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Viborg silty clay loams NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 21</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>190</u> (B) Prevalence Index = B/A = <u>1.90</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Typha angustifolia</u> <u>--</u> <u>Narrow-Leaf Cat-Tail</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 21-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2	100					Silty Clay Loam	
6-16	10YR 2/2	90	10YR 4/6	10	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	23-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS18R50W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	4	Lat:	43.48202808	Long:	-96.79798958
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan silty clay loam, 3 to 6 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	(Plot size: 30' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Sapling/Shrub stratum					
1	(Plot size: 15' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Herb stratum					
1	(Plot size: 5' Radius)	--			
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100 = Total Cover		
Woody vine stratum					
1	(Plot size: 30' Radius)	--			
2		--			
			0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column totals 0 (A) 0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 23-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	5YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	23-W
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS18R50W		
Landform (hillslope, terrace, etc.):	toeslope	Local relief (concave, convex, none):	Concave		
Slope (%):	1	Lat:	43.48205159	Long:	-96.79794228
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan silty clay loam, 3 to 6 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 23</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	<i>Populus deltoides</i>	-- <i>Eastern Cottonwood</i>	10	Y	FAC
2		--			
3		--			
4		--			
5		--			
			10	= Total Cover	
Sapling/Shrub stratum (Plot size: 15' Radius)					
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	<i>Phalaris arundinacea</i>	-- <i>Reed Canary Grass</i>	40	Y	FACW
2	<i>Typha angustifolia</i>	-- <i>Narrow-Leaf Cat-Tail</i>	20	Y	OBL
3	<i>Rumex crispus</i>	-- <i>Curly Dock</i>	10	N	FAC
4	<i>Poa pratensis</i>	-- <i>Kentucky Blue Grass</i>	10	N	FAC
5	<i>Zea mays</i>	-- <i>Corn</i>	10	N	NI
6	<i>Carex stricta</i>	-- <i>Upright Sedge</i>	10	N	OBL
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	30	x 1 =	30
FACW species	40	x 2 =	80
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

☐ Rapid test for hydrophytic vegetation

☒ Dominance test is >50%

☒ Prevalence index is ≤3.0*

☐ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

☐ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 23-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	5YR 3/1	100					Silty Clay Loam	
4-16	10YR 2/1	90	10YR 5/8	5	C	M	Silty Clay Loam	
			10YR 5/2	5	D	M		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input checked="" type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 24-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 4 Lat: 43.48167052 Long: -96.79932355 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u> </u>		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Zea mays</u>	<u>--</u>	<u>Corn</u>	<u>100</u>		<u>Y</u>	<u>NI</u>
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
6	<u>--</u>						
7	<u>--</u>						
8	<u>--</u>						
9	<u>--</u>						
10	<u>--</u>						
		<u>100</u>	= Total Cover				
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>N</u>		
1	<u>--</u>						
2	<u>--</u>						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 24-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 24-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 2 Lat: 43.48169364 Long: -96.79935367 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 24</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u> </u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) <u> </u> *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Zea mays</u> <u>--</u> <u>Corn</u>	<u>100</u>	<u>Y</u>	<u>NI</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>N</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)
 The corn in the wetland was stunted and stressed.

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 24-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 2/1	100					Silty Clay Loam	
4-14	10YR 2/1	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 25-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 4 Lat: 43.48420737 Long: -96.80725087 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Baltic silty clay loam, ponded NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Herb stratum	(Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Glycine max</u> <u>-- Soybeans</u>	<u>90</u>	<u>Y</u>	<u>NI</u>
2	<u>Phalaris arundinacea</u> <u>-- Reed Canary Grass</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>
6	<u> </u>	<u> </u>	<u> </u>	<u> </u>
7	<u> </u>	<u> </u>	<u> </u>	<u> </u>
8	<u> </u>	<u> </u>	<u> </u>	<u> </u>
9	<u> </u>	<u> </u>	<u> </u>	<u> </u>
10	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		

Woody vine stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>10</u>	x 2 =	<u>20</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>10</u>	(A)	<u>20</u> (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation

 Dominance test is >50%

X Prevalence index is ≤3.0*

 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

 Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 25-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 25-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.48415732 Long: -96.80718817 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Baltic silty clay loam, ponded NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 25</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>190</u> (B) Prevalence Index = B/A = <u>1.90</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Spartina pectinata</u> <u>--</u> <u>Freshwater Cord Grass</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3	<u>Typha angustifolia</u> <u>--</u> <u>Narrow-Leaf Cat-Tail</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 25-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-2	10YR 3/1	100					Silty Clay Loam	
2-16	10YR 3/1	90	10YR 4/6	5	C	M	Silty Clay Loam	
			10YR 5/1	5	C	M		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input checked="" type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 26-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 4 Lat: 43.4806836 Long: -96.80646345 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)						
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Poa pratensis</u>	<u>--</u>	<u>Kentucky Blue Grass</u>	<u>100</u>		<u>Y</u>	<u>FAC</u>
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
6	<u>--</u>						
7	<u>--</u>						
8	<u>--</u>						
9	<u>--</u>						
10	<u>--</u>						
		<u>100</u>	= Total Cover		Hydrophytic vegetation present? <u>Y</u>		
Woody vine stratum	(Plot size: <u>30' Radius</u>)						
1	<u>--</u>						
2	<u>--</u>						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 26-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 26-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.48065988 Long: -96.80647575 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Chancellor-Tetonka complex, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 26</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)						
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Phalaris arundinacea</u>	<u>--</u>	<u>Reed Canary Grass</u>	<u>100</u>		<u>Y</u>	<u>FACW</u>
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
6	<u>--</u>						
7	<u>--</u>						
8	<u>--</u>						
9	<u>--</u>						
10	<u>--</u>						
		<u>100</u>	= Total Cover				
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>		
1	<u>--</u>						
2	<u>--</u>						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 26-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/1	95	10YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	27-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS18R50W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	6	Lat:	43.48033145	Long:	-96.80608575
				Datum:	UTM NAD 83 Zone 14N
Soil Map Unit Name	Wentworth silty clay loam, 0 to 2 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	(Plot size: 30' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Sapling/Shrub stratum					
1	(Plot size: 15' Radius)	--			
2		--			
3		--			
4		--			
5		--			
			0 = Total Cover		
Herb stratum					
1	(Plot size: 5' Radius)	--			
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100 = Total Cover		
Woody vine stratum					
1	(Plot size: 30' Radius)	--			
2		--			
			0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 27-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 27-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.48033383 Long: -96.80604542 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Wentworth silty clay loam, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 27</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 27-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/2	95	10YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>0.5</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 28-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 4 Lat: 43.48742262 Long: -96.80667704 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Worthing complex, 0 to 6 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u> </u>	
Remarks: (Explain alternative procedures here or in a separate report.) 	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u> = Total Cover			Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u> </u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u> = Total Cover			
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Glycine max Soybeans</u>	<u>100</u>	<u>Y</u>	<u>NI</u>	
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
6	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
7	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
8	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
9	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
10	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>100</u> = Total Cover			
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>N</u>
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>	
		<u>0</u> = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 28-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present?

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	28-W
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS13R51W		
Landform (hillslope, terrace, etc.):	toeslope	Local relief (concave, convex, none):	Concave		
Slope (%):	0	Lat:	43.48736524	Long:	-96.80667104
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan-Worthing complex, 0 to 6 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 28</u>
Hydric soil present?	<u>Y</u>	
Indicators of wetland hydrology present?	<u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum	(Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status
1	__	__	__	__
2	__	__	__	__
3	__	__	__	__
4	__	__	__	__
5	__	__	__	__
		0 = Total Cover		
Sapling/Shrub stratum (Plot size: 15' Radius)				
1	__	__	__	__
2	__	__	__	__
3	__	__	__	__
4	__	__	__	__
5	__	__	__	__
		0 = Total Cover		
Herb stratum (Plot size: 5' Radius)				
1	<i>Phalaris arundinacea</i> -- <i>Reed Canary Grass</i>	60	Y	FACW
2	<i>Glycine max</i> -- <i>Soybeans</i>	10	N	NI
3	__	__	__	__
4	__	__	__	__
5	__	__	__	__
6	__	__	__	__
7	__	__	__	__
8	__	__	__	__
9	__	__	__	__
10	__	__	__	__
		70 = Total Cover		
Woody vine stratum (Plot size: 30' Radius)				
1	__	__	__	__
2	__	__	__	__
		0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u> x 1 =	<u>0</u>
FACW species	<u>60</u> x 2 =	<u>120</u>
FAC species	<u>0</u> x 3 =	<u>0</u>
FACU species	<u>0</u> x 4 =	<u>0</u>
UPL species	<u>0</u> x 5 =	<u>0</u>
Column totals	<u>60</u> (A)	<u>120</u> (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

__ Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

__ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

__ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 28-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/1	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	29-U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS13R51W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	6	Lat:	43.48981066	Long:	-96.80624325
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u> N </u>	Is the sampled area within a wetland? <u> N </u> If yes, optional wetland site ID: <u> </u>
Hydric soil present?	<u> N </u>	
Indicators of wetland hydrology present?	<u> N </u>	
Remarks: (Explain alternative procedures here or in a separate report.) <div style="border: 1px solid black; height: 40px; width: 100%;"></div>		

Tree Stratum		(Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratum		(Plot size: 15' Radius)			
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Herb stratum		(Plot size: 5' Radius)			
1	<i>Zea mays</i>	-- <i>Corn</i>	100	Y	NI
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum		(Plot size: 30' Radius)			
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 29-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/2	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 29-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.48981246 Long: -96.80621945 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 29</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Spartina pectinata</u> <u>--</u> <u>Freshwater Cord Grass</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 29-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/2	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 07/25/19
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 34-1U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS08R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 5 Lat: 43.49082 Long: -96.77695 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Alcester silty clay loam, channeled NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>65</u> x 4 = <u>260</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>85</u> (A) <u>320</u> (B) Prevalence Index = B/A = <u>3.76</u>
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Melilotus alba</u> -- <u>White Sweet Clover</u>	<u>45</u>	<u>Y</u>	<u>FACU</u>	
2	<u>Euphorbia virgata</u> -- <u>Leafy Spurge</u>	<u>20</u>	<u>Y</u>	<u>NI</u>	
3	<u>Poa pratensis</u> -- <u>Kentucky Blue Grass</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
4	<u>Monarda fistulosa</u> -- <u>Oswego-Tea</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
5	<u>Medicago sativa</u> -- <u>Alfalfa</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6	<u>Panicum virgatum</u> -- <u>Wand Panic Grass</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
7	<u>Solidago rigida</u> -- <u>Hard-Leaf Flat-Top-Gold</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
8	--				
9	--				
10	--				
		<u>105</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>N</u>
1	--				
2	--				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 34-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 3/2	100					Silty Loam	
6-12	10YR 4/4	100					Silty Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 07/25/19
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 34-1W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS08R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.490844 Long: -96.776793 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Alcester silty clay loam, channeled NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 34</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)			
1	<u>Typha angustifolia</u> -- <u>Narrow-Leaf Cat-Tail</u>	<u>70</u>	<u>Y</u>	<u>OBL</u>
2	<u>Salix interior</u> -- <u>Sandbar Willow</u>	<u>20</u>	<u>N</u>	<u>FACW</u>
3	<u>Phalaris arundinacea</u> -- <u>Reed Canary Grass</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
4	<u>Eleocharis obtusa</u> -- <u>Blunt Spike-Rush</u>	<u>10</u>	<u>N</u>	<u>OBL</u>
5	<u>Solidago gigantea</u> -- <u>Late Goldenrod</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
6	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>120</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet
 Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across all Strata: 1 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet
 Total % Cover of:
 OBL species 80 x 1 = 80
 FACW species 40 x 2 = 80
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column totals 120 (A) 160 (B)
 Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:
 Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 34-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/2	100					Silty Loam	
6-16	10YR 4/2	90	7.5YR 4/6	10	C	M	Silty Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input checked="" type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	0

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 07/25/19
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 34-2U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS08R50W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 5 Lat: 43.493374 Long: -96.77785 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Alcester silty clay loam, channeled NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>35</u> x 3 = <u>105</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>75</u> (A) <u>265</u> (B) Prevalence Index = B/A = <u>3.53</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Poa pratensis -- Kentucky Blue Grass</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Bromus inermis -- Smooth Brome</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3	<u>Euphorbia virgata -- Leafy Spurge</u>	<u>15</u>	<u>N</u>	<u>NI</u>	
4	<u>Asclepias syriaca -- Common Milkweed</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>90</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 34-2U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-8	10YR 3/2	100					Silty Loam	
8-9	10YR 4/4	100					Silty Loam	
9								Rocks

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

 Type: Rocks
 Depth (inches): 9
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <u> </u>

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 07/25/19
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 34-2W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS08R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.493374 Long: -96.77785 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan silty clay loam, 3 to 6 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 34</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>90</u> (A) <u>230</u> (B) Prevalence Index = B/A = <u>2.56</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Hordeum jubatum -- Fox-Tail Barley</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Echinochloa crus-galli -- Large Barnyard Grass</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Rumex crispus -- Curly Dock</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
4	<u>Cyperus esculentus -- Chufa</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
5	<u>Phalaris arundinacea -- Reed Canary Grass</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
		<u>90</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 34-2W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-4	10YR 2/2	100					Silty Loam	
4-8	10YR 4/2	90	7.5YR 4/6	10	C	M	Silty Loam	
8-18	10YR 4/2	100					Silty Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input checked="" type="checkbox"/> High Water Table (A2) |
| <input checked="" type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|---|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches):	<u>0.5</u>
Water table present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches):	<u>0</u>
Saturation present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches):	<u>0</u>

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	38U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS18R50W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	5	Lat:	43.47555403	Long:	-96.79834045
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Huntimer silty clay loam, 0 to 2 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum		(Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratum		(Plot size: 15' Radius)			
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Herb stratum		(Plot size: 5' Radius)			
1	<i>Poa pratensis</i>	-- Kentucky Blue Grass	100	Y	FAC
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum		(Plot size: 30' Radius)			
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

☐ Rapid test for hydrophytic vegetation
☒ Dominance test is >50%
☒ Prevalence index is ≤3.0*

☐ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
☐ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 38-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 38-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47552919 Long: -96.79833825 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Huntimer silty clay loam, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 38</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>70</u> x 2 = <u>140</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>230</u> (B) Prevalence Index = B/A = <u>2.30</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Poa pratensis</u> <u>--</u> <u>Kentucky Blue Grass</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
3	<u>Setaria pumila</u> <u>--</u> <u>Yellow Bristle Grass</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
4	<u>Hordeum jubatum</u> <u>--</u> <u>Fox-Tail Barley</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 38-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 2/1	90	10YR 5/8	5	C	M	Silty Clay Loam	
			10YR 5/2	5	D	M		
6-20	10YR 2/1	95	10YR 5/8	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input checked="" type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- ☐ Iron-Manganese Masses (F12) (**LRR K, L, M**)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)

- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	39J
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS18R50W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	3	Lat:	43.47555085	Long:	-96.80230912
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Egan-Worthing complex, 0 to 6 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	<u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Indicators of wetland hydrology present?	<u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum		(Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratum		(Plot size: 15' Radius)			
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Herb stratum		(Plot size: 5' Radius)			
1	<i>Poa pratensis</i>	-- Kentucky Blue Grass	100	Y	FAC
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum		(Plot size: 30' Radius)			
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

☐ Rapid test for hydrophytic vegetation

☒ Dominance test is >50%

☒ Prevalence index is ≤3.0*

☐ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

☐ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 39-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 39W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS18R50W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47556126 Long: -96.80230874 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Worthing complex, 0 to 6 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 39</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)		
1	--						
2	--						
3	--						
4	--						
5	--						
		<u>0</u>	= Total Cover				
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>60</u> x 1 = <u>60</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>160</u> (B) Prevalence Index = B/A = <u>1.60</u>		
1	--						
2	--						
3	--						
4	--						
5	--						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Typha angustifolia</u>	--	<u>Narrow-Leaf Cat-Tail</u>	<u>60</u>		<u>Y</u>	<u>OBL</u>
2	<u>Phalaris arundinacea</u>	--	<u>Reed Canary Grass</u>	<u>20</u>		<u>Y</u>	<u>FACW</u>
3	<u>Poa pratensis</u>	--	<u>Kentucky Blue Grass</u>	<u>20</u>		<u>Y</u>	<u>FAC</u>
4	--						
5	--						
6	--						
7	--						
8	--						
9	--						
10	--						
		<u>100</u>	= Total Cover				
Woody vine stratum	(Plot size: <u>30' Radius</u>)					Hydrophytic vegetation present? <u>Y</u>	
1	--						
2	--						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 39-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/1	90	10YR 4/6	5	C	M	Silty Clay Loam	
			10YR 5/1	5	C	M		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input checked="" type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- ☐ Iron-Manganese Masses (F12) (**LRR K, L, M**)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)

- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>1</u>
Water table present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>
Saturation present?	Yes <u> </u>	No <u>X</u>	Depth (inches): <u> </u>

(includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 40U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 3 Lat: 43.47560931 Long: -96.80758242 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Worthing complex, 0 to 6 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Poa pratensis</u> <u>--</u> <u>Kentucky Blue Grass</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 40-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 40W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47559263 Long: -96.80758207 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Egan-Worthing complex, 0 to 6 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 40</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)		
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>180</u> (B) Prevalence Index = B/A = <u>1.80</u>		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)						
1	<u>--</u>						
2	<u>--</u>						
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
		<u>0</u>	= Total Cover				
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Phalaris arundinacea</u>	<u>--</u>	<u>Reed Canary Grass</u>	<u>80</u>		<u>Y</u>	<u>FACW</u>
2	<u>Carex stricta</u>	<u>--</u>	<u>Upright Sedge</u>	<u>20</u>		<u>Y</u>	<u>OBL</u>
3	<u>--</u>						
4	<u>--</u>						
5	<u>--</u>						
6	<u>--</u>						
7	<u>--</u>						
8	<u>--</u>						
9	<u>--</u>						
10	<u>--</u>						
		<u>100</u>	= Total Cover				
Woody vine stratum	(Plot size: <u>30' Radius</u>)					Hydrophytic vegetation present? <u>Y</u>	
1	<u>--</u>						
2	<u>--</u>						
		<u>0</u>	= Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 40-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 2/1	95	10YR 5/8	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 41-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): None
 Slope (%): 5 Lat: 43.47544064 Long: -96.81592679 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u> </u>
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Glycine max Soybeans</u>	<u>100</u>	<u>Y</u>	<u>NI</u>	
2	<u>--</u>				
3	<u>--</u>				
4	<u>--</u>				
5	<u>--</u>				
6	<u>--</u>				
7	<u>--</u>				
8	<u>--</u>				
9	<u>--</u>				
10	<u>--</u>				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	<u>--</u>				
2	<u>--</u>				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 41-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	5YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 41-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.47546036 Long: -96.81592608 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 41</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)			
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
6	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)			
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across all Strata: 1 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:
 OBL species 0 x 1 = 0
 FACW species 100 x 2 = 200
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column totals 100 (A) 200 (B)
 Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation
X Dominance test is >50%
X Prevalence index is ≤3.0*
 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 41-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/2	90	2.5YR 4/6	10	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Project/Site	85th Street Interchange	City/County:	Lincoln County	Sampling Date:	11/13/18
Applicant/Owner:	85th Street Business District Joint Venture Group	State:	South Dakota	Sampling Point:	42- U
Investigator(s):	Rebecca Beduhn	Section, Township, Range:	T100NS13R51W		
Landform (hillslope, terrace, etc.):	backslope	Local relief (concave, convex, none):	None		
Slope (%):	5	Lat:	43.48979865	Long:	-96.8064398
		Datum:	UTM NAD 83 Zone 14N		
Soil Map Unit Name	Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes	NWI Classification:	None		

Hydrophytic vegetation present?	N	Is the sampled area within a wetland? N If yes, optional wetland site ID: _____
Hydric soil present?	N	
Indicators of wetland hydrology present?	N	
Remarks: (Explain alternative procedures here or in a separate report.)		

Tree Stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum			Absolute % Cover	Dominant Species	Indicator Status
1	<i>Glycine max</i>	-- <i>Soybeans</i>	100	Y	NI
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 0 x 3 = 0

FACU species 0 x 4 = 0

UPL species 0 x 5 = 0

Column totals 0 (A) 0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

_____ Rapid test for hydrophytic vegetation

_____ Dominance test is >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

_____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. *North American Digital Flora: National Wetland Plant List, version 2.4.0* (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 42-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 42-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 43.48979897 Long: -96.80641708 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Wentworth-Chancellor silty clay loams, 0 to 2 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: <u>Wetland 42</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Herb stratum	(Plot size: <u>5' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Phalaris arundinacea</u> <u>--</u> <u>Reed Canary Grass</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
3	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
4	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
5	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
6	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
7	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
8	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
9	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
10	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>100</u> = Total Cover		

Woody vine stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
2	<u>--</u>	<u> </u>	<u> </u>	<u> </u>
		<u>0</u> = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	<u>0</u>	x 1 =	<u>0</u>
FACW species	<u>100</u>	x 2 =	<u>200</u>
FAC species	<u>0</u>	x 3 =	<u>0</u>
FACU species	<u>0</u>	x 4 =	<u>0</u>
UPL species	<u>0</u>	x 5 =	<u>0</u>
Column totals	<u>100</u> (A)		<u>200</u> (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

 Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

 Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)

 Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present?

Y

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 42-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/1	95	7.5YR 4/6	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- ☐ Iron-Manganese Masses (F12) (**LRR K, L, M**)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)

- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

(includes capillary fringe)

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 43-U
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): Concave
 Slope (%): 3 Lat: 43.4770612 Long: -96.80650158 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: <u> </u>
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.) 	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)		
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
		<u>0</u> = Total Cover					
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>300</u> (B) Prevalence Index = B/A = <u>3.00</u>		
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
		<u>0</u> = Total Cover					
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic		
1	<u>Poa pratensis</u>	<u>--</u>	<u>Kentucky Blue Grass</u>	<u>100</u>		<u>Y</u>	<u>FAC</u>
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
3	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
4	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
5	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
6	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
7	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
8	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
9	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
10	<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>
		<u>100</u> = Total Cover					
Woody vine stratum	(Plot size: <u>30' Radius</u>)				Hydrophytic vegetation present? <u>Y</u>		
1	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
2	<u> </u>	<u> </u>	<u> </u>	<u> </u>			
		<u>0</u> = Total Cover					

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List: Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 43-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

Secondary Indicators (minimum of two required)

- | | |
|---|--|
| <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Thin Muck Surface (C7) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Gauge or Well Data (D9) | <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Other (Explain in Remarks) | |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)
Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site 85th Street Interchange City/County: Lincoln County Sampling Date: 11/13/18
 Applicant/Owner: 85th Street Business District Joint Venture Group State: South Dakota Sampling Point: 43-W
 Investigator(s): Rebecca Beduhn Section, Township, Range: T100NS13R51W
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 43.47706164 Long: -96.80645197 Datum: UTM NAD 83 Zone 14N
 Soil Map Unit Name Worthing silty clay loam, 0 to 1 percent slopes NWI Classification: PEM1Cd

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation , soil , or hydrology significantly disturbed?
 Are vegetation , soil , or hydrology naturally problematic? Are "normal circumstances" present? Yes
 (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? If <u>Y</u> yes, optional wetland site ID: <u>Wetland 43</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30' Radius</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15' Radius</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
1	--				
2	--				
3	--				
4	--				
5	--				
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5' Radius</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<i>Phalaris arundinacea</i> -- <i>Reed Canary Grass</i>	70	Y	FACW	
2	<i>Spartina pectinata</i> -- <i>Freshwater Cord Grass</i>	30	Y	FACW	
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30' Radius</u>)				
1	--				
2	--				
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Note: This data sheet has been adapted to use the 2012 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL

Sampling Point: 43-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/1	95	10YR 5/8	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Dark Surface (S7) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils:

- | |
|--|
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, M) |
| <input type="checkbox"/> Very Shallow Dark Surface (F22) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)
Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation and/or a water table were not able to be observed, as the water was frozen at the time of the site visit.

Appendix B

Site Photographs



Photo 1 Wetland 1 – Shallow Marsh



Photo 2 Wetland 1 – Shallow Marsh



Photo 3 Wetland 2 – Shallow Marsh



Photo 4 Wetland 2 – Shallow Marsh



Photo 5 Wetland 3 – Fresh (Wet) Meadow



Photo 6 Wetland 3 – Fresh (Wet) Meadow



Photo 7 Wetland 4 – Seasonally Flooded Basin



Photo 8 Wetland 4 – Seasonally Flooded Basin



Photo 9 Wetland 5 – Seasonally Flooded Basin



Photo 10 Wetland 5 – Seasonally Flooded Basin



Photo 11 Wetland 6 – Shallow Marsh



Photo 12 Wetland 6 – Shallow Marsh



Photo 13 Wetland 7 – Seasonally Flooded Basin



Photo 14 Wetland 7 – Seasonally Flooded Basin



Photo 15 Wetland 8 – Fresh (Wet) Meadow



Photo 16 Wetland 8 – Fresh (Wet) Meadow



Photo 17 Wetland 9 – Seasonally Flooded Basin



Photo 18 Wetland 9 – Seasonally Flooded Basin



Photo 19 Wetland 10 – Seasonally Flooded Basin



Photo 20 Wetland 10 – Seasonally Flooded Basin



Photo 21 Wetland 11 – Shallow Marsh



Photo 22 Wetland 11– Shallow Marsh



Photo 23 Wetland 12 – Fresh (Wet) Meadow



Photo 24 Wetland 12 – Fresh (Wet) Meadow

***Wetland 13 was previously delineation and, therefore, does not have corresponding pictures.**



Photo 25 Wetland 14 – Shallow Open Water



Photo 26 Wetland 14 – Shallow Open Water



Photo 27 Wetland 15 – Fresh (Wet) Meadow Ditch Portion



Photo 28 Wetland 15 – Fresh (Wet) Meadow (extends to the south outside of the project area and changes to Seasonally Flooded Basin



Photo 29 Wetland 16 – Fresh (Wet) Meadow



Photo 30 Wetland 16 – Fresh (Wet) Meadow



Photo 31 Wetland 17 – Fresh (Wet) Meadow



Photo 32 Wetland 17 – Fresh (Wet) Meadow



Photo 33 Wetland 18 – Fresh (Wet) Meadow



Photo 34 Wetland 18 – Fresh (Wet) Meadow



Photo 35 Wetland 19 – Shallow Marsh



Photo 36 Wetland 19 – Shallow Marsh



Photo 37 Wetland 20 – Fresh (Wet) Meadow



Photo 38 Wetland 20 – Fresh (Wet) Meadow



Photo 39 Wetland 21 – Fresh (Wet) Meadow



Photo 40 Wetland 21 – Fresh (Wet) Meadow



Photo 41 Wetland 22 – Fresh (Wet) Meadow



Photo 42 Wetland 22 – Fresh (Wet) Meadow



Photo 43 Wetland 23 – Shallow Marsh



Photo 44 Wetland 23 – Shallow Marsh



Photo 45 Wetland 24 – Seasonally Flooded Basin



Photo 46 Wetland 24 – Seasonally Flooded Basin



Photo 47 Wetland 25 – Fresh (Wet) Meadow



Photo 48 Wetland 25 – Fresh (Wet) Meadow



Photo 49 Wetland 26 – Fresh (Wet) Meadow



Photo 50 Wetland 26 – Fresh (Wet) Meadow



Photo 51 Wetland 27 – Fresh (Wet) Meadow



Photo 52 Wetland 27 – Fresh (Wet) Meadow



Photo 53 Wetland 28 – Fresh (Wet) Meadow



Photo 54 Wetland 28 – Fresh (Wet) Meadow



Photo 55 Wetland 29 – Fresh (Wet) Meadow



Photo 56 Wetland 29 – Fresh (Wet) Meadow



Photo 57 Wet Ditch A – Fresh (Wet) Meadow



Photo 58 Wet Ditch B – Shallow Marsh



Photo 59 Wet Ditch C



Photo 60 Wet Ditch D



Photo 61 Wet Ditch E



Photo 62 Wet Ditch F



Photo 63 Wetland 34



Photo 64 Wetland 34



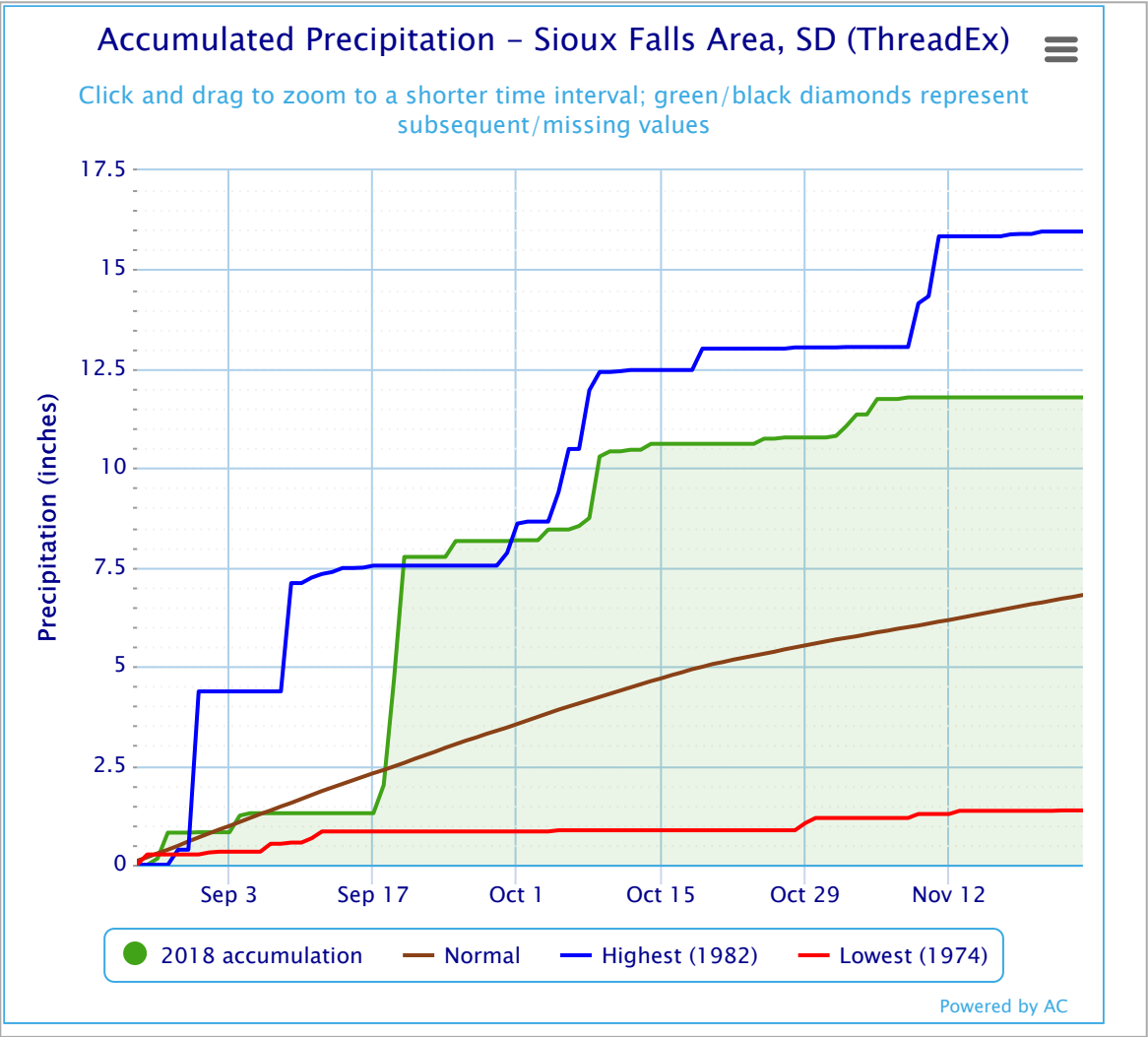
Photo 65 Wetland 36 (Level 1) Field Verified



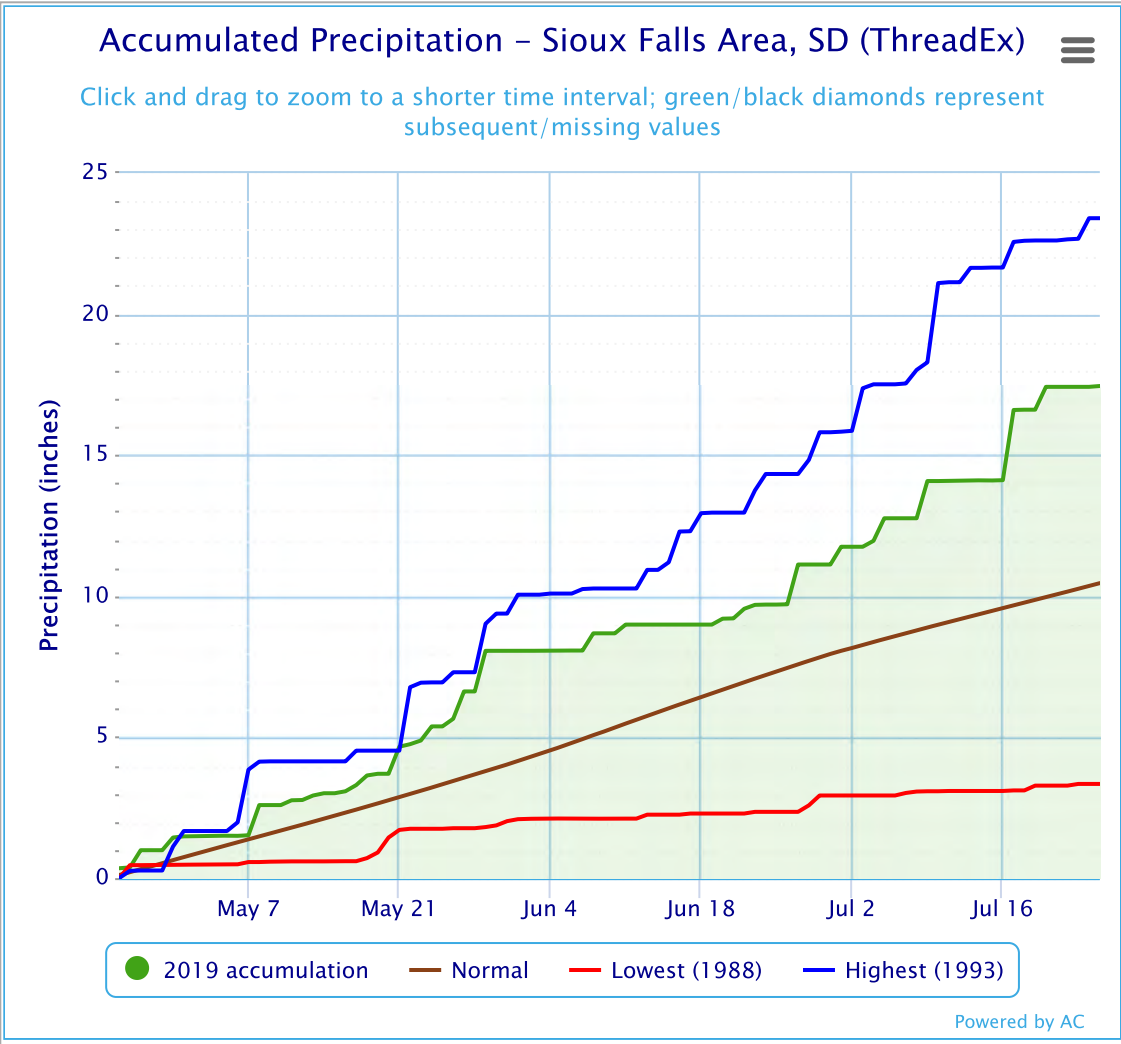
Photo 66 Wetland 36 (Level 1) Field Verified

Appendix C

Climate



Note regarding subsequent/missing values



Note regarding subsequent/missing values

Appendix D

Hydrogeomorphic Functional Assessment Workbooks

Wetland Name	Wetland Size (acres) ³	HGM Method	Function									
			Prairie Pothole Function	Water Storage	Groundwater Recharge	Retain Particulates	Dissolved Substances	Carbon Cycling	Provide Faunal Habitat	Alternate Formula	Total FCI ¹	Total FCU ²
			Slope Function	Mod. Groundwater Flow	Vel. Reduc. Surf. Water	Elemental & Nutrient Cycling	Retention of particulates	Organic Carbon Export	Maint of Plant Comm.	Habitat Dispersion		
1	1.04	Prairie Pothole		0.72	0.59	0.59	0.77	0.67	0.68	0.44	4.46	4.64
2	2.03	Slope		0.81	0.86	0.53	0.59	0.81	0.62	0.57	4.79	9.71
3	5.28	Slope		0.84	0.89	0.49	0.71	0.75	0.67	0.56	4.92	25.57
4	16.93	Slope		0.65	0.40	0.53	0.41	0.51	0.32	0.30	3.12	52.78
5	1.49	Prairie Pothole		0.94	0.76	0.65	0.61	0.61	0.68	0.60	4.85	7.23
6	9.12	Prairie Pothole		0.94	0.82	0.82	0.79	0.74	0.81	0.60	5.52	50.33
8	0.24	Prairie Pothole		0.94	0.81	0.61	0.60	0.57	0.65	0.55	4.73	1.13
9	0.25	Prairie Pothole		0.94	0.81	0.60	0.56	0.52	0.61	0.53	4.57	1.14
10	2.52	Slope		0.69	0.46	0.48	0.45	0.51	0.44	0.36	3.38	8.46
11	11.50	Slope		0.77	0.85	0.52	0.68	0.81	0.62	0.52	4.77	54.87
12	5.53	Prairie Pothole		0.65	0.63	0.20	0.54	0.44	0.52	0.38	3.36	18.65
14	1.27	Prairie Pothole		0.93	0.74	0.78	0.77	0.67	0.72	0.64	5.25	6.67
15	2.90	Slope		0.76	0.66	0.48	0.53	0.64	0.53	0.48	4.07	11.80
16	0.48	Slope		0.77	0.68	0.52	0.26	0.77	0.67	0.56	4.22	2.02
17	28.38	Slope		0.77	0.85	0.46	0.68	0.75	0.67	0.52	4.70	133.57
18	17.00	Slope		0.81	0.87	0.48	0.68	0.75	0.62	0.53	4.72	80.31
19	7.18	Slope		0.78	0.70	0.48	0.65	0.66	0.56	0.48	4.30	30.87
20	36.26	Slope		0.69	0.45	0.48	0.44	0.50	0.38	0.35	3.26	118.44
21	1.24	Slope		0.73	0.61	0.48	0.48	0.60	0.47	0.41	3.78	4.69
23	10.62	Slope		0.81	0.87	0.48	0.70	0.75	0.62	0.54	4.76	50.53
24	0.46	Prairie Pothole		0.70	0.42	0.55	0.41	0.51	0.32	0.30	3.20	1.47
25	4.57	Slope		0.81	0.87	0.48	0.70	0.75	0.62	0.56	4.78	22.00
26	2.86	Prairie Pothole		0.94	0.85	0.73	0.72	0.63	0.71	0.50	5.08	14.52
27	3.44	Prairie Pothole		0.81	0.87	0.48	0.68	0.75	0.62	0.53	4.72	16.06
28	1.00	Prairie Pothole		0.94	0.85	0.58	0.58	0.53	0.63	0.50	4.61	4.59
29	2.13	Prairie Pothole		0.94	0.78	0.69	0.67	0.62	0.65	0.56	4.91	10.44
34	25.90	Slope		0.68	0.61	0.41	0.70	0.74	0.82	0.44	4.39	113.77
38	0.03	Slope		0.35	0.63	0.49	0.76	0.68	0.53	0.54	3.98	0.12
39	0.02	Slope		0.35	0.62	0.49	0.74	0.68	0.53	0.51	3.91	0.08
40	0.17	Slope		0.35	0.66	0.49	0.75	0.69	0.53	0.53	4.00	0.68
41	0.17	Slope		0.35	0.47	0.39	0.74	0.56	0.45	0.42	3.37	0.57
42	0.09	Slope		0.35	0.61	0.49	0.72	0.68	0.53	0.49	3.87	0.35
43	0.11	Slope		0.35	0.62	0.49	0.74	0.68	0.53	0.51	3.91	0.43

1. FCI = Functional Capacity Index

2. FCU = Functional Capacity Units

3. Size includes the estimated area of the entire wetland for HGM calculations, which includes the wetland area outside of the project limits. This area is not being proposed for approval.

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #1

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	838.00	1.00
		grassland along perimeter (feet):	838.00	
		percent continuity:	100.00	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		1.00
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	50.00	
		Point 5:	50.00	
		Point 6:	50.00	
		Point 7:	50.00	
		Point 8:	50.00	
		Point 9:	50.00	
		Point 10:	50.00	
		Point 11:	50.00	
		Point 12:	50.00	
		mean width (feet):	50.00	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.31
		sum of species:	4.00	
		sum of C values:	11.00	
		mean coefficient of conservatism:	2.75	
		FQI:	5.50	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		0.50	0.50	
	V _{SED}	Eastern Prairie Potholes			0.53	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		4.00		
	V _{SQI}	SQI scores for 4 samples:			0.04	
		sample 1:		1.50		
		sample 2:		1.50		
		sample 3:		2.00		
		sample 4:		2.00		
		average SQI score:		1.75		
	V _{SOM}	Indirect Measurements			0.21	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		7.50
				value:		2.50
				chroma:		2.00
				ADI:		8.00
		Sample 2		hue:		7.50
				value:		3.00
				chroma:		1.00
				ADI:		8.00
		Sample 3		hue:		7.50
				value:		2.50
				chroma:		2.00
				ADI:		8.00
Sample 4		hue:	7.50			
		value:	2.50			
		chroma:	2.00			
		ADI:	8.00			
average ADI:		8.00				
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:		1.35				

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1518.50	1.00
		present (or constructed) invert elevation:	1518.50	
		elevation of the edge of the historic wetland:	1518.50	
		elevation of a representative deepest portion of the wetland:	1518.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	838.00	0.35
		wetland area (acres):	1.04	
		Shoreline Development Index:	1.11	
	V _{CATCHWET}	wetland area (acres):	1.04	0.38
		catchment area (acres):	2.92	
		ratio of catchment size to wetland size:	2.81	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	263.00	0.00
		acres of catchment for each curve number:		
		98		
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74	2.92	
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	0.82	
	V _{WETPROX}	distance to nearest wetland(feet):	58.00	0.96
		distance to 2nd nearest wetland:	147.00	
		distance to 3rd nearest wetland:	206.00	
		distance to 4th nearest wetland:	290.00	
		distance to 5th nearest wetland:	758.00	
		mean distance (feet):	291.80	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	126.00	0.28
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	71.00	0.33
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	15.00	0.00

Function	FCI	FCU
1. Water Storage	0.72	0.75
2. Groundwater Recharge	0.59	0.61
3. Retain Particulates	0.59	0.62
4. Remove, Convert, and Sequester Dissolved Substances	0.77	0.80
5. Plant Community Resilience and Carbon Cycling	0.67	0.70
6a. Provide Faunal Habitat	0.68	0.71
6b. Provide Faunal Habitat (Alternate Formula)	0.44	0.45

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 2		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	2.0	Wetland type (NWI)	PEM1C	
Date -----	11/13/2018	Wetland Acres (post-) --	2.0	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V_{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----	1			0.75	0.75
	Other observations					
V_{som}	Dominant texture in upper 18" -----	SiCL			1.00	1.00
	Color in upper 12": Value --- 2.5 Chroma -	1				
V_{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V_{buffer}		Pre-	Post-		0.17	0.17
	Buffer continuity (%) -----	98	98			
	Width of perm. veg. buffer (ft.) -----	48	48			
	Continuity/Width Rating (B ₁) -----	0.3	0.3			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	10	10			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V_{pratio}	Native species present in wetland (% of dominants) --	10			0.10	0.10
V_{pcover}		Pre-	Post-		1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0 Rating -	1	1			
V_{micro}	Is the wetland area intact or disturbed?	Intact			1.00	1.00
	Describe variability on wetland surface (hummocks, meanders)					
	N/A					
V_{source}	Watershed source alterations (Y/N)?	Y			0.75	0.75
	If Y, what?	Road				
	Percent of area affected -----	10				
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional tillage row crop	25	0.1			
	Farmstead	75	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 2	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1C
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	2.0	WETLAND ACRES P ---	2.0

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.75	0.75
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.17	0.17
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.81	1.64	Mod. Groundwater Flow	0.81	1.61
Vel. Reduc. Surf. Water	0.86	1.75	Vel. Reduc. Surf. Water	0.86	1.72
Elemental & Nutr. Cycling	0.53	1.08	Elemental & Nutr. Cycling	0.53	1.07
Retention of Particulates	0.59	1.19	Retention of Particulates	0.59	1.17
Organic Carbon Export	0.81	1.65	Organic Carbon Export	0.81	1.63
Maint. of Plant Comm.	0.62	1.25	Maint. of Plant Comm.	0.62	1.23
Habitat Interspersion	0.57	1.15	Habitat Interspersion	0.57	1.14

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	-0.02	-1.4	YES	
Vel. Reduc. Surf. Water	-0.02	-1.4	YES	
Ret, Conv. Elem. & Cmpd.	-0.02	-1.4	YES	
Retention of Particulates	-0.02	-1.4	YES	
Organic Carbon Export	-0.02	-1.4	YES	
Maint. of Plant Comm.	-0.02	-1.4	YES	
Habitat Interspersion	-0.02	-1.4	YES	

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 3		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	5.2	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	5.2	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V_{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V_{som}	Dominant texture in upper 18" -----	SiCL			0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2					
V_{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V_{buffer}		Pre-	Post-		0.16	0.16
	Buffer continuity (%) -----	43	43			
	Width of perm. veg. buffer (ft.) -----	21	21			
	Continuity/Width Rating (B ₁) -----	0.1	0.1			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	20	20			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0.25	0.25			
V_{pratio}	Native species present in wetland (% of dominants) --	25			0.25	0.25
V_{pcover}		Pre-	Post-		1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 120 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0 Rating -	1	1			
V_{micro}	Is the wetland area intact or disturbed?	Intact			1.00	1.00
	Describe variability on wetland surface (hummocks, meanders)					
	N/A					
V_{source}	Watershed source alterations (Y/N)?	N			1.00	1.00
	If Y, what?					
	Percent of area affected -----					
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional tillage row crop	60	0.1			
	Farmstead	40	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 3	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	5.2	WETLAND ACRES P ---	5.2

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.16	0.16
Ratio of Native to Non-Native Species (V_{pratio})	0.25	0.25
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	1.00	1.00
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.84	4.39	Mod. Groundwater Flow	0.84	4.39
Vel. Reduc. Surf. Water	0.89	4.63	Vel. Reduc. Surf. Water	0.89	4.63
Elemental & Nutr. Cycling	0.49	2.56	Elemental & Nutr. Cycling	0.49	2.56
Retention of Particulates	0.71	3.69	Retention of Particulates	0.71	3.69
Organic Carbon Export	0.75	3.90	Organic Carbon Export	0.75	3.90
Maint. of Plant Comm.	0.67	3.47	Maint. of Plant Comm.	0.67	3.47
Habitat Interspersion	0.56	2.94	Habitat Interspersion	0.56	2.94

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 4		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	16.9	Wetland type (NWI)	PEM1A	
Date -----	11/13/2018	Wetland Acres (post-) --	16.9	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score	
					Existing	Projected
V _{detritus}	Detritus thickness (in.), pre-project -----		0		0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----		1		0.75	0.75
	Other observations					
V _{som}	Dominant texture in upper 18" -----		SiCL		1.00	1.00
	Color in upper 12": Value ---	2	Chroma - 1			
V _{pore}	Pores		SQI 2		0.75	0.75
	Structure		SQI 2			
	Rupture Resistance		SQI 2			
	Summary SQI Rating -----		6			
V _{buffer}			Pre- Post-		0.00	0.00
	Buffer continuity (%) -----		5.8 5.8			
	Width of perm. veg. buffer (ft.) -----		4.17 4.17			
	Continuity/Width Rating (B ₁) -----		0 0			
	Buffer condition -----		↓ ↓			
	Perm. veg. part ---		0 0			
	Tilled part -----		None None			
Buffer Condition Rating (B ₂) -----		0 0				
V _{pratio}	Native species present in wetland (% of dominants) --		0		0.10	0.10
V _{pcover}			Pre- Post-		0.10	0.10
	Percent of wetland area intact -----		100 100			
	% ground cover - 40	Rating -	0.1 0.1			
	Percent of wetland area tilled -----	0 0				
V _{micro}	Is the wetland area intact or disturbed?		disturbed		0.10	0.10
	Describe variability on wetland surface (hummocks, meanders)					
V _{source}	Watershed source alterations (Y/N)?		Y		0.75	0.75
	If Y, what? Road					
	Percent of area affected -----		20			
V _{subalt}	Alteration present?	N	Type -----		1.00	1.00
V _{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)		% of area Index		0.10	0.10
	Conventional Tillage Row Crop		88 0.1			
	Farmstead		12 0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 4	ASSESSMENT TYPE ---	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1A
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ---	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	16.9	WETLAND ACRES P ---	16.9

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.75	0.75
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	0.10	0.10
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.65	11.02	Mod. Groundwater Flow	0.65	11.02
Vel. Reduc. Surf. Water	0.40	6.76	Vel. Reduc. Surf. Water	0.40	6.76
Elemental & Nutr. Cycling	0.53	9.02	Elemental & Nutr. Cycling	0.53	9.02
Retention of Particulates	0.41	6.90	Retention of Particulates	0.41	6.90
Organic Carbon Export	0.51	8.66	Organic Carbon Export	0.51	8.66
Maint. of Plant Comm.	0.32	5.35	Maint. of Plant Comm.	0.32	5.35
Habitat Interspersion	0.30	5.07	Habitat Interspersion	0.30	5.07

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #5

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	951.00	0.00
		grassland along perimeter (feet):	0.00	
		percent continuity:	0.00	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.00
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	0.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	0.00	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.34
		sum of species:	8.00	
		sum of C values:	17.00	
		mean coefficient of conservatism:	2.13	
		FQI:	6.01	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		1.00	1.00	
	V _{SED}	Eastern Prairie Potholes			1.00	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		16.00		
	V _{SQI}	SQI scores for 4 samples:			0.01	
		sample 1:		1.50		
		sample 2:		1.50		
		sample 3:		1.50		
		sample 4:		1.50		
		average SQI score:		1.50		
	V _{SOM}	Indirect Measurements			0.22	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		7.50
				value:		3.00
				chroma:		1.00
				ADI:		8.00
		Sample 2		hue:		7.50
				value:		2.50
				chroma:		1.00
				ADI:		7.00
		Sample 3		hue:		7.50
				value:		3.00
				chroma:		1.00
				ADI:		8.00
Sample 4		hue:	7.50			
		value:	2.50			
		chroma:	1.00			
		ADI:	7.00			
average ADI:		7.50				
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:		1.41				

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1524.00	1.00
		present (or constructed) invert elevation:	1524.00	
		elevation of the edge of the historic wetland:	1524.00	
		elevation of a representative deepest portion of the wetland:	1523.50	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	951.00	0.22
		wetland area (acres):	1.49	
		Shoreline Development Index:	1.05	
	V _{CATCHWET}	wetland area (acres):	1.49	0.69
		catchment area (acres):	6.49	
		ratio of catchment size to wetland size:	4.36	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	6.49	0.52
		acres of catchment for each curve number:		
		98		
		90		
		79	6.49	
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	79.00	
	V _{WETPROX}	distance to nearest wetland(feet):	86.00	1.00
		distance to 2nd nearest wetland:	178.00	
		distance to 3rd nearest wetland:	206.00	
		distance to 4th nearest wetland:	293.00	
		distance to 5th nearest wetland:	412.00	
		mean distance (feet):	235.00	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	126.00	0.28
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	71.00	0.33
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	15.00	0.00

Function	FCI	FCU
1. Water Storage	0.94	1.40
2. Groundwater Recharge	0.76	1.13
3. Retain Particulates	0.65	0.97
4. Remove, Convert, and Sequester Dissolved Substances	0.61	0.91
5. Plant Community Resilience and Carbon Cycling	0.61	0.91
6a. Provide Faunal Habitat	0.68	1.02
6b. Provide Faunal Habitat (Alternate Formula)	0.60	0.90

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #6

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	6573.00	0.81
		grassland along perimeter (feet):	5340.00	
		percent continuity:	81.24	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.68
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	0.00	
		Point 5:	50.00	
		Point 6:	50.00	
		Point 7:	50.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	0.00	
		Point 11:	50.00	
		Point 12:	50.00	
		mean width (feet):	33.33	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.32
		sum of species:	7.00	
		sum of C values:	15.00	
		mean coefficient of conservatism:	2.14	
		FQI:	5.67	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		0.50	0.50	
	V _{SED}	Eastern Prairie Potholes			1.00	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		18.00		
	V _{SQI}	SQI scores for 4 samples:			0.03	
		sample 1:		1.50		
		sample 2:		1.50		
		sample 3:		1.50		
		sample 4:		2.00		
		average SQI score:		1.63		
	V _{SOM}	Indirect Measurements			0.30	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 2		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 3		hue:		10.00
				value:		2.00
				chroma:		2.00
				ADI:		7.00
		Sample 4		hue:		10.00
		value:	2.00			
		chroma:	2.00			
		ADI:	7.00			
		average ADI:	6.50			
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:		1.65				

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1524.00	1.00
		present (or constructed) invert elevation:	1524.00	
		elevation of the edge of the historic wetland:	1525.00	
		elevation of a representative deepest portion of the wetland:	1523.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	6573.00	1.00
		wetland area (acres):	9.12	
		Shoreline Development Index:	2.94	
	V _{CATCHWET}	wetland area (acres):	9.12	1.00
		catchment area (acres):	193.69	
		ratio of catchment size to wetland size:	21.24	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	193.69	0.53
		acres of catchment for each curve number:		
		98		
		90		
		79	169.39	
		77		
		72		
		75		
		73		
		71		
		72		
		74	24.30	
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	78.37	
	V _{WETPROX}	distance to nearest wetland(feet):	20.00	1.00
		distance to 2nd nearest wetland:	85.00	
		distance to 3rd nearest wetland:	122.00	
		distance to 4th nearest wetland:	146.00	
		distance to 5th nearest wetland:	365.00	
		mean distance (feet):	147.60	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	126.00	0.28
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	71.00	0.33
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	15.00	0.00

Function	FCI	FCU
1. Water Storage	0.94	8.57
2. Groundwater Recharge	0.82	7.48
3. Retain Particulates	0.82	7.44
4. Remove, Convert, and Sequester Dissolved Substances	0.79	7.25
5. Plant Community Resilience and Carbon Cycling	0.74	6.74
6a. Provide Faunal Habitat	0.81	7.36
6b. Provide Faunal Habitat (Alternate Formula)	0.60	5.48

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #8

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	450.00	0.00
		grassland along perimeter (feet):	0.00	
		percent continuity:	0.00	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.00
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	0.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	0.00	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.16
		sum of species:	5.00	
		sum of C values:	7.00	
		mean coefficient of conservatism:	1.40	
		FQI:	3.13	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		0.75	0.75	
	V _{SED}	Eastern Prairie Potholes			1.00	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		16.00		
	V _{SQI}	SQI scores for 4 samples:			0.01	
		sample 1:		1.50		
		sample 2:		1.50		
		sample 3:		1.50		
		sample 4:		1.50		
		average SQI score:		1.50		
	V _{SOM}	Indirect Measurements			0.29	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		2.50
				value:		2.50
				chroma:		2.00
				ADI:		8.00
		Sample 2		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 3		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 4		hue:		10.00
				value:		2.00
		chroma:	1.00			
		ADI:	6.00			
		average ADI:	6.50			
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:		1.63				

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1526.00	1.00
		present (or constructed) invert elevation:	1526.00	
		elevation of the edge of the historic wetland:	1526.00	
		elevation of a representative deepest portion of the wetland:	1525.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	450.00	0.64
		wetland area (acres):	0.24	
		Shoreline Development Index:	1.24	
	V _{CATCHWET}	wetland area (acres):	0.24	1.00
		catchment area (acres):	3.22	
		ratio of catchment size to wetland size:	13.42	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	3.22	0.52
		acres of catchment for each curve number:		
		98		
		90		
		79	3.22	
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	79.00	
	V _{WETPROX}	distance to nearest wetland(feet):	284.00	0.72
		distance to 2nd nearest wetland:	356.00	
		distance to 3rd nearest wetland:	495.00	
		distance to 4th nearest wetland:	557.00	
		distance to 5th nearest wetland:	778.00	
		mean distance (feet):	494.00	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	126.00	0.28
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	70.00	0.32
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	17.00	0.00

Function	FCI	FCU
1. Water Storage	0.94	0.22
2. Groundwater Recharge	0.81	0.19
3. Retain Particulates	0.61	0.15
4. Remove, Convert, and Sequester Dissolved Substances	0.60	0.14
5. Plant Community Resilience and Carbon Cycling	0.57	0.14
6a. Provide Faunal Habitat	0.65	0.16
6b. Provide Faunal Habitat (Alternate Formula)	0.55	0.13

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #9

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	407.00	0.00
		grassland along perimeter (feet):	0.00	
		percent continuity:	0.00	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.00
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	0.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	0.00	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.08
		sum of species:	3.00	
		sum of C values:	3.00	
		mean coefficient of conservatism:	1.00	
		FQI:	1.73	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:	1.00	1.00	
	V _{SED}	Eastern Prairie Potholes		1.00	
		mean depth to B horizon (inches):			
		Western Prairie Potholes			
		mean depth to B horizon (inches): 14.00			
	V _{SQI}	SQI scores for 4 samples:			0.06
		sample 1:		2.00	
		sample 2:		2.00	
		sample 3:		2.00	
		sample 4:		2.00	
		average SQI score:		2.00	
	V _{SOM}	Indirect Measurements			0.16
		Litter Depth for 4 samples:			
		sample 1:		0.00	
		sample 2:		0.00	
		sample 3:		0.00	
		sample 4:		0.00	
		Average Litter Depth (inches): 0.00			
		ADI for 4 samples:			
		Sample 1		hue: 10.00	
				value: 3.00	
				chroma: 2.00	
				ADI: 9.00	
		Sample 2		hue: 10.00	
				value: 3.00	
				chroma: 2.00	
				ADI: 9.00	
		Sample 3		hue: 10.00	
				value: 3.00	
				chroma: 2.00	
				ADI: 9.00	
		Sample 4		hue: 10.00	
				value: 3.00	
		chroma: 2.00			
		ADI: 9.00			
average ADI: 9.00					
Direct Measurements					
% organic carbon for 0-15cm depth:					
% organic carbon for 15-30cm depth:					
mean percentage:					
% organic carbon: 1.19					

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1527.00	1.00
		present (or constructed) invert elevation:	1527.00	
		elevation of the edge of the historic wetland:	1527.00	
		elevation of a representative deepest portion of the wetland:	1526.50	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	407.00	0.33
		wetland area (acres):	0.25	
		Shoreline Development Index:	1.10	
	V _{CATCHWET}	wetland area (acres):	0.25	1.00
		catchment area (acres):	4.34	
		ratio of catchment size to wetland size:	17.36	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	4.34	0.52
		acres of catchment for each curve number:		
		98		
		90		
		79	4.34	
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	79.00	
	V _{WETPROX}	distance to nearest wetland(feet):	293.00	0.79
		distance to 2nd nearest wetland:	330.00	
		distance to 3rd nearest wetland:	365.00	
		distance to 4th nearest wetland:	545.00	
		distance to 5th nearest wetland:	637.00	
		mean distance (feet):	434.00	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	125.00	0.28
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	70.00	0.32
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	17.00	0.00

Function	FCI	FCU
1. Water Storage	0.94	0.23
2. Groundwater Recharge	0.81	0.20
3. Retain Particulates	0.60	0.15
4. Remove, Convert, and Sequester Dissolved Substances	0.56	0.14
5. Plant Community Resilience and Carbon Cycling	0.52	0.13
6a. Provide Faunal Habitat	0.61	0.15
6b. Provide Faunal Habitat (Alternate Formula)	0.53	0.13

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 10		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	2.5	Wetland type (NWI)	PEM1A	
Date -----	11/13/2018	Wetland Acres (post-) --	2.5	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V _{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----	1			0.75	0.75
	Other observations					
V _{som}	Dominant texture in upper 18" -----	SiCL			0.75	0.75
	Color in upper 12": Value --- 3 Chroma - 1					
V _{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V _{buffer}		Pre-	Post-		0.00	0.00
	Buffer continuity (%) -----	0	0			
	Width of perm. veg. buffer (ft.) -----	0	0			
	Continuity/Width Rating (B ₁) -----	0	0			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	Con	Con			
	Buffer Condition Rating (B ₂) -----	0	0			
V _{pratio}	Native species present in wetland (% of dominants) --	25			0.25	0.25
V _{pcover}		Pre-	Post-		0.33	0.33
	Percent of wetland area intact -----	50	50			
	% ground cover - 50 Rating -	0.5	0.5			
	Percent of wetland area tilled -----	80	80			
V _{micro}	% ground cover - 100 Rating -	0.1	0.1			
	Is the wetland area intact or disturbed?	disturbed			0.10	0.10
V _{source}	Describe variability on wetland surface (hummocks, meanders)					
	Watershed source alterations (Y/N)?	Y			0.75	0.75
	If Y, what?	N				
V _{subalt}	Percent of area affected -----	5				
	Alteration present? N Type -----				1.00	1.00
V _{surfalt}	Alteration present? N Type -----				1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional Tillage Row Crop	100	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 10	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1A
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	2.5	WETLAND ACRES P ---	2.5

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.75	0.75
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.25	0.25
Vegetation Density (V_{pcover})	0.33	0.33
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.69	1.74	Mod. Groundwater Flow	0.69	1.74
Vel. Reduc. Surf. Water	0.46	1.14	Vel. Reduc. Surf. Water	0.46	1.14
Elemental & Nutr. Cycling	0.48	1.19	Elemental & Nutr. Cycling	0.48	1.19
Retention of Particulates	0.45	1.12	Retention of Particulates	0.45	1.12
Organic Carbon Export	0.51	1.27	Organic Carbon Export	0.51	1.27
Maint. of Plant Comm.	0.44	1.11	Maint. of Plant Comm.	0.44	1.11
Habitat Interspersion	0.36	0.89	Habitat Interspersion	0.36	0.89

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 11		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	11.5	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	11.5	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V_{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V_{som}	Dominant texture in upper 18" -----	SiCL			1.00	1.00
	Color in upper 12": Value --- 2 Chroma - 1					
V_{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V_{buffer}		Pre-	Post-		0.00	0.00
	Buffer continuity (%) -----	41	41			
	Width of perm. veg. buffer (ft.) -----	25	25			
	Continuity/Width Rating (B ₁) -----	0.2	0.2			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0	0			
V_{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V_{pcover}		Pre-	Post-		1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0 Rating -	1	1			
V_{micro}	Is the wetland area intact or disturbed?	Intact			1.00	0.50
	Describe variability on wetland surface (hummocks, meanders)					
V_{source}	Watershed source alterations (Y/N)?	Y			0.50	0.50
	If Y, what?	Roads, housing				
	Percent of area affected -----	25				
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional Tillage row crop	66.6	0.1			
	Farmstead	33.3	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 11	ASSESSMENT TYPE ---	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ---	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	11.5	WETLAND ACRES P ---	11.5

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	0.50
Source Area of Flow (V_{source})	0.50	0.50
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.77	8.81	Mod. Groundwater Flow	0.77	8.81
Vel. Reduc. Surf. Water	0.85	9.77	Vel. Reduc. Surf. Water	0.73	8.34
Elemental & Nutr. Cycling	0.52	5.95	Elemental & Nutr. Cycling	0.52	5.95
Retention of Particulates	0.68	7.86	Retention of Particulates	0.68	7.86
Organic Carbon Export	0.81	9.34	Organic Carbon Export	0.77	8.86
Maint. of Plant Comm.	0.62	7.09	Maint. of Plant Comm.	0.62	7.09
Habitat Interspersion	0.52	6.04	Habitat Interspersion	0.53	6.04

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	-1.44	-14.7		
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	-0.48	-5.1	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #12

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	2112.00	0.19
		grassland along perimeter (feet):	411.00	
		percent continuity:	19.46	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.02
		Point 1:	10.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	0.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	0.83	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.12
		sum of species:	4.00	
		sum of C values:	5.00	
		mean coefficient of conservatism:	1.25	
		FQI:	2.50	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		0.75	0.75	
	V _{SED}	Eastern Prairie Potholes			0.10	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		0.75		
	V _{SQI}	SQI scores for 4 samples:			0.05	
		sample 1:		1.50		
		sample 2:		2.00		
		sample 3:		2.00		
		sample 4:		2.00		
		average SQI score:		1.88		
	V _{SOM}	Indirect Measurements			0.35	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 2		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 3		hue:		10.00
		value:	2.00			
		chroma:	1.00			
		ADI:	6.00			
Sample 4		hue:	10.00			
		value:	2.00			
		chroma:	1.00			
		ADI:	6.00			
average ADI:		6.00				
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:		1.82				

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1513.00	1.00
		present (or constructed) invert elevation:	1513.00	
		elevation of the edge of the historic wetland:	1517.00	
		elevation of a representative deepest portion of the wetland:	1516.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	2112.00	0.58
		wetland area (acres):	5.53	
		Shoreline Development Index:	1.21	
	V _{CATCHWET}	wetland area (acres):	5.53	0.84
		catchment area (acres):	28.26	
		ratio of catchment size to wetland size:	5.11	
Landscape & Landuse	V _{UPUSE}	total acre size of the present day catchment:	28.26	0.52
		acres of catchment for each curve number:		
		98		
		90		
		79	28.26	
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	79.00	
	V _{WETPROX}	distance to nearest wetland(feet):	82.00	0.75
		distance to 2nd nearest wetland:	348.00	
		distance to 3rd nearest wetland:	369.00	
		distance to 4th nearest wetland:	662.00	
		distance to 5th nearest wetland:	874.00	
		mean distance (feet):	467.00	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	126.00	0.28
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	71.00	0.33
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	15.00	0.00

Function	FCI	FCU
1. Water Storage	0.65	3.62
2. Groundwater Recharge	0.63	3.50
3. Retain Particulates	0.20	1.11
4. Remove, Convert, and Sequester Dissolved Substances	0.54	2.99
5. Plant Community Resilience and Carbon Cycling	0.44	2.45
6a. Provide Faunal Habitat	0.52	2.89
6b. Provide Faunal Habitat (Alternate Formula)	0.38	2.09

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #14

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	1046.00	1.00
		grassland along perimeter (feet):	1046.00	
		percent continuity:	100.00	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.77
		Point 1:	37.00	
		Point 2:	41.00	
		Point 3:	20.00	
		Point 4:	7.00	
		Point 5:	50.00	
		Point 6:	50.00	
		Point 7:	5.00	
		Point 8:	50.00	
		Point 9:	50.00	
		Point 10:	50.00	
		Point 11:	42.00	
		Point 12:	50.00	
		mean width (feet):	37.67	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.00
		sum of species:	2.00	
		sum of C values:	0.00	
		mean coefficient of conservatism:	0.00	
		FQI:	0.00	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		0.10	0.10	
	V _{SED}	Eastern Prairie Potholes			1.00	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		16.00		
	V _{SQI}	SQI scores for 4 samples:			0.04	
		sample 1:		1.50		
		sample 2:		1.50		
		sample 3:		2.00		
		sample 4:		2.00		
		average SQI score:		1.75		
	V _{SOM}	Indirect Measurements			0.21	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		10.00
				value:		3.00
				chroma:		1.00
				ADI:		8.00
		Sample 2		hue:		10.00
				value:		3.00
				chroma:		1.00
				ADI:		8.00
Sample 3		hue:	10.00			
		value:	3.00			
		chroma:	1.00			
		ADI:	8.00			
Sample 4		hue:	10.00			
		value:	3.00			
		chroma:	1.00			
		ADI:	8.00			
		average ADI:	8.00			
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:		1.35				

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1513.00	1.00
		present (or constructed) invert elevation:	1513.00	
		elevation of the edge of the historic wetland:	1513.00	
		elevation of a representative deepest portion of the wetland:	1511.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	1046.00	0.67
		wetland area (acres):	1.27	
		Shoreline Development Index:	1.25	
	V _{CATCHWET}	wetland area (acres):	1.27	1.00
		catchment area (acres):	10.39	
		ratio of catchment size to wetland size:	8.18	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	10.39	0.52
		acres of catchment for each curve number:		
		98		
		90		
		79	9.69	
		77		
		72		
		75		
		73		
		71		
		72		
		74	0.70	
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	78.66	
	V _{WETPROX}	distance to nearest wetland(feet):	32.00	0.94
		distance to 2nd nearest wetland:	204.00	
		distance to 3rd nearest wetland:	327.00	
		distance to 4th nearest wetland:	352.00	
		distance to 5th nearest wetland:	639.00	
		mean distance (feet):	310.80	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	140.00	0.32
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	75.00	0.35
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	5.00	0.79

Function	FCI	FCU
1. Water Storage	0.94	1.19
2. Groundwater Recharge	0.74	0.95
3. Retain Particulates	0.79	1.01
4. Remove, Convert, and Sequester Dissolved Substances	0.78	0.99
5. Plant Community Resilience and Carbon Cycling	0.67	0.86
6a. Provide Faunal Habitat	0.73	0.93
6b. Provide Faunal Habitat (Alternate Formula)	0.65	0.83

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 15		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	2.9	Wetland type (NWI)	PEM1A	
Date -----	11/13/2018	Wetland Acres (post-) --	2.9	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score	
					Existing	Projected
V _{detritus}	Detritus thickness (in.), pre-project -----		0		0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----		1		0.75	0.75
	Other observations					
V _{som}	Dominant texture in upper 18" -----		SiCL		0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2					
V _{pore}	Pores		SQI 2		0.75	0.75
	Structure		SQI 2			
	Rupture Resistance		SQI 2			
	Summary SQI Rating -----		6			
V _{buffer}			Pre- Post-		0.07	0.07
	Buffer continuity (%) -----		23 23			
	Width of perm. veg. buffer (ft.) -----		0.17 0.17			
	Continuity/Width Rating (B ₁) -----		0.05 0.05			
	Buffer condition -----		↓ ↓			
	Perm. veg. part ---		0 0			
	Tilled part -----		Con Con			
Buffer Condition Rating (B ₂) -----		0.1 0.1				
V _{pratio}	Native species present in wetland (% of dominants) --		0		0.10	0.10
V _{pcover}			Pre- Post-		0.73	0.73
	Percent of wetland area intact -----		70 70			
	% ground cover - 100	Rating -	1 1			
	Percent of wetland area tilled -----		30 30			
V _{micro}	% ground cover - 30		Rating - 0.1 0.1		0.50	0.50
	Is the wetland area intact or disturbed?		Disturbed			
V _{source}	Describe variability on wetland surface (hummocks, meanders)				0.75	0.75
	Watershed source alterations (Y/N)?		Y			
	If Y, what?	Road				
V _{subalt}	Percent of area affected -----		5		1.00	1.00
	Alteration present?	N Type -----				
V _{surfalt}	Alteration present?		N Type -----		1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)		% of area Index		0.10	0.10
	Conventional Tillage Row Crop		100 0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 15	ASSESSMENT TYPE ---	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1A
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ---	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	2.9	WETLAND ACRES P ---	2.9

VARIABLE	SCORE	
	Existing	Predicted
Detritus ($V_{detritus}$)	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.75	0.75
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.07	0.07
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	0.73	0.73
Microtopographic Complexity (V_{micro})	0.50	0.50
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations ($V_{surfalt}$)	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.76	2.21	Mod. Groundwater Flow	0.76	2.21
Vel. Reduc. Surf. Water	0.66	1.92	Vel. Reduc. Surf. Water	0.66	1.92
Elemental & Nutr. Cycling	0.48	1.38	Elemental & Nutr. Cycling	0.48	1.38
Retention of Particulates	0.53	1.52	Retention of Particulates	0.53	1.52
Organic Carbon Export	0.64	1.86	Organic Carbon Export	0.64	1.86
Maint. of Plant Comm.	0.53	1.53	Maint. of Plant Comm.	0.53	1.53
Habitat Interspersion	0.48	1.38	Habitat Interspersion	0.48	1.38

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 16		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	0.5	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	0.5	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score	
					Existing	Projected
V_{detritus}	Detritus thickness (in.), pre-project -----		0		0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----		0		0.10	0.10
	Other observations					
V_{som}	Dominant texture in upper 18" -----		SiCL		1.00	1.00
	Color in upper 12": Value ---	2	Chroma - 1			
V_{pore}	Pores		SQI 2		0.75	0.75
	Structure		SQI 2			
	Rupture Resistance		SQI 2			
	Summary SQI Rating -----		6			
V_{buffer}	Pre- Post-				0.14	0.14
	Buffer continuity (%) -----	90	90			
	Width of perm. veg. buffer (ft.) -----	18	18			
	Continuity/Width Rating (B ₁) -----	0.2	0.2			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V_{pratio}	Native species present in wetland (% of dominants) --		25		0.25	0.25
V_{pcover}	Pre- Post-				1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100	Rating - 1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0	Rating - 1	1			
V_{micro}	Is the wetland area intact or disturbed?		Intact		0.50	0.50
	Describe variability on wetland surface (hummocks, meanders)					
V_{source}	Watershed source alterations (Y/N)?		Y		0.50	0.50
	If Y, what?	Roads				
	Percent of area affected -----	50				
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)		% of area	Index	0.10	0.10
	Conventional Tillage Row Crop		100	0.1		

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 16	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY ----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	0.5	WETLAND ACRES P ---	0.5

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.10	0.10
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.14	0.14
Ratio of Native to Non-Native Species (V_{pratio})	0.25	0.25
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	0.50	0.50
Source Area of Flow (V_{source})	0.50	0.50
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.77	0.37	Mod. Groundwater Flow	0.77	0.37
Vel. Reduc. Surf. Water	0.68	0.33	Vel. Reduc. Surf. Water	0.68	0.33
Elemental & Nutr. Cycling	0.52	0.25	Elemental & Nutr. Cycling	0.52	0.25
Retention of Particulates	0.26	0.12	Retention of Particulates	0.26	0.12
Organic Carbon Export	0.77	0.37	Organic Carbon Export	0.77	0.37
Maint. of Plant Comm.	0.67	0.32	Maint. of Plant Comm.	0.67	0.32
Habitat Interspersion	0.56	0.27	Habitat Interspersion	0.56	0.27

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 17		Reference Site? (Y/N)		
County -----	Lincoln	Wetland Acres (pre-) ---	28.4	Wetland type (NWI)	PEM1B		
Date -----	11/13/2018	Wetland Acres (post-) --	28.4	Wetland type (FSA)			
Owner/Op. --	85th St BDJVG	Planned Activity -----					
Yellow Flag?		If yes, what?				Observers	
Red Flag? --		If yes, what?				Rebecca Beduhn	
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score		
					Existing	Projected	
V_{detritus}	Detritus thickness (in.), pre-project -----		0		0.25	0.25	
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----		0		1.00	1.00	
	Other observations						
V_{som}	Dominant texture in upper 18" -----		SiCL		0.75	0.75	
	Color in upper 12": Value --- 2.5 Chroma -		2				
V_{pore}	Pores		SQI	2	0.75	0.75	
	Structure		SQI	2			
	Rupture Resistance		SQI	2			
	Summary SQI Rating -----		6				
V_{buffer}			Pre-	Post-	0.00	0.00	
	Buffer continuity (%) -----		4	4			
	Width of perm. veg. buffer (ft.) -----		5	5			
	Continuity/Width Rating (B ₁) -----		0	0			
	Buffer condition -----		↓	↓			
	Perm. veg. part ---		0	0			
	Tilled part -----		Con	Con			
	Buffer Condition Rating (B ₂) -----		0.1	0.1			
V_{pratio}	Native species present in wetland (% of dominants) --		20		0.25	0.25	
V_{pcover}			Pre-	Post-	1.00	1.00	
	Percent of wetland area intact -----		100	100			
	% ground cover -	100	Rating -	1			1
	Percent of wetland area tilled -----		0	0			
V_{micro}	Is the wetland area intact or disturbed?		Intact		1.00	1.00	
	Describe variability on wetland surface (hummocks, meanders)						
V_{source}	Watershed source alterations (Y/N)?		Y		0.50	0.50	
	If Y, what?	Road, housing					
	Percent of area affected -----		20				
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00	
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00	
V_{upuse}	Dominant use of upland (3 maximum)		% of area	Index	0.10	0.10	
	Conventional Tillage Row Crop		99	0.1			
	Urban, semi-pervious, or impervious surface		1	0			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 17	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	28.4	WETLAND ACRES P ---	28.4

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.25	0.25
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	0.50	0.50
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.77	21.76	Mod. Groundwater Flow	0.77	21.77
Vel. Reduc. Surf. Water	0.85	24.14	Vel. Reduc. Surf. Water	0.85	24.14
Elemental & Nutr. Cycling	0.46	13.13	Elemental & Nutr. Cycling	0.46	13.13
Retention of Particulates	0.68	19.40	Retention of Particulates	0.68	19.41
Organic Carbon Export	0.75	21.30	Organic Carbon Export	0.75	21.30
Maint. of Plant Comm.	0.67	18.93	Maint. of Plant Comm.	0.67	18.93
Habitat Interspersion	0.52	14.90	Habitat Interspersion	0.53	14.91

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.01	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 18		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	17.0	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	17.0	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score	
			Existing	Projected
V _{detritus}	Detritus thickness (in.), pre-project ----- 0		0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project ----- 0		1.00	1.00
	Other observations			
V _{som}	Dominant texture in upper 18" ----- SiCL		0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2			
V _{pore}	Pores SQI 2		0.75	0.75
	Structure SQI 2			
	Rupture Resistance SQI 2			
	Summary SQI Rating ----- 6			
V _{buffer}	Pre- Post-		0.00	0.00
	Buffer continuity (%) ----- 6 6			
	Width of perm. veg. buffer (ft.) ----- 5 5			
	Continuity/Width Rating (B ₁) ----- 0 0			
	Buffer condition ----- ↓ ↓			
	Perm. veg. part --- 0 0			
	Tilled part ----- Con Con			
	Buffer Condition Rating (B ₂) ----- 0.1 0.1			
V _{pratio}	Native species present in wetland (% of dominants) -- 0		0.10	0.10
V _{pcover}	Pre- Post-		1.00	1.00
	Percent of wetland area intact ----- 100 100			
	% ground cover - 100 Rating - 1 1			
	Percent of wetland area tilled ----- 0 0			
V _{micro}	% ground cover - 0 Rating - 1 1			
	Is the wetland area intact or disturbed? Intact			
V _{source}	Describe variability on wetland surface (hummocks, meanders)		1.00	1.00
	Watershed source alterations (Y/N)? Y			
	If Y, what? Road		0.75	0.75
V _{subalt}	Percent of area affected -----			
	Alteration present? N Type -----		1.00	1.00
V _{surfalt}	Alteration present? N Type -----		1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum) % of area Index		0.10	0.10
	Conventional Tillage Row Crop 100 0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 18	ASSESSMENT TYPE ---	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ---	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	17.0	WETLAND ACRES P ---	17.0

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.81	13.71	Mod. Groundwater Flow	0.81	13.71
Vel. Reduc. Surf. Water	0.87	14.72	Vel. Reduc. Surf. Water	0.87	14.72
Elemental & Nutr. Cycling	0.48	8.11	Elemental & Nutr. Cycling	0.48	8.11
Retention of Particulates	0.68	11.62	Retention of Particulates	0.68	11.62
Organic Carbon Export	0.75	12.75	Organic Carbon Export	0.75	12.75
Maint. of Plant Comm.	0.62	10.48	Maint. of Plant Comm.	0.62	10.48
Habitat Interspersion	0.53	8.93	Habitat Interspersion	0.53	8.93

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 19		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	7.2	Wetland type (NWI)	PEM1C	
Date -----	11/13/2018	Wetland Acres (post-) --	7.2	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V_{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V_{som}	Dominant texture in upper 18" -----	SiCL			0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2					
V_{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V_{buffer}		Pre-	Post-		0.00	0.00
	Buffer continuity (%) -----	13	13			
	Width of perm. veg. buffer (ft.) -----	0.42	0.42			
	Continuity/Width Rating (B ₁) -----	0	0			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	Con	Con			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V_{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V_{pcover}		Pre-	Post-		0.82	0.82
	Percent of wetland area intact -----	80	80			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	20	20			
	% ground cover - 20 Rating -	0.1	0.1			
V_{micro}	Is the wetland area intact or disturbed?	Both			0.50	0.50
	Describe variability on wetland surface (hummocks, meanders)					
V_{source}	Watershed source alterations (Y/N)?	Y			0.75	0.75
	If Y, what?	Road				
	Percent of area affected -----	10				
V_{subalt}	Alteration present? N Type -----				1.00	1.00
V_{surfalt}	Alteration present? N Type -----				1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.09	0.09
	Conventional Tillage Row Crop	94	0.1			
	Urban, semi pervious, etc	6	0			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 19	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1C
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	7.2	WETLAND ACRES P ---	7.2

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	0.82	0.82
Microtopographic Complexity (V_{micro})	0.50	0.50
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.09	0.09

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.78	5.58	Mod. Groundwater Flow	0.78	5.57
Vel. Reduc. Surf. Water	0.70	4.99	Vel. Reduc. Surf. Water	0.70	4.99
Elemental & Nutr. Cycling	0.48	3.42	Elemental & Nutr. Cycling	0.48	3.42
Retention of Particulates	0.65	4.68	Retention of Particulates	0.65	4.68
Organic Carbon Export	0.66	4.76	Organic Carbon Export	0.66	4.76
Maint. of Plant Comm.	0.56	4.00	Maint. of Plant Comm.	0.56	4.00
Habitat Interspersion	0.48	3.44	Habitat Interspersion	0.48	3.43

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	-0.1	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	-0.1	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	-0.01	-0.2	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 20		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	36.3	Wetland type (NWI)	PEM1A	
Date -----	11/13/2018	Wetland Acres (post-) --	36.3	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V_{detr}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----	1			0.75	0.75
	Other observations					
V_{som}	Dominant texture in upper 18" -----	SiCL			0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2					
V_{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V_{buffer}		Pre-	Post-		0.00	0.00
	Buffer continuity (%) -----	4	4			
	Width of perm. veg. buffer (ft.) -----	0.4	0.4			
	Continuity/Width Rating (B ₁) -----	0	0			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	Con	Con			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V_{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V_{pcover}		Pre-	Post-		0.28	0.28
	Percent of wetland area intact -----	20	20			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	80	80			
V_{micro}	% ground cover - 20 Rating -	0.1	0.1			
	Is the wetland area intact or disturbed?	Disturbed			0.10	0.10
V_{source}	Describe variability on wetland surface (hummocks, meanders)					
	Watershed source alterations (Y/N)?	Y			0.75	0.75
	If Y, what? Road					
V_{subalt}	Percent of area affected -----	5				
	Alteration present? N Type -----				1.00	1.00
V_{surfalt}	Alteration present? N Type -----				1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional Tillage Row Crop	100	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 20	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1A
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	36.3	WETLAND ACRES P ---	36.3

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.75	0.75
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	0.28	0.28
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.69	24.89	Mod. Groundwater Flow	0.69	24.89
Vel. Reduc. Surf. Water	0.45	16.15	Vel. Reduc. Surf. Water	0.45	16.15
Elemental & Nutr. Cycling	0.48	17.32	Elemental & Nutr. Cycling	0.48	17.32
Retention of Particulates	0.44	15.91	Retention of Particulates	0.44	15.91
Organic Carbon Export	0.50	17.97	Organic Carbon Export	0.50	17.97
Maint. of Plant Comm.	0.38	13.67	Maint. of Plant Comm.	0.38	13.67
Habitat Interspersion	0.35	12.52	Habitat Interspersion	0.35	12.52

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 21		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	1.2	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	1.2	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V _{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----	1			0.75	0.75
	Other observations					
V _{som}	Dominant texture in upper 18" -----	SiCL			0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2					
V _{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V _{buffer}		Pre-	Post-		0.00	0.00
	Buffer continuity (%) -----	9	9			
	Width of perm. veg. buffer (ft.) -----	0.4	0.4			
	Continuity/Width Rating (B ₁) -----	0	0			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	Con	Con			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V _{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V _{pcover}		Pre-	Post-		0.55	0.55
	Percent of wetland area intact -----	50	50			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	50	50			
	% ground cover - 20 Rating -	0.1	0.1			
V _{micro}	Is the wetland area intact or disturbed?	Both			0.50	0.50
	Describe variability on wetland surface (hummocks, meanders)					
V _{source}	Watershed source alterations (Y/N)?	Y			0.75	0.75
	If Y, what?	Road				
	Percent of area affected -----	10				
V _{subalt}	Alteration present? N Type -----				1.00	1.00
V _{surfalt}	Alteration present? N Type -----				1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional Tillage Row Crop	100	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 21	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	1.2	WETLAND ACRES P ---	1.2

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.75	0.75
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	0.55	0.55
Microtopographic Complexity (V_{micro})	0.50	0.50
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.73	0.91	Mod. Groundwater Flow	0.73	0.91
Vel. Reduc. Surf. Water	0.61	0.76	Vel. Reduc. Surf. Water	0.61	0.76
Elemental & Nutr. Cycling	0.48	0.59	Elemental & Nutr. Cycling	0.48	0.59
Retention of Particulates	0.48	0.60	Retention of Particulates	0.48	0.60
Organic Carbon Export	0.60	0.74	Organic Carbon Export	0.60	0.74
Maint. of Plant Comm.	0.47	0.58	Maint. of Plant Comm.	0.47	0.58
Habitat Interspersion	0.41	0.51	Habitat Interspersion	0.41	0.51

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 23		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	10.6	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	10.6	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score	
					Existing	Projected
V_{detr}	Detritus thickness (in.), pre-project -----		0		0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----		0		1.00	1.00
	Other observations					
V_{som}	Dominant texture in upper 18" -----		SiCL		0.75	0.75
	Color in upper 12": Value ---	3	Chroma - 1			
V_{pore}	Pores		SQL 2		0.75	0.75
	Structure		SQL 2			
	Rupture Resistance		SQL 2			
	Summary SQL Rating -----		6			
V_{buffer}	Pre- Post-				0.07	0.07
	Buffer continuity (%) -----	23	23			
	Width of perm. veg. buffer (ft.) -----	0.5	0.5			
	Continuity/Width Rating (B ₁) -----	0.05	0.05			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	Con	Con			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V_{pratio}	Native species present in wetland (% of dominants) --		0		0.10	0.10
V_{pcover}	Pre- Post-				1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100	Rating - 1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0	Rating - 1	1			
V_{micro}	Is the wetland area intact or disturbed?		intact		1.00	1.00
	Describe variability on wetland surface (hummocks, meanders)					
V_{source}	Watershed source alterations (Y/N)?		Y		0.75	0.75
	If Y, what?	Road				
	Percent of area affected -----	10				
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)		% of area	Index	0.10	0.10
	Conventional Tillage Row Crop		100	0.1		

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

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DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 23	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	10.6	WETLAND ACRES P ---	10.6

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.07	0.07
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.81	8.56	Mod. Groundwater Flow	0.81	8.56
Vel. Reduc. Surf. Water	0.87	9.24	Vel. Reduc. Surf. Water	0.87	9.24
Elemental & Nutr. Cycling	0.48	5.07	Elemental & Nutr. Cycling	0.48	5.07
Retention of Particulates	0.70	7.38	Retention of Particulates	0.70	7.38
Organic Carbon Export	0.75	7.97	Organic Carbon Export	0.75	7.97
Maint. of Plant Comm.	0.62	6.55	Maint. of Plant Comm.	0.62	6.55
Habitat Interspersion	0.54	5.76	Habitat Interspersion	0.54	5.76

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 24		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	0.5	Wetland type (NWI)	PEM1A	
Date -----	11/13/2018	Wetland Acres (post-) --	0.5	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score	
					Existing	Projected
V_{detr}	Detritus thickness (in.), pre-project -----		0		0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----		1		0.75	0.75
	Other observations					
V_{som}	Dominant texture in upper 18" -----		SiCL		1.00	1.00
	Color in upper 12": Value ---	2	Chroma - 1			
V_{pore}	Pores		SQL 2		0.75	75.00
	Structure		SQL 2			
	Rupture Resistance		SQL 2			
	Summary SQL Rating -----		6			
V_{buffer}	Pre- Post-				0.00	0.00
	Buffer continuity (%) -----	0	0			
	Width of perm. veg. buffer (ft.) -----	0	0			
	Continuity/Width Rating (B ₁) -----	0	0			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	Con	Con			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V_{pratio}	Native species present in wetland (% of dominants) --		0		0.10	0.10
V_{pcover}	Pre- Post-				0.10	0.10
	Percent of wetland area intact -----	0	0			
	% ground cover - 0	Rating - 0	0			
	Percent of wetland area tilled -----	100	100			
	% ground cover - 20	Rating - 0.1	0.1			
V_{micro}	Is the wetland area intact or disturbed?		Disturbed		0.10	0.10
	Describe variability on wetland surface (hummocks, meanders)					
V_{source}	Watershed source alterations (Y/N)?		N		1.00	1.00
	If Y, what?					
	Percent of area affected -----					
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)		% of area	Index	0.10	0.10
	Conventional Tillage Row Crop		100	0.1		

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 24	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1A
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	0.5	WETLAND ACRES P ---	0.5

VARIABLE	SCORE	
	Existing	Predicted
Detritus ($V_{detritus}$)	0.25	0.25
Sedimentation in the Wetland (V_{sed})	0.75	0.75
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	75.00
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{ratio})	0.10	0.10
Vegetation Density (V_{pcover})	0.10	0.10
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	1.00	1.00
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations ($V_{surfalt}$)	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.70	0.32	Mod. Groundwater Flow	4.36	2.01
Vel. Reduc. Surf. Water	0.42	0.19	Vel. Reduc. Surf. Water	0.42	0.19
Elemental & Nutr. Cycling	0.55	0.25	Elemental & Nutr. Cycling	3.97	1.83
Retention of Particulates	0.41	0.19	Retention of Particulates	0.41	0.19
Organic Carbon Export	0.51	0.24	Organic Carbon Export	0.51	0.24
Maint. of Plant Comm.	0.32	0.15	Maint. of Plant Comm.	0.32	0.15
Habitat Interspersion	0.30	0.14	Habitat Interspersion	0.30	0.14

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	1.69	525.1	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	1.57	622.5	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 25		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	4.6	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	4.6	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V _{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V _{som}	Dominant texture in upper 18" -----	SiCL			0.75	0.75
	Color in upper 12": Value --- 3 Chroma - 1					
V _{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V _{buffer}		Pre-	Post-		0.12	0.12
	Buffer continuity (%) -----	64	64			
	Width of perm. veg. buffer (ft.) -----	14	14			
	Continuity/Width Rating (B ₁) -----	0.15	0.15			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	Con	Con			
	Buffer Condition Rating (B ₂) -----	0.1	0.1			
V _{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V _{pcover}		Pre-	Post-		1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0 Rating -	1	1			
V _{micro}	Is the wetland area intact or disturbed?	Intact			1.00	1.00
	Describe variability on wetland surface (hummocks, meanders)					
V _{source}	Watershed source alterations (Y/N)?	Y			0.75	0.75
	If Y, what?	Roads				
	Percent of area affected -----	20				
V _{subalt}	Alteration present? N Type -----				1.00	1.00
V _{surfalt}	Alteration present? N Type -----				1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional Tillage Row Crop	100	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 25	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	4.6	WETLAND ACRES P ---	4.6

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.12	0.12
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.81	3.71	Mod. Groundwater Flow	0.81	3.71
Vel. Reduc. Surf. Water	0.87	4.02	Vel. Reduc. Surf. Water	0.87	4.02
Elemental & Nutr. Cycling	0.48	2.20	Elemental & Nutr. Cycling	0.48	2.20
Retention of Particulates	0.70	3.24	Retention of Particulates	0.70	3.24
Organic Carbon Export	0.75	3.45	Organic Carbon Export	0.75	3.45
Maint. of Plant Comm.	0.62	2.84	Maint. of Plant Comm.	0.62	2.84
Habitat Interspersion	0.56	2.56	Habitat Interspersion	0.56	2.56

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 27		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	3.4	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	3.4	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score	
					Existing	Projected
V_{detritus}	Detritus thickness (in.), pre-project -----		0		0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----		0		1.00	1.00
	Other observations					
V_{som}	Dominant texture in upper 18" -----		SiCL		0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2					
V_{pore}	Pores		SQI 2		0.75	0.75
	Structure		SQI 2			
	Rupture Resistance		SQI 2			
	Summary SQI Rating -----		6			
V_{buffer}			Pre- Post-		0.00	0.00
	Buffer continuity (%) -----		17 17			
	Width of perm. veg. buffer (ft.) -----		0.83 0.83			
	Continuity/Width Rating (B ₁) -----		0 0			
	Buffer condition -----		↓ ↓			
	Perm. veg. part ---		0 0			
	Tilled part -----		Con Con			
Buffer Condition Rating (B ₂) -----		0.1 0.1				
V_{pratio}	Native species present in wetland (% of dominants) --		0		0.10	0.10
V_{pcover}			Pre- Post-		1.00	1.00
	Percent of wetland area intact -----		100 100			
	% ground cover - 100	Rating -	1 1			
	Percent of wetland area tilled -----		0 0			
V_{micro}	Is the wetland area intact or disturbed?		Intact		1.00	1.00
	Describe variability on wetland surface (hummocks, meanders)					
V_{source}	Watershed source alterations (Y/N)?		Y		0.75	0.75
	If Y, what?					
	Percent of area affected -----		20			
V_{subalt}	Alteration present?	N	Type -----		1.00	1.00
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)		% of area Index		0.10	0.10
	Conventional Tillage Row Crop		100 0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 27	ASSESSMENT TYPE ---	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ---	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	3.4	WETLAND ACRES P ---	3.4

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.00	0.00
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	0.75	0.75
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.81	2.74	Mod. Groundwater Flow	0.81	2.74
Vel. Reduc. Surf. Water	0.87	2.94	Vel. Reduc. Surf. Water	0.87	2.94
Elemental & Nutr. Cycling	0.48	1.62	Elemental & Nutr. Cycling	0.48	1.62
Retention of Particulates	0.68	2.32	Retention of Particulates	0.68	2.32
Organic Carbon Export	0.75	2.55	Organic Carbon Export	0.75	2.55
Maint. of Plant Comm.	0.62	2.10	Maint. of Plant Comm.	0.62	2.10
Habitat Interspersion	0.53	1.79	Habitat Interspersion	0.53	1.79

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #28

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	1117.00	0.00
		grassland along perimeter (feet):	0.00	
		percent continuity:	0.00	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.00
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	0.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	0.00	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.00
		sum of species:	2.00	
		sum of C values:	0.00	
		mean coefficient of conservatism:	0.00	
		FQI:	0.00	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		0.75	0.75	
	V _{SED}	Eastern Prairie Potholes			1.00	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		12.00		
	V _{SQI}	SQI scores for 4 samples:			0.05	
		sample 1:		2.00		
		sample 2:		1.50		
		sample 3:		2.00		
		sample 4:		2.00		
		average SQI score:		1.88		
	V _{SOM}	Indirect Measurements			0.33	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 2		hue:		10.00
				value:		2.00
				chroma:		2.00
				ADI:		7.00
		Sample 3		hue:		10.00
				value:		2.00
				chroma:		1.00
				ADI:		6.00
		Sample 4		hue:		10.00
				value:		2.00
		chroma:	1.00			
		ADI:	6.00			
average ADI:			6.25			
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:			1.77			

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1512.00	1.00
		present (or constructed) invert elevation:	1512.00	
		elevation of the edge of the historic wetland:	1512.50	
		elevation of a representative deepest portion of the wetland:	1511.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	1117.00	1.00
		wetland area (acres):	1.00	
		Shoreline Development Index:	1.51	
	V _{CATCHWET}	wetland area (acres):	1.00	1.00
		catchment area (acres):	13.77	
		ratio of catchment size to wetland size:	13.77	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	13.77	0.52
		acres of catchment for each curve number:		
		98		
		90		
		79	13.77	
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	79.00	
	V _{WETPROX}	distance to nearest wetland(feet):	51.00	0.75
		distance to 2nd nearest wetland:	512.00	
		distance to 3rd nearest wetland:	538.00	
		distance to 4th nearest wetland:	544.00	
		distance to 5th nearest wetland:	689.00	
		mean distance (feet):	466.80	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	75.00	0.16
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	60.00	0.27
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	14.00	0.00

Function	FCI	FCU
1. Water Storage	0.94	0.94
2. Groundwater Recharge	0.85	0.85
3. Retain Particulates	0.58	0.58
4. Remove, Convert, and Sequester Dissolved Substances	0.58	0.58
5. Plant Community Resilience and Carbon Cycling	0.53	0.53
6a. Provide Faunal Habitat	0.63	0.63
6b. Provide Faunal Habitat (Alternate Formula)	0.50	0.50

Summary Sheet

USER NOTE: Do not enter any data in this worksheet. All data and calculations are entered for you using previously entered information. If any of this information is incorrect, enter the correct information in the appropriate worksheet.

Project Name/Location:

85th Street Interchange
Lincoln County, South Dakota
Wetland #29

	Variable	Data entered		Subindex
Vegetation	V _{GRASSCONT}	wetland perimeter (feet):	1176.00	0.48
		grassland along perimeter (feet):	570.00	
		percent continuity:	48.47	
	V _{GRASSWIDTH}	grassland width (feet) at 12 points:		0.04
		Point 1:	5.00	
		Point 2:	5.00	
		Point 3:	0.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	5.00	
		Point 11:	5.00	
		Point 12:	5.00	
		mean width (feet):	2.08	
	V _{VEGCOMP}	(see vegetation worksheet for species entered)		0.19
		sum of species:	2.00	
		sum of C values:	5.00	
		mean coefficient of conservatism:	2.50	
		FQI:	3.54	

Soil	V _{RECHARGE}	Soil Recharge Potential Subindex:		0.75	0.75	
	V _{SED}	Eastern Prairie Potholes			1.00	
		mean depth to B horizon (inches):				
		Western Prairie Potholes				
		mean depth to B horizon (inches):		12.00		
	V _{SQI}	SQI scores for 4 samples:			0.04	
		sample 1:		1.50		
		sample 2:		1.50		
		sample 3:		2.00		
		sample 4:		2.00		
		average SQI score:		1.75		
	V _{SOM}	Indirect Measurements			0.27	
		Litter Depth for 4 samples:				
		sample 1:		0.00		
		sample 2:		0.00		
		sample 3:		0.00		
		sample 4:		0.00		
		Average Litter Depth (inches):		0.00		
		ADI for 4 samples:				
		Sample 1		hue:		10.00
				value:		2.00
				chroma:		2.00
				ADI:		7.00
		Sample 2		hue:		10.00
				value:		2.00
				chroma:		2.00
				ADI:		7.00
		Sample 3		hue:		10.00
				value:		2.00
				chroma:		2.00
				ADI:		7.00
		Sample 4		hue:		10.00
				value:		2.00
		chroma:	2.00			
		ADI:	7.00			
		average ADI:	7.00			
Direct Measurements						
% organic carbon for 0-15cm depth:						
% organic carbon for 15-30cm depth:						
mean percentage:						
% organic carbon:		1.57				

Hydrogeomorphic	V _{OUT}	historic invert elevation in relation to wetland maximum depth:	1507.00	1.00
		present (or constructed) invert elevation:	1507.00	
		elevation of the edge of the historic wetland:	1515.00	
		elevation of a representative deepest portion of the wetland:	1514.50	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V _{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V _{SOURCE}	type & effect of surface alteration(s):		1.00
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V _{EDGE}	wetland perimeter (feet):	1176.00	0.30
		wetland area (acres):	2.13	
		Shoreline Development Index:	1.09	
	V _{CATCHWET}	wetland area (acres):	2.13	0.36
		catchment area (acres):	5.86	
		ratio of catchment size to wetland size:	2.75	
Landscape & Landuse	V _{UPOSE}	total acre size of the present day catchment:	5.86	0.54
		acres of catchment for each curve number:		
		98		
		90		
		79	4.86	
		77		
		72		
		75		
		73		
		71		
		72		
		74	1.00	
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	78.15	
	V _{WETPROX}	distance to nearest wetland(feet):	44.00	0.49
		distance to 2nd nearest wetland:	561.00	
		distance to 3rd nearest wetland:	645.00	
		distance to 4th nearest wetland:	1040.00	
		distance to 5th nearest wetland:	1171.00	
		mean distance (feet):	692.20	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	75.00	0.16
	V _{BASINS}	number of palustrine wetlands within a 1-mile radius:	60.00	0.27
	V _{HABFRAG}	miles of roads and linear attributes within a 1-mile radius:	15.00	0.00

Function	FCI	FCU
1. Water Storage	0.94	2.00
2. Groundwater Recharge	0.70	1.50
3. Retain Particulates	0.69	1.47
4. Remove, Convert, and Sequester Dissolved Substances	0.67	1.42
5. Plant Community Resilience and Carbon Cycling	0.63	1.33
6a. Provide Faunal Habitat	0.65	1.39
6b. Provide Faunal Habitat (Alternate Formula)	0.56	1.20

South Dakota Slope HGM Model, Version 4.0

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 35		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	25.9	Wetland type (NWI)	PEM1C	
Date -----	11/13/2018	Wetland Acres (post-) --	25.9	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score	
			Existing	Projected
V_{detritus}	Detritus thickness (in.), pre-project -----	0		
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----	0		
	Other observations			
V_{som}	Dominant texture in upper 18" -----	SiCL		
	Color in upper 12": Value --- 2 Chroma - 1			
V_{pore}	Pores	SQI 2		
	Structure	SQI 2		
	Rupture Resistance	SQI 2		
	Summary SQI Rating -----	6		
V_{buffer}		Pre- Post-		
	Buffer continuity (%) -----	70 70		
	Width of perm. veg. buffer (ft.) -----	30.8 30.8		
	Continuity/Width Rating (B ₁) -----	0.3 0.3		
	Buffer condition -----	↓ ↓		
	Perm. veg. part ---	0 0		
	Tilled part -----	None None		
	Buffer Condition Rating (B ₂) -----	0.1 0.1		
V_{pratio}	Native species present in wetland (% of dominants) --	0		
V_{pcover}		Pre- Post-		
	Percent of wetland area intact -----	100 100		
	% ground cover - 100 Rating -	1 1		
	Percent of wetland area tilled -----	0		
V_{micro}	Is the wetland area intact or disturbed?	Intact		
	Describe variability on wetland surface (hummocks, meanders)			
V_{source}	Watershed source alterations (Y/N)?	Y		
	If Y, what? Roads, Development			
	Percent of area affected -----	80		
V_{subalt}	Alteration present? N Type -----			
V_{surfalt}	Alteration present? Y Type ----- Dam, culvert			
V_{upuse}	Dominant use of upland (3 maximum)	% of area Index		
	Urban development, roads	80 0		
	Conventional Tillage Row Crop	20 0.1		

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 35	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1C
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY ----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	25.9	WETLAND ACRES P ---	25.9

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.17	0.17
Ratio of Native to Non-Native Species (V_{pratio})	1.00	1.00
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	1.00	1.00
Source Area of Flow (V_{source})	0.10	0.10
Subsurface Hydrology Alterations (V_{subalt})	1.00	1.00
Surface Hydrology Alterations (V_{surfalt})	0.10	0.10
Upland Use (V_{upuse})	0.02	0.02

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.68	17.71	Mod. Groundwater Flow	0.68	17.71
Vel. Reduc. Surf. Water	0.61	15.69	Vel. Reduc. Surf. Water	0.61	15.69
Elemental & Nutr. Cycling	0.41	10.73	Elemental & Nutr. Cycling	0.41	10.73
Retention of Particulates	0.70	18.10	Retention of Particulates	0.70	18.10
Organic Carbon Export	0.74	19.10	Organic Carbon Export	0.74	19.10
Maint. of Plant Comm.	0.82	21.15	Maint. of Plant Comm.	0.82	21.15
Habitat Interspersion	0.44	11.29	Habitat Interspersion	0.44	11.29

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 38		Reference Site? (Y/N)
County -----	Lincoln	Wetland Acres (pre-) ---	0.03	Wetland type (NWI)	PEM1B
Date -----	11/13/2018	Wetland Acres (post-) --	0.03	Wetland type (FSA)	
Owner/Op. --	85th St BDJVG	Planned Activity -----			
Yellow Flag?		If yes, what?			Observe
Red Flag? --		If yes, what?			Rebecca

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Existing
V_{detritus}	Detritus thickness (in.), pre-project -----	0	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project ----- Other observations	0	1.00
V_{som}	Dominant texture in upper 18" ----- Color in upper 12": Value --- 2 Chroma -	SiCL 1	1.00
V_{pore}	Pores Structure Rupture Resistance Summary SQI Rating -----	SQI SQI SQI 6	0.75
V_{buffer}	Pre- Post- Buffer continuity (%) ----- Width of perm. veg. buffer (ft.) ----- Continuity/Width Rating (B ₁) ----- Buffer condition ----- Perm. veg. part --- Tilled part ----- Buffer Condition Rating (B ₂) -----	100 100 48 48 0.4 0.4 ↓ ↓ 0 0 None None 0.5 0.5	0.45
V_{pratio}	Native species present in wetland (% of dominants) --	0	0.10
V_{pcover}	Pre- Post- Percent of wetland area intact ----- % ground cover - 100 Rating - Percent of wetland area tilled ----- % ground cover - 0 Rating -	100 100 1 1 0 0 1 1	1.00
V_{micro}	Is the wetland area intact or disturbed? Describe variability on wetland surface (hummocks, meanders) Roadside ditch	Disturbed	0.10
V_{source}	Watershed source alterations (Y/N)? If Y, what? Roads Percent of area affected -----	Y 50	0.10
V_{subalt}	Alteration present? Y Type ----- Culvert		0.25
V_{surfalt}	Alteration present? N Type -----		1.00
V_{upuse}	Dominant use of upland (3 maximum) Farmstead	% of area 100 Index 0.1	0.10

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Projected
0.25
1.00
1.00
0.75
0.45
0.10
1.00
0.10
0.10
0.25
1.00
0.10

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 38	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY ----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ----	0.0	WETLAND ACRES P ---	0.0

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.45	0.45
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	0.10	0.10
Subsurface Hydrology Alterations (V_{subalt})	0.25	0.25
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.35	0.01	Mod. Groundwater Flow	0.35	0.01
Vel. Reduc. Surf. Water	0.63	0.02	Vel. Reduc. Surf. Water	0.63	0.02
Elemental & Nutr. Cycling	0.49	0.01	Elemental & Nutr. Cycling	0.49	0.01
Retention of Particulates	0.76	0.02	Retention of Particulates	0.76	0.02
Organic Carbon Export	0.68	0.02	Organic Carbon Export	0.68	0.02
Maint. of Plant Comm.	0.53	0.02	Maint. of Plant Comm.	0.53	0.02
Habitat Interspersion	0.54	0.02	Habitat Interspersion	0.54	0.02

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 39		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	0.02	Wetland type (NWI)	PEM1C	
Date -----	11/13/2018	Wetland Acres (post-) --	0.02	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V _{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V _{som}	Dominant texture in upper 18" -----	SiCL			1.00	1.00
	Color in upper 12": Value --- 2 Chroma - 1					
V _{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V _{buffer}		Pre-	Post-		0.32	0.32
	Buffer continuity (%) -----	100	100			
	Width of perm. veg. buffer (ft.) -----	16	16			
	Continuity/Width Rating (B ₁) -----	0.2	0.2			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0.5	0.5			
V _{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V _{pcover}		Pre-	Post-		1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0 Rating -	1	1			
V _{micro}	Is the wetland area intact or disturbed?	Disturbed			0.10	0.10
	Describe variability on wetland surface (hummocks, meanders)					
	Roadside ditch					
V _{source}	Watershed source alterations (Y/N)?	Y			0.10	0.10
	If Y, what?	road				
	Percent of area affected -----	50				
V _{subalt}	Alteration present? Y Type -----	culvert			0.25	0.25
V _{surfalt}	Alteration present? N Type -----				1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Farmstead	100	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 39	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1C
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	0.0	WETLAND ACRES P ---	0.0

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.32	0.32
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	0.10	0.10
Subsurface Hydrology Alterations (V_{subalt})	0.25	0.25
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.35	0.01	Mod. Groundwater Flow	0.35	0.01
Vel. Reduc. Surf. Water	0.62	0.01	Vel. Reduc. Surf. Water	0.62	0.01
Elemental & Nutr. Cycling	0.49	0.01	Elemental & Nutr. Cycling	0.49	0.01
Retention of Particulates	0.74	0.01	Retention of Particulates	0.74	0.01
Organic Carbon Export	0.68	0.01	Organic Carbon Export	0.68	0.01
Maint. of Plant Comm.	0.53	0.01	Maint. of Plant Comm.	0.53	0.01
Habitat Interspersion	0.51	0.01	Habitat Interspersion	0.51	0.01

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 40		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	0.2	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	0.2	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V _{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V _{som}	Dominant texture in upper 18" -----	SiCL			1.00	1.00
	Color in upper 12": Value --- 2 Chroma - 1					
V _{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V _{buffer}		Pre-	Post-		0.40	0.40
	Buffer continuity (%) -----	100	100			
	Width of perm. veg. buffer (ft.) -----	38	38			
	Continuity/Width Rating (B ₁) -----	0.4	0.4			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0.4	0.4			
V _{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V _{pcover}		Pre-	Post-		1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0 Rating -	1	1			
V _{micro}	Is the wetland area intact or disturbed?	Y			0.25	0.25
	Describe variability on wetland surface (hummocks, meanders) roadside ditch					
V _{source}	Watershed source alterations (Y/N)?	Y			0.10	0.10
	If Y, what?	road				
	Percent of area affected -----	50				
V _{subalt}	Alteration present? Y Type -----	culvert			0.25	0.25
V _{surfalt}	Alteration present? N Type -----				1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Farmstead	100	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 40	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY ----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	0.2	WETLAND ACRES P ---	0.2

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.40	0.40
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	0.25	0.25
Source Area of Flow (V_{source})	0.10	0.10
Subsurface Hydrology Alterations (V_{subalt})	0.25	0.25
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.35	0.06	Mod. Groundwater Flow	0.35	0.06
Vel. Reduc. Surf. Water	0.66	0.11	Vel. Reduc. Surf. Water	0.66	0.11
Elemental & Nutr. Cycling	0.49	0.08	Elemental & Nutr. Cycling	0.49	0.08
Retention of Particulates	0.75	0.13	Retention of Particulates	0.75	0.13
Organic Carbon Export	0.69	0.12	Organic Carbon Export	0.69	0.12
Maint. of Plant Comm.	0.53	0.09	Maint. of Plant Comm.	0.53	0.09
Habitat Interspersion	0.53	0.09	Habitat Interspersion	0.53	0.09

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 41		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	0.2	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	0.2	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V_{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V_{som}	Dominant texture in upper 18" -----	SiCL			0.75	0.75
	Color in upper 12": Value --- 2 Chroma - 2					
V_{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V_{buffer}		Pre- Post-			0.32	0.32
	Buffer continuity (%) -----	83	83			
	Width of perm. veg. buffer (ft.) -----	13	13			
	Continuity/Width Rating (B ₁) -----	0.2	0.2			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	100	100			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0.5	0.5			
V_{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V_{pcover}		Pre- Post-			1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
V_{micro}	% ground cover - 0 Rating -	1	1			
	Is the wetland area intact or disturbed?	Disturbed			0.25	0.25
V_{source}	Describe variability on wetland surface (hummocks, meanders) roadside ditch					
	Watershed source alterations (Y/N)?	Y			0.10	0.10
	If Y, what? Road					
V_{subalt}	Percent of area affected -----	50				
	Alteration present? Y Type ---- Culvert				0.25	0.25
V_{surfalt}	Alteration present? N Type ----				0.25	0.25
V_{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Conventional Tillage Row Crop	22	0.1			
	Farmstead	78	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 41	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY ----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	0.2	WETLAND ACRES P ---	0.2

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	0.75	0.75
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.32	0.32
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	0.25	0.25
Source Area of Flow (V_{source})	0.10	0.10
Subsurface Hydrology Alterations (V_{subalt})	0.25	0.25
Surface Hydrology Alterations (V_{surfalt})	0.25	0.25
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.35	0.06	Mod. Groundwater Flow	0.35	0.06
Vel. Reduc. Surf. Water	0.47	0.08	Vel. Reduc. Surf. Water	0.47	0.08
Elemental & Nutr. Cycling	0.39	0.07	Elemental & Nutr. Cycling	0.39	0.07
Retention of Particulates	0.74	0.13	Retention of Particulates	0.74	0.13
Organic Carbon Export	0.56	0.10	Organic Carbon Export	0.56	0.10
Maint. of Plant Comm.	0.45	0.08	Maint. of Plant Comm.	0.45	0.08
Habitat Interspersion	0.42	0.07	Habitat Interspersion	0.42	0.07

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

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Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 42		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	0.1	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	0.1	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn
Variable	Measurement or Condition Result			Rationale for Post-Project Changes	Variable Score	
					Existing	Projected
V_{detritus}	Detritus thickness (in.), pre-project -----		0		0.25	0.25
V_{sed}	Sediment thickness (in.) in wetland, pre-project -----		0		1.00	1.00
	Other observations					
V_{som}	Dominant texture in upper 18" -----		SiCL		1.00	1.00
	Color in upper 12": Value ---	2	Chroma - 1			
V_{pore}	Pores		SQI 2		0.75	0.75
	Structure		SQI 2			
	Rupture Resistance		SQI 2			
	Summary SQI Rating -----		6			
V_{buffer}	Pre- Post-				0.22	0.22
	Buffer continuity (%) -----	100	100			
	Width of perm. veg. buffer (ft.) -----	7	7			
	Continuity/Width Rating (B ₁) -----	0.1	0.1			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---		0 0			
	Tilled part -----		None None			
	Buffer Condition Rating (B ₂) -----	0.5	0.5			
V_{pratio}	Native species present in wetland (% of dominants) --		0		0.10	0.10
V_{pcover}	Pre- Post-				1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100	Rating - 1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0	Rating - 1	1			
V_{micro}	Is the wetland area intact or disturbed?		Disturbed		0.10	0.10
	Describe variability on wetland surface (hummocks, meanders)					
	Roadside Ditch					
V_{source}	Watershed source alterations (Y/N)?		Y		0.10	0.10
	If Y, what?	Road				
	Percent of area affected -----	50				
V_{subalt}	Alteration present?	Y	Type ----- Culvert		0.25	0.25
V_{surfalt}	Alteration present?	N	Type -----		1.00	1.00
V_{upuse}	Dominant use of upland (3 maximum)		% of area Index		0.10	0.10
	Conventional Tillage Row Crop		53 0.1			
	Farmstead		47 0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 42	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY ----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	0.1	WETLAND ACRES P ---	0.1

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.22	0.22
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	0.10	0.10
Subsurface Hydrology Alterations (V_{subalt})	0.25	0.25
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.35	0.03	Mod. Groundwater Flow	0.35	0.03
Vel. Reduc. Surf. Water	0.61	0.06	Vel. Reduc. Surf. Water	0.61	0.06
Elemental & Nutr. Cycling	0.49	0.04	Elemental & Nutr. Cycling	0.49	0.04
Retention of Particulates	0.72	0.06	Retention of Particulates	0.72	0.06
Organic Carbon Export	0.68	0.06	Organic Carbon Export	0.68	0.06
Maint. of Plant Comm.	0.53	0.05	Maint. of Plant Comm.	0.53	0.05
Habitat Interspersion	0.49	0.04	Habitat Interspersion	0.49	0.04

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	0.0	YES	
Vel. Reduc. Surf. Water	0.00	0.0	YES	
Ret, Conv. Elem. & Cmpd.	0.00	0.0	YES	
Retention of Particulates	0.00	0.0	YES	
Organic Carbon Export	0.00	0.0	YES	
Maint. of Plant Comm.	0.00	0.0	YES	
Habitat Interspersion	0.00	0.0	YES	

South Dakota Slope HGM Model, Version 4.0

Rev. 6/6/01

Variable Score Field Form

Field Office -		WAA Id. -----	Wetland 43		Reference Site? (Y/N)	
County -----	Lincoln	Wetland Acres (pre-) ---	0.1	Wetland type (NWI)	PEM1B	
Date -----	11/13/2018	Wetland Acres (post-) --	0.1	Wetland type (FSA)		
Owner/Op. --	85th St BDJVG	Planned Activity -----				
Yellow Flag?		If yes, what?				Observers
Red Flag? --		If yes, what?				Rebecca Beduhn

Variable	Measurement or Condition Result	Rationale for Post-Project Changes	Variable Score			
			Existing	Projected		
V _{detritus}	Detritus thickness (in.), pre-project -----	0			0.25	0.25
V _{sed}	Sediment thickness (in.) in wetland, pre-project -----	0			1.00	1.00
	Other observations					
V _{som}	Dominant texture in upper 18" -----	SiCL			1.00	1.00
	Color in upper 12": Value --- 2 Chroma - 1					
V _{pore}	Pores	SQI	2		0.75	0.75
	Structure	SQI	2			
	Rupture Resistance	SQI	2			
	Summary SQI Rating -----	6				
V _{buffer}		Pre-	Post-		0.32	0.32
	Buffer continuity (%) -----	100	100			
	Width of perm. veg. buffer (ft.) -----	25	25			
	Continuity/Width Rating (B ₁) -----	0.2	0.2			
	Buffer condition -----	↓	↓			
	Perm. veg. part ---	0	0			
	Tilled part -----	None	None			
	Buffer Condition Rating (B ₂) -----	0.5	0.5			
V _{pratio}	Native species present in wetland (% of dominants) --	0			0.10	0.10
V _{pcover}		Pre-	Post-		1.00	1.00
	Percent of wetland area intact -----	100	100			
	% ground cover - 100 Rating -	1	1			
	Percent of wetland area tilled -----	0	0			
	% ground cover - 0 Rating -	1	1			
V _{micro}	Is the wetland area intact or disturbed?	Disturbed			0.10	0.10
	Describe variability on wetland surface (hummocks, meanders)					
V _{source}	Watershed source alterations (Y/N)?	Y			0.10	0.10
	If Y, what?	Road				
	Percent of area affected -----					
V _{subalt}	Alteration present? Y Type -----	Culvert			0.25	0.25
V _{surfalt}	Alteration present? N Type -----				1.00	1.00
V _{upuse}	Dominant use of upland (3 maximum)	% of area	Index		0.10	0.10
	Farmstead	100	0.1			

SLOPE MODEL FUNCTIONAL ASSESSMENT WORKSHEET

Version 4.0 (Rev. 6/6/01)

DATE -----	#####	REMARKS -----	
WETLAND ID -----	Wetland 43	ASSESSMENT TYPE ----	Delineation
OBSERVERS -----	Rebecca Beduhn	WETLAND TYPE NWI ---	PEM1B
CONDITIONS -----		WETLAND TYPE FSA ---	
PROJECT NAME -----	85th Street Interchange	OWNER/OPERATOR ----	85th St BDJVG
PLANNED ACTIVITY -----			
YELLOW FLAG -----		RED FLAG -----	
WETLAND ACRES E ---	0.1	WETLAND ACRES P ---	0.1

VARIABLE	SCORE	
	Existing	Predicted
Detritus (V_{detritus})	0.25	0.25
Sedimentation in the Wetland (V_{sed})	1.00	1.00
Soil Organic Matter (V_{som})	1.00	1.00
Soil Pores (V_{pore})	0.75	0.75
Buffer Condition, Continuity, & Width (V_{buffer})	0.32	0.32
Ratio of Native to Non-Native Species (V_{pratio})	0.10	0.10
Vegetation Density (V_{pcover})	1.00	1.00
Microtopographic Complexity (V_{micro})	0.10	0.10
Source Area of Flow (V_{source})	0.10	0.10
Subsurface Hydrology Alterations (V_{subalt})	0.25	0.25
Surface Hydrology Alterations (V_{surfalt})	1.00	1.00
Upland Use (V_{upuse})	0.10	0.10

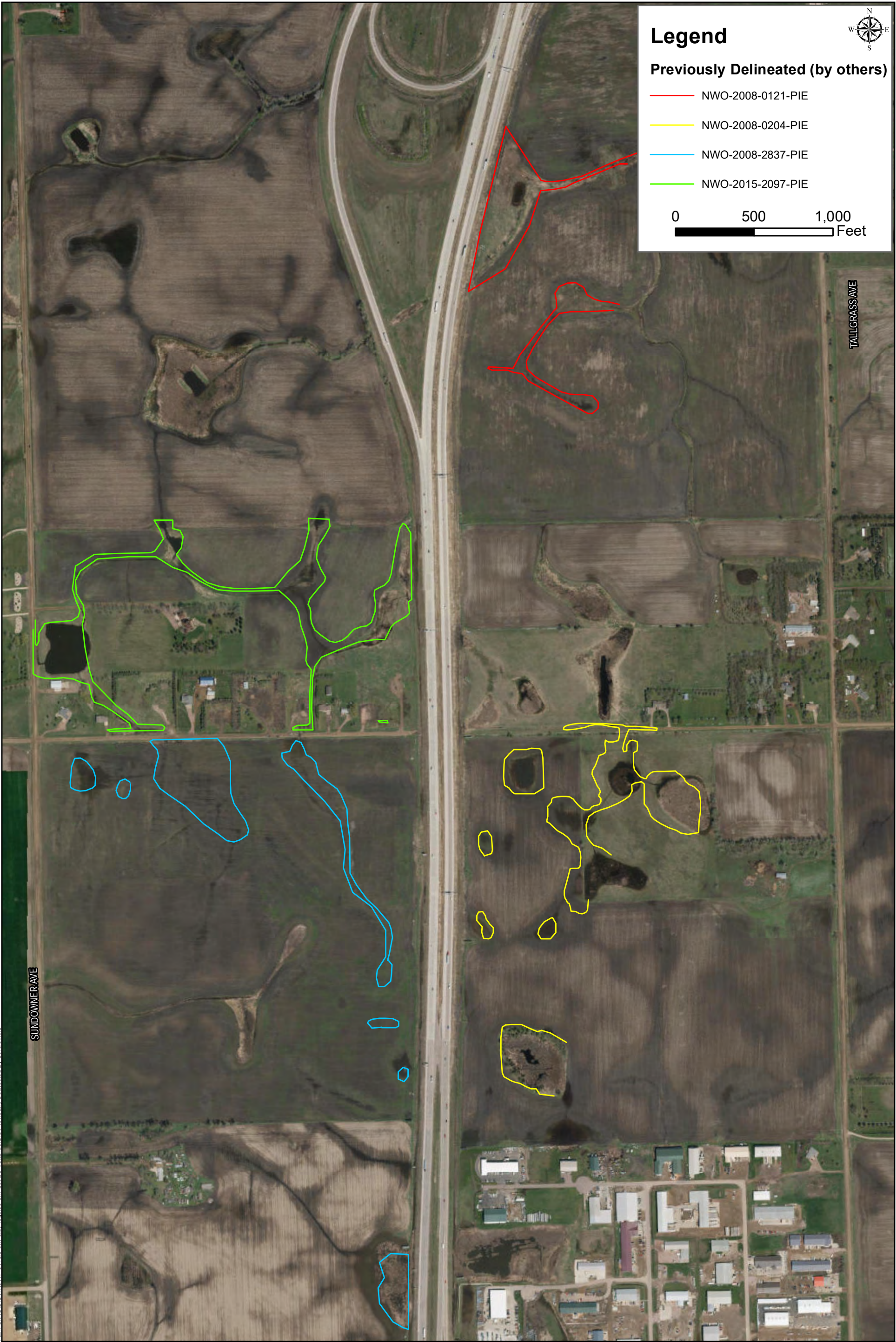
CALCULATION OF FUNCTIONAL CAPACITY

EXISTING	FCI	FCU	PREDICTED	FCI	FCU
Mod. Groundwater Flow	0.35	0.04	Mod. Groundwater Flow	0.35	0.03
Vel. Reduc. Surf. Water	0.62	0.07	Vel. Reduc. Surf. Water	0.62	0.06
Elemental & Nutr. Cycling	0.49	0.05	Elemental & Nutr. Cycling	0.49	0.05
Retention of Particulates	0.74	0.08	Retention of Particulates	0.74	0.07
Organic Carbon Export	0.68	0.07	Organic Carbon Export	0.68	0.07
Maint. of Plant Comm.	0.53	0.06	Maint. of Plant Comm.	0.53	0.05
Habitat Interspersion	0.51	0.06	Habitat Interspersion	0.51	0.05

FUNCTIONS	CHANGE IN FCU's		MIN EFFECT (Yes or No)	JUSTIFICATION OF MINIMAL EFFECT IF 10 TO 20% LOSS OF FUNCTION
	NUMERICAL	PERCENT		
Mod. Groundwater Flow	0.00	-9.1	YES	
Vel. Reduc. Surf. Water	-0.01	-9.1	YES	
Ret, Conv. Elem. & Cmpd.	0.00	-9.1	YES	
Retention of Particulates	-0.01	-9.1	YES	
Organic Carbon Export	-0.01	-9.1	YES	
Maint. of Plant Comm.	-0.01	-9.1	YES	
Habitat Interspersion	-0.01	-9.1	YES	

Appendix E

Previous Delineations



This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

PUBLIC NOTICE



US ARMY CORPS
OF ENGINEERS
OMAHA DISTRICT

APPLICANT: SANFORD HEALTH
APPLICATION NO: NWO-2008-0121-PIE
WATERWAY: UNNAMED WETLANDS
ISSUE DATE: MAY 04, 2018
EXPIRATION DATE: MAY 25, 2018

Regulatory Office, 28563 Powerhouse Rd, Room 118, Pierre, SD 57501
<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/SouthDakota.aspx>

21-DAY NOTICE

JOINT NOTICE OF PERMIT PENDING

US ARMY CORPS OF ENGINEERS
AND
SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

The application of Sanford Health for approval of plans and issuance of a permit under authority of the Secretary of the Army is being considered by the District Commander, US Army Engineer District, Omaha, Nebraska. **The project described herein is not being proposed by the Corps, but by the applicant; the Corps will evaluate the proposed work to determine if it is permissible under current laws and regulations.**

Description of Proposed Project: Sanford Health received Corps authorization on July 16, 2008 to construct the Sanford Health Medical Research Center in southwest Sioux Falls, South Dakota. Authorization was granted to grade approximately 10.4 acres of wetlands in order to install water main, sanitary sewer, storm sewer, street lighting, bike/walking trails, asphalt streets with curb and gutter, and landscaping. To date, a majority of the grading has been completed which has impacted 7.87 acres of wetlands, however delays in development occurred and the project has not been completed. The previous Corps authorization expired on September 30, 2017. The applicant now requests authorization to complete the project by constructing a new Sioux Falls Lutheran School on the south side of the property which will impact the remaining 2.53 acres of wetlands. See attached design drawings.

Location: The project is located in Section 18, Township 100 North, Range 50 West, Lincoln County, South Dakota.

Purpose: The purpose of the proposed project is to provide institutional development for the growing population of Sioux Falls.

Mitigation: The proposed project alternative was selected to avoid wetlands to the greatest extent possible. Compensatory mitigation for the originally authorized 10.4 acres of permanent wetland impacts was provided by constructing mitigation wetlands both off-site and on-site. The off-site mitigation was completed in 2014 and the on-site mitigation was completed in 2017. Hydrogeomorphic functional assessment scores were calculated to account for the functional loss of the impacted wetlands. A mitigation ratio of 2 to 1 was used to compensate for the impacts and a total of 39.4 wetland mitigation credits were constructed.

Existing Conditions: The project area is situated in the City of Sioux Falls, SD on the southeast side of the intersections of Interstate Highways 29 and 229 in a patchwork of agricultural and urban sector that is rapidly being enveloped by the expanding City. The adjoining Interstate Highway 29 system runs along the west boundary of the property. Other surrounding land uses include agricultural land parcels that are either currently being developed, or are scheduled for development in the near future. A State Department of Transportation highway maintenance facility is also located adjacent to the site. The landscape consists of gentle sloping prairie (glacial till) divided by ephemeral streams, linear wetlands, and intermittent flowing drainages/tributaries with scattered wetland depressions in the Big Sioux River drainage basin.

The South Dakota Department of Environment and Natural Resources, Division of Environmental Services, 523 East Capitol Avenue, Pierre, South Dakota, 57501-3181, will review the proposed project for state certification in accordance with the provisions of Section 401 of the Clean Water Act. The certification, if issued, will express the State's opinion that the operations undertaken by the applicant will not result in a violation of applicable water quality standards. The South Dakota Department of Environment and Natural Resources hereby incorporates this public notice as its own public notice and procedures by reference (ARSD 74:51:01).

The Omaha District will comply with the National Historic Preservation Act of 1966, as amended. As a result of a cultural resources survey completed in April 2008 and lack of cultural resources found in the project area, this project received a determination of "No Historic Properties Affected". The State Historic Preservation Officer (SHPO) concurred with this determination on July 1, 2008. We will evaluate additional input by the SHPO and the public in response to this public notice.

In compliance with the Endangered Species Act, a preliminary determination has been made that the described work will not affect species designated as threatened or endangered or adversely affect critical habitat. In order to complete our evaluation of this activity, comments are solicited from the U.S. Fish and Wildlife Service and other interested agencies and individuals.

The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposals must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the activity will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production, and, in general the needs and welfare of the people. In addition, the evaluation of the impacts of the project on public

interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act (40 CFR Part 230).

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reason for holding a public hearing. The request must be submitted to the US Army Corps of Engineers, South Dakota Regulatory Office, 28563 Powerhouse Road, Room 118, Pierre, South Dakota 57501.

Any interested party (particularly officials of any town, city, county, state, Federal agency, Indian Tribe, or local association whose interests may be affected by the proposed work) is invited to submit to this office, written facts, arguments, or objections on or before May 25, 2018. Any agency or individual having an objection to the proposed work should specifically identify it as an objection with clear and specific reasons. Comments, both favorable and unfavorable, will be accepted, made a part of the record and will receive full consideration in subsequent actions on this permit application. All replies to the public notice should be addressed to the address listed in the previous paragraph. Cathy Juhas, telephone number (605) 224-8531, may be contacted for additional information.

Comments received after the close of the business day on the expiration date of this public notice will not be considered.

This project, if authorized, will be under the provisions of Section 404 of the Clean Water Act.

Drawings showing the location and extent of the work are attached to this notice.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
SOUTH DAKOTA REGULATORY OFFICE
28563 POWERHOUSE ROAD, ROOM 118
PIERRE, SOUTH DAKOTA 57501-6174

October 4, 2017

South Dakota Regulatory Office
28563 Powerhouse Road, Room 118
Pierre, South Dakota 57501

Sonler Properties
Attn: Jean Brockmueller
100 North Phillips Avenue
Sioux Falls, South Dakota 57104-6725

Dear Ms. Brockmueller:

Reference is made to the information received August 21, 2017, concerning Section 404 of the Clean Water Act permit requirements. The review area is located in the northeast quarter of Section 19, Township 100 North, Range 50 West, Lincoln County, South Dakota.

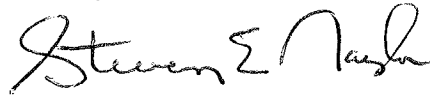
Based on the information provided, we have determined that there are no waters of the United States (i.e. jurisdictional waters) located within the review area. Therefore, activities within the review area are not subject to Department of the Army regulatory authorities and no permit pursuant to Section 404 of the Clean Water Act is required from the Corps of Engineers.

An approved jurisdictional determination (JD) has been completed for your project. This JD is valid for 5 years from the date of this letter. The JD is enclosed and also may be viewed at our website. The link to the website is shown below. The JD will be available on the website within 30 days. If you are not in agreement with the JD, you may request an administrative appeal under Corps of Engineers regulations found at 33 C.F.R. 331. Enclosed you will find a Notification of Administrative Appeal Options and Process and Request for Appeal form (RFA). Should you decide to submit an RFA form, it must be received by the Corps of Engineers Northwestern Division Office within 60 days from the date of this correspondence (by December 4, 2017). It is not necessary to submit a RFA if you do not object to the JD.

You can obtain additional information about the Regulatory Program from our website:
<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/SouthDakota.aspx>

If you have any questions, please feel free to contact this office at the above Regulatory Office address, or telephone Cathy Juhas at (605) 224-8531 and reference action ID NWO-2008-0204-PIE.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven E. Naylor". The signature is fluid and cursive, with the first name "Steven" being more prominent than the last name "Naylor".

Steven E. Naylor
Regulatory Program Manager,
South Dakota

Enclosures

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): October 2, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Omaha District, South Dakota Regulatory Office, Hegg-Sonler Property Jurisdictional Determination, NWO-2008-0204-PIE

C. PROJECT LOCATION AND BACKGROUND INFORMATION: The project area is located south of Sioux Falls and east of Tea, SD in Section 19, Township 100 North, Range 50 West. There are ten wetlands onsite totaling 17.70 acres. The current land uses of this property are agricultural corn field, soybean field, and pasture. Adjacent land use to the south is commercial property. Approved jurisdictional determinations (AJDs) were completed for this site on February 25, 2008 and again on October 22, 2012. The property owners are now requesting an updated AJD.

State: SD County/parish/borough: Lincoln City: Sioux Falls
Center coordinates of site (lat/long in degree decimal format): Lat. 43.4740274519393N; Long. -96.7873689857223W
Universal Transverse Mercator:

Name of nearest waterbody: Ninemile Creek (1.5 miles to the west)

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows:

Name of watershed or Hydrologic Unit Code (HUC): 10170203

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: September 8, 2017

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There ~~are no~~ "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There ~~are no~~ "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply): ¹

- ☐ TNWs, including territorial seas
- ☐ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
- ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.

Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: Pick List

Elevation of established OHWM (if known):

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

2. **Non-regulated waters/wetlands (check if applicable):**³

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: The 10 PEM wetlands in question are isolated and completely surrounded by upland. The quarter of land with the wetlands on it is located 1 mile from a potentially jurisdictional unnamed tributary and 3 miles from the Big Sioux River, a Section 10 waters of the US. There is no evidence that any surficial flows leave these isolated wetlands. There is no information available to show that the wetlands 1) are or could be used by interstate or foreign travelers for recreational or other purposes, 2) produce fish or shellfish which are or could be taken and sold in interstate or foreign commerce, or 3) are or could be used for industrial purposes by industries in interstate commerce.

III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: .

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

(i) **General Area Conditions:**

Watershed size: **Pick List**

Drainage area: **Pick List**

Average annual rainfall: inches

Average annual snowfall: inches

(ii) **Physical Characteristics:**

(a) **Relationship with TNW:**

☐ Tributary flows directly into TNW.

³ Supporting documentation is presented in Section III.F.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW⁵: .

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):

Average width: . feet

Average depth: . feet

Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

<input type="checkbox"/> Silts	<input type="checkbox"/> Sands	<input type="checkbox"/> Concrete
<input type="checkbox"/> Cobbles	<input type="checkbox"/> Gravel	<input type="checkbox"/> Muck
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Vegetation. Type/% cover: .	
<input type="checkbox"/> Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .

Presence of run/riffle/pool complexes. Explain: .

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): . %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime: .

Other information on duration and volume: .

Surface flow is: **Pick List**. Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

☐ Dye (or other) test performed: .

Tributary has (check all that apply):

<input type="checkbox"/> Bed and banks	
<input type="checkbox"/> OHWM ⁶ (check all indicators that apply):	
<input type="checkbox"/> clear, natural line impressed on the bank	<input type="checkbox"/> the presence of litter and debris
<input type="checkbox"/> changes in the character of soil	<input type="checkbox"/> destruction of terrestrial vegetation
<input type="checkbox"/> shelving	<input type="checkbox"/> the presence of wrack line
<input type="checkbox"/> vegetation matted down, bent, or absent	<input type="checkbox"/> sediment sorting
<input type="checkbox"/> leaf litter disturbed or washed away	<input type="checkbox"/> scour
<input type="checkbox"/> sediment deposition	<input type="checkbox"/> multiple observed or predicted flow events
<input type="checkbox"/> water staining	<input type="checkbox"/> abrupt change in plant community
<input type="checkbox"/> other (list):	
<input type="checkbox"/> Discontinuous OHWM. ⁷ Explain: .	

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

<input type="checkbox"/> High Tide Line indicated by:	<input type="checkbox"/> Mean High Water Mark indicated by:
<input type="checkbox"/> oil or scum line along shore objects	<input type="checkbox"/> survey to available datum;
<input type="checkbox"/> fine shell or debris deposits (foreshore)	<input type="checkbox"/> physical markings;

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷Ibid.

- ☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width):
☐ Wetland fringe. Characteristics:
☐ Habitat for:
 ☐ Federally Listed species. Explain findings:
 ☐ Fish/spawn areas. Explain findings:
 ☐ Other environmentally-sensitive species. Explain findings:
 ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
☐ Not directly abutting
 ☐ Discrete wetland hydrologic connection. Explain:
 ☐ Ecological connection. Explain:
 ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width):
☐ Vegetation type/percent cover. Explain:
☐ Habitat for:
 ☐ Federally Listed species. Explain findings:
 ☐ Fish/spawn areas. Explain findings:
 ☐ Other environmentally-sensitive species. Explain findings:
 ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
------------------------------	------------------------	------------------------------	------------------------

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

☐ TNWs: linear feet width (ft), Or, acres.
☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow “seasonally.” Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from “waters of the U.S.,” or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
- Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - ☒ Prior to the Jan 2001 Supreme Court decision in “*SWANCC*,” the review area would have been regulated based solely on the “Migratory Bird Rule” (MBR).
- ☐ Waters do not meet the “Significant Nexus” standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☒ Wetlands: 17.70 acres.
 - WETLAND A – 1.32 ACRE
 - WETLAND B – 0.17 ACRE
 - WETLAND C – 0.27 ACRE
 - WETLAND D – 4.93 ACRE
 - WETLAND E – 6.99 ACRE
 - WETLAND F – 0.55 ACRE
 - WETLAND G – 2.89 ACRE
 - WETLAND H – 0.33 ACRE
 - WETLAND I – 0.02 ACRE
 - WETLAND J – 0.23 ACRE

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the “Significant Nexus” standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

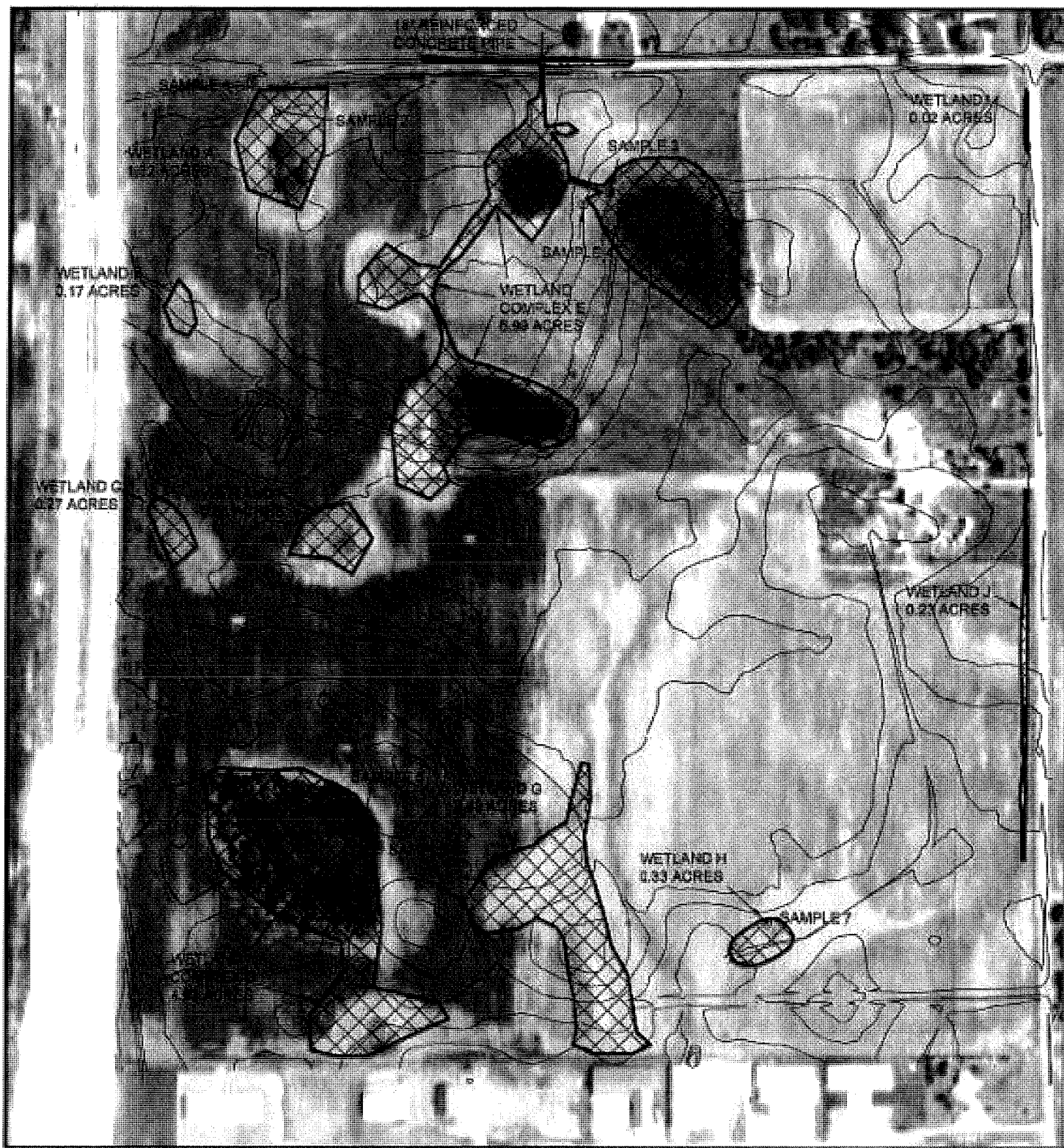
¹⁰ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos*.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - ☒ Office concurs with data sheets/delineation report.
 - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
 - ☐ USGS NHD data.
 - ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: Tea 24K.
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☒ National wetlands inventory map(s). Cite name: Tea.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): ORM2 & Google Earth Pro.
or ☐ Other (Name & Date): .
- ☒ Previous determination(s). File no. and date of response letter: NWO-2008-0204; 25 FEB 2008 & 22 OCT 2012.
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The 10 isolated wetlands are prairie pothole wetlands that do not have a surface hydrologic connection to any jurisdictional waters of the US nor do they have a significant nexus to a TNW.



NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: <div style="text-align: center;">Sonler Properties</div>	File Number: <div style="text-align: center;">NWO-2008-0204-PIE</div>	Date: <div style="text-align: center;">October 4, 2017</div>
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found in Corps regulations at 33 CFR Part 331, or at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/FederalRegulation.aspx>

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

If you only have questions regarding the appeal process you may also contact:

US Army Corps of Engineers, Northwestern Division
Attn: Melinda M. Witgenstein
Post Office Box 2870
Portland, OR 97208-2870 Telephone (503) 808-3888
Melinda.M.Witgenstein@usace.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

SONLER PROPERTIES

COPY

August 17, 2017

Steven E. Naylor
Regulatory Program Manager,
South Dakota
Department of the Army
Corps of Engineers, Omaha District
28563 Powerhouse Road, Room 118
Pierre, SD 57501

Re: ID: NOW-2008-204
NE ¼, Section 19, Township 100 North, Range 50 West, Lincoln County, South Dakota

Dear Mr. Naylor:

On October 23, 2012, you issued a determination letter stating there are no jurisdictional waters of the United States located within the above referenced project site. I have enclosed a copy of that letter for your reference.

It is our understanding the determination is good for a period of five years or until October 23, 2017. A decline in the economy existed for several years and development has not occurred to date. However, the owner (Tallgrass Investments, LLC/Sonler Properties) is working cooperatively with other area landowners, the State of South Dakota and Federal Highway Commission for funding and construction of an Interchange at 85th Street and Interstate 29 to access this property. It is therefore our request that your determination be extended for an additional five years or until October 23, 2022.

Thank you for your consideration and I look forward to hearing from you.

Yours very truly,

Jean Brockmueller



Scale 1"=250'

Existing Wetlands Summary			
Wetland ID	Acres	Type	
Wetland A	10.78	Wetland Complex	
Wetland B	0.01	Linear	
TOTAL	10.79		



SUNDOWNER PROPERTY

JURISDICTIONAL DETERMINATION & WETLAND DELINEATION

EXISTING CONDITIONS

PROJ. NO.	15514	DATE:	10/15/2015
DRAWN BY:	TLB	SCALE:	1"=250'
CHECKED BY:	KJ		
REVISIONS:			



2301 8th Avenue NE
Suite 125
Aberdeen, SD 57401
Phone: (605) 225-3494
Fax: (605) 225-5433
clarkabn@nvc.com

EOE



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
SOUTH DAKOTA REGULATORY OFFICE
28563 POWERHOUSE ROAD, ROOM 118
PIERRE, SOUTH DAKOTA 57501-6174

X15514
COPY

December 29, 2015

South Dakota Regulatory Office
28563 Powerhouse Road, Room 118
Pierre, South Dakota 57501

Joel Dykstra
RMB Associates, LLC
Post Office Box 2524
Sioux Falls, South Dakota 57101

Dear Mr. Dykstra:

Reference is made to the information received November 2, 2015, concerning Section 404 of the Clean Water Act permit requirements. We have reviewed your request for a determination of Section 404 CWA jurisdiction. The project site is located in the South ½ of the Southwest ¼ Section 18, Township 100 North, Range 50 West, Lincoln County, South Dakota.

Based on the information provided, we have determined that there are waters of the United States (i.e. jurisdictional waters) located within the area you identified for a jurisdictional determination. Therefore, the proposed activity within this project area is subject to Department of the Army regulatory authorities and a permit pursuant to Section 404 of the Clean Water Act is required from the Corps of Engineers.

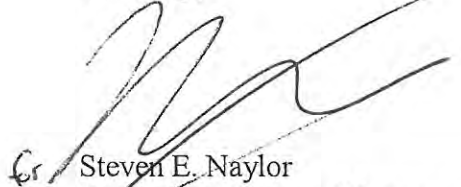
An approved jurisdictional determination (JD) has been completed for your project. This JD is valid for 5 years from the date of this letter. The JD is enclosed and also may be viewed at our website. The link to the website is shown below. The JD will be available on the website within 30 days. If you are not in agreement with the JD, you may request an administrative appeal under Corps of Engineers regulations found at 33 C.F.R. 331. Enclosed you will find a Notification of Administrative Appeal Options and Process and Request for Appeal form (RFA). Should you decide to submit a RFA form, it must be received by the Corps of Engineers Northwestern Division Office within 60 days from the date of this correspondence (by February 29, 2016). It is not necessary to submit a RFA if you do not object to the JD.

The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax.

You can obtain additional information about the Regulatory Program from our website:
<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/SouthDakota.aspx>

If you have any questions or need any assistance, please feel free to contact this office at the above Regulatory Office address or telephone Doug Sargent at (605) 224-8531 and reference action ID NWO-2015-2097-PIE.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven E. Naylor", is written over a horizontal line.

Steven E. Naylor
Regulatory Program Manager,
South Dakota

CF:

Karrie Johnson

Clark Engineering

Convention Center Plaza

1410 West Russell Street

Sioux Falls, South Dakota 57104

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): Final 12/29/2015

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Omaha, JD request for Sundowner Property Project, Lincoln County, NWO-2015-2097-PIE.

C. PROJECT LOCATION AND BACKGROUND INFORMATION: South 1/2 of the Southwest 1/4, Section 18, T100N, 50W. The review area consists of 80 acres of residential and agricultural land (see Figure 1). Two (2), wetlands have been delineated within the review area. Wetland A is jurisdictional and Wetland B is non-jurisdictional, (see Figures 3 and 4).

State: SD County/parish/borough: Lincoln City: Tea

Center coordinates of site (lat/long in degree decimal format): Lat. 43.47802N; Long. -96.80197W

Universal Transverse Mercator: 14

Name of nearest waterbody: Ninemile Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Big Sioux River

Name of watershed or Hydrologic Unit Code (HUC): 10170203

- ☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: 12/21/15

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There Are no "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

- ☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There Are "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

- ☐ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☐ Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs
☒ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.
Wetlands: 10.78 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known): .

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

2. Non-regulated waters/wetlands (check if applicable):³

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional
Explain: **Wetland B (0.01 ac.) has been determined to be non-jurisdictional, refer to Figure 3. This wetland does not exhibit a discernable hydrological outlet to (or interaction with) any WOUS. In addition, this water is an intrastate, non-navigable water body with no nexus to interstate commerce.**

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: **3,309** square miles

Drainage area: **11.54** square miles

Average annual rainfall: **23.8** inches

Average annual snowfall: **38.2** inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

☒ Tributary flows directly into TNW.

☐ Tributary flows through **Pick List** tributaries before entering TNW.

³ Supporting documentation is presented in Section III.F.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters are **2-5** river miles from TNW.
 Project waters are **Pick List** river miles from RPW.
 Project waters are **2-5** aerial (straight) miles from TNW.
 Project waters are **Pick List** aerial (straight) miles from RPW.
 Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵: **Two tributaries from Wetland A conjoin and flow directly to the Big Sioux River, a TNW.**

Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain:
☒ Manipulated (man-altered). Explain: **Tributary has been manipulated by ditching within and beyond the review area for agricultural, residential and road construction purposes.**

Tributary properties with respect to top of bank (estimate):

Average width: **highly variable at 5 to 30** feet

Average depth: **< 1 foot** feet

Average side slopes: **2:1**.

Primary tributary substrate composition (check all that apply):

☒ Silts ☒ Sands ☐ Concrete
☒ Cobbles ☒ Gravel ☐ Muck
☐ Bedrock ☒ Vegetation. Type/% cover: **Plant species composition consists of agricultural crops**

and tame/non-native grasses.

☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: **Residential areas and road ditches are planted to non-native grasses providing soil stabilization, while agricultural areas are more subject to erosion due to typical crop production methodology.**

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Meandering**

Tributary gradient (approximate average slope): **<2%** %

(c) Flow:

Tributary provides for: **Ephemeral flow**

Estimate average number of flow events in review area/year: **6-10**

Describe flow regime: **Flow occurs during snow melt and rainfall events.**

Other information on duration and volume:

Surface flow is: **Discrete and confined**. Characteristics:

Subsurface flow: **Unknown**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

☐ Bed and banks

☒ OHWM⁶ (check all indicators that apply):

<input type="checkbox"/> clear, natural line impressed on the bank	<input type="checkbox"/> the presence of litter and debris
<input type="checkbox"/> changes in the character of soil	<input type="checkbox"/> destruction of terrestrial vegetation
<input type="checkbox"/> shelving	<input type="checkbox"/> the presence of wrack line
<input checked="" type="checkbox"/> vegetation matted down, bent, or absent	<input checked="" type="checkbox"/> sediment sorting
<input type="checkbox"/> leaf litter disturbed or washed away	<input type="checkbox"/> scour
<input checked="" type="checkbox"/> sediment deposition	<input type="checkbox"/> multiple observed or predicted flow events
<input type="checkbox"/> water staining	<input type="checkbox"/> abrupt change in plant community
<input type="checkbox"/> other (list):	

☐ Discontinuous OHWM.⁷ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:

☐ Mean High Water Mark indicated by:

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁶ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷ Ibid.

- | | |
|--|--|
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **Typical shallow, wetlands, prairie streams and drainages.**

Identify specific pollutants, if known: **Specific pollutants are unknown, however pollutants likely include fertilizers, pesticides and herbicides from residential home and lawn care products, agricultural practices and road construction/maintenance activities.**

(iv) **Biological Characteristics. Channel supports (check all that apply):**

☐ Riparian corridor. Characteristics (type, average width):

☒ Wetland fringe. Characteristics: **Wetlands abut the tributaries.**

☐ Habitat for:

☐ Federally Listed species. Explain findings:

☐ Fish/spawn areas. Explain findings:

☐ Other environmentally-sensitive species. Explain findings:

☒ Aquatic/wildlife diversity. Explain findings: **Aquatic habitat is considered to be of low quality given the residential and agricultural environment.**

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: **Wetland A = 10.78 acres**

Wetland type. Explain: **Linear depressional.**

Wetland quality. Explain: **Wetland A is highly manipulated for road maintenance, lawn care purposes and agricultural practices such that the wetland is in a degraded condition.**

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow.** Explain: **Runoff from rainfall and snowmelt is the primary source of water flow for Wetland A.**

Surface flow is: **Discrete and confined**

Characteristics:

Subsurface flow: **Unknown.** Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain:

☐ Ecological connection. Explain:

☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **2-5** river miles from TNW.

Project waters are **2-5** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **Typical shallow, wetlands, prairie streams and drainages.**

Identify specific pollutants, if known: **Specific pollutants are unknown, however pollutants likely include fertilizers, pesticides and herbicides from residential home and lawn care products, agricultural practices and road construction/maintenance activities.**

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

☐ Riparian buffer. Characteristics (type, average width):

- ☐ Vegetation type/percent cover. Explain: **Plant species composition consists of agricultural crops and tame/non-native grasses.**
- ☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☒ Aquatic/wildlife diversity. Explain findings: **Aquatic habitat is considered to be of low quality given the residential and agricultural environment.**

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis:

Approximately **(10.78)** acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Wetland Name	Directly abuts? (Y/N)	Size (in acres)
A	Y	10.78

Summarize overall biological, chemical and physical functions being performed: **Refer to Figures 1 and 2. Land use surrounding Wetland A consists of a mix of agricultural lands and urban development. The reviewed wetland moderates the downstream transport of stormwater generated from this landscape. Similarly, the Wetland A has some capacity to capture and process pollutants associated with stormwater runoff. Wetland A provides a low level of habitat for various wildlife species.**

C. **SIGNIFICANT NEXUS DETERMINATION**

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: **The non-RPW tributaries and the adjacent wetland, identified as Wetland A, has a significant nexus to the Big Sioux River, a TNW. Functionally, it is a part of the TNW's tributary system such that it impacts the biological, physical and chemical integrity of the Big Sioux River. Land use surrounding the wetland consists of urban and agricultural lands and moderates the downstream transport of stormwater generated from this landscape. Similarly, the wetland has a limited ability to capture and process pollutants associated with stormwater runoff. The wetland also provides a low level of habitat for a limited array of wildlife species.**

7. **Impoundments of jurisdictional waters.**⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
- ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. **ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):**¹⁰

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. **NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - ☒ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☒ Wetlands: **Refer to Figure 3. One isolated, non-jurisdictional wetland includes Wetland B = 0.01 acres.**

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. **SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):**

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: **Provided by Applicant.**
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - ☒ Office concurs with data sheets/delineation report.
 - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .

⁹ To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
 - ☐ USGS NHD data.
 - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: **Tea 1:24K.**
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☒ National wetlands inventory map(s). Cite name: **Obtained through Google Earth.**
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): **Provided by consultant and accessed through Google Earth.**
or ☐ Other (Name & Date):
- ☐ Previous determination(s). File no. and date of response letter:
- ☐ Applicable/supporting case law:
- ☐ Applicable/supporting scientific literature:
- ☐ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Figure 1. Aerial view of review area. Review area outlined in green.



Figure 2. Topographic map of review area outlined in green.



Figure 3. Aerial view of review area showing jurisdictional Wetland A and non-jurisdictional Wetland B.

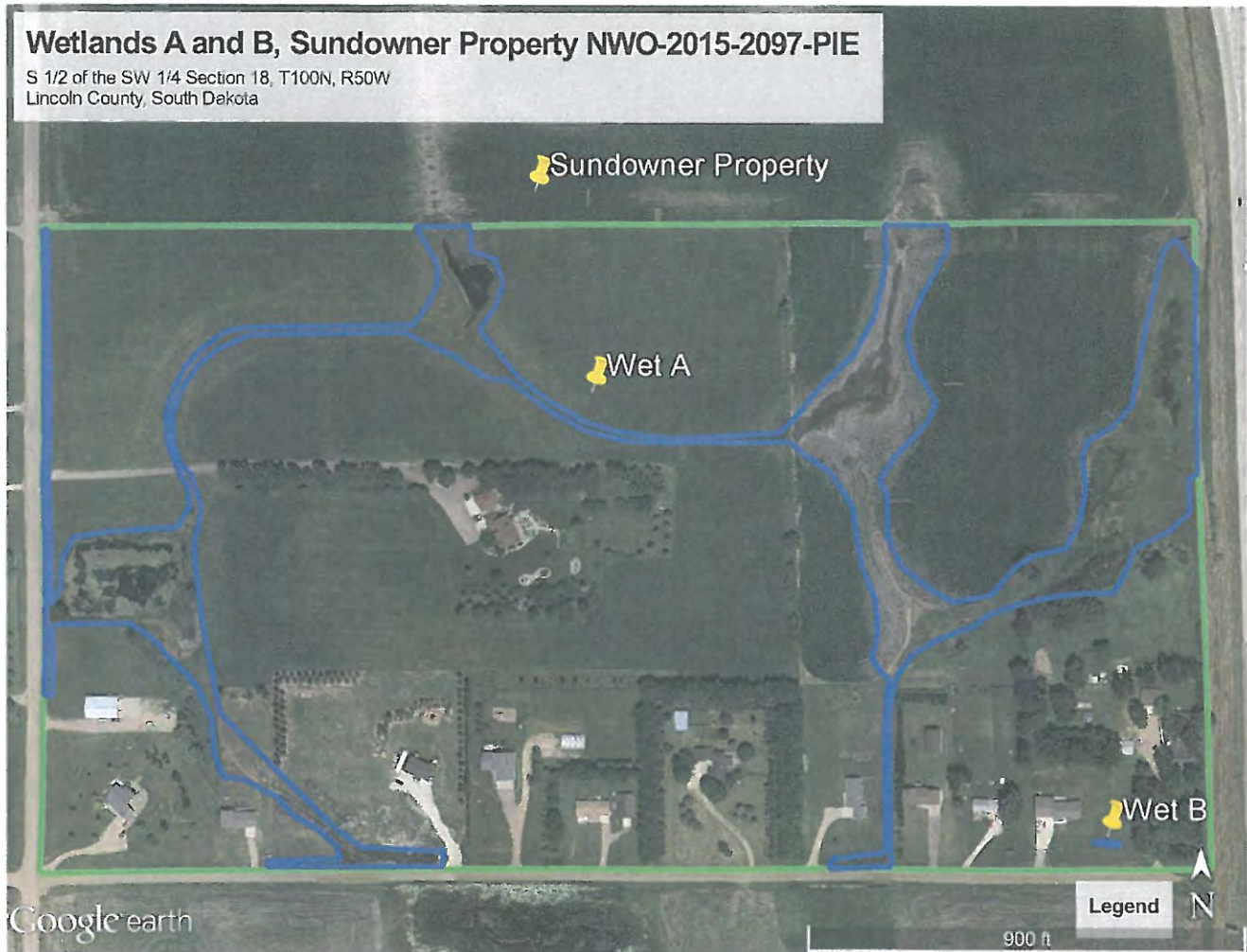
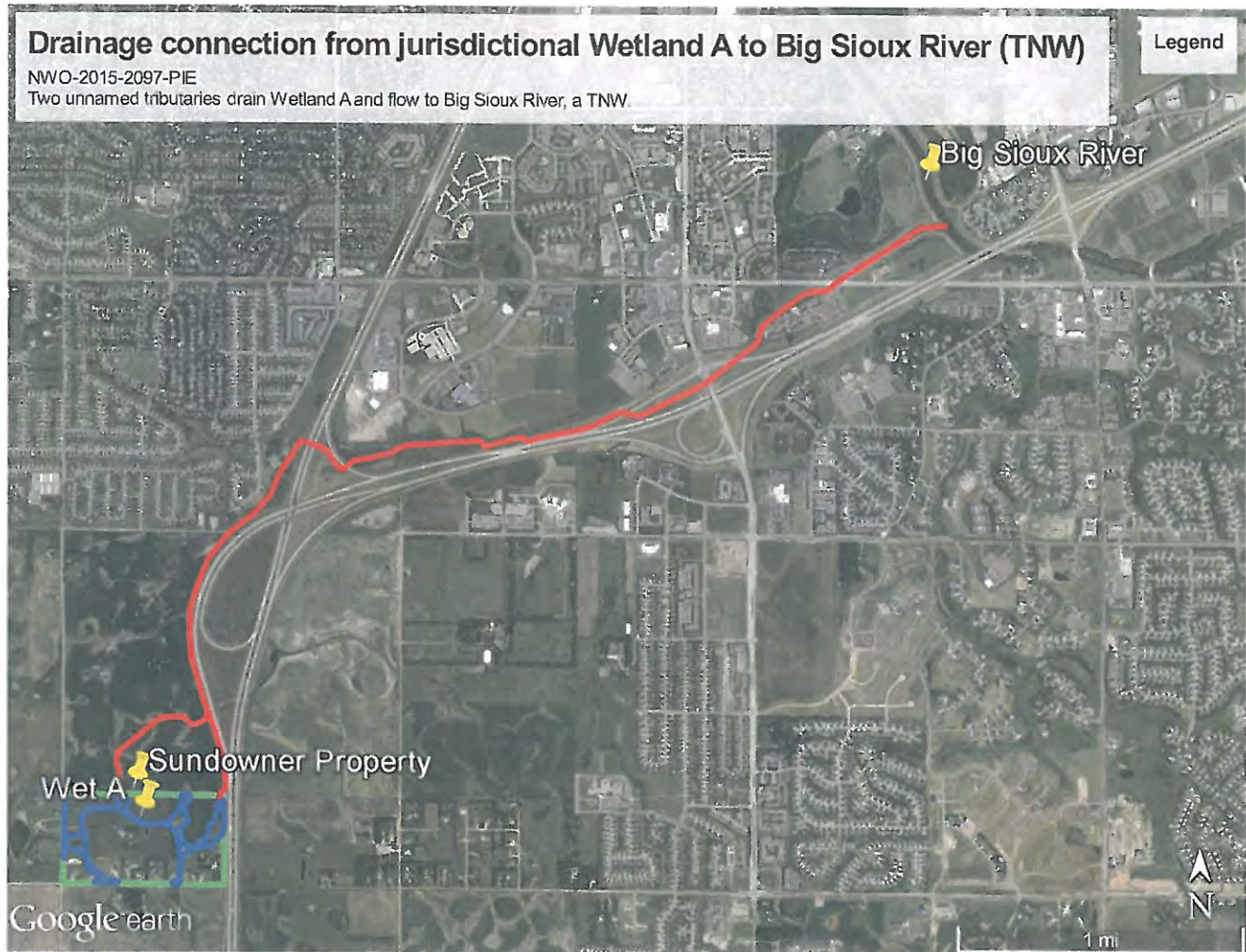


Figure 4. Aerial view of drainage connection from jurisdictional Wetland A to Big Sioux River TNW.





REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
SOUTH DAKOTA REGULATORY OFFICE
28563 POWERHOUSE ROAD, ROOM 118
PIERRE, SOUTH DAKOTA 57501-6174

June 23, 2017

South Dakota Regulatory Office
28563 Powerhouse Road, Room 118
Pierre, South Dakota 57501

Sundowner, Incorporated
Attn: Dan Lemme
3408 South Sycamore Road
Sioux Falls, South Dakota 57110

Dear Mr. Lemme,

Reference is made to the information received May 10, 2017, and additional information received June 14, 2017, concerning Section 404 of the Clean Water Act permit requirements. The review area is the northwest quarter of Section 19, Township 100 North, Range 50 West, Lincoln County, South Dakota.

Based on the information provided, we have determined that there are waters of the United States (i.e. jurisdictional waters) located within the review area. Therefore, any activity involving the discharge of dredged or fill material within the waters of the United States would require a permit from the Corps of Engineers.

At your request, we have evaluated 16 potential aquatic resources, the locations of which are noted on page 30 of the Bakker Landing Jurisdictional Determination & Wetland Delineation provided to our office on May 10, 2017. Waters 9, 13 & 14 were found to be jurisdictional waters of the US under Section 404 of the Clean Water Act. Waters 1, 2, 4, 5, 6, 7, 8, & 11 were determined as non-jurisdictional waters under action ID number NWO-2013-2226-PIE, which is still in effect. Waters 3, 10, 12, 15 & 16 were found to be non-jurisdictional.

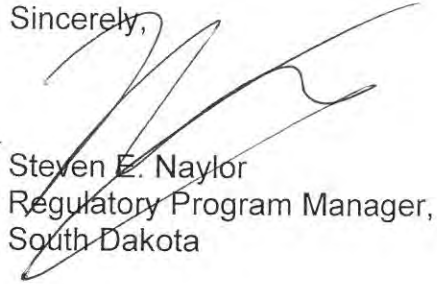
An approved jurisdictional determination (JD) has been completed for your project. This JD is valid for 5 years from the date of this letter. The JD is enclosed and also may be viewed at our website. The link to the website is shown below. The JD will be available on the website within 30 days. If you are not in agreement with the JD, you may request an administrative appeal under Corps of Engineers regulations found at 33 C.F.R. 331. Enclosed you will find a Notification of Administrative Appeal Options and Process and Request for Appeal form (RFA). Should you decide to submit an RFA form, it must be received by the Corps of Engineers Northwestern Division Office within 60 days from the date of this correspondence (by August 22, 2017). It is not necessary to submit a RFA if you do not object to the JD.

You can obtain additional information about the Regulatory Program from our website:

<http://www.nwo.usace.army.mil/Missions/RegulatoryProgram/SouthDakota.aspx>

If you have any questions, please feel free to contact this office at the above Regulatory Office address, or telephone Carl Johnson at (605) 224-8531 and reference action ID NWO-2008-2837-PIE.

Sincerely,

for 
Steven E. Naylor
Regulatory Program Manager,
South Dakota

Enclosure

cc:

Wetland Specialists Incorporated (Cameron-Howell)

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): June 23, 2017

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: CENWO-OD-RSD, Sundowner Investments jd request Lincoln County, NWO-2008-2837-PIE

C. PROJECT LOCATION AND BACKGROUND INFORMATION: The project area is the northwest quarter of Section 19, Township 100 North, Range 50 West located approximately 1.5 miles from the junction of I-29 and I 229. Waters 1, 2, 4, 5, 6, 7, 8 & 11 were found to be Non-Jurisdictional according to NWO-2013-2226-PIE, which is still in affect, and therefore were not evaluated. Waterway 14 and Wetlands 9 & 13 are jurisdictional. Wetlands 3, 10, 12, 15 & 16 are isolated.

State: SD

County/parish/borough: Lincoln City: Sioux Falls

Center coordinates of site (lat/long in degree decimal format): Lat. 43.47468N; Long. -96.80232W

Universal Transverse Mercator: 14

Name of nearest waterbody: Unnamed Tributary to Ninemile Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: The Big Sioux River

Name of watershed or Hydrologic Unit Code (HUC): 1017020317

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: June 14, 2017

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **are and are not** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

☐ TNWs, including territorial seas

☐ Wetlands adjacent to TNWs

☒ Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

☐ Non-RPWs that flow directly or indirectly into TNWs

☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

☐ Impoundments of jurisdictional waters

☒ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or 0.74 acres.

Wetlands: 2.01 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):³

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: Waters 3, 10, 12, 15 & 16 were evaluated and found to be isolated waters.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: ,

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

(i) **General Area Conditions:**

Watershed size: 32259 acres

Drainage area: 15 acres

Average annual rainfall: 27 inches

Average annual snowfall: 41 inches

(ii) **Physical Characteristics:**

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☒ Tributary flows through 1 tributaries before entering TNW.

Project waters are 15-20 river miles from TNW.

Project waters are 1 (or less) river miles from RPW.

Project waters are 5-10 aerial (straight) miles from TNW.

Project waters are 1 (or less) aerial (straight) miles from RPW.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵: The unnamed tributary flows to Ninemile Creek which flows to the Big Sioux River.
Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☒ Manipulated (man-altered). Explain: There are large sections of drainage ditching within the tributary.

Tributary properties with respect to top of bank (estimate):

Average width: 17 feet
Average depth: 2 feet
Average side slopes: **4:1 (or greater)**.

Primary tributary substrate composition (check all that apply):

<input checked="" type="checkbox"/> Silts	<input type="checkbox"/> Sands	<input type="checkbox"/> Concrete
<input type="checkbox"/> Cobbles	<input type="checkbox"/> Gravel	<input checked="" type="checkbox"/> Muck
<input type="checkbox"/> Bedrock	<input checked="" type="checkbox"/> Vegetation. Type/% cover:	
<input type="checkbox"/> Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: The banks of the unnamed tributary are fairly shallow. The condition of the tributary is largely stable as multiple years of aerial imagery show a consistent OHWM.

Presence of run/riffle/pool complexes. Explain: N/A.

Tributary geometry: **Meandering**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Seasonal flow**

Estimate average number of flow events in review area/year: **11-20**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Discrete and confined**. Characteristics:

Subsurface flow: **Unknown**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

<input type="checkbox"/> Bed and banks	
<input checked="" type="checkbox"/> OHWM ⁶ (check all indicators that apply):	
<input type="checkbox"/> clear, natural line impressed on the bank	<input type="checkbox"/> the presence of litter and debris
<input checked="" type="checkbox"/> changes in the character of soil	<input checked="" type="checkbox"/> destruction of terrestrial vegetation
<input type="checkbox"/> shelving	<input type="checkbox"/> the presence of wrack line
<input checked="" type="checkbox"/> vegetation matted down, bent, or absent	<input type="checkbox"/> sediment sorting
<input checked="" type="checkbox"/> leaf litter disturbed or washed away	<input type="checkbox"/> scour
<input checked="" type="checkbox"/> sediment deposition	<input checked="" type="checkbox"/> multiple observed or predicted flow events
<input type="checkbox"/> water staining	<input checked="" type="checkbox"/> abrupt change in plant community
<input type="checkbox"/> other (list):	
<input type="checkbox"/> Discontinuous OHWM. ⁷ Explain:	

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

<input type="checkbox"/> High Tide Line indicated by:	<input type="checkbox"/> Mean High Water Mark indicated by:
<input type="checkbox"/> oil or scum line along shore objects	<input type="checkbox"/> survey to available datum;
<input type="checkbox"/> fine shell or debris deposits (foreshore)	<input type="checkbox"/> physical markings;
<input type="checkbox"/> physical markings/characteristics	<input type="checkbox"/> vegetation lines/changes in vegetation types.
<input type="checkbox"/> tidal gauges	
<input type="checkbox"/> other (list):	

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷Ibid.

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **The tributary drains largely agricultural areas. It is likely that the tributary's ecosystem is degraded due to ag runoff. Water is generally murky.**

Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

☐ Riparian corridor. Characteristics (type, average width):

☒ Wetland fringe. Characteristics: **The channel provides hydrology to abutting wetlands.**

☐ Habitat for:

☐ Federally Listed species. Explain findings:

☐ Fish/spawn areas. Explain findings:

☐ Other environmentally-sensitive species. Explain findings:

☒ Aquatic/wildlife diversity. Explain findings: **The channel likely provides habitat for aquatic animals such as frogs and foraging habitat for birds.**

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: **2.01 acres**

Wetland type. Explain: **Palustrine Emergent.**

Wetland quality. Explain: **The wetlands are degraded due to surrounding agricultural land practices.**

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow.** Explain: **The wetlands bear a consistent connection to Ninemile Creek.**

Surface flow is: **Discrete and confined**

Characteristics: **The wetlands maintain consistent hydrology throughout the year.**

Subsurface flow: **Unknown.** Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

☒ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain:

☐ Ecological connection. Explain:

☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **15-20** river miles from TNW.

Project waters are **5-10** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **5 - 10-year** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed

characteristics; etc.). Explain: **Wetland system is degraded due to surrounding agricultural practices. Generally the water is murky with low vegetation diversity.**

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

☐ Riparian buffer. Characteristics (type, average width):

☒ Vegetation type/percent cover. Explain: **Typha angustifolia, Phalaris arundinacea, and Schoenoplectus fluviatilis were identified in the delineation report provided by the applicant's agent.**

☐ Habitat for:

☐ Federally Listed species. Explain findings:

☐ Fish/spawn areas. Explain findings:

☐ Other environmentally-sensitive species. Explain findings:

☒ Aquatic/wildlife diversity. Explain findings: **The wetland likely provides habitat for aquatic animals such as frogs and foraging habitat for birds.**

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: 2
Approximately (2.01) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Wetland Name</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>
Water 13	1.42	Y
Water 9	0.59	Y

Summarize overall biological, chemical and physical functions being performed: The wetlands provide water filtration via sediment layers, prevent debris from collecting in downstream waters, provides some wetland habitat to various birds, fish and insects, provides vegetation cover.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
☐ TNWs: linear feet width (ft), Or, acres.
☐ Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**
☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:

- ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Years of aerial imagery viewed via Google Earth confirm that the tributary flows at least seasonally.

Provide estimates for jurisdictional waters in the review area (check all that apply):

☒ Tributary waters: 1400 linear feet 17 width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

.546

3. **Non-RPWs⁸ that flow directly or indirectly into TNWs.**

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

- ☒ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: Aerial earth imagery revealed that wetland 9 & 13 are directly fed by waterway 14, which is an RPW. There is no surface separation between the wetlands and the waterway.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.⁹**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - ☒ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☒ Wetlands: 2.85 acres.

<u>Water Name</u>	<u>Size in acres</u>
Water 16	0.70
Water 15	0.50
Water 12	0.95
Water 10	0.20
Water 3	0.50

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands:

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Maps, plans.
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - ☒ Office concurs with data sheets/delineation report.
 - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
- ☐ USGS NHD data.

¹⁰ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: .
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
- ☐ National wetlands inventory map(s). Cite name: .
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): Google Earth, Multiple years of imagery used.
or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Waterway 14 and Wetlands 9 & 13 are jurisdictional. Wetlands 3,10,12,15 & 16 are isolated. The five wetlands within the project area are not connected to another wetland or waterway and are not located within a floodplain. They are pothole type wetlands that remain isolated from any natural drainage way. No boating or irrigation would be possible at any location within these wetlands, no fisheries are present, and there is no interstate or foreign commerce at this site. Based on the information provided and the factors listed above, these wetlands are isolated..



Wetland Specialists Inc.

Producers Name:

Harr-Lemme

County:

Lincoln

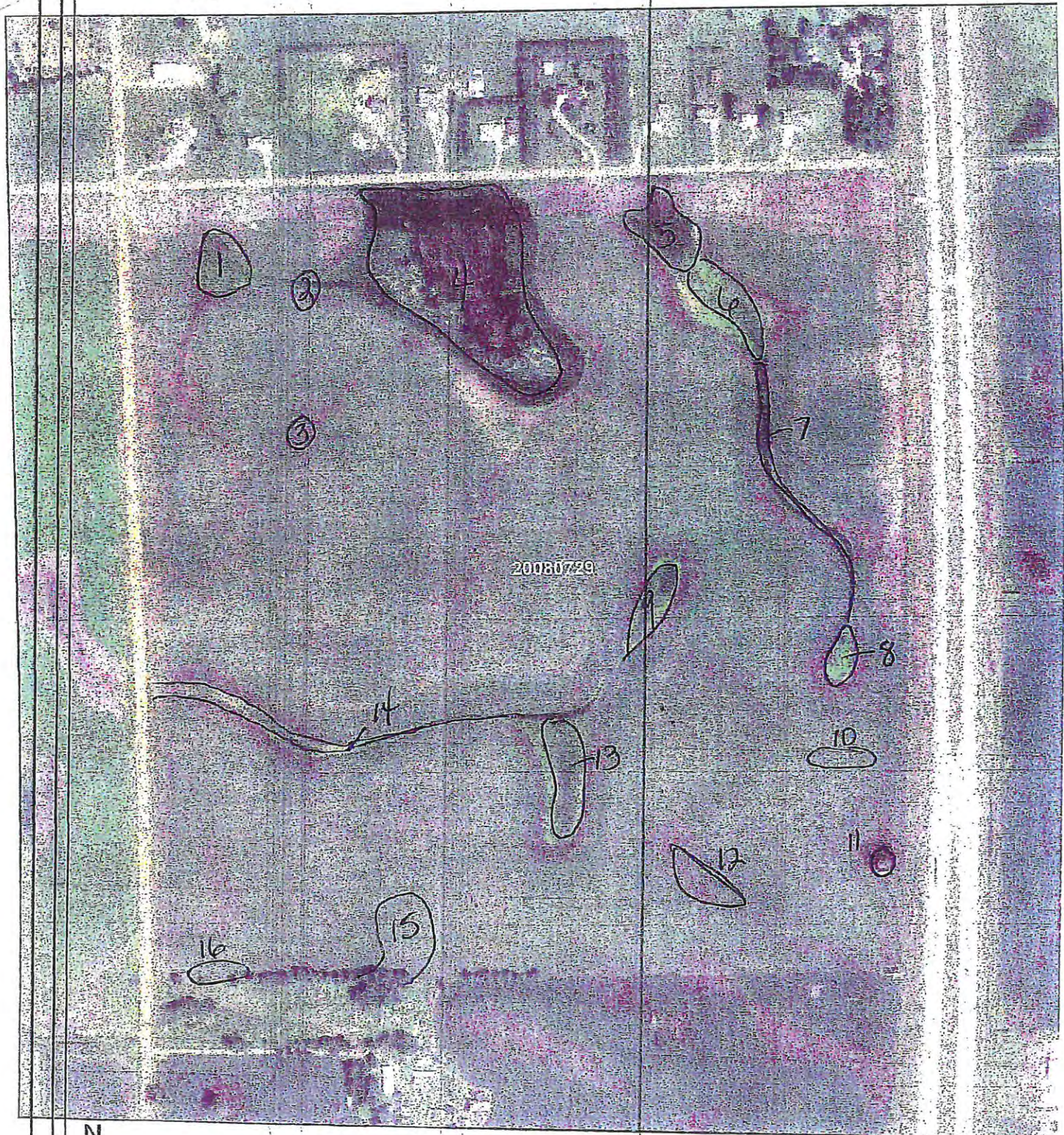
Legal Desc:

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Completion Date:

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Tract:



2008

0 120 240 480 720 960 1,200 1,440 Feet



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