Appendix H – Wetland Finding

U.S. DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

THE STATE OF SOUTH DAKOTA South Dakota Department of Transportation

Projects: IM2292(101)4 N, PCN 05HN IM 2292(105)3, PCN 07CY Sioux Falls CIP #11100 Sioux Falls #7 (2023 Bike Plan) I-229 Exit 4 (Cliff Avenue) Interchange Sioux Falls, Minnehaha County, South Dakota



This action complies with the Executive Order 11990 "Protection of Wetlands".

	Tom Lehmkuhl			
Approved	-06'00'	Date:	11.06.2	023
	FHWA Environmental Engineer		Chad ^[I]	Digitally signed by Chad
Approved	MB dear	Date:	Babcock	Babcock Date: 2023.11.06 1:27:44 -06'00'
	SDDOT Environmental Manager			

SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION E.O. 11990 – WETLAND FINDING

Projects: IM2292(101)4 N, PCN 05HN IM 2292(105)3, PCN 07CY Sioux Falls CIP #11100 Sioux Falls #7 (2023 Bike Plan)

I-229 Exit 4 (Cliff Avenue) Interchange Sioux Falls, Minnehaha County, South Dakota

1. INTRODUCTION

In compliance with Executive Order 11990 and in accordance with 23 CFR 771. 777 and Technical Advisory T6640.8a, this statement sets forth the basis for a finding that there is no practical alternative to the placing of fill for highway construction in certain wetlands adjacent to the reconstruction of the existing interchange at I-229 and Exit 4 (Cliff Avenue) in Sioux Falls, Minnehaha County, South Dakota. All practicable measures to minimize the fill areas to reduce harm to the wetlands have been taken.

2. PROJECT LOCATION AND SUMMARY

The stakeholders for this project include the City of Sioux Falls, the Sioux Falls Metropolitan Planning Organization (MPO), South Dakota Department of Transportation (SDDOT), and the Federal Highway Administration (FHWA). SDDOT, in partnership with the other project stakeholders, is completing an environmental study of the Interstate Highway 229 (I-229) interchange and its approach roadways at Exit 4 (Cliff Avenue) in Sioux Falls, South Dakota. This study will build on the work and findings of recently completed studies for the area, including the 2010 Decennial Interstate Corridor Study, the I-229 Major Investment Study (MIS), the I-229 Exit 4 Interchange Modification Justification Report (IMJR) and I-229 Environmental Scan Report (ESR).

The recommended build alternative includes the replacement of the existing I-229 Exit 4 Interchange with a new Single Point Urban Interchange, including the realignment of 41st Street to Pam Road, Cliff Avenue interchange approach and access management improvements, and associated bicycle/pedestrian safety and Sioux Falls Bike Trail reconstructions, realignments, and reconnections. Total estimated project construction cost is \$36.3M. The project is tentatively scheduled to begin construction in FY 2025.

Appendix A illustrates the project location and infrastructure improvements included in the Build Alternative.

3. PURPOSE AND NEED FOR THE ACTION

The purpose of the project is to address the main needs identified in the study area. These needs, which are listed below and will be addressed with equal importance and priority in this study, are:

- Mobility LOS C or better should be maintained along all sections of I-229 and all ramp terminals (Per SDDOT standards) and LOS D or better should be maintained along all sections of Cliff Avenue within the project area (per City of Sioux Falls Standards) through the 2050 project design year with a preference for alternatives that meet these requirements under higher than anticipated demand.
- Geometric Deficiencies Geometric deficiencies, including infrastructure condition deficiencies for roadways in the study area, should be addressed to meet current standards by the project's design year (2050).

4. ALTERNATIVES CONSIDERED

Four (4) alternatives were considered for the project, including the No Build Alternative, Build Alternative Cliff-1, Build Alternative Cliff-6, and Build Alternative Cliff-7. Each of the alternatives is described as follows:

A. No Build Alternative – "No Action" (Maintenance for operating safety only)

With failing levels of service and unaddressed geometric deficiencies, the No Build Alternative does not meet the purpose and need of the project. Alternatives which do not meet the purpose and need of the project are not typically carried forward for consideration in the NEPA Process. Although the No Build Alternative does not meet the purpose the project, it is always carried forward to serve as the baseline when analyzing the potential social, economic, and environmental impacts of other alternatives. Consideration of a no action alternative is required by Council of Environmental Quality regulations for implementing NEPA (40 CFR 1500-1508).

B. Build Alternative Cliff-1

Northbound Cliff to Southbound I-229 Loop Ramp Alternative

For this alternative, the northbound I-229 ramp terminal would remain a standard diamond configuration with additional turn lanes to improve capacity.

The southbound I-229 ramps would be significantly reconfigured. The I-229 entrance ramp would be split into two ramps with a new entrance ramp access on southbound I-229. The southbound Cliff Avenue ramp would be a free right turn movement and the northbound Cliff Avenue traffic would have a free right turn onto a new loop ramp connection. The southbound I-229 exit ramp would connect to the 41st Street intersection. This connection helps improve safety and relieves the closely-spaced intersection issues.

Along Cliff Avenue, a 4-lane divided roadway would be provided directly to the north with the south Lincoln High School driveway access being reduced to a right-in/right-out access (RI/RO). To the south, a median would be constructed to just north of the Spencer Park intersection resulting in RI/RO access for the existing business driveways.

C. Build Alternative Cliff-6 – Recommended Build Alternative

Single Point Urban Interchange, 41st Street Realigned to Pam Road Alternative

This alternative is carried forward from the I-229 Major Investment Study (MIS) recommendations. The existing diamond interchange would be reconfigured to a Single

Point Urban Interchange (SPUI). 41st Street would be realigned to the north to provide better intersection spacing with the proposed interchange design.

The 41st Street realignment creates a significant amount of right-of-way impacts and would require Pam Road to be closed to Cliff Avenue. The configuration creates a weaving condition along northbound Cliff Avenue between the southbound I-229 right turning vehicles wanting to use 41st Street to the west. Along Cliff Avenue, a 4-lane divided roadway would be provided directly to the north with the south Lincoln High School driveway access being reduced to a RI/RO. To the south, a median would be constructed to just north of the Spencer Park intersection resulting in RI/RO access for the north driveway (to Spoke-N-Sport), and full access to Spencer Park on the south driveway.

D. Build Alternative Cliff-7

Single Point Urban Interchange, Southbound I-229 Exit Ramp Through and Right Turns at 41st Street Alternative

This alternative is carried forward from the I-229 MIS recommendations. The existing diamond interchange would be reconfigured to a SPUI with a modified southbound ramp connection.

The northbound I-229 ramps are of typical SPUI design, and the southbound I-229 entrance ramp is also typical of a SPUI design.

The southbound I-229 exit ramp would be significantly reconfigured from a standard SPUI design. The I-229 exit ramp would be split into directional ramps for Cliff Avenue. The southbound Cliff Avenue traffic would tie into the traditional SPUI intersection. The northbound Cliff Avenue traffic would connect to the 41st Street intersection; this connection helps relieve the closely spaced intersection and weaving issues.

Along Cliff Avenue, a 4-lane divided roadway would be provided directly to the north with the south Lincoln High School driveway access being reduced to a RI/RO. To the south, a median would be constructed to just north of the Spencer Park intersection resulting in RI/RO access for the existing business driveways.

Among the build alternatives, Alternative Cliff-6 is the most prudent and feasible. It is the most likely to meet the purpose and need of the project through the design year (2050), while also providing the greatest reduction in crash numbers. This alternative will be further evaluated for wetland impacts to satisfy NEPA requirements. Conversely, Alternatives Cliff-1 and Cliff-7 do not meet the purpose and need of the project as sensitivity analysis indicated both alternatives fail operationally with higher than anticipated levels of traffic. Therefore, neither Alternative Cliff-1 nor Cliff-7 will not be further evaluated for wetland impacts. Alternative Cliff-6 will be referred to as the "Build Alternative" for the analysis of environmental impacts.

The proposed action includes improvements to the I-229 Exit 4 Interchange (PCN 05HN), along with other adjacent component projects. Component projects include a temporary "crossover" project for I-229 improvements (PCN 07CY), improvements along Cliff Avenue from 33rd Street to the Big Sioux River (CP #11100), and a shared use path under I-229 (City Bike Plan Project #7).

5. BASIS FOR DETERMINING THE PROPOSED ACTION INCLUDES ALL PRACTICABLE MEASURES TO MINIMIZE HARM TO WETLANDS

The project is located within the Lower Big Sioux watershed. The wetlands adjacent to the project are depressional and riverine. These wetlands have been previously disturbed by highway

construction and maintenance activities and commercial development and are not considered high quality wetlands.

Measures to minimize impacts to the wetlands were discussed and considered at all points of planning, location, and design of the project. A field delineation was conducted to identify the locations of wetlands within the study area. Elements of the Build Alternative, including drainage features, will be designed in such a way that they would avoid identified wetlands to the extent practicable. This includes consideration for an assessment of unavoidable impacts associated with cuts and fills necessary to satisfy SDDOT and City of Sioux Falls design standards for all roadways, sidepaths, and structural components of the project. The purpose and need for the project are to improve travel mobility and address geometric deficiencies at the I-229 Exit 4 Interchange and along Cliff Avenue from 38th St S to the Big Sioux River. The project goals also include improving safety and nonmotorized connectivity. Because the impacted wetlands are in areas of shallow fills near the proposed interchange improvements, it was determined that total avoidance of adjacent wetlands was not feasible.

Best Management Practices (BMPs) will be implemented during all phases of construction to reduce impacts to aquatic resources from erosion and sedimentation. All disturbed areas will be restored and revegetated according to a project specific erosion and sediment control plan, which will be included in the project plans as Section D. The contractor will be required to submit a Spill Prevention, Control, and Countermeasure (SPCC) Plan prior to commencing construction. With implementation of these measures, it is anticipated that the construction of the proposed I-229 Exit 4 Interchange and associated roadways will not result in long-term impacts to aquatic resources along the project corridor. In addition to the above measures, the project will require a Section 404 permit issued by the United States Army Corps of Engineers (USACE) and a South Dakota Department of Agriculture and Natural Resources (SDDANR) General Permit Authorizing Stormwater Discharges Associated with Construction Activities, and the project will comply with the conditions listed in these permits.

6. WETLAND IMPACTS

Several digital resources were examined, and a field review was conducted to determine wetland locations within the study area. Digital resources examined include:

- The Natural Resources Conservation Service (NRCS) Soil Survey Geographic Maps (SSURGO) for Minnehaha County (2019)
- U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) (2019)
- Minnehaha County Hydric Soils List (2019)

The field delineation site visit was conducted by Rebecca Beduhn, SEH Senior Scientist, on September 12th and 13th, 2018. The purpose of these visits was to identify 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). In total, 10 wetland areas were delineated within the study area. Wetlands in the study area consist of primarily palustrine emergent wetlands (PEM), with one palustrine unconsolidated bottom (PUB) wetland. The project's wetland delineation report is included in **Appendix B**.

The initial wetland delineation type and boundary concurrence expired in September 2023, a reevaluation of the wetland boundaries was made by Luke Menden, an SEH Wetland Biologist, in early September 2023. This reevaluation included a site visit to each of the previously delineated wetlands to compare conditions and determine if any significant changes were observed to either the wetland boundary or type. Approved wetland boundaries were field verified

using a sub-meter GPS unit and were determined to be accurate and therefore will continue to be utilized for project planning purposes. This assessment relies primarily on observations of vegetation and hydrology, it confirmed that site conditions were unchanged, and none of the wetland boundaries have been altered, modified, or natural changed. On this basis, the previous boundaries remain valid for the purposes of completing the EA, quantifying impacts, and identification of mitigation. The findings of the reevaluation are documented in the Wetland Boundary Verification memo included in **Appendix B**.

The Preliminary Wetlands Assessment for the current survey was provided to the USACE on January 26, 2022 and is included in **Appendix B**. The USACE provided an Approved Jurisdictional Determination (AJD) on March 31, 2022 and is included in **Appendix C**. The AJD states that there are jurisdictional and non-jurisdictional waters located within the review area. A summary of USACE jurisdictional status is included in Table 1 below. Discharge of dredged or fill material within the waters of the United States, as part of this project, will require a permit from the USACE. Coordination took place between USACE and SDDOT in October 2023 following the expiration of the initial wetland delineation. USACE confirmed the findings of the March 31, 2022 AJD remain valid.

The Build Alternative results in an estimated 2.68 acres of permanent wetland impact (0.31 acres of jurisdictional wetlands, 2.37 acres of non-jurisdictional wetlands). Due to the space requirements of the necessary improvements and the number and proximity of wetlands within the study area, these impacts are unavoidable. There are no planned temporary wetland impacts or impacts to non-wetland Waters of the United States (WOTUS) such as rivers, streams, and lakes. A Section 404 permit will be required for jurisdictional wetland impacts. Non-jurisdictional wetlands will require to be mitigated by the Federal Highway Administration (FHWA) under the authority of EO 11990, in accordance with 23 CFR 777.9. Wetland impacts are listed in **Table 1** below. A map of delineated wetland and impacted wetland areas is included in **Appendix D**.

Wetland Name	Permanent Wetland Impact (acres)	Jurisdictional Status	Anticipated Mitigation Ratio (in-kind and in- place)	Mitigation Required Under (EO 11990 or Section 404)	Anticipated Mitigation Required (Credits)
Wetland 1	0.19	JD	5.5:1	Section 404	1.05
Wetland 2	0.12	JD	5.5:1	Section 404	0.66
Wetland 6	0.19	Non-JD	1.01:1	EO 11990	0.19
Wetland 7	0.75	Non-JD	1.01:1	EO 11990	0.76
Wetland 8	1.31	Non-JD	1.01:1	EO 11990	1.32
Wetland 9	0.10	Non-JD	1.01:1	EO 11990	0.10
Wetland 10	0.02	Non-JD	1.01.1	EO 11990	0.02
TOTAL	2.68 (0.31 JI	D, 2.37 Non-JD)			
				Total Mitigation Re	quired under Section 404
				Total Credits	1.71
				Total Mitigation F	Required Under EO 11990
				Total Credits	2.39

7. WETLAND MITIGATION

There are a total of 0.31 acres of permanent wetland impacts to jurisdiction waters (Wetlands 1 and 2) which will be mitigated in accordance with Section 404. Based on a standard mitigation

Wetland Finding Report – I-229 Exit 4 Interchange

ratio of 5.5:1, a total of 1.71 functional capacity units (FCUs) is expected to satisfy Section 404 compensatory mitigation requirements. The remaining 2.37 acres of permanent wetland impacts are to non-jurisdication waters (Wetlands 6, 7, 8, 9, and 10) and will be mitigated in accordance with EO 11990. A total of 2.39 FCUs will be required to satisfy E0 11990 compensatory mitigation requirements based on a 1.01:1 ratio mitigation. All wetland impacts occur in the Lower Big Sioux Geographic Service Area (GSA).

Off-site wetland mitigation through the purchase of wetland credits from a wetland bank is proposed to satisfy the requirements for both the Section 404 permit and "No Net Loss" per EO 11990. Wetland Banking is the preferred option for off-site mitigation, and since it is feasible for this project, other options for off-site mitigation such as In-lieu fee and permittee responsible site were not considered. On-site mitigation is not proposed due to the site constraints with available land. The SDDOT proposes to mitigate permanent wetland impacts by purchasing credits from Goeden Properties II, LLC's Wetland Bank (Goeden Properties). SDDOT intends to mitigate EO11990 impacts concurrently with Section 404 impacts which is anticipated to require a purchase of 4.1 FCUs from Goeden Properties. A breakdown of FCUs is shown in Table 1.

Goeden Properties has confirmed it has sufficient credits available at this time and has provided a letter of credit availability for the project, a copy of the letter is included in **Appendix E**. Final compensatory mitigation for unavoidable permanent impacts to aquatic resources resulting from construction of the proposed project will be determined by the USACE during Section 404 permitting.

8. NEPA COORDINATION & DOCUMENTATION

In accordance with the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321-4370h and the Regulations for Implementing the procedural Provisions of NEPA (40 CFR §§ 1500-1508), the SDDOT conducted an environmental review on the project to determine if significant impacts to the environment would occur because of the proposed project improvements and to determine the level of documentation required to comply with NEPA. Based on input from state and federal agencies, tribes that have an interest in projects located in Minnehaha County and the public, SDDOT has determined this project will not individually or cumulatively have a significant effect on the environment and that NEPA compliance will be documented under an Environmental Assessment (EA). Agency correspondence appears in **Appendix F.**

Coordination for the project has taken place with the following agencies as it relates to wetland impacts:

- SDDOT Coordinated with South Dakota Department of Environment & Natural Resources (renamed South Dakota Department of Agriculture & Natural Resources during this study) (DENR/DANR) on 12/10/2018. A response was received on 12/27/2018.
- SDDOT Coordinated with South Dakota Department of Game, Fish and Parks (GFP) on 12/10/2018. A response was received on 12/27/2018.
- State Historic Preservation Office (SHPO): A cultural resources survey was conducted for the project by the Archaeological Resource Center (ARC) and Sent to SHPO on 4/24/2019. SHPO concurred with the determination of No Adverse Effect on June 12, 2019. ARC completed survey of an expanded area of potential effect including additional stormwater retention and borrow areas which was sent to SHPO of September 8, 2023. SHPO concurred with the determination of No Adverse Effect on September 12, 2023.

SDDOT Coordinated with U.S. Fish and Wildlife Service (USFWS) on 12/17/2021. A
response was received on 02/01/2022 concurring with the determination that the project
would not adversely affect listed species.

In addition, in accordance with Section 106 of the NHPA (36 CFR Part 800), the SDDOT solicited comments on this project from the following tribes:

- Flandreau Santee Sioux Tribe
- Ponca Tribe of Nebraska
- Lower Brule Sioux Tribe
- Sisseton-Wahpeton Oyate Tribe
- Standing Rock Sioux Tribe
- Yankton Sioux Tribe
- Three Affiliated Tribes of North Dakota
- Chippewa Cree Tribe

Consultation letters were sent to each tribe on December 11, 2018 (**Appendix F**). One response was received from the Yankton Sioux Tribe Tribal Historic Preservation Office (THPO) on January 31, 2019. They responded their office does not have interest in the proposed project at this time but requested notification if any cultural artifacts were found at the project site. A copy of the letter is included in **Appendix F**.

Public Involvement

Open House style public meetings were held throughout the project, which helped the study team identify impacts and obtain input on the alternatives. Stakeholder were notified of the meetings through postcard mailings, the project website, press release, local newspaper ads, and social media. While these were meetings held during the planning phase of the project, a final public meeting is planned to take place for the NEPA process in winter 2023. The following Open Houses have been held for the project to date:

Public Meeting /Open House #1, January 23, 2019

The focus of this meeting was to introduce the project and provide an overview of the scope and schedule, present a draft purpose and need, and present a draft range of alternatives. A presentation was provided by project staff, and poster-board exhibits were set up at the meeting. Comment forms were provided, and members of the study team were on hand to answer questions. Postcard invitations were mailed directly to 670 properties surrounding the project area. Approximately 166 individuals signed in at the meeting.

Public Meeting /Virtual Open House #2 November 6 – December 5, 2020

Due to the COVID 19 pandemic, an online public meeting and virtual open house were held without in-person contact. The online meeting was held concurrently for I-229 Exit 3 and I-229 Exit 4, as both interchanges are adjacent to one another and planned for reconstruction. Three individual speaker presentations were recorded for the public's information on recommended improvements, the Interchange Modification Justification Report (IMJR) summary, and Environmental Scan Report (ESR) and posted online for a period of 30 days. A total of 933 unique website visitors were recorded during this period, the majority of which accessed the project website directly for project update information. Online comment forms were provided next to each pre-recorded presentation in the Virtual Open House. Comments were received on the three video recordings and were also received via telephone and email.

Future Public Involvement

The EA will be made available to public agencies and the general public for review and comments. The EA will be available for a 30-day comment period at the following locations:

- SDDOT Website
- Sioux Falls City Hall, Engineering Department
- SDDOT Sioux Falls Area Office
- Siouxland Library, Caille Branch
- SDDOT Office of Project Development in Pierre
- FHWA Division Office, Pierre

FHWA will take into consideration all verbal and formal comments received during the comment period in determining whether the Preferred Alternative (when identified) would or would not result in significant social, economic, and environmental impacts. If it is found that project does not result in significant impacts, a Finding of No Significant Impact (FONSI) document will be prepared and submitted to FHWA. The FHWA would take into consideration all verbal and formal comments received during the comment period in determining whether the Preferred Alternative would or would not result in significant social, economic, and environmental impacts. If a FONSI is determined, this document will be posted on the SDDOT and other project websites. If not, the agencies would consider whether the project will be pursued under an Environmental Impact Statement (EIS).

9. CONCLUSION

Based on the above considerations, it has been determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

APPENDIX A – Project Location Map

Wetland Finding Report – I-229 Exit 4 Interchange



ŞI	Siou	ux Falls, SD 57103 (605) 330-7000	Map by: mfalk Projection: State Plane	I-229 Exit 4 Interchange Project Minnehaha County, SD	0		
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APPENDIX B – Wetland Delineation Report

Wetland Finding Report – I-229 Exit 4 Interchange



Wetland Boundary Verification I-229 Exit 4 Reconstruction Project

Minnehaha County, SD

IM-B 2292(101)4, PCN 05HN - IM 2292(105)3, PCN 07CY - Sioux Falls CIP #11100 - Sioux Falls #7 (2023 Bike Plan) October 30, 2023



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October 31, 2023

RE: I-229 Exit 4 Interchange Reconstruction Sioux Falls, Minnehaha County, SD Wetland Boundary Verification IM-B 2292(101)4, PCN 05HN IM 2292(105)3, PCN 07CY Sioux Falls CIP #11100 Sioux Falls #7 (2023 Bike Plan)

SDDOT – Environmental Office Attn: Chad Babcock 700 East Broadway Pierre, South Dakota 57501-2586

South Dakota Regulatory Office:

Initial wetland delineation took place for the referenced project in September, 2018. An AJD was received for the project on April 1, 2022.

While the initial wetland delineation type and boundary concurrence has expired, a reevaluation of the wetland boundaries was made by Luke Menden, an SEH Wetland Biologist, in September 2023. This reevaluation included a site visit to each of the previously delineated wetlands and an updated desktop review. The desktop review included digital elevation models (DEM), aerial imagery, soil maps, hydrology data, land use/land cover information, and review of the existing wetland delineations. All wetlands were visited in the field to compare conditions and determine if any significant changes were observed to either the wetland boundary or type. The wetland boundaries were field verified by comparing the previously recorded GPS lines with current site conditions. Most wetland sites were bounded by roads, trails, or rises in elevation significant enough to restrict the expansion of wetland conditions.

Based on the above review, the previous wetland boundaries were found to match the current extent of wetland vegetation.

Please contact me directly with any questions regarding this investigation at 651.470.6027 or via e-mail at <u>rbeduhn@sehinc.com</u>.

Sincerely,

Releace Bed

Rebecca Beduhn Professional Wetland Scientist Certified Professional Soil Scientist

Engineers | Architects | Planners | Scientists

 Short Elliott Hendrickson Inc., 418 West Superior Street, Suite 200, Duluth, MN 55802-1512

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MEMORANDUM

TO: US Army Corps of Engineers

FROM: Rebecca Beduhn, SEH

DATE: August 5, 2021

RE: Interstate 229 Exit 4 Reconstruction Wetland Delineation SDDOT PCN 05HN SEH No. SDDOT 147016

Please find the enclosed wetland delineation report and Approved Jurisdictional Determination (AJD) request for the Interstate 229 Exit 4 Reconstruction project. An AJD is requested for Wetlands 1, 2, 3, 6, 7, 8, 9, and 10.

If there are any questions, please contact Rebecca Beduhn at rebduhn@sehinc.com or 651.470.6027.

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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 US Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Co 33 CFR Parts 320-332. Principal Purpose: The information that you provide will be used in evaluatir whether there are any aquatic resources within the project area subject to federal jurisdiction under the feferenced above. Routine Uses: This information may be shared with the Department of Justice an government agencies, and the public, and may be made available as part of a public notice as requir and property location where federal jurisdiction is to be determined will be included in the approved ju (AJD), which will be made available to the public on the District's website and on the Headquarters U Submission of requested information is voluntary; however, if information is not provided, the request	CORPS USE ONLY: DATE RECEIVED:			
evaluated nor can an AJD be issued.	2 REQUESTOR CO			
Street Address: Exit 4 (1220 and Cliff Ave)	Typod or Brintod Na	ama: Stave Cromm		
City/Township/Derich: Sieux Falls				
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Acrosse of Percel/Perciew Area for ID: 00	Citure Diarra	State: SD ZID: 77501		
Acreage of Parcel/Review Area for JD: 90	City: Pierre	State: <u>SD</u> ZIP: <u>77501</u>		
Section: <u>227</u> Township: <u>101</u> Range: <u>49</u>	Phone Number:	(605) 773-6641		
Latitude: <u>43.515189</u> Longitude: <u>-96.71163</u>	E-mail: steve.gram	m@state.sd.us		
(Por linear projects, please include the center point of the proposed alignment.)	entifying location and	d review area for the JD		
4. REASON FOR REQUEST (check as many as applicable):				
☐ I intend to construct/develop a project or perform activ aquatic resources.	rities on this parcel w	which would be designed to avoid all		
I intend to construct/develop a project or perform activ jurisdictional aquatic resources under Corps authority.	vities on this parcel w	which would be designed to avoid all		
I intend to construct/develop a project or perform activ Corps, and the JD would be used to avoid and minimi initial step in a future permitting process.	rities on this parcel w ze impacts to jurisdio	vhich may require authorization from the ctional aquatic resources and as an		
I intend to construct/develop a project or perform active Corps; this request is accompanied by my permit applet \Box	vities on this parcel w lication and the JD is	which may require authorization from the to be used in the permitting process.		
I intend to construct/develop a project or perform active the district Section 10 list and/or is subject to the ebb a	rities in a navigable v and flow of the tide.	water of the U.S. which is included on		
A Corps JD is required in order to obtain my local/stat	e authorization.			
I intend to contest jurisdiction over a particular aquatic does/does not exist over the aquatic resource on the p	resource and reque parcel.	est the Corps confirm that jurisdiction		
I believe that the site may be comprised entirely of dry	/ land.			
☐ Other:				
5. TYPE OF DETERMINATION BEING REQUESTED:	6. OWNERSHIP DE	 TAILS:		
I am requesting an approved JD.	I currently ov	vn this property.		
I am requesting a preliminary JD.	🗌 I plan to purc	chase this property.		
I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.	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.				
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 Digitally signed b Date: 2021.08.05	y Bailey Nelson 5 14:23:26 -05'00'	Date:		



October 22, 2021

RE: Interstate 229 Exit 4 Reconstruction Sioux Falls, Minnehaha County, South Dakota Wetland Delineation Report SDDOT PCN : 05HN SEH Project Number: Error! Reference source not found.

Steve Gramm, PE SDDOT - Project Development 700 East Broadway Avenue Pierre, SD, 75501-2589

Dear Mr. Steve Gramm, PE:

Please find enclosed the Wetland Delineation Report for Interstate 229 Exit 3 Reconstruction in the City of Sioux Falls, South Dakota. This Report presents the results of the field delineation for wetlands performed on September 13th and 14th, 2018 completed by Rebecca Beduhn (CWD #1243, PWS #2758). 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 South Dakota Department of Transportation (SDDOT). 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,

Releace Bed

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Wetland Delineation Report South Dakota Department of Transportation (SDDOT) Interstate 229 Exit 4 Reconstruction

Sioux Falls, Minnehaha County, South Dakota SDDOT Number: PCN 05HN | SEH Number: SDDOT 147016 October 2021



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Wetland Delineation Report

Interstate 229 Exit 4 Reconstruction PCN 05HN Minnehaha County, South Dakota

Prepared for: South Dakota Department of Transportation (SDDOT) 700 East Broadway Avenue Pierre, SD, 75501-2589

> 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, Wetland Biologist

1/20/2019 Date

Reviewed by:

Keel

Rebecca Beduhn, Wetland Scientist Professional Wetland Scientist, No. <u>2758</u> Certified Professional Soil Scientist, No. <u>333315</u>

<u>10/22/2021</u> Date





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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 for reconstruction. 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 September 12th and 13th, 2018. Figures referred to in the text are included at the end of the report.

1.1 Site Description

The project site is located in Sections 27, 28, 33, and 34 in Township 101 North, Range 49 West in Sioux Falls, Minnehaha County, South Dakota as shown on **Figure 1**. The approximately 90-acre site is bounded on the north by W 33rd Street, on the east by the Big Sioux River, on the south by E 49th Street, and on the west by S Minnesota Avenue. 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

2.2.1 Resource Review

Topographic maps, the U. S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map, and the Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2019) for Minnehaha County, the Minnehaha County hydric soils list were reviewed prior to visiting the site to locate potential wetland habitats. **Figure 2** is a copy of the NWI map, and **Figure 3** is a copy of the NRCS Web Soil Survey map. These sources showed a number wetland areas that were investigated in greater detail during the field delineation.

2.2.2 Field Procedures

The project site was examined on September 12th and 13th, 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 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.

Wetland boundaries were located and marked with pin flags and/or flagging labeled with "WETLAND BOUNDARY" to allow for field review. 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 4-1** and **4-2**. The sample points noted identify where data was collected.

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 Minnehaha 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

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2010), and are listed in each wetland description. Subsurface wetland hydrology indicators were examined using the soil cores and/or soil pits as deep as 24 inches.

3 Results

The field delineation was conducted under temperature conditions that were higher than normal and precipitation conditions that were wetter than normal as compared to the historical average for the region according to Midwest Regional Climate Center (**Appendix C**). Most of the vegetation was identifiable, including all dominant species.

10 wetland basins were identified, delineated, and classified (**Figures 4-1** and **4-2**). 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.

The wetlands are grouped by wetland habitat classification and described below Table 1.

Wetland ID	Size (acres) ¹	HGM Classification	Cowardin Classification	Location (Decimal Degrees)	Jurisdictional Status	
1	0.9129	Prairie Pothole	PEMC	43.5147, -96.7110	Jurisdictional, Culverts provide connection to river	
2	0.1236	Prairie Pothole	PEMC	43.5149, -96.7082	Jurisdictional, Culverts provide connection to river	
3	6.6559	Prairie Pothole	PEMC	43.5133, -96.7114	Jurisdictional, Culverts provide connection to river	
4	0.1623	Riverine	PEMB	43.5153, -96.7135	Jurisdictional, Adjacent to river	
5	0.2012	Riverine	PEMB	43.5164, -96.7119	Jurisdictional, Adjacent to river	
6	0.1869	Prairie Pothole	PEMB	43.5165, -96.7092	Not Jurisdictional, No Surficial Connection observed	
7	0.7492	Prairie Pothole	PEMB	43.5158, -96.7109	Not Jurisdictional, No Surficial Connection observed	
8	1.3048	Prairie Pothole	PEMC	43.5122, -96.7111	Not Jurisdictional, No Surficial Connection	
9	0.0977	Prairie Pothole	PEMB	43.5175, -96.7076	Not Jurisdictional, No Surficial Connection	
10	0.8589	Prairie Pothole	PEMC	43.5139, -96.7160	Not Jurisdictional, No Surficial Connection	
TOTAL	OTAL 11.2534					
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.						

 Table 1 – Wetland and Aquatic Resource Characteristics

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3.1 Prairie Pothole Wetlands

The following sections describe wetlands within the project area that are classified as Prairie Pothole Wetland Communities based on the Hydrogeomophic Approach.

3.1.1 PEMC Wetlands

Wetland ID	Size (acres)	Cowardin
1	0.9129	PEMC
2	0.1236	PEMC
3	6.6559	PEMC
8	1.3048	PEMC
10	0.8589	PEMC
Total acreage	9.8561	

Table 2 – Summary	of	PEMC	Prairie	Potholes
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Five (5) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Shallow Marsh wetland communities. These wetlands included Wetlands 1, 2, 3, 8 and 10 (**Figure 4-1** and **4-2**). Wetlands 1-3 are located south of Interstate 229, while Wetlands 8 and 10 are located north of Interstate 229.

Dominant vegetation in the shallow marsh communities included blunt spike-rush (*Eleocharis* obtusa – OBL), dock-leaf smartweed (*Persicaria lapathifolia* – FACW), large barnyard grass (*Echinochloa crus-galli* – FACW), narrow-leaf cat-tail (*Typha angustifolia* – OBL), broad-leaf cat-tail (*Typha latifolia* – FACW), and catnip (*Nepeta cataria* – FACU) in the herbaceous stratum.

A typical soil profile in the shallow marsh community met the technical hydric soil indicator A11 – Depleted Below Dark Surface, A12 – Thick Dark Surface, F6 – Redox Dark Surface, and/or F7 – Depleted Below Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric and predominantly nonhydric.

The primary wetland hydrology indicators observed included A2 – High Water Table and A3 – Saturation. Saturation was observed 0-3 inches below the ground surface. In addition, a water table was encountered at 11 inches below ground surface in one sample point.

The wetland boundary placement was primarily based upon a slight topographic rise and a change in vegetation dominance. The surrounding upland areas were dominated by green ash (*Fraxinus pennsylvanica* – FACW) in the tree stratum; European buckthorn (*Rhamnus cathartica* – FAC) in the shrub stratum; and/or fox-tail barley (*Hordeum jubatum* – FAC), smooth brome (*Bromus inermis* – FACU), yellow bristle grass (*Setaria pumila* – FAC), black medick (*Medicago lupulina* – FACU), European buckthorn, Pennsylvania sedge (*Carex pensylvanica* – UPL), and/or black-bindweed (*Fallopia convolvulus* – FACU) in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not observed in the upland.

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3.1.2 PEMB Wetlands

Wetland ID	Size (acres)	Cowardin
6	0.1868	PEMB
7	0.7492	PEMB
9	0.0977	PEMB
Total acreage	1.0338	

Table 3 - Summary of Fresh (Wet) Meadow Communities

There are three (3) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Fresh (wet) Meadow wetland communities. They include Wetlands 6, 7 and 9 (**Figure 4-1** and **4-2**).

Dominant vegetation in the fresh (wet) meadow communities included large barnyard grass, dockleaf smartweed, reed canary grass, blunt spike-rush, and/or fox-tail barley in the herbaceous stratum.

A typical soil profile in the fresh (wet) meadow community met the technical hydric soil indicator A11 – Depleted Below Dark Suface and/or F6 – Redox Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric, predominantly nonhydric, and nonhydric.

The primary wetland hydrology indicator observed included A3 – Saturation. Saturation was present at the soil surface in the sample points.

The wetland boundary placement was primarily based upon a slight topographic rise and a change in vegetation dominance. The surrounding upland areas were dominated by yellow bristle grass, Canadian thistle (*Cirsium arvense* – FACU), smooth brome, Kentucky blue grass (*Poa pratensis* – FAC), annual ragweed (*Ambrosia artemisiifolia* – FAC), wand panic grass (*Panicum virgatum* – FAC), wild black currant (*Ribes americanum* – FACW), tall goldenrod (*Solidago altissima* – FACU), European buckthorn, and/or bull thistle (*Cirsium vulgare* – FACU) in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not present at the upland sample points.

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3.2 Riverine Wetlands

Wetlands 4 and 5 are associated with the Big Sioux River, and are directly adjacent to the main river channel, located along the riverbanks. These wetlands are categorized as Riverine Wetland Communities based on the Hydrogeomophic Approach and are described below.

3.2.1 PEMB Wetlands

Table 4 – Summary of Fresh (Wet) Meadow Communities

Wetland ID	Size (acres)	Cowardin
4	0.1623	PEMB
5	0.2012	PEMB
Total acreage	0.3635	

Wetlands 4 and 5 are classified as Riverine, and are best described as Fresh (Wet) Meadow wetland communities in the project area. They are located along the riverbanks of the Big Sioux River (**Figure 4-1** and **4-2**).

Dominant vegetation in the fresh (wet) meadow communities included large barnyard grass, dockleaf smartweed, reed canary grass, blunt spike-rush, and/or fox-tail barley in the herbaceous stratum.

A typical soil profile in the fresh (wet) meadow community met the technical hydric soil indicator A11 – Depleted Below Dark Suface and/or F6 – Redox Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric, predominantly nonhydric, and nonhydric.

The primary wetland hydrology indicator observed included A3 – Saturation. Saturation was present at the soil surface in the sample points.

The wetland boundary placement was primarily based upon a slight topographic rise and a change in vegetation dominance. The surrounding upland areas were dominated by yellow bristle grass, Canadian thistle, smooth brome, Kentucky blue grass, annual ragweed, wand panic grass, wild black currant, tall goldenrod, European buckthorn, and/or bull thistle in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Primary indicator A3 – Saturation was present at the upland sample point for Wetland 5, but was not present at the other upland sample points.

3.3 Additional Upland Sample Points – U-A and U-B

Using GIS and other off-site resources, areas that appear to be wetland are mapped and identified for additional on-site review. During the on-site review, sample points within the potential wetland areas are used to determine if the technical criterion for wetland is present or absent. This process ensures that areas that appear meet wetland criteria based on initial review are appropriately identified through collection of field data. Form a regulatory standpoint,

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inclusion of potential wetland areas, even if ultimately eliminated based on actual field conditions, provides the clarity needed to support a final decision on the wetland boundary and types.

For this project, two (2) areas were identified as potentially wetland during the GIS/ off-site investigation, one south of Interstate 229 (U-A) and one north of Interstate 229 (U-B). Both areas were determined non-wetland, and the data collected for each is described below.

The dominant vegetation at U-A was yellow bristle grass in the herbaceous stratum. Other vegetation included common milkweed (*Asclepias syriaca* – FACU), smooth brome, lamb's quarters (*Chenopodium album* – FACU), large barnyard grass, curly dock (*Rumex crispus* – FAC), black-bindweed, big bluestem (*Andropogon gerardii* – FAC), Canadian thistle, and narrow-leaf hawkweed (*Hieracium umbellatum* – UPL) in the herbaceous stratum. Soils in the area are classified as Bon loam, 0 to 2 percent slopes, occasionally flooded, with a hydric rating of predominantly nonhydric. There were no signatures within the site landscape that suggest water would be retained for a duration sufficient to meet primary or secondary hydrology indicators. Although hydrophytic vegetation was present, soils did not meet hydric soil criteria and hydrology indicators were not observed. From this field visit, we conclude that this area is not wetland.

The dominant vegetation at U-B was smooth brome, reed canary grass, leafy spurge (*Euphorbia esula* – UPL), and black-bindweed in the herbaceous stratum. Other vegetation included yellow bristle grass, Japanese bristle grass (*Setaria faberi* – FACU), and Virginia ground cherry (*Physalis virginiana* – UPL) in the herbaceous stratum. Soils in the area are classified as Baltic silty clay loam, ponded, with a hydric rating of predominantly hydric. There were no signatures within the site landscape that suggest water would be retained for a duration sufficient to meet primary or secondary hydrology indicators. Although hydrophytic vegetation was present, soils did not meet hydric soil criteria and hydrology indicators were not observed. From this field visit, we conclude that this area is not wetland.

4 Hydrogeomorphic (HGM) Assessment

The Hydrogeomophic (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 10 delineated wetland basin described above. HGM scores were calculated as required for the wetland delineation. A summary table of the HGM scores is included in Table 2. Full calculations for HGM can be found in the Hydrogeomophic Model Worksheets in Appendix D. The total HGM score for the site is 15.55 FCUs.

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Basin ID	Wetland Size (acres)	HGM Method	1	2	3	4	5	6 (Riverine) 6a (Prairie Pothole)	7 (Riverine) 6b (Prairie Pothole)	8	9	Total FCI ³	Total FCU⁴
1	0.91	Prairie Pothole	0.18	0.18	0.6	0.16	0.15	0.16	0.1	N/A	N/A	1.53	1.40
2	0.12	Prairie Pothole	0.18	0.18	0.57	0.16	0.15	0.15	0.09	N/A	N/A	1.48	0.18
3	6.66	Prairie Pothole	0.18	0.17	0.32	0.12	0.13	0.14	0.11	N/A	N/A	1.17	7.79
4	0.16	Riverine	N/A	0.32	0.52	0	0.12	0.15	0	0.08	0.2	1.39	0.21
5	0.2	Riverine	N/A	0.37	0.52	0	0.16	0.19	0	0.08	0.24	1.56	0.31
6	0.19	Prairie Pothole	0.18	0.19	0.51	0.15	0.14	0.15	0.09	N/A	N/A	1.23	0.27
7	0.75	Prairie Pothole	0.18	0.18	0.53	0.15	0.14	0.15	0.1	N/A	N/A	1.25	1.07
8	1.3	Prairie Pothole	0.18	0.17	0.61	0.17	0.16	0.16	0.1	N/A	N/A	1.37	2.01
9	0.1	Prairie Pothole	0.18	0.19	0.58	0.16	0.14	0.16	0.09	N/A	N/A	1.32	0.01
10	0.86	Prairie Pothole	0.4	0.41	0.6	0.36	0.33	0.35	0.24	N/A	N/A	2.29	2.3

HGM Functions 1, 2

^{1.} Prairie Pothole Functions are: 1. Water storage, 2. groundwater recharge, 3. particulate retention, 4. dissolved substances, 5. plant community and carbon sequestration, 6a. Faunal habitat, 6b. Faunal habitat (alternate formula)

² Riverine Functions are: 2. Velocity Reduction of Surface Water Flow, 3. Storage and Release of Subsurface Water, 4. Removal of Imported Elements and Compounds, Retention of Particulates and Organic Materials, 6. Organic Carbon Export, 7/ Maintains Characteristic Plant Community, 8. Maintains Habitat Structure Within Wetland, 9. Maintains Hab. Str. And Connect. Among Wetlands

^{3.} FCI = Functional Capacity Index

^{4.} FCU = Functional Capacity Units

4.1 Conclusion

10 wetland basins were identified, delineated, and classified (**Figures 4-1** and **4-2**) with in the project limits. A total of 11.2534 acres of wetland habitat was delineated within the project limits for a total of 15.55 FCUs, as calculated utilizing the HGM. Two (2) of the wetlands are classified as Riverine under the HGM assessments, and the remaining eight (8) are classified as Prairie Pothole. In general, wetlands south of the center of I-229 are assumed connected to the Big Sioux River via culverts or direct surface flow. Because of this, these five (5) wetlands (1, 2, 3, 4, and 5) are presumed to be jurisdictional by the USACE. The remaining five (5) wetlands (6, 7, 8, 9, and 10) have no apparent connection to the river and are presumed to be not jurisdictional by the USACE.

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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 are due to their and connectivity proximity to the River. The primary state agencies in 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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- U.S. Fish and Wildlife Service National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands
- U.S. Geological Survey 7.5' Quadrangle Map, Sioux Falls East, South Dakota Quadrangle, 2019. Scale: 1:24000.

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Figures

Figure 1 – Site Location and Topography Figure 2 – National Wetlands Inventory (NWI) Figure 3 – Minnehaha County Web Soil Survey Figures 4-1 and 4-2 – Wetland Delineation Results










Appendix A

Wetland Delineation Data Forms

WETLAND DETERMIN	NATION D	ATA FORM	/ - Midwes	st Regior	1 I		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mir	nnehaha	Sampling Date:	: 9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Point:	: 1U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	ip, Range:	S33 1	[101N R49W	
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ive, convex	(, none):	Concave	
Slope (%): 3 Lat: 43° 30' 49.992" N		Long:	96° 42' 57.96	68" W	Datum: UTI	M NAD83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NWI	Classificat	tion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (l	f no, explai	n in remarks)		
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal ciro	cumstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present?	Yes
SUMMARY OF FINDINGS				(If neede	d, explain any a	inswers in rema	rks.)
Hydrophytic vegetation present? N							
Hydric soil present? N		Is the s	ampled area	a within a v	wetland?	N	
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected adjacent to Wetland 1	SP 0)						
VEGETATION Use scientific names of plants							
	Absolute	Dominant	Indicator	Domina	nce Test Works	sheet	
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Spe	ecies	
1		·		that are	OBL, FACW, or I	FAC: 1	(A)
2				Total	Number of Dom	inant	
3				Spec	cies Across all St	rata: 2	(B)
4				Percent	of Dominant Spe	ecies	
5				that are	OBL, FACW, or I	FAC: 50.00%	_(A/B)
	0	=Total Cover		Desertes			
<u>Sapling/Shrub stratun</u> (Piot size: <u>15' Radius</u>)				Total %	Ce Index Work	sneet	
2						v1- 0	
3				FACW s	$\frac{1}{10000000000000000000000000000000000$	$x^{2} = \frac{10}{10}$	-
4				FAC spe	cies 45	$x_3 = 135$	-
5				FACU sp	ecies 45	x 4 = 180	-
	0	=Total Cover		UPL spe	cies 5	x 5 = 25	
Herb stratum (Plot size: 5' Radius)				Column t	totals 100	(A) 350	(B)
1 Hordeum jubatum Fox-Tail Barley	30	Y	FAC	Prevalen	ce Index = B/A	= 3.50	
2 Bromus inermis Smooth Brome	30	Y	FACU				
3 Plantago major Great Plantain	15	N	FAC	Hydroph	ytic Vegetation	n Indicators:	
4 Trifolium pratense Red Clover	15	<u>N</u>	FACU	Rapi	d test for hydrop	hytic vegetation	n
5 Echinochioa crus-galli Large Barnyard Grass	5	<u> </u>	FACW	Dom	inance test is >	50% <2.0*	
6 Conyza canadensis Canadian Horseweed	5	N	UPL	Prev	alence index is	≤3.0 [™]	
8				Morp	hological adapt	ations* (provide	;
9				sepa	rate sheet)		
10				Prob	/ lematic hvdroph	vtic vegetation*	ŧ.
	100	=Total Cover		(expl	ain)	,	
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hvdric soil and	wetland hydrology	must be
1				pr	esent, unless distu	rbed or problematic	;
2				Hydr	ophytic		
	0	=Total Cover		vege	etation ent?	N	
Remarks: (Include photo numbers here or on a separate sheet)				P103			
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List					
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	ional Wetland	Plant List, versi	on 2.4.0 (https://	/wetland_plai	nts.usace.army.mil)	. U.S. Army Corps	of
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP	, Chapel Hill, NC. (2	2016)	
US Army Corps of Engineers]	viidwest Regi	ion

SOIL

Profile Des	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicate	or or confirm the a	bsence of	indicators.)
Depth	Matrix		Rec	dox Featu	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		Remarks
0-15	10YR 3/1	100					Sandv Loam		
15-20	10VP 2/2	100					Sandy Loom wit	h rocks	
15-20	101153/2	100					Sanuy Luarn Wit	TUCKS	
*Type: C = 0	Concentration, D =	Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	and Grains. **L	ocation: PL	_ = Pore Lining, M = Matrix
Hvdric Sc	oil Indicators:		,				Indicators fo	r Problema	atic Hvdric Soils:
His	tosol (A1)		San	idv Gleve	ed Matrix	(S4)	Coast Pra	airie Redox	(A16) (LRR K. L. R)
His	tic Eninedon (A2)		Sar	dv Redo	x (S5)	(01)	Dark Sur	face (S7) (I	RR K. I)
Bla	ck Histic (A3)		Stri	nned Ma	r(00)		5 cm Mur	cky Peat or	Peat (S3) (IRR K I R)
	drogon Sulfido (AA)	Loa	my Muck	Winora		Iron-Man	nanese Ma	(E12) (IRR K I R)
	atified Lovers (AE))	Loa			u (F1) (E2)		llow Dork S	$\frac{1}{2} \left(\frac{1}{2} \right) \left(\frac{1}{2} \left(\frac{1}{2} \right) \right)$
	auneu Layers (A5)				eu Matrix	(┌∠)			$puridue (I \cap IZ)$
2 0	ni iviuck (ATU) alatad Dalaw Dark	0						piain in ren	laiks)
	pieted Below Dark			IOX Dark	Surface	(FO)			
	CK Dark Surface (A	412)		ieted Da	Irk Surrac	ce (F7)	*Indicators	s of hydroph	ytic vegetation and wetland
Sar	ndy Mucky Minera	I (S1)	Rec	lox Depre	essions (F8)	hydrology	/ must be p	resent, unless disturbed or
								pro	oblematic
Restrictive	Layer (if observe	ed):							
Type:		-					Hydric soil	present?	Ν
Depth (inche	es):				-		•	•	
1 (, <u> </u>								
Remarks:									
HYDROLO	OGY								
Wetland Hy	drology Indicato	rs:							
Primary Indi	cators (minimum)	of one is	required: check a	II that ap	(vla		Secon	idary Indica	tors (minimum of two required
Surface	Water (A1)	0	i oquiroat onoon o	Aquatic	E:11 Fauna (B	13)	<u></u>	Surface Soil	Cracks (B6)
High Wa	ater Table (A2)				uatic Plan	its (R14)	. —	Drainade Pa	tterns (B10)
Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1)		Drv-Season	Water Table (C2)
Water M	larks (B1)			Ovidized		beres on	Living Roots (Cravifish Bur	rows (C8)
Sedimer	nt Denosite (B2)				i Kilizosp			Saturation V	isible on Aerial Imagery (CQ)
Drift Der	(B3)			Presenc	e of Redu	iced Iron	(C4) - C	Stunted or S	tressed Plants (D1)
	posits (B0)			Pocont I	ron Podu	ction in T		Seomornhic	Position (D2)
	actor Crust (D4)			(C6)	ION Redu			Seomorphic	Tost (D5)
	on Visible on Aeria	Ilmagery	(B7)	Thin Mu	ck Surfac	o (C7)	'		Test (D3)
Sparsel	Venetated Conca	ve Surfac	(B8)	Gauge o		e (07) ta (D9)			
Water S	tained Leaves (B0)			Othor (E		lia (D3) Domorko	\		
vvaler-S						CILICITIES			
Field Obser	vations:	X		N/	Death 1				
Surrace wat	er present?	Yes	NO	<u>X</u>	Depth (i	ncnes):			tone of mothers 1
vvater table	present?	Yes	NO	<u> </u>	Depth (i	nches):		Indica	itors of wetland
Saturation p	oresent?	Yes	No	Х	Depth (i	ncnes):		nydro	biogy present? N
(includes ca	pillary tringe)								
Describe red	corded data (strea	m gauge	, monitoring well,	aerial ph	notos, pre	evious in	spections), if availa	ble:	
_									
Remarks:									
Anteceder	nt precipitation of	conditio	ns were determ	nined "V	Vetter th	nan nor	mal" (Appendix)	C).	
US Army C	orps of Engine	ers							Midwest Region

WETLAND DETERMIN	NATION D	ATA FORM	1 - Midwes	t Regior	ı	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/C	County: Sid	oux Falls/Min	inehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Point:	1W
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	p, Range:	S33 T	101N R49W
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ve, convex	, none):	Concave
Slope (%): 1 Lat: 43° 30' 50.122" N		Long:	96° 42' 57.65	59" W	Datum: UTN	/I NAD83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NWI	Classificat	tion:	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (If	f no, explai	n in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circ	umstances"
Are vegetation , soil , or hydrology	naturally pr	oblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	d, explain any a	nswers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the sa	ampled area	within a v	wetland?	Y
Indicators of wetland hydrology present? Y		lf yes, o	otional wetlar	nd site ID:	Wetland	1
Remarks: (Explain alternative procedures here or in a separate re	enort)					
Sample Point collected in Wetland 1	sport.)					
VEGETATION Ose scientific flames of plants.	Abaaluta	Deminent	Indiantar	Dominar	nce Test Works	hoot
Tree Stratum (Plot size: 30' Radius)	% Cover	Dominant Species	Status	Number	of Dominant Sna	
1	/0 00101	opeelee	Claide	that are (OBL, FACW, or F	AC: 2 (A)
2		·		Total	Number of Domi	
3				Spec	cies Across all Str	rata: 2 (B)
4				Percent	of Dominant Spe	cies
5				that are 0	OBL, FACW, or F	AC: 100.00% (A/B)
	0 =	Total Cover				
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevaler	ice Index Work	sheet
				Total % (Cover of:	
2		·			cies 65	x 1 = 65
3 4				FAC vv s	$\frac{1}{2}$	$x_2 = 00$
				FACU se	ecies 0	$x = \frac{15}{2}$
°	0 =	-Total Cover		UPL spe	cies 0	$x_{5} = 0$
Herb stratum (Plot size: 5' Radius)				Column t	otals 100	(A) 140 (B)
1 Eleocharis obtusa Blunt Spike-Rush	65	Y	OBL	Prevalen	ce Index = B/A =	1.40
2 Persicaria lapathifolia Dock-Leaf Smartweed	20	Y	FACW			
3 Echinochloa crus-galli Large Barnyard Grass	10	N	FACW	Hydroph	ytic Vegetation	Indicators:
4 Hordeum jubatum Fox-Tail Barley	5	Ν	FAC	X Rapi	d test for hydrop	hytic vegetation
5				X Dom	inance test is >5	0%
6				X Prev	alence index is ≤	≤3.0 *
7				Morp	hological adapta	ations* (provide
8		·		supp	orting data in Re	emarks or on a
9 <u></u> 10		·		 	lametia hydramh	tio vocatotion*
	100 =	Total Cover		(expl	ain)	yuc vegetation
Woody vine stratum (Plot size: 30' Radius)						under al burdente musica del
<u> </u>				^indicator pr	s of hydric soil and v esent, unless distur	bed or problematic
2		·		Hydr	ophytic	
	0 =	Total Cover		vege	tation	<i>,</i>
Remarks: (Include photo numbers bere or on a congrate choot)				pres	ent?	Y
nternanta, (molude photo numbers nere or on a separate sheet)						
Note: This data sneet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	i wetland Plational Wetland P	ant List: Plant List, versio	on 2.4.0 (https://	wetland plar	nts.usace.army.mil).	U.S. Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Resear	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP	, Chapel Hill, NC. (2	2016)

Midwest Region

SOIL

Profile Desc	cription: (Descri	be to th	e depth needed t	o docun	nent the	indicato	r or confirm the al	bsence of indicators.)			
Depth	Matrix		Rec	dox Featu	ures						
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks			
0-4	10YR 3/1	100					Silty Loam				
4-12	10YR 3/1	75	5YR 4/4	20	С	М	Silty Loam				
			7.5YR 4/4	5	С	М	,				
12.20	10VP 4/1	80	7.5VP 4/6	20	C C	N/	Course Sandy L	22m			
12-20	101K 4/1	00	7.51K 4/0	20	C	IVI	Course Sandy Lo	Jam			
*Type: C = C	oncentration, D =	= Depleti	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains. **Lo	ocation: PL = Pore Lining, M = Matrix			
Hydric So	il Indicators:		,				Indicators for	Problematic Hydric Soils:			
Hist	osol (A1)		San	dy Gleye	ed Matrix	(S4)	Coast Pra	irie Redox (A16) (LRR K, L, R)			
Hist	ic Epipedon (A2)		San	dy Redo	x (S5)		Dark Surfa	ace (S7) (LRR K, L)			
Blac	ck Histic (A3)		Stri	pped Mat	trix (S6)		5 cm Muc	ky Peat or Peat (S3) (LRR K, L, R)			
Hyd	lrogen Sulfide (A4	4)	Loa	my Muck	xy Minera	al (F1)	Iron-Mang	ganese Masses (F12) (LRR K, L, R)			
Stra	atified Layers (A5))	Loa	my Gleye	ed Matrix	: (F2)	Very Shal	low Dark Surface (TF12)			
2 cr	n Muck (A10)		Dep	leted Ma	atrix (F3)		Other (exp	olain in remarks)			
X Dep	leted Below Dark	Surface	(A11) X Rec	lox Dark	Surface	(F6)					
Thic	ck Dark Surface (A	A12)	Dep	leted Da	rk Surfac	ce (F7)	*Indicators	of hydrophytic vegetation and wetland			
San	dy Mucky Minera	l (S1)	Rec	lox Depre	essions (F8)	hydrology	must be present, unless disturbed or			
								problematic			
Restrictive	Laver (if observe	ed):									
Type:							Hvdric soil	present? Y			
Depth (inche	es):				-		· · , · · · · · · · · ·				
Remarks:											
	drology Indicato	re									
		ns. of one is	required, check o	llthatan	ماريا		C				
Primary India	cators (minimum)	of one is	required; cneck a	<u>iii that ap</u>	<u>piy)</u>	40)	Secon	dary Indicators (minimum of two required			
Surface	Water (A1)			Aquatic I	Fauna (B	13) 1- (D4 4)	s	Surface Soil Cracks (B6)			
High Wa	iter Table (A2)			Irue Aqu	Jatic Plan	its (B14) Odor (C1	, <u> </u>	Vrainage Patterns (B10)			
	ori (AS) Iorico (P1)			Ovidiand)L	Provision Rurrows (C2)			
	arks (B1)				Rnizospi	neres on		raylish Burrows (C8)			
Drift Don	(D2)			Brocono	o of Rodu	and Iron	(C4) - 3	Saturation Visible on Aenai Imagery (C9)			
	t or Crust (B4)			Percent	ron Rodu	otion in T		Comprehic Position (D2)			
Aigai ivia				(C6)	ron Redu	ction in T		AC Neutral Test (D5)			
Inundatio	osiis (D3) on Visible on Aeria	Imager	(B7)	Thin Mu	ok Surfac	o (C7)		AC-Neutral Test (D5)			
Sparsely	Vegetated Conca	ve Surfac	ce (B8)	Gauge o	r Mall Da	e (C7) ita (D9)					
Water-Si	tained Leaves (B9			Other (F	xolain in l	Remarks)					
Field Obser)				rtemanto)					
Surface wot	valions.	Vec	No	Y	Denth (i	nchee).					
Water table	nresent?	Yee		X	Depth (i	nches).		Indicators of wetland			
Saturation p	resent?	Yes		Λ	Depth (i	nches):		hydrology present? V			
(includes car	oillary fringe)	103	<u> </u>		- Sobur (I						
Describe rec	(includes capillary fillinge)										
Describe recorded data (stream gauge, monitoring well, aerial protos, previous inspections), if available:											
Remarks:											
Anteceden	t precipitation of	conditio	ns were determ	nined "V	Vetter th	nan nori	mal" (Appendix (C).			
US Army Co	orps of Engine	ers						Midwest Region			

WETLAND DETERMI	NATION D	ATA FORM	1 - Midwes	st Region				
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	County: Sic	oux Falls/Mir	nnehaha	Sampling Date:	9/25/2018			
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota S	Sampling Point:	2U		
Investigator(s): Rebecca Beduhn		Secti	ion, Townshi	ip, Range:	S27 T10	1N R49W		
Landform (hillslope, terrace, etc.): footslope		Local	relief (conca	ave, convex,	none):	Concave		
Slope (%): 2 Lat: 43° 30' 53.329" N		Long:	96° 42' 39.80	08" W	Datum: UTM N	NAD83 Zone 14N		
Soil Map Unit Name: Bon loam, 0-2% slopes, occasionally flooded	1		NWI	Classificati	on:	None		
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (I	f no, explair	n in remarks)			
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circur	nstances"		
Are vegetation , soil , or hydrology	naturally pr	roblematic?				present? Yes		
SUMMARY OF FINDINGS				(If needeo	l, explain any ans	wers in remarks.)		
Hydrophytic vegetation present? N								
Hydric soil present? N		Is the sa	ampled area	a within a w	vetland?	Ν		
Indicators of wetland hydrology present? N		lf yes, op	otional wetla	nd site ID:				
Remarks: (Explain alternative procedures here or in a separate r	eport)							
Sample Point collected adjacent to Wetland 2								
VEGETATION Use scientific names of plants								
	Abcoluto	Dominant	Indicator	Dominan	ce Test Workshe	et		
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Specie			
1				that are C	BL, FACW, or FA	C: 1 (A)		
2				Total I	Number of Domina	nt		
3				Speci	es Across all Strat	a: <u> </u>		
4				Percent of	of Dominant Specie	es		
5				that are C	BL, FACW, or FA	C: <u>50.00%</u> (A/E	3)	
	0 =	=Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalen	ce Index Worksh	eet		
1		,		Total % C	over of:	4		
2		•			$\frac{1}{2}$	1 = 0		
				FAC spec	$\frac{1}{10000000000000000000000000000000000$	3 = 210		
5				FACU spe	ecies <u>30</u> x	4 = 120		
	0 :	Total Cover		UPL species $0 \times 5 = 0$				
<u>Herb stratum</u> (Plot size: 5' Radius)				Column to	otals 100 (A	A) 330 (B)		
1 Setaria pumila Yellow Bristle Grass	40	Y	FAC	Prevalence	e Index = B/A =	3.30		
2 Medicago lupulina Black Medick	20	Y	FACU					
3 Andropogon gerardii Big Bluestem	15	Ν	FAC	Hydroph	ytic Vegetation In	ndicators:		
4 Poa pratensis Kentucky Blue Grass	15	Ν	FAC	Rapid	I test for hydrophy	tic vegetation		
5 Trifolium pratense Red Clover	10	N	FACU	Domi	nance test is >50%	6		
6				Preva	lence index is ≤3.	0*		
7		,		Morpl	nological adaptati	ons* (provide		
8		•		suppo	orting data in Rem	arks or on a		
9 <u></u> 10				Brobl	are sheer)	o vogototion*		
···	100 :	-Total Cover		(expla	ain)	vegetation		
<u>Woody vine stratum</u> (Plot size: <u>30' Radius</u>) 1				*Indicators	of hydric soil and we	land hydrology must b d or problematic	e	
2		·······		Hydro	ophytic	-	-	
	0	Total Cover		veget	ation			
Pomarke: (Include photo numbers boro or on a constrate shart)				prese	ent? N			
remarks. (include photo numbers here of on a separate sheet)								
Note: This data sheet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Divital Flora: Nat	I Wetland PI	ant List: Plant List: versio	n 2.4.0 (httns:/	/wetland nlan	ts.usace.armv.mil) 11	S. Army Corns of		
Engineers, Engineer Research and Development Center, Cold Regions Resear	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP,	Chapel Hill, NC. (201	6)		

SOIL

Profile Des	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	or or confirm	the absence	e of indicators.)
Depth <u>Matrix</u> <u>Redox Features</u>									
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0-10	10YR 3/3	100					Silty Loam	with rocks	
10+							-		Rocks
IVF			L						
*Type: C = C	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	and Grains.	**Location	: PL = Pore Lining, M = Matrix
Hvdric So	il Indicators:	•	,	,			Indicato	rs for Probl	ematic Hvdric Soils:
Hist	tosol (A1)		San	dv Gleve	ed Matrix	(S4)	Coa	st Prairie Re	dox (A16) (LRR K. L. R)
Hist	tic Eninedon (A2)		San	dv Redo	x (S5)	(0.)	Dark	Surface (S	7) (I RR K. I.)
Bla	ck Histic (A3)		Stri	nned Mat	r(00)		5 cm	Mucky Pea	t or Peat (S3) (IRR K I R)
	uragon Sulfido (AA	I)		ppeu Muck	(00)			Manganoso	Massos (E12) $(IPP K I P)$
	alogen Suinde (A4	+)	Loa						$\frac{1}{1} = \frac{1}{1} \left(\frac{1}{1} + 1$
	auneu Layers (A5)	1				.(⊏∠)	very	onaliow Da	remarke)
2 cr	TINUCK (A10)	o <i>(</i>		Dieted Ma	atrix (F3)	(50)	Othe	er (explain in	remarks)
Dep	pleted Below Dark	Surface	(A11) Rec	lox Dark	Surface	(F6)			
Thio	ck Dark Surface (/	A12)	Dep	leted Da	irk Surfac	ce (F7)	*Indic	ators of hydı	ophytic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	lox Depre	essions (F8)	hydr	ology must b	e present, unless disturbed or
									problematic
Restrictive	Laver (if observe	ed):							
Type:							Hydric	soil presen	t? N
Depth (inche	<i>sc).</i>				-		nyano		
Deptil (inche					-				
Remarks:									
HYDROLO	OGY								
Wetland Hy	drology Indicato	re:							
		, . , .							
Primary Indi	cators (minimum o	of one is	required; check a	ill that ap	ply)		<u>S</u>	Secondary Ind	dicators (minimum of two required
Surface	Water (A1)			Aquatic I	Fauna (B	13)	_	Surface	Soil Cracks (B6)
High Wa	ater Table (A2)			True Aqu	uatic Plan	its (B14)	_	Drainage	e Patterns (B10)
Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1)	Dry-Sea	son Water Table (C2)
Water M	larks (B1)			Oxidized	l Rhizospl	heres on	Living Roots	Crayfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(C3)			-	Saturatio	on Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)			Presence	e of Redu	iced Iron	(C4)	Stunted	or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	illed Soils	X Geomor	ohic Position (D2)
Iron Dep	oosits (B5)			(C6)			-	FAC-Ne	utral Test (D5)
Inundatio	on Visible on Aeria	I Imagery	(B7)	Thin Mu	ck Surfac	e (C7)	-		
Sparsely	/ Vegetated Conca	ve Surfac	e (B8)	Gauge o	r Well Da	ta (D9)			
Water-S	tained Leaves (B9))	· · ·	Other (E	xplain in I	Remarks)		
Field Obser	vations:			. `	-				
Surface wat	er present?	Yee	No	x	Denth (i	nches).			
Water table	nresent?	Ver			Denth (i	nchael.		In	dicators of wetland
Saturation n	resent?	Ver			Denth (i	nchae).			vdrology present?
(includes ca	nillary fringe)	163		^	- Deptin (I	101103).			
Describe rec	corded data (strea	im gauge	, monitoring well,	aerial ph	notos, pre	evious in	spections), if a	available:	
D									
Remarks:									
Anteceder	nt precipitation of	conditio	ns were determ	nined "V	Vetter th	nan nor	mal" (Apper	ndix C).	
US Army C	orps of Engine	ers							Midwest Region

WETLAND DETERMIN	NATION D	ATA FORM	/I - Midwes	st Region				
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/C	County: Sid	oux Falls/Min	nehaha S	Sampling Date:	9/25/2018		
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota S	ampling Point:	2W		
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	p, Range:	S27 T10	1N R49W		
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ve, convex,	none):	Concave		
Slope (%): 1 Lat: 43° 30' 53.178" N		Long:	96° 42' 39.74	46" W 🛛 🛛	Datum: UTM N	IAD83 Zone 14N	1	
Soil Map Unit Name: Bon loam, 0-2% slopes, occasionally flooded			NWI	Classificatio	on:	None		
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (If	f no, explain	in remarks)			
Are vegetation , soil , or hydrology	significantly	y disturbed?		А	re "normal circum	stances"		
Are vegetation , soil , or hydrology	naturally pr	oblematic?		,		present? Yes		
SUMMARY OF FINDINGS				(If needed	, explain any answ	vers in remarks.))	
Hydrophytic vegetation present? Y								
Hydric soil present? Y		Is the sa	ampled area	within a we	etland?	Y		
Indicators of wetland hydrology present? Y		lf yes, or	ptional wetlar	nd site ID:	Wetland 2			
Remarks: (Explain alternative procedures here or in a separate re	eport)							
Sample Point collected in Wetland 2								
VEGETATION Liss scientific names of plants								
	Abaaluta	Deminent	Indiaator	Dominand	e Test Workshe	ot		
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number o	f Dominant Spacia	5. 5		
1				that are O	BL, FACW, or FAC	s 2 (A	.)	
2				Total N	umber of Dominar	``	,	
3				Specie	es Across all Strata	a: 2 (B)	
4				Percent o	f Dominant Specie	s		
5				that are O	BL, FACW, or FAC	: <u>100.00%</u> (A	/B)	
	0 =	Total Cover						
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalenc	e Index Worksho	eet		
				Total % Co	over of:			
2					$\frac{25}{5}$ x	1 = 25		
3 <u></u>		······································		FAC speci	$\frac{1}{2}$	2 = 110 3 = 60		
		·		FACU speci	$\frac{20}{100}$ x	4 = 0		
	0 =	-Total Cover		UPL species $0 \times 5 = 0$				
Herb stratum (Plot size: 5' Radius)				Column to	tals 100 (A) <u>195</u> (B)	
1 Echinochloa crus-galli Large Barnvard Grass	40	Y	FACW	Prevalence	e Index = B/A =	1.95		
2 Typha angustifolia Narrow-Leaf Cat-Tail	25	Y	OBL					
3 Cyperus esculentus Chufa	15	Ν	FACW	Hydrophy	tic Vegetation In	dicators:		
4 Poa pratensis Kentucky Blue Grass	10	Ν	FAC	X Rapid	test for hydrophyl	tic vegetation		
5 Setaria pumila Yellow Bristle Grass	10	N	FAC	X Domin	ance test is >50%	, 0		
6				X Preval	ence index is ≤3.0) *		
7				Morph	ological adaptatic	ons* (provide		
8				suppo	rting data in Rema	arks or on a		
9 <u></u> 10		······································			ue Sileel)	· · · · · · · · · · · · · · · · · · ·		
	100 =	Total Cover		(explai	malic nydropnylic n)	vegetation		
Woody vine stratum (Plot size: 30' Radius)				*Indicators	' of hydric soil and wet	and hydrology must	he	
1				pres	sent, unless disturbed	or problematic	be	
2				Hydro	phytic			
	0 =	Total Cover		vegeta	ation			
Remarks: (Include photo numbers here or on a separate sheet)				preser	n: Y			
, , , , , , , , , , , , , , , , , , ,								
Note: This data sheet has been adapted to use the 2016 Nationa	Wotland Di	ant Liet.						
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	tional Wetland F	Plant List, versio	on 2.4.0 (https://	/wetland_plants	s.usace.army.mil). U.S	5. Army Corps of		
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP, (Chapel Hill, NC. (2016	5)		

Profile Des	cription: (Descri	ibe to th	e depth needed t	o docun	nent the	indicato	r or confirm the a	bsence of i	ndicators.)
Depth	Matrix		Rec	dox Featu	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		Remarks
0-6	10YR 2/1	90	10YR 6/1	10	С	М	Silty Loam with	rocks	
6-18	10VR 2/1	85	7.5VR 1/6	15	C	М	Silty Loam with	rocks	
40.04		05	7.511(4/0	10	0		City Loan with		
18-24	10YR 5/1	85	7.5YR 46	15	C	IVI	Slity Loam with I	rocks	
*Type: C = C	Concentration, D =	= Depleti	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains. **L	ocation: PL	= Pore Lining, M = Matrix
Hydric So	il Indicators:						Indicators for	r Problema	tic Hydric Soils:
Hist	tosol (A1)		Sar	dy Gleye	ed Matrix	(S4)	Coast Pra	airie Redox	(A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		San	dy Redo	x (S5)		Dark Surf	ace (S7) (L	RR K, L)
Bla	ck Histic (A3)		Stri	oped Ma	trix (S6)		5 cm Muc	ky Peat or l	Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A4	1)	Loa	my Muck	ky Minera	al (F1)	Iron-Mang	ganese Mas	ses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loa	my Gley	ed Matrix	(F2)	Very Shal	llow Dark Si	urface (TF12)
2 cr	m Muck (A10)		Dep	leted Ma	atrix (F3)		Other (ex	plain in rem	arks)
Dep	oleted Below Dark	Surface	(A11) X Rec	lox Dark	Surface	(F6)			
X Thi	ck Dark Surface (A	A12)	X Dep	leted Da	rk Surfac	ce (F7)	*Indicators	of hydroph	vtic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	lox Depre	essions (F8)	hydrology	must be pr	esent, unless disturbed or
		()			,	,	,	pro	blematic
Destrictive	Lover (if cheery								
Tunor	Layer (II observe	eu):							X
Type:	\				-		Hydric soli	present?	Y
Depth (Inche	es):				-				
Remarks:									
	JGY								
Wetland Hy	drology Indicato	rs.							
		13. 	na au dina dina ba a lu a				0	de a de de a	
Primary Indi	cators (minimum	of one is	required; cneck a	li that ap			Secon	dary Indicat	ors (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B	13)		Surface Soil	Cracks (B6)
High Wa	ater Table (A2)			True Aqu	uatic Plan	nts (B14)	, <u> </u>	Drainage Pat	terns (B10)
X Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1)L	Dry-Season \	Vater Table (C2)
Water N	larks (B1)			Oxidized	l Rhizosp	heres on	Living Roots	Crayfish Burr	ows (C8)
Sedimer	nt Deposits (B2)			(03)				Saturation Vi	sible on Aerial Imagery (C9)
Drift Dep	posits (B3)			Presenc	e of Redu	iced Iron	(C4) <u> </u>	Stunted or St	ressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	illed Soils X G	Seomorphic	Position (D2)
Iron Dep	osits (B5)			(C6)		(- -)	<u> </u>	AC-Neutral	Test (D5)
	on visible on Aeria	I Imagery	(B7)	I hin Mu	ck Surfac	e (C7)			
Sparsely	/ Vegetated Conca	ve Surfac	e (B8)	Gauge o	r Well Da	ata (D9)			
Water-S	tained Leaves (B9))		Other (E	xplain in	Remarks))		
Field Obser	vations:								
Surface wat	er present?	Yes	No	X	Depth (i	nches):			
Water table	present?	Yes	No	X	Depth (i	nches):		Indica	tors of wetland
Saturation p	resent?	Yes	X No		Depth (i	nches):	0	hydro	logy present? Y
(includes ca	pillary fringe)								
Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:									
Remarks:									
Anteceder	nt precipitation of	conditio	ns were determ	nined "V	Vetter tl	han nor	mal" (Appendix (C).	
US Army C	orps of Engine	ers							Midwest Region

WETLAND DETERMIN	NATION D	ATA FORM	/I - Midwe	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Sid	oux Falls/Mi	nnehaha Sampli	ing Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota Sampli	ng Point:	3U
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	iip, Range:	S27 T101	N R49W
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ave, convex, none)	: C	oncave
Slope (%): 4 Lat: 43° 30' 53.682" N		Long:	96° 42' 29.9	09" W Datum	: UTM NA	D83 Zone 14N
Soil Map Unit Name: Bon loam, 0-2% slopes, occasionally flooded			NW	I Classification:	PEM	1/FOC
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (If no, explain in ren	narks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?		Are "no	ormal circums	tances"
Are vegetation , soil , or hydrology	naturally pr	roblematic?			p	resent? Yes
SUMMARY OF FINDINGS				(If needed, expla	ain any answe	ers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? N		Is the sa	ampled area	a within a wetland	1?	Ν
Indicators of wetland hydrology present? N		lf yes, op	otional wetla	ind site ID:		
Remarks: (Explain alternative procedures here or in a separate re	eport)					
Sample Point collected adjacent to Wetland 3	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
VEGETATION Liss scientific names of plants						
	Abcoluto	Dominant	Indicator	Dominance Tes	st Worksheet	
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number of Dom	inant Species	
1 Fraxinus pennsylvanica Green Ash	10	Y	FACW	that are OBL, FA	ACW, or FAC:	3 (A)
2		· ·		Total Numbe	r of Dominant	()
3				Species Acro	oss all Strata:	4 (B)
4				Percent of Dom	inant Species	
5				that are OBL, FA	CW, or FAC:	75.00% (A/B)
	10 =	=Total Cover				
Sapling/Shrub stratun (Plot size: 15' Radius)	50	X	F AQ	Prevalence Ind	ex Workshee	t
1 Rhamnus cathartica European Buckthorn	50	Y	FAC	Total % Cover o	r: 0 v 1	0
2		·		CACW species	$\frac{0}{25}$ x 2	= 0
4		·		FAC species	90 x 3	$= \frac{30}{270}$
5		··········		FACU species	5 x 4	= 20
	50 :	-Total Cover		UPL species	15 x 5	= 75
Herb stratum (Plot size: 5' Radius)				Column totals	135 (A)	415 (B)
1 Rhamnus cathartica European Buckthorn	40	Y	FAC	Prevalence Inde	x = B/A =	3.07
2 Carex pensylvanica Pennsylvania Sedge	15	Y	UPL		•	
3 Laportea canadensis Canadian Wood-Nettle	10	Ν	FACW	Hydrophytic Ve	getation Ind	icators:
4 Acer saccharinum Silver Maple	5	N	FACW	Rapid test fo	or hydrophytic	vegetation
5 Oxalis stricta Upright Yellow Wood-So	5	N	FACU	X Dominance	test is >50%	
6		·		Prevalence	ndex is ≤3.0*	
/		·		Morphologic	al adaptation	s* (provide
0		·		supporting o	lata in Remar eet)	ks or on a
10		·······		Problematic	bydrophytic y	vegetation*
···	75 :	=Total Cover		(explain)		egetation
Woody vine stratum (Plot size: 30' Radius)				*Indicators of hydri	ic soil and wetler	nd hydrology must be
1				present, ur	less disturbed o	r problematic
2				Hydrophyti	C	
	0 -	Total Cover	_	vegetation	V	
Remarks: (Include photo numbers here or on a separate sheet)				Present:	Ĭ	
Note: This data sheet has been adanted to use the 2016 National	Wetland Pl	ant List				
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	ional Wetland	Plant List, versio	on 2.4.0 (https:/	//wetland_plants.usace	army.mil). U.S.	Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH	, and BONAP, Chapel	Hill, NC. (2016)	

(Inches) 0-8			Rei	dox Feat	ures				
0-8	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0.40	10YR 4/3	100					Sandy Loar	n	
8-18	10YR 4/4	90	7 5YR 5/6	10	C	м	Silty Loam		
0 10	1011(4/4	00	7.011(0/0	10	Ŭ		Only Loan		
		<u> </u>							
/pe: C = 0	Concentration, D	= Depletio	on, RM = Reduce	d Matrix,	MS = Mi	asked Sa	and Grains.	**Location:	PL = Pore Lining, M = Matrix
lydric So	oil Indicators:					(a ()	Indicator	s for Proble	ematic Hydric Soils:
His	tosol (A1)		Sar	idy Gleye	ed Matrix	(S4)	Coas	t Prairie Rec	dox (A16) (LRR K, L, R)
His	tic Epipedon (A2)		Sar	ndy Redo	x (S5)		Dark	Surface (S7	') (LRR K, L)
Bla	ck Histic (A3)		Stri	pped Ma	trix (S6)		5 cm	Mucky Peat	t or Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A	4)	Loa	my Muck	ky Minera	al (F1)	Iron-	Manganese	Masses (F12) (LRR K, L, R)
Str	atified Layers (A5)	Loa	my Gley	ed Matrix	(F2)	Very	Shallow Dar	rk Surface (TF12)
2 c	m Muck (A10)		Dep	pleted Ma	atrix (F3)		Othe	r (explain in	remarks)
Der	pleted Below Dark	k Surface	(A11) Rec	lox Dark	Surface	(F6)			
Thi	ck Dark Surface ((A12)	Dep	leted Da	rk Surfac	ce (F7)	*Indica	ators of hydr	ophytic vegetation and wetlar
Sar	ndy Mucky Minera	al (S1)	Rec	dox Depr	essions (F8)	hydro	ology must b	e present, unless disturbed o
									problematic
strictivo	Laver (if observ	od).							
		cuj.					Hydric	soil proson	t2 N
pe. oth (inch	oc):				-		Tiyunc	son presen	<u> </u>
					-				
	OGY								
YDROL	OGY /drology Indicato	ors:							
YDROL etland Hy imary Indi	OGY /drology Indicato icators (minimum	ors: of one is	required; check a	ill that ap	p <u>ply)</u>		<u>S</u>	econdary Inc	dicators (minimum of two requ
YDROL etland Hy imary Indi Surface	OGY vdrology Indicato icators (minimum Water (A1)	ors: of one is	required; check a	Ill that ap Aquatic	ply) Fauna (B	13)	<u>S</u>	econdary Inc	<u>dicators (minimum of two requ</u> Soil Cracks (B6)
YDROL etland Hy imary Indi Surface High Wa	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2)	ors: of one is	required; check a	<u>Ill that ap</u> Aquatic True Aqu	<u>ply)</u> Fauna (B uatic Plar	13) hts (B14)	<u>S</u>	econdary Inc Surface S Drainage	<u>dicators (minimum of two requ</u> Soil Cracks (B6) Patterns (B10)
YDROL etland Hy imary Indi Surface High Wa Saturati	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3)	ors: of one is	required; check a	<u>Ill that ap</u> Aquatic True Aqu Hydroge	p <u>ly)</u> Fauna (B uatic Plar n Sulfide	13) hts (B14) Odor (C ²)	econdary Inc Surface S Drainage Dry-Seas	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2)
YDROL etland Hy imary Indi Surface High Wa Saturati Water	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1)	ors: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized	p <u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp	13) hts (B14) Odor (C ² heres on) Living Roots	econdary Inc Surface S Drainage Dry-Seas Crayfish	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8)
YDROL etland Hy mary Indi Surface High Wa Saturati Water M Sedimed	DGY drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)	ors: of one is	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3)	p <u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp	13) hts (B14) Odor (C ² heres on) Living Roots	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9
YDROL etland Hy mary Indi Surface High Wa Saturati Water M Sedime Drift De	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3)	ors: of one is	required; check a	Il that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc	p <u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu	13) hts (B14) Odor (C ² heres on uced Iron) Living Roots	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted c	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9 or Stressed Plants (D1)
YDROL etland Hy mary Indi Surface High Wa Saturatii Water M Sedimer Drift Del Algal Ma	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	ors: of one is	required; check a	Il that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I	<u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu	13) hts (B14) Odor (C ⁷ heres on uced Iron ction in T) Living Roots (C4) illed Soils	econdary Ind Surface S Drainage Dry-Seas Crayfish Saturatio Stunted of Geomore	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (CS or Stressed Plants (D1) ohic Position (D2)
YDROL etland Hy imary Indi Surface High Wa Saturati Water M Sedimel Drift De Algal Ma Iron Dep	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Anic	ors: of one is		Aquatic True Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6)	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu	13) hts (B14) Odor (C ⁷ heres on iced Iron ction in T) Living Roots (C4) illed Soils	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Indi Surface High Wa Saturati Water M Sedimer Drift Der Algal Ma Iron Der Inundati	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria	ors: of one is al Imagery	(B7)	Aquatic True Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu	13) hts (B14) Odor (C ⁷ heres on iced Iron ction in T e (C7)) Living Roots (C4) illed Soils	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C8 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Indi Surface High Wa Saturati Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca	ors: of one is al Imagery ave Surfac	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da	13) hts (B14) Odor (C ⁷ heres on uced Iron ction in T e (C7) ata (D9)) Living Roots (C4) illed Soils	econdary Ind Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Indi Surface High Wa Saturati Water N Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9)	ors: of one is of one is al Imagery ave Surfac	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E	p <u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp I Rhizosp e of Redu ron Redu ron Redu ck Surfac r Well Da xplain in	13) Odor (C ² heres on iced Iron ction in T e (C7) ata (D9) Remarks) Living Roots (C4) illed Soils	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (CS or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Indi Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obse	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations:	ors: of one is al Imagery ave Surfac	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E	pply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in	13) hts (B14) Odor (C ² heres on uced Iron ction in T e (C7) ata (D9) Remarks) Living Roots (C4) illed Soils	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Indi Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S	DGY drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9) rvations: per present?	ors: of one is al Imagery ave Surfac)) Yes	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E	pply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in	13) hts (B14) Odor (C ² heres on uced Iron ction in T e (C7) ata (D9) Remarks nches):) Living Roots (C4) illed Soils	econdary Ind Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Indi Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S eld Obset urface wat	DGY drology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Bained Leaves (B9) rvations: present? present?	ors: of one is al Imagery ave Surfac)) Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in Depth (i Depth (i	13) hts (B14) Odor (C ² heres on iced Iron ction in T e (C7) ata (D9) Remarks nches): nches):	S Living Roots (C4) iilled Soils	econdary Ind Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (CS or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsel Water-S eld Obset urface wat ater table	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: rer present? present? present?	al Imagery ave Surfac)) Yes Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in Depth (i Depth (i	13) hts (B14) Odor (C ⁷ heres on iced Iron ction in T e (C7) ata (D9) Remarks nches): nches): nches):	S 	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (CS or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obse urface wat ater table aturation p cludes ca	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Bained Leaves (B9 rvations: are present? present? present? ppillary fringe)	ors: of one is of one is al Imagery ave Surfac)) Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in Depth (i Depth (i	13) odor (C ⁷ heres on iced Iron ction in T e (C7) ata (D9) Remarks nches): nches): nches):) Living Roots (C4) illed Soils	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C8 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obset urface wat ater table ater table ater table scribe red	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Bained Leaves (B9 rvations: are present? present? present? present? poilary fringe) corded data (streat	al Imagery ave Surfac)) Yes Yes Yes Yes am gauge	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X X aerial ph	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in Depth (i Depth (i Depth (i	13) hts (B14) Odor (C ⁷ heres on iced Iron iced Iron iced Iron ata (D9) Remarks nches): nches): nches): evious in	S Living Roots (C4) illed Soils) spections), if a	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu Inc hy vailable:	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat ater table aturation p icludes ca escribe ree	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: present? p	ors: of one is of one is al Imagery ave Surface)) Yes Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X X X	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in Depth (i Depth (i	13) hts (B14) Odor (C ⁷ heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches): nches): evious in) Living Roots (C4) illed Soils	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu Inc hy vailable:	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (CS or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S BId Obser urface wat ater table ituration p cludes ca scribe ree	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: present? p	ors: of one is of one is al Imagery ave Surface) Yes Yes Yes am gauge conditio	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X X aerial ph	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in Depth (i Depth (i Depth (i	13) hts (B14) Odor (C ⁷ heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches): nches): nches): evious in) Living Roots (C4) illed Soils	econdary Ind Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu Ind hy vailable:	dicators (minimum of two requ Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) n Visible on Aerial Imagery (C3 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)
YDROL etland Hy imary Ind Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser inface wat ater table ituration p cludes ca escribe rea	DGY vdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9 rvations: rer present? present	ors: of one is of one is al Imagery ave Surfactors Yes Yes Yes am gauge conditio	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X X aerial ph	ply) Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu ron Redu ck Surfac r Well Da xplain in Depth (i Depth (i Depth (i Notos, pre	13) Its (B14) Odor (C' heres on uced Iron ction in T e (C7) ata (D9) Remarks nches): nches): nches): nches): han nor) Living Roots (C4) illed Soils) spections), if a mal" (Appen	econdary Inc Surface S Drainage Dry-Seas Crayfish Saturatio Stunted o Geomorp FAC-Neu Inc hy vailable:	dicators (minimum of two requised Soil Cracks (B6) Patterns (B10) son Water Table (C2) Burrows (C8) In Visible on Aerial Imagery (C9 or Stressed Plants (D1) ohic Position (D2) utral Test (D5)

WETLAND DETERMIN	NATION D	ATA FORM	/ - Midwes	t Region			
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Sid	oux Falls/Min	nehaha	Sampling Date:	9/25/2018	8
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Point:	3W	
Investigator(s): Rebecca Beduhn		Sect	ion, Townshij	p, Range:	S27 T10)1N R49W	
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ve, convex	, none):	Concave	
Slope (%): 1 Lat: 43° 30' 53.958" N		Long:	96° 42' 29.83	88" W	Datum: UTM I	VAD83 Zone 1	14N
Soil Map Unit Name: Bon loam, 0-2% slopes, occasionally flooded		_	NWI	Classificati	ion: PE	M1/FOC	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (If	no, explai	n in remarks)		
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circur	nstances"	
Are vegetation , soil , or hydrology	naturally pr	roblematic?		,		present? Y	es
SUMMARY OF FINDINGS				(If needeo	d, explain any ans	wers in remar	ks.)
Hydrophytic vegetation present? Y							
Hydric soil present? Y		Is the sa	ampled area	within a w	vetland?	Y	
Indicators of wetland hydrology present? Y		lf ves, or	• otional wetlar	nd site ID:	Wetland 3		
	an art)	, , , , ,					
Semple Deint collected in Wetland 2	epon.)						
VEGETATION Use scientific names of plants.				Dension			
Trop Stratum (Diat size: 20' Dadius)	Absolute	Dominant	Indicator	Dominan	ice lest workshe	et	
<u>Tree Stratum</u> (Plot size. <u>50 Radius</u>)	% Cover	v		Number (of Dominant Specie	÷S ∩· ⊿	(A)
2 Populus deltoides Eastern Cottonwood	10		FAC			J. 4	- (A)
3	10		17.0	lotai Spec	ies Across all Strat	nt a: 4	(B)
4				Percent	of Dominant Specie	29	_(=)
5				that are C	OBL, FACW, or FA	C: 100.00%	(A/B)
	30 -	=Total Cover					- ` ` /
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalen	ce Index Worksh	eet	
1				Total % C	Cover of:		
2				OBL spec	cies <u>35</u> x	1 = 35	_
3				FACW sp	becies <u>35</u> x	2 = 70	-
4				FAC spec	cies <u>10</u> x	3 = 30	-
5		Tatal Cause		FACU sp	ecies <u>0</u> x	4 = 0	-
Horb stratum (Plot size: 5' Padius)		= Total Cover		Column to	$\frac{1}{2}$ $\frac{1}$	D = 0	(B)
Timbo letifalio	25	V		Drovolon	$\frac{1}{2}$	100	-
I I ypria laulolla Broad-Lear Cat-Tall Dealaris arundinacoa Bood Canary Crass	30			Prevalenc	Ce Index = B/A =	1.69	-
3	10	·	17.00	Hydroph	vtic Vegetation I	ndicators:	
4				Rapio	test for hydrophy	tic vegetation	
5				X Domi	nance test is >509	%	
6				X Preva	alence index is ≤3.	0*	
7				Morp	hological adaptati	ons* (provide	
8				suppo	orting data in Rem	arks or on a	
9				separ	rate sheet)		
10		<u></u>		Probl	ematic hydrophyti	c vegetation*	
We have the first one (Distribution 201 Distribution)	50 =	= I otal Cover		(expla	ain)		
<u>vvoody vine stratum</u> (Piot size: <u>30 Radius</u>)				*Indicators	s of hydric soil and we	land hydrology m	nust be
2				pre Hvdr	onhytic	a or problematic	
	0	=Total Cover		vege	tation		
				prese	ent? Y		
Remarks: (Include photo numbers here or on a separate sheet)			_				
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List:	0.4.0."				C.
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat Engineers, Engineer Research and Development Center, Cold Regions Research	ional Wetland I ch and Enginee	riant List, versid ering Laboratorv	on 2.4.0 (https:// , Hanover, NH.	wetiand_plan and BONAP.	ts.usace.army.mil). U. Chapel Hill, NC. (201	5. Army Corps of 6)	T
	5	<u> </u>	. ,	,			

SOIL

Profile Desc	Matrix	De to th	e depth needed	to accur	HEAT THE	indicato	r or confirm t	ne absence	e of Indicators.)
(Inches)	Color (moist)	%	Color (moist)	<u>%</u> %	Tvpe*	Loc**	Text	ure	Remarks
0-10	10YR 3/1	80	7.5YR 4/6	20	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Silty Loam	~. ~	
10.20	10VD E/1	75	7.5VD E/C	20	с С	N/	Silty Loom		
10-20	101K 3/1	10	1.515 5/6	25		IVI	Silly Loam		
T		Devlati	I DM - Deduce	al Matuix	M0 – M			**!+:	· DI — Dana Lininan M — Matrix
	oncentration, D =	Depletio	on, RIVI = Reduce	ed Matrix,	WS = W	asked Sa	ind Grains.	Location	PL = Pore Lining, M = Matrix
			50		od Motriv	(04)	Indicato	S IOI PIODI	
	USUI (AI)		Sa	nay Gley ndy Boda		(54)			UUX (A10) (LKK K, L, K) 7) (IDD K I)
	Lic = pipea on (A2)				JX (35)			Mucky Dec	t or Post (S2) (IDD K I D)
BIA0	JK HISUC (A3)	1			urix (56)		5 CM	Noncorco	Maccoc (E12) (LKK K, L, K)
	inogen Sumde (A4)			ky iviinera	ar (F1) (F2)		Shallow D	$\frac{1}{1} \sum_{k=1}^{1} (\mathbf{L} \mathbf{K} \mathbf{K}, \mathbf{L}, \mathbf{K})$
	auneu Layers (A5)			arriy Gley	eu Matrix	K (F∠)		Shallow Da	$\frac{1}{1} = \frac{1}{1} = \frac{1}$
		Surface			auix (F3) Surface	(E6)		i (expiain in	remarks)
	Neteo Below Dark			Dark	Sunace	(F0) 00 (F7)			
	K Dark Surface (/	412) L (61)	De	pieted Da	ark Suria		*Indic	ators of hydr	ophytic vegetation and wetland
Sar	idy Mucky Minera	1(51)		dox Depr	essions	(F8)	nyar	blogy must b	present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
ype:					_		Hydric	soil presen	t? <u>Y</u>
Depth (inche	es):				-				
Remarks:									
	DGY								
	arology indicato	rs: of one is	required, check	all that an	and a		0		
Primary Indi	<u>cators (minimum (</u>	of one is	required; cneck	all that ap	<u>opiy)</u> Farma (D	10)	<u>S</u>	econdary Ind	dicators (minimum of two require
Surface	Vvater (A1)			Aquatic	Fauna (B	(D14)	-	Surface	Soll Cracks (B6)
X High Wa	(A2)				uatic Plar	10 (B14)	、	Drainage	Patterns (BTU)
Mater M	arks (B1)) Living Poots	Cravifish	Burrows (C8)
	at Denosits (B2)				а кпідозр	neres on		Saturatio	n Visible on Aerial Imagery (C9)
Drift Der	(B3)			-Presence	e of Redu	iced Iron	(C4)	Stunted	or Stressed Plants (D1)
Algal Ma	it or Crust (B4)			Recent	Iron Redu	uction in T	illed Soils	X Geomori	phic Position (D2)
Iron Dep	osits (B5)			(C6)			-	X FAC-Nei	utral Test (D5)
Inundatio	on Visible on Aeria	I Imagery	(B7)	Thin Mu	ck Surfac	e (C7)	-		
Sparsely	Vegetated Conca	ve Surfac	ce (B8)	- Gauge d	or Well Da	ata (D9)			
Water-S	tained Leaves (B9)			Other (E	Explain in	Remarks))		
ield Obser	vations:								
Surface wate	er present?	Yes	No	Х	Depth (i	inches):			
Nater table	present?	Yes	X No		Depth (i	inches):	11	Inc	dicators of wetland
Saturation p	resent?	Yes	X No		Depth (i	inches):	3	h	ydrology present? Y
includes ca	pillary fringe)				-				
Describe rec	orded data (strea	m gauge	e, monitoring well	l, aerial pl	hotos, pr	evious ins	spections), if a	vailable:	
Remarks:									
Anteceden	t precipitation of	conditio	ns were deteri	mined "\	Netter t	han nor	mal" (Appen	dix C).	
	1							- / ·	

WETLAND DETERMIN	IATION D	ATA FORM	/I - Midwes	st Region	l			
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Sid	oux Falls/Min	nehaha	Sampling D	ate: 9	9/25/201	8
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Po	pint:	4U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	p, Range:	S	33 T101N F	R49W	
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ve, convex	, none):	Con	cave	
Slope (%): 4 Lat: 43° 30' 47.935" N		Long:	96° 42' 40.95	55" W	Datum:	UTM NAD8	33 Zone	14N
Soil Map Unit Name: Chaska loam, channeled			NWI	Classificat	ion:	Non	е	
Are climatic/hydrologic conditions of the site typical for this time o	f the year?		N (li	f no, explai	n in remarks	6)		
Are vegetation, soil, or hydrology	significantly	y disturbed?			Are "normal	circumstar	ices"	
Are vegetation , soil , or hydrology	naturally pr	roblematic?				pres	sent? Y	es
SUMMARY OF FINDINGS				(If neede	d, explain ar	ny answers	in remar	rks.)
Hydrophytic vegetation present? N								
Hydric soil present? N		Is the sa	ampled area	within a v	vetland?	N		
Indicators of wetland hydrology present? N		lf yes, op	ptional wetlar	nd site ID:			_	
Remarks: (Explain alternative procedures here or in a separate re	eport.)							
Sample Point collected adjacent to Wetland 4.								
VEGETATION Use scientific names of plants.								
	Absolute	Dominant	Indicator	Dominar	ce Test Wo	orksheet		
<u>Tree Stratum</u> (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant	Species		
1 Quercus alba Northern White Oak			FACU	that are C	OBL, FACW,	or FAC:	0	(A)
2				Total	Number of D	ominant		
3		·		Spec	ies Across a	Il Strata:	2	(B)
4		·		Percent	of Dominant	Species	0.000/	
5 <u></u>		Total Cover		that are t	JDL, FACVV,	OF FAC.	0.00%	-(A/B)
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalen	ce Index W	orksheet		
1				Total % C	Cover of:			
2				OBL spec	cies (0 x 1 =	0	
3				FACW sp	becies (0 x 2 =	0	
4				FAC spec	cies (0 x 3 =	0	
5				FACU sp	ecies 10	00 x 4 =	400	-
	0 =	=Total Cover		UPL spec	cies (0 x 5 =	0	
Herb stratum (Plot size: 5' Radius)				Column t	otals 10	00 (A)	400	-(B)
1 Bromus inermis Smooth Brome	60	<u> </u>	FACU	Prevalen	ce Index = B	3/A =	4.00	-
2 Cirsium vuigare Buli I histie	20	<u> </u>	FACU	Hydroph	vtia Vagata	tion Indias	tore	
4 Medicado lunulina Rlack Medick	10		FACU	Rapic	test for hvo	drophytic ve	nors.	
5	10		17.00	Domi	nance test is	s >50%	gotation	
6				Preva	alence index	is ≤3.0*		
7				 Morp	hological ad	laptations*	(provide	
8				supp	orting data in	n Remarks	or on a	
9				sepa	rate sheet)			
10	100	Trial O		Probl	ematic hydr	ophytic veg	etation*	
Weedervice stratum (Districe 20' Dedius)	100 :	= I otal Cover		(expla	ain)			
(Piol size: 30 Radius)				*Indicators	s of hydric soil	and wetland h	ydrology r	nust be
2				Hvdr	ophytic		oblematic	
- <u></u> -	0 :	Total Cover		vege	tation			
				prese	ent?	Ν		
Remarks: (Include photo numbers here or on a separate sheet)								
		_						
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	Wetland Pl ional Wetland	ant List: Plant List, versic	on 2.4.0 (https://	wetland plan	ts.usace.armv	.mil). U.S. Arr	ny Corps o	of
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP,	Chapel Hill, N	C. (2016)	,,	
US Army Corps of Engineers						Midwe	st Regi	on

SOIL

	IVIALITA		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Тех	ture	Remarks
0-15	10YR 3/2	100					Sandy Loa	ım	
15-20	10YR 7/3	100					Sand		
				1					
ma: C = (L Concentration D -	I Doplativ	I DN - Doduco	d Motrix			I Croine	**!	an: DL – Dara Lining, M – Matrix
$\mu e_{\rm c} = 0$	Juncentration, D -	- Depietit	JII, RIVI – Reduce	u Maurx,	1013 - 1018	askeu 3a	anu Grains.	LUCau	blomatic Hydric Soils:
iyunc Sc ⊔io	tocol (A1)		So	dy Clay	od Motrix	(\$4)		et Drairia I	Podox (A16) (I PP K I P)
	tio Eninodon (A2)					(34)			$(\mathbf{C}_{\mathbf{C}})$ (LRR R, L, R)
	al Listis (A2)								(S7) (LRR R, L)
Bia	CK HISTIC (A3)		Stri	pped ivia	trix (56)		5 Cl		
-Hyo	drogen Sulfide (A4	•)	Loa	my Muci	ky Minera	al (F1)		-iviangane	se Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5)		Loa	imy Gley	ed Matrix	(F2)	Ver	y Shallow I	Dark Surface (TF12)
2 c	m Muck (A10)	o <i>i</i>		pieted Ma	atrix (F3)		Oth	er (explain	in remarks)
De	pleted Below Dark	Surface	(A11) Red	ox Dark	Surface	(+6)			
Thi	ck Dark Surface (A12)	De	pleted Da	irk Surfac	ce (F7)	*Indi	cators of h	ydrophytic vegetation and wetlar
Sa	ndy Mucky Minera	I (S1)	Rec	dox Depr	essions (F8)	hyd	rology mus	t be present, unless disturbed o
									problematic
strictive	Layer (if observe	ed):							
pe:							Hydri	c soil pres	ent? N
nth (inch	ac):								
pin (inch	=5).				_				
emarks:					<u> </u>				
marks:									
marks:	DGY				-				
marks: /DROL(etland Hy	DGY /drology Indicato	rs:							
Marks: (DROL) etland Hy mary Indi	DGY /drology Indicato	rs: of one is	required; check a	all that ap	- pply)			Secondary	Indicators (minimum of two requ
Marks: (DROL) etland Hy mary Indi Surface	DGY rdrology Indicato cators (minimum Water (A1)	rs: of one is	required; check a	all that ap	pply) Fauna (B	13)		Secondary	Indicators (minimum of two requires Soil Cracks (B6)
YDROL(Marks: YDROL(Sufface High Wa	DGY vdrology Indicato icators (minimum of Water (A1) ater Table (A2)	rs: of one is	required; check a	<u>all that ap</u> Aquatic True Aq	- pply) Fauna (B uatic Plan	13) its (B14)		Secondary Surfac	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10)
(DROL) (DROL) (tland Hy mary Indi Surface High Wa Saturati	DGY vdrology Indicato icators (minimum of Water (A1) ater Table (A2) on (A3)	rs: of one is	required; check a	all that ap Aquatic True Aq Hydroge	- pply) Fauna (B' uatic Plan m Sulfide	13) Its (B14) Odor (C	1)	Secondary Surfac Draina Dry-S	Indicators (minimum of two requires a constraint of the second se
The function of the function o	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1)	r s: of one is	required; check a	all that ap Aquatic True Aq Hydroge Oxidized	- Fauna (B ⁻ uatic Plan n Sulfide I Rhizospl	13) its (B14) Odor (C [.] heres on	1) Living Roots	Secondary Surfac Draina Dry-S Crayfi	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8)
The function of the function o	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)	r s: of one is	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3)	pply) Fauna (B ⁻ uatic Plan n Sulfide I Rhizospl	13) Its (B14) Odor (C ² heres on	1) Living Roots	Secondary Surfac Draina Dry-S Crayfi Satura	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9
The function of the function o	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)	rs: of one is	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presence	pply) Fauna (B [:] uatic Plan n Sulfide I Rhizospl e of Redu	13) Its (B14) Odor (C ⁻ heres on iced Iron	1) Living Roots (C4)	Secondary Surfac Draina Dry-S Crayfi Satura Sturte	Indicators (minimum of two requise ce Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (CS ed or Stressed Plants (D1)
The second secon	DGY rdrology Indicato vater (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) market (B5)	rs: of one is	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presence Recent I	pply) Fauna (B ⁻ uatic Plan in Sulfide I Rhizospl e of Redu ron Redu	13) Its (B14) Odor (C ⁷ heres on iced Iron ction in T	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Sturta Geom	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C8 ed or Stressed Plants (D1) iorphic Position (D2)
YDROL(etland Hy mary Indi Surface High Wa Saturati Water M Sedimen Drift De Algal Ma Iron Dep	DGY vdrology Indicato vdrology Indicato Vater (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aoria	rs: of one is	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) This Mu	pply) Fauna (B uatic Plan In Sulfide I Rhizospl e of Redu ron Redu	13) Its (B14) Odor (C ² heres on iced Iron ction in T	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9 ed or Stressed Plants (D1) iorphic Position (D2) Neutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturati Water M Sedimer Drift De Algal Ma Iron Dep Inundati	DGY drology Indicato vater (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria	rs: of one is	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu	pply) Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surface	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7)	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9 ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)
Contract of the second se	DGY rdrology Indicato icators (minimum of Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca	r s: of one is l Imagery ve Surfac	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge o	pply) Fauna (B ⁻ uatic Plan en Sulfide I Rhizospl I Rhizospl e of Redu ron Redu- ck Surfac- or Well Da	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7) Ita (D9) Remeter	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (CS ed or Stressed Plants (D1) rophic Position (D2) Neutral Test (D5)
The function of the function o	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9)	I Imagery ve Surfac	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presend Recent I (C6) Thin Mu Gauge o Other (E	pply) Fauna (B' uatic Plan in Sulfide I Rhizospl Rhizospl e of Redu ron Redu ron Redu ck Surfac or Well Da	13) tts (B14) Odor (C ⁻ heres on ction in T ction in T e (C7) tta (D9) Remarks	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C8 ed or Stressed Plants (D1) iorphic Position (D2) Neutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatii Water N Sedimen Drift De Algal Ma Iron Dep Inundati Sparsel Water-S	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca Stained Leaves (B9) rvations: or proceed?	I Imagery ve Surfac	required; check a	all that an Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E	pply) Fauna (B' uatic Plan in Sulfide I Rhizospl e of Redu ron Redu ck Surfact or Well Da ixplain in I	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7) ta (D9) Remarks	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (CS ed or Stressed Plants (D1) iorphic Position (D2) Neutral Test (D5)
Constant of the second se	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations: er present?	I Imagery ve Surfac	required; check a	all that an Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E	pply) Fauna (B' uatic Plan in Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfact or Well Da ixplain in I	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7) ita (D9) Remarks nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Satura Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9 ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturati Water M Sedimen Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsen Irface wat	DGY rdrology Indicato vater (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca stained Leaves (B9) rvations: er present? present?	I Imagery ve Surfac) Yes Yes	required; check a	Aquatic True Aq Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge c Other (E X	pply) Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfact or Well Da cxplain in I Depth (ii Depth (ii	13) Its (B14) Odor (C ⁻ heres on icced Iron ction in T e (C7) ita (D9) Remarks nches): nches): nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunta Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9 ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturati Water M Sedimen Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser inface wat ater table	DGY rdrology Indicato icators (minimum) Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations: er present? present? present? present?	I Imagery ve Surfac) Yes Yes Yes	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	pply) Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfact ck Surfact cr Well Da cxplain in I Depth (in Depth (in	13) Its (B14) Odor (C' heres on icced Iron ction in T e (C7) ita (D9) Remarks nches): nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requests age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C9 ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)
YDROLO etland Hy marks: YDROLO etland Hy mary Indi Surface High Wa Saturatii Water N Sedimen Drift Del Algal Ma Iron Dep Inundati Sparsely Water S etd Obset rface wat ater table turation p cludes ca	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations: er present? present? present? present? pillary fringe) corded data (strea	I Imagery ve Surfac) Yes Yes Yes Yes	required; check a	all that an Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E X X X	pply) Fauna (B' uatic Plan in Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfact ir Well Da ixplain in I Depth (ii Depth (ii Depth (ii	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7) ta (D9) Remarks nches): nches): nches): nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C4 ed or Stressed Plants (D1) iorphic Position (D2) Neutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturati Water M Sedimen Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsen ater table aturation p ncludes ca	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations: er present? present? present? present? pillary fringe) corded data (streaget)	I Imagery ve Surfac) Yes Yes Yes Yes	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X X X	pply) Fauna (B uatic Plan in Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfac or Well Da ck Surfac ir Well Da bepth (in Depth (in Depth (in Depth (in Depth (in	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7) ita (D9) Remarks inches): nches): nches): nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-I	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C8 ed or Stressed Plants (D1) iorphic Position (D2) Neutral Test (D5) Indicators of wetland hydrology present? N
YDROL(etland Hy imary Indi Surface High Wa Saturatii Water M Sedimen Drift Den Algal Ma Iron Dep Inundati Sparsen Water-S eld Obsen urface wat ater table aturation p cludes ca scribe rec	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations: er present? present? present? present? pillary fringe) corded data (streaged)	I Imagery ve Surfac) Yes Yes Yes am gauge	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X X X	pply) Fauna (B uatic Plan in Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfactor ixplain in I Depth (ii Depth (ii Depth (ii Depth (ii Depth (ii Depth (ii Depth (ii Depth (ii	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7) ita (D9) Remarks nches): nches): nches): nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunta Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (Cs ed or Stressed Plants (D1) iorphic Position (D2) Neutral Test (D5)
YDROLU etland Hy imary Indi Surface High Wa Saturati Water M Sedimen Drift Dej Algal Ma Iron Dep Inundati Sparsely Water-S eld Obset urface wat ater table aturation p cludes ca escribe rea	DGY rdrology Indicato icators (minimum Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations: er present? present	I Imagery ve Surfac) Yes Yes Yes am gauge	required; check a	all that ap Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X X aerial pl	pply) Fauna (B uatic Plan in Sulfide I Rhizospl e of Redu ron Redu ron Redu ck Surfact or Well Da ixplain in I Depth (ii Depth (ii Depth (ii Depth (ii Depth (ii Depth (ii Depth (ii	13) Its (B14) Odor (C ⁻ heres on iced Iron ction in T e (C7) ita (D9) Remarks nches): nches): nches): nches): nches): nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-1	Indicators (minimum of two requires Soil Cracks (B6) age Patterns (B10) eason Water Table (C2) sh Burrows (C8) ation Visible on Aerial Imagery (C4 ed or Stressed Plants (D1) orphic Position (D2) Neutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturati Water M Sedimen Drift De Algal Ma Iron Dep Inundati Sparsely Water-S eld Obsen Inface wat ater table ater table secribe receder	DGY vdrology Indicato vdrology Indicato vater (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca tained Leaves (B9) vations: er present? present? present? present? pillary fringe) corded data (streation of the precipitation of the precipita	I Imagery ve Surfac) Yes Yes Yes am gauge	required; check a	Aquatic True Aq Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E X X X aerial pl	pply) Fauna (B uatic Plan n Sulfide I Rhizospl e of Redu ron Redu ck Surfact or Well Da xplain in I Depth (in Depth	13) Its (B14) Odor (C' heres on iced Iron ction in T e (C7) tta (D9) Remarks nches): nches): nches): nches): nches): nches):	1) Living Roots (C4) Filled Soils	Secondary Surfac Draina Dry-S Crayfi Satura Stunte Geom FAC-t	Indicators (minimum of two requesses of the second

WETLAND DETERMIN	NATION D		/I - Midwes	st Region			
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mir	nnehaha Sa	ampling Date:	9/25/2018	
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota Sa	ampling Point:	4W	
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	ip, Range:	S33 T10	1N R49W	
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ave, convex, r	none):	Concave	
Slope (%): 1 Lat: 43° 30' 48.163" N		Long:	96° 42' 41.13	34" W D	atum: UTM N	IAD83 Zone 14N	
Soil Map Unit Name: Chaska loam, channeled			NWI	Classificatio	n:	None	
Are climatic/hydrologic conditions of the site typical for this time c	of the year?		N (I	lf no, explain i	in remarks)		
Are vegetation , soil , or hydrology	significantly	y disturbed?		Ar	e "normal circum	stances"	
Are vegetation , soil , or hydrology	naturally pr	roblematic?		7.1		present? Yes	
SUMMARY OF FINDINGS				(If needed,	explain any answ	vers in remarks.)	
Hydrophytic vegetation present? Y							
Hydric soil present? Y		Is the s	ampled area	a within a we	tland?	Y	
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	nd site ID:	Wetland 4		
Pemarks: (Evolution alternative precedures here or in a separate re	port)						
Sample Doint collected in Wetland 4	sport.)						
VEGETATION Use scientific names of plants.	AL 1.			Dominono	a Taat Warkaha		_
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Indicator Status	Dominance		et	
1		Opeoles	Olalus	Number of that are OF	Dominant Specie	s 2: 2 (A)	
2				Total Nu	under of Dominar	()	
3				Specie	s Across all Strata	a: 2 (B)	
4				Percent of	Dominant Specie	s	
5				that are OB	BL, FACW, or FAC	: <u>100.00%</u> (A/E	З)
	0 =	Total Cover					
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalence	e Index Worksho	et	
				Total % Co	ver of:	4 40	
2					$\frac{10}{x}$	1 = 10	
4				FAC specie	$\frac{1}{2}$ $\frac{1}$	$\frac{2}{3} = \frac{124}{60}$	
5				FACU spec	$\frac{20}{x^2}$	4 = 0	
	0 :	-Total Cover		UPL specie	es 10 x	5 = 50	
Herb stratum (Plot size: 5' Radius)				Column tot	als 102 (A	.) 244 (B)	
1 Echinochloa crus-galli Large Barnyard Grass	40	Y	FACW	Prevalence	Index = B/A =	2.39	
2 Persicaria lapathifolia Dock-Leaf Smartweed	20	Y	FACW				
3 Poa pratensis Kentucky Blue Grass	10	Ν	FAC	Hydrophyt	ic Vegetation In	dicators:	
4 Hordeum jubatum Fox-Tail Barley	10	N	FAC	X Rapid t	est for hydrophy	ic vegetation	
5 Typha angustifolia Narrow-Leaf Cat-Tail	10	<u>N</u>	OBL	X Domina	ance test is >50%	, D	
6 Silphium laciniatum Compass Plant	10	<u> </u>		X Prevale	ence index is ≤3.	^ _	
8	2		FACW	Morpho	ological adaptatio	ns* (provide	
9				separat	te sheet)	arks or on a	
10				Probler	natic hydrophytic	vegetation*	
	102 :	Total Cover		(explain	nado nya opnya n)	vogotatori	
Woody vine stratum (Plot size: 30' Radius)				*Indicators o	f hydric soil and wet	and hydrology must b	ne i
1				prese	ent, unless disturbed	or problematic	.0
2				Hydrop	ohytic		
	0 :	Total Cover		vegeta	tion ⊪t? ∨		
Remarks: (Include photo numbers here or on a separate sheet)				hiesell	iti î		_
Note: This data sheet has been adapted to use the 2016 National	Wotland D	ant Liet:					
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	ional Wetland	Plant List, versi	on 2.4.0 (https://	//wetland_plants.	usace.army.mil). U.S	S. Army Corps of	
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	v, Hanover, NH,	, and BONAP, C	hapel Hill, NC. (2016	<i>i)</i>	
US Army Corps of Engineers					Mie	Jwest Region	

Profile Des	cription: (Descri	ibe to th	e depth needed t	o docun	nent the	indicato	or or confirm th	ne absence	of indicators.)
Depth	Matrix		Rec	dox Featu	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	re	Remarks
0-8	10YR 3/1	100					Sandy Loam	1	
8-16	10YR 3/1	90	7.5YR 5/6	10	С	М	Sandy Loam)	
16-20	10VP 7/1	100	1101110/0	10	Ŭ		Sand	•	
10-20		100					Sanu		
+ T 0 0									
*Type: C = C	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	and Grains.	**Location	: PL = Pore Lining, M = Matrix
Hydric So	oil Indicators:		-			<i></i>	Indicators	s for Proble	ematic Hydric Soils:
His	tosol (A1)		San	idy Gleye	ed Matrix	(S4)	Coast	Prairie Red	dox (A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		San	idy Redo	x (S5)		Dark	Surface (S7	() (LRR K, L)
Bla	ck Histic (A3)		Stri	pped Ma	trix (S6)		5 cm	Mucky Peat	t or Peat (S3) (LRR K, L, R)
Hyc	drogen Sulfide (A4	4)	Loa	my Muck	ky Minera	al (F1)	Iron-N	langanese	Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loa	my Gley	ed Matrix	: (F2)	Very S	Shallow Dai	rk Surface (TF12)
2 cr	m Muck (A10)		Dep	leted Ma	atrix (F3)		Other	(explain in	remarks)
Dep	pleted Below Dark	Surface	(A11) <u>X</u> Rec	lox Dark	Surface	(F6)			
Thie	ck Dark Surface (A	A12)	Dep	leted Da	rk Surfac	ce (F7)	*Indica	tors of hydr	ophytic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	lox Depre	essions (F8)	hydro	logy must b	e present, unless disturbed or
									problematic
Restrictive	Laver (if observe	ed):							
Type:		,					Hvdric s	soil presen	t? Y
Depth (inche	es):				-			•	
(
Remarks:									
HYDROLO	DGY								
Wetland Hy	drology Indicato	ors:							
Primary Indi	cators (minimum	of one is	required: check a	ll that ap	(vla		Se	condary Ind	dicators (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B	13)		Surface S	Soil Cracks (B6)
High Wa	ter Table (A2)				uatic Plan	nts (B14)	_	Drainage	Patterns (B10)
X Saturatio	(A3)			Hydroge	n Sulfide	Odor (C1		Drv-Seas	son Water Table (C2)
Water M	larks (B1)			Oxidized	Rhizosp	heres on	Living Roots	Cravfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(C3)	11112000			Saturatio	n Visible on Aerial Imagery (C9)
Drift Der	(B3)			Presenc	e of Redu	iced Iron	(C4)	Stunted (or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	illed Soils	X Geomorr	blic Position (D2)
Iron Der	(B5)			(C6)	Ion Redu			X FAC-Nei	itral Test (D5)
Inundatio	on Visible on Aeria	l Imagerv	(B7)	Thin Mu	ck Surfac	e (C7)			
Sparsel	Vegetated Conca	ve Surfac	(,) ce (B8)	Gaude o	r Well Da	ata (D9)			
Water-S	tained Leaves (B9))		Other (F	xolain in	Remarks)		
Field Ober	vationa:	/				omuno	,	-	
Surface wet	valions.	Vaa	No	v	Dopth (i	nchoc);			
Water toble	nresent?	Vec		~ 	Depth (I	nches):		Inc	licators of wotland
Saturation n	present?	Vec		^	Depth (I	nches):		inc b	/drology present? ∨
(includes co	nillary fringe)	162			- Depui (I	10165).	0		
Describe rec	corded data (strea	im gauge	e, monitoring well,	aerial pr	notos, pre	evious in	spections), if av	allable:	
Domorkoj									
A mto a state	4	oor -!'''		tion of the	Vattant				
Anteceder	it precipitation of	conditio	ns were determ	nned "V	vetter ti	nan nor	mai" (Append	лх С).	
US Army C	orps of Engine	ers							ivildwest Region

WETLAND DETERMIN	NATION D	ATA FORI	M - Midwes	st Regior	า		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	ioux Falls/Mir	nnehaha	Sampling Date:	9/25/20	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	5U	
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	ip, Range:	S33 T1	01N R49W	
Landform (hillslope, terrace, etc.): backslope		Local	l relief (conca	ave, conve	k, none):	Concave	
Slope (%): 5 Lat: 43° 30' 44.339" N		Long:	96° 42' 40.12	26" W	Datum: UTM	NAD83 Zone	e 14N
Soil Map Unit Name: Water			NWI	Classifica	tion:	R2UBG	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		<u>N</u> (I	f no, expla	in in remarks)		
Are vegetation, soil, or hydrology	significantl	y disturbed?			Are "normal circu	mstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present?	Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any ans	wers in rem	arks.)
Hydrophytic vegetation present? Y							
Hydric soil present? N		Is the s	ampled area	a within a	wetland?	Ν	
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected adjacent to Wetland 5.							
VEGETATION Use scientific names of plants.							
	Absolute	Dominant	Indicator	Domina	nce Test Worksh	eet	
<u>Tree Stratum</u> (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Speci	es	
1				that are	OBL, FACW, or FA	.C: 2	(A)
2				Total	Number of Domina	ant	
3				Spec	cies Across all Stra	ta: 3	(B)
4				Percent	of Dominant Speci	es	
5		-Total Covo		that are	OBL, FACVV, OF FA	.C: 66.67%	(A/B)
Sanling/Shrub stratun (Plot size: 15' Radius)	0		I	Prevaler	nce Index Works	neet	
1				Total %	Cover of:		
2				OBL spe	cies 0 x	(1= 0	
3				FACW s	pecies 20 x	(2 = 40	
4				FAC spe	ecies 20 x	3 = 60	
5				FACU sp	pecies <u>60</u> ×	4 = 240)
	0	=Total Cove	r	UPL spe	cies <u>0</u> x	5 = 0	
<u>Herb stratum</u> (Plot size: <u>5' Radius</u>)				Column	totals <u>100</u> (A) <u>340</u>) (B)
1 Ribes americanum Wild Black Currant	20	<u>Y</u>	FACW	Prevalen	ice Index = B/A =	3.40	_
2 Solidago altissima Tall Goldenrod	20	Y	FACU	Lludroph	via Vagatation I	ndiactora	
Glechoma bederacea Groundivy	15	N	FACU	Rapi	d test for hydrophy	vtic venetatic	an
5 Erigeron annuus Eastern Daisy Fleabane	15	N	FACU	X Dom	inance test is >50	%	211
6 Parthenocissus quinquefolia Virginia-Creeper	10	N	FACU	Prev	alence index is ≤3	5.0*	
7				Morr	hological adaptati	ions* (nrovid	<u>م</u>
8				supp	orting data in Ren	narks or on a	a
9				sepa	arate sheet)		
10				Prob	lematic hydrophyt	ic vegetation	ז*
We desire destance (Distribute 200 Destine)	100	=Total Cove	r	(exp	lain)		
<u>vvoody vine stratum</u> (Plot size: <u>30' Radius</u>)				*Indicator	rs of hydric soil and we	tland hydrology	/ must be
2				Pi Hvd	rophytic	d or problemati	ic
	0	=Total Cove	r	vege	etation		
	-			pres	sent? Y		
Remarks: (Include photo numbers here or on a separate sheet)							
Note: This data sheet has been adapted to use the 2016 National Robert W. Lichuar and John T. Kartesz, 2009, North American Digital Flore: Not	Wetland Pl	lant List:	ion 2 4 0 (https://	//wetland_pla	nts usace army mil)	IS Army Corps	s of
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Engine	ering Laborator	y, Hanover, NH,	, and BONAP	P, Chapel Hill, NC. (20	16)	
US Army Corps of Engineers					M	idwest Rec	gion

SOIL

•	IVIALITA		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-8	10YR 2/2	100					Silty Loam		
8-18	10YR 3/3	60	10YR 4/4	40	С	М	Sandy Loa	m	
							, ,		
vne: C = (Concentration D =	- Depleti	n RM = Reduce	d Matrix	MS – M	asked Sa	and Grains	**Locatio	n: PL = Pore Lining M = Matrix
Hydric Sc	vil Indicators:	- Depietit		u maurix,		askeu Oa	Indicato	rs for Prob	lematic Hydric Soils:
Hie	t_{0} (A1)		Sar	dy Glave	ad Matrix	(\$4)	Coa	st Prairie R	edox (A16) (IRR K I R)
	tic Eninodon $(\Lambda 2)$				50 Matrix 17 (95)	(04)		k Surface (S	
	ck Histic (A3)			inped Ma	triv (SG)		5 cr	n Mucky Po	at or Peat (S3) (IRR K I R)
	uk Histic (AS) Aragon Sulfido (AA	I)			uix (30) av Minore	J (⊑1)		-Manganes	$M_{22202} (E12) (IPP K I P)$
	atified Lovers (AF)	•)	L0a			גו (ד1) ע (דס)			$\frac{1}{2} \operatorname{Im}(\mathbf{L} \mathbf{K} \mathbf{K}, \mathbf{L}, \mathbf{K})$
	m Muck (A10)	1		any Gley	eu mali) atriv (E2)	× (i ∠)		y Shallow Di or (ovoloin i	$\frac{1}{1} = \frac{1}{1}$
2 CI	ni iviuck (ATU)	Surface			Surface		0m	ei (exhiaiti li	n ieiliains)
	ok Dark Surfaga (Sunace	(FO) 00 (EZ)	±1 P		
	ck Dark Surface (A	ATZ)			irk Suria		*India	cators of hyd	drophytic vegetation and wetlan
Sar	idy Mucky Minera	1(51)		Jox Depr	essions ((F8)	nya	rology must	be present, unless disturbed of
									problematic
strictive	Layer (if observe	ed):							
pe:					_		Hydrid	soil prese	nt? N
pth (inche	es):				_				
emarks:									
						L			
YDROLO	DGY	rs:							
YDROL(etland Hy	DGY rdrology Indicato	rs:	required: check a		nlv)			Secondary	odicators (minimum of two requ
YDROL(etland Hy imary Indi	DGY rdrology Indicato cators (minimum (rs: of one is	required; check a	all that ap	pply) Fauna (B	13)	<u>.</u>	Secondary II	ndicators (minimum of two requ
YDROL(etland Hy imary Indi Surface Hint Wa	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2)	rs: of one is	required; check a	all that ap Aquatic	oply) Fauna (B	13) 135 (B14)	<u>.</u>	Secondary II Surface	ndicators (minimum of two requests Soil Cracks (B6)
YDROLO etland Hy imary Indi Surface High Wa Saturati	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3)	r s: of one is	required; check a	all that ap Aquatic True Aq	pply) Fauna (B uatic Plar n Sulfide	13) nts (B14) Odor (C2	<u></u>	Secondary II Surface Drainag	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2)
YDROL(etland Hy imary Indi Surface High Wa Saturatio Water M	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1)	rs: of one is	required; check a	all that ap Aquatic True Aq Hydroge	pply) Fauna (B uatic Plar n Sulfide	13) hts (B14) Odor (C ²	1)	Secondary II Surface Drainag Dry-Sea	ndicators (minimum of two requ e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2)
YDROL(etland Hy imary Indi Surface High Wa Saturatic Water M Sedimer	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) of Denosits (B2)	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3)	p <u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp	13) hts (B14) Odor (C ² heres on	1) Living Roots	Secondary II Surface Drainag Dry-Se Crayfis Saturat	ndicators (minimum of two requests Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8)
YDROL(etland Hy imary Indi Surface High Wa Saturatic Water M Sedimer Drift Der	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3)	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3)	p <u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp e of Redi	13) hts (B14) Odor (C ² heres on	1) Living Roots	Secondary II Surface Drainag Dry-Sea Crayfis Saturat	ndicators (minimum of two reque Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9
YDROL(etland Hy imary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu	13) hts (B14) Odor (C ⁷ heres on uced Iron	1) Living Roots (C4) Tilled Soils	Secondary II Surface Drainag Dry-Sea Crayfisl Saturat Stunteg Geomo	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) robic Position (D2)
YDROL(etland Hy imary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5)	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6)	pply) Fauna (B uatic Plar In Sulfide I Rhizosp e of Redu ron Redu	13) hts (B14) Odor (C ² heres on uced Iron uction in T	1) Living Roots (C4) Tilled Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stunteo Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROL(etland Hy imary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu	p <u>ply)</u> Fauna (B uatic Plar In Sulfide I Rhizosp e of Redu ron Redu ck Surfac	13) nts (B14) Odor (C ² heres on uced Iron uction in T	1) Living Roots (C4) Tilled Soils	Secondary II Surface Drainag Dry-Sea Crayfis Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Vater M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca	rs: of one is I Imagery ve Surfac	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o	pply) Fauna (B uatic Plar In Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da	13) hts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9)	1) Living Roots (C4) Filled Soils	Secondary II Surface Drainag Dry-Sea Crayfis Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9)	I Imagery ve Surfac	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E	pply) Fauna (B uatic Plar I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in	13) hts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9) Remarks	1) Living Roots (C4) Filled Soils	Secondary II Surface Drainag Dry-Sea Crayfisl Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reque e Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatid Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations:	I Imagery ve Surfac	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E	p <u>ply)</u> Fauna (B uatic Plar In Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da xplain in	13) hts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9) Remarks	1) Living Roots (C4) Filled Soils	Secondary II Surface Drainag Dry-Sea Crayfisl Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reque Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) larks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present?	I Imagery ve Surfac	required; check a	all that ap Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in	13) hts (B14) Odor (C ² heres on uced Iron uced Iron iction in T e (C7) ata (D9) Remarks inches):	1) Living Roots (C4) Filled Soils	Secondary II Surface Drainag Dry-Se Crayfis Saturat Stuntec Geomo FAC-Ne	ndicators (minimum of two reque Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatic Water M Sedimer Drift Dep Inundati Sparsely Water-S eld Obser urface wat	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca stained Leaves (B9) vations: er present? present?	I Imagery ve Surfac) Yes Yes	required; check a	All that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc (C6) Thin Mu Gauge o Other (E X	pply) Fauna (B uatic Plar In Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da cxplain in Depth (i	13) hts (B14) Odor (C ⁷ heres on uced Iron uced Iron iction in T æ (C7) ata (D9) Remarks inches): inches):	1) Living Roots (C4) Filled Soils	Secondary II Surface Drainag Dry-Sea Crayfis Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat ater table	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present?	I Imagery ve Surfac) Yes Yes Yes	required; check a	Aquatic True Aquatic True Aqu Hydroge Oxidizec (C3) Presenc (C6) Thin Mut Gauge o Other (E X	pply) Fauna (B uatic Plar In Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uction in T æ (C7) ata (D9) Remarks inches): inches):	1) Living Roots (C4) Filled Soils	Secondary II Surface Drainag Dry-Sea Crayfis Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat ater table aturation p ncludes ca	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? pillary fringe)	I Imagery ve Surfac) Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X	pply) Fauna (B uatic Plar en Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da cxplain in Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches):	1) Living Roots (C4) Tilled Soils	Secondary II Surface Drainag Dry-Sea Crayfis Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Water N Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat ater table aturation p ncludes ca	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) oosits (B3) at or Crust (B4) oosits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? present? pillary fringe) corded data (strea	I Imagery ve Surfac) Yes Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	p <u>ply)</u> Fauna (B uatic Plar In Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uction in T ata (D9) Remarks inches): inches): inches): evious in	1) Living Roots (C4) Filled Soils) 0 0	Secondary II Surface Drainag Dry-Sea Crayfisl Saturat Stuntec Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturation Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface water tater table aturation p ncludes ca escribe rec	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? present? pillary fringe) corded data (streated)	I Imagery ve Surfac Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i notos, pre	13) hts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches): evious in	1) Living Roots (C4) Tilled Soils) 0 spections), if	Secondary II Surface Drainag Dry-Sea Crayfis Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? present? pillary fringe) corded data (streat	I Imagery ve Surfac) Yes Yes Yes im gauge	required; check a	Aquatic True Aquatic True Aquatic True Aquatic Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uced Iron iction in T e (C7) ata (D9) Remarks inches): inches): inches): evious in	1) Living Roots (C4) Tilled Soils) 0 spections), if	Secondary II Surface Drainag Dry-Sea Crayfisl Saturat Stunted Geomo FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat ater table aturation p icludes ca escribe rec	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present	I Imagery ve Surfac) Yes Yes Yes im gauge	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X x	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9) Remarks inches): inches): inches): evious in han nor	1) Living Roots (C4) Tilled Soils) 	Secondary II Surface Drainag Dry-Sea Crayfisl Saturat Stunted Geomo FAC-Ne FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Water N Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser aturation p ncludes ca escribe rec	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? present? pillary fringe) corded data (streat th precipitation of	I Imagery ve Surfac) Yes Yes Yes im gauge	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X x	pply) Fauna (B uatic Plar on Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i Depth (i Depth (i Notos, pro	13) hts (B14) Odor (C ² heres on uced Iron uction in T ata (D9) Remarks inches): inches): inches): evious in han nor	1) Living Roots (C4) Tilled Soils) 	Secondary II Surface Drainag Dry-Sea Crayfisl Saturat Stuntec Geomo FAC-Ne FAC-Ne	ndicators (minimum of two requests Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (CS d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)
YDROLO etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser aturation p acludes ca escribe rec emarks: nteceder	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? pillary fringe) corded data (streation of the precipitation of the p	I Imagery ve Surfac) Yes Yes Yes am gauge	required; check a	Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	p <u>ply)</u> Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks inches): inches): inches): evious in han nor	1) Living Roots (C4) Tilled Soils) 	Secondary II Surface Drainag Dry-Sea Crayfis Saturat Stunted Geomo FAC-Ne FAC-Ne	ndicators (minimum of two reques Soil Cracks (B6) ge Patterns (B10) ason Water Table (C2) h Burrows (C8) ion Visible on Aerial Imagery (C9 d or Stressed Plants (D1) rphic Position (D2) eutral Test (D5)

WETLAND DETERMIN	NATION D	ATA FORM	/I - Midwes	st Regior	า	
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mir	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Point:	5W
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	ip, Range:	S33 T ²	01N R49W
Landform (hillslope, terrace, etc.): footslope		Local	relief (conca	ive, conve	k, none):	Concave
Slope (%): 2 Lat: 43° 30' 44.110" N		Long:	96° 42' 40.30	09" W	Datum: UTM	NAD83 Zone 14N
Soil Map Unit Name: Water			NWI	Classifica	tion:	R2UBG
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (l	f no, explai	in in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circu	umstances"
Are vegetation , soil , or hydrology	naturally pr	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any an	swers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	ampled area	within a	wetland?	Y
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	nd site ID:	Wetland 5	; ;
Remarks: (Explain alternative procedures here or in a separate re	eport.)					
Sample Point collected in Wetland 5.	-1 /					
VEGETATION Use scientific names of plants						
	Absolute	Dominant	Indicator	Domina	nce Test Worksl	neet
<u>Tree Stratum</u> (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Spec	ties
1 '		-		that are	OBL, FACW, or F	AC: 1 (A)
2				Total	Number of Domin	ant
3				Spec	cies Across all Stra	ata: <u>1</u> (B)
4				Percent	of Dominant Spec	ies
5		Tatal Cause		that are	OBL, FACW, or FA	AC: <u>100.00%</u> (A/B)
Sapling/Shrub stratun (Plot size: 15' Padius)		= I otal Cover		Provalor	aco Indox Works	boot
1				Total %	Cover of:	neet
2				OBL spe	cies 0	x 1 = 0
3				FACW s	pecies 85	x 2 = 170
4				FAC spe	cies 0	x 3 = 0
5				FACU sp	becies 15	x 4 = 60
	0	Total Cover		UPL spe	cies 0	x 5 = 0
Herb stratum (Plot size: 5' Radius)				Column	totals 100	(A) <u>230</u> (B)
1 Phalaris arundinacea Reed Canary Grass	60	Y	FACW	Prevalen	ice Index = B/A =	2.30
2 Solidago altissima Tall Goldenrod	15	<u>N</u>	FACU			
3 Urtica dioica Stinging Nettle	15	<u> </u>	FACW	Hydroph	nytic Vegetation	Indicators:
4 Persicaria iapatnirolia Dock-Lear Smartweed	10	<u>N</u>	FACW		a test for hydropr	
5 <u></u>					alence index is <	J% 3 0*
7				<u> </u>		5.0
8				supp	onological adapta porting data in Re	aons" (provide marks or on a
9				sepa	rate sheet)	
10				Prob	lematic hydrophy	tic vegetation*
	100 :	=Total Cover		(expl	lain)	
<u>Woody vine stratum</u> (Plot size: <u>30' Radius</u>) 1				*Indicator pr	rs of hydric soil and w resent, unless disturb	etland hydrology must be ed or problematic
2				Hydi	rophytic	
	0 :	Total Cover		vege	etation	,
Remarks: (Include photo numbers here or on a separate sheet)				pres	SIL: Y	
, , , , , , , , , , , , , , , , , , ,						
Note: This data sheet has been adapted to use the 2016 Nationa	Wetland Pl	ant List.				
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	tional Wetland	Plant List, versio	on 2.4.0 (https://	/wetland_plai	nts.usace.army.mil).	J.S. Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Resear	ch and Enginee	ering Laboratory	v, Hanover, NH,	and BONAP	P, Chapel Hill, NC. (20	116)

Profile Des	cription: (Descri	be to th	e depth needed t	o docun	nent the	indicato	or or confirm th	he absence o	f indicators.)
Depth	Matrix		Red	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	ire	Remarks
0-12	10YR 2/2	95	10YR 5/6	5	С	М	Silty Loam		
12-20	10YR 5/1	80	7.5YR 5/6	15	С	М	Silty Loam		
			10YR 5/8	5	С	М	,		
			10111 0,0	Ŭ	Ű				
$T_{\rm resc} = 0$	l Concentration D -	L Developii	I an DM – Daduaa	d Matrix			I Croine	**Lecotion: [D - Deve Lining M - Metrix
Type. C = C	Joncentration, D =	- Depieti	on, Rivi = Reduce	a matrix,	NS = NS	asked Sa	and Grains.	Location. F	C = Pore Lining, M = Mainx
Hydric So			0		M.a.t	(04)	Indicator		Matic Hydric Solis:
HIS			Sar	idy Gleye	ed iviatrix	(54)		t Prairie Redo	(A16) (LRR K, L, R)
His	tic Epipedon (A2)		Sar	idy Redo	x (S5)		Dark	Surface (S7)	
Bla	ck Histic (A3)		Stri	pped Ma	trix (S6)		5 cm	Mucky Peat o	or Peat (S3) (LRR K, L, R)
Hyo	drogen Sulfide (A4	ł)	Loa	my Mucł	ky Minera	al (F1)	Iron-N	Manganese M	asses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loa	my Gley	ed Matrix	(F2)	Very	Shallow Dark	Surface (TF12)
2 ci	m Muck (A10)		Dep	pleted Ma	atrix (F3)		Other	r (explain in re	marks)
X Dep	oleted Below Dark	Surface	(A11) X Rec	lox Dark	Surface	(F6)			
Thi	ck Dark Surface (A	A12)	Dep	oleted Da	ark Surfac	ce (F7)	*Indica	ators of hydrop	phytic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	lox Depr	essions ((F8)	hydro	logy must be	present, unless disturbed or
								р	roblematic
Restrictive	Laver (if observe	ed):							
Type:							Hydric	soil present?	Y
Denth (inche	<i>sc).</i>				-		inganie		<u> </u>
					-				
Remarks:									
HYDROLO	DGY								
Wetland Hy	drology Indicato	rs:					_		
Primary Indi	cators (minimum o	of one is	required; check a	all that ap	<u>oply)</u>		<u>Se</u>	econdary Indic	ators (minimum of two require
Surface	Water (A1)			Aquatic	Fauna (B	13)		Surface So	il Cracks (B6)
High Wa	ater Table (A2)			True Aq	uatic Plar	nts (B14)		Drainage P	Patterns (B10)
X Saturation	on (A3)			Hydroge	en Sulfide	Odor (C	1)	Dry-Seaso	n Water Table (C2)
Water N	larks (B1)			Oxidized	l Rhizosp	heres on	Living Roots	Crayfish Bu	urrows (C8)
Sedimer	nt Deposits (B2)			(C3)				Saturation	Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)			Presenc	e of Redu	uced Iron	(C4)	Stunted or	Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	Filled Soils	X Geomorphi	ic Position (D2)
Iron Dep	oosits (B5)			(C6)				X FAC-Neutra	al Test (D5)
Inundati	on Visible on Aeria	I Imagery	/ (B7)	Thin Mu	ck Surfac	e (C7)			
Sparsely	Vegetated Conca	ve Surfac	ce (B8)	Gauge c	or Well Da	ata (D9)			
Water-S	tained Leaves (B9))		Other (E	xplain in	Remarks	5)		
Field Obser	vations:								
Surface wat	er present?	Yes	No	Х	Depth (i	nches):			
Water table	present?	Yes	No	Х	Depth (i	nches):		Indic	cators of wetland
Saturation p	resent?	Yes	X No		Depth (i	nches):	0	hyd	rology present? Y
(includes ca	pillary fringe)				-				
Describe rea	corded data (strea	ım gauge	e, monitoring well,	aerial pl	notos, pre	evious in	spections), if av	vailable:	
Domorko									
Antono de la	torocipitation	oon diti -	no woro data	nined "	Notton	hon nor	mol" (Annes		
Anteceder	it precipitation (Jonaltio	ns were detern	inned "V	vetter ti	nan nor	mai (Append	ux U).	
IS Army C	orns of Engine	ors							Midwost Pogion
ла кину б	orps or Enginee	513							IVIIUWEST REGIUIT

WETLAND DETERMIN	IATION D	ATA FORM	/I - Midwes	st Regior	า		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mir	nnehaha	Sampling Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	6U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:	S28 T	101N R49W	
Landform (hillslope, terrace, etc.): footslope		Local	relief (conca	ave, convex	(, none):	Concave	
Slope (%): 3 Lat: 43° 30' 59.644" N		Long:	96° 42' 42.50	06" W	Datum: UTM	I NAD83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NWI	Classificat	tion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	f the year?		N (I	lf no, explai	n in remarks)		
Are vegetation, soil, or hydrology	significantly	y disturbed?			Are "normal circu	umstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present?	Yes
SUMMARY OF FINDINGS				(If neede	d, explain any ar	swers in rema	arks.)
Hydrophytic vegetation present? Y							
Hydric soil present? N		Is the sa	ampled area	a within a v	wetland?	Ν	
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or in a separate re	port.)						
Sample Point collected adjacent to Wetland 6.	1 - 7						
VEGETATION Use scientific names of plants							
	Absolute	Dominant	Indicator	Dominar	nce Test Works	neet	
<u>Tree Stratum</u> (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Spec	cies	
1				that are (OBL, FACW, or F	AC: 2	(A)
2				Total	Number of Domin	nant	_
3				Spec	cies Across all Stra	ata: 3	(B)
4				Percent	of Dominant Spec	cies	(
5		Tatal Cause		that are 0	OBL, FACW, or F.	AC: 66.67%	_(A/B)
Sopling/Shruh stratun (Plot size: 15' Padius)	0	= I otal Cover		Broyalor	a Indax Warks	haat	
1				Total % (Cover of:	ineel	
2				OBL spe	cies 0	x1= 0	
3				FACW s	pecies 0	$x^2 = 0$	-
4				FAC spe	cies 55	x 3 = 165	_
5				FACU sp	oecies 40	x 4 = 160	
	0	=Total Cover		UPL spe	cies 5	x 5 = 25	_
Herb stratum (Plot size: 5' Radius)				Column t	totals 100	(A) 350	(B)
1 Ambrosia artemisiifolia Annual Ragweed	40	Y	FACU	Prevalen	ce Index = B/A =	3.50	_
2 Setaria pumila Yellow Bristle Grass	35	<u>Y</u>	FAC				
3 Panicum Virgatum Wand Panic Grass	20	Y	FAC	Hydroph	iytic Vegetation	Indicators:	
4 Physans virginiana virginia Ground Cherry	5		UPL		inance test is 50		n
6				Prev	alence index is ≤	3.0*	
7				Morn		tions* (provide	
8				supp	orting data in Re	marks or on a	,
9				sepa	rate sheet)		
10				Prob	lematic hydrophy	rtic vegetation	k
	100 =	=Total Cover		(expl	ain)		
<u>Woody vine stratum</u> (Plot size: <u>30' Radius</u>)				*Indicator	s of hydric soil and w	etland hydrology	must be
				pr Uvdr	esent, unless disturb	ed or problemation	;
Z		-Total Cover		veae	etation		
	0 :			pres	ent?	/	
Remarks: (Include photo numbers here or on a separate sheet)							
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List:	o				
Robert W. Lichvar and John I. Kartesz. 2009. North American Digital Flora: Nati Engineers, Engineer Research and Development Center, Cold Regions Researc	onal Wetland I h and Enginee	Plant List, versio ering Laboratory	on 2.4.0 (https:/ /, Hanover, NH,	//wetland_plar , and BONAP	nts.usace.army.mil). , Chapel Hill, NC. (20	U.S. Army Corps 016)	of
US Army Corps of Engineers					N	1idwest Rea	ion

SOIL

Profile Dese	cription: (Descri	be to the	e depth needed t	o docun	nent the i	ndicato	or or confirm	the absence	e of indicators.)
Depth	Matrix		Re	dox Featu	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-12	10YR 3/1	100					Sandy Loa	ım	
12-20	10YR 3/2	100					Sandy Loa	m with rocks	
12 20	10111 0/2	100							
					╞───╂		<u> </u>		
*Type: C = C	Concentration, D =	Depletio	on, RM = Reduce	d Matrix,	MS = Ma	sked Sa	and Grains.	**Location	: PL = Pore Lining, M = Matrix
Hydric So	il Indicators:						Indicato	ors for Proble	ematic Hydric Soils:
Hist	tosol (A1)		Sar	idy Gleye	ed Matrix ((S4)	Coa	ast Prairie Re	dox (A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		Sar	dy Redo	x (S5)	. ,	Dar	k Surface (S7	7) (LRR K, L)
Blac	ck Histic (A3)		Stri	pped Mat	trix (S6)		5 cr	n Mucky Pea	t or Peat (S3) (LRR K, L, R)
	drogen Sulfide (A4	.)	Loa	my Muck	v Mineral	(F1)	Iron	-Manganese	Masses (F12) (LRR K. L. R)
Str:	atified Lavers (A5)	1	L 02	my Gleve	ed Matrix	(F2)	Ver	v Shallow Da	rk Surface (TF12)
	m Muck (A10)		 	leted Ma	atrix (F3)	· -/		er (explain in	remarks)
2 Ci Der	leted Relow Dark	Surface	(A11) Rec	lox Dark	Surface (I	F6)			
	ck Dark Surface (0011200 12)			rk Surface (i) (E7)	*!		
	dy Mucky Minoro	-1 <i>2)</i> 1 (91)		lov Dopr	no Sunace	= (1 /) = 0\	"India	cators of hydr	opnytic vegetation and wetland
Sar	idy Mucky Minera	(31)			25510115 (F	-0)	nya	rology must b	e present, unless disturbed or
									problematic
Restrictive	Layer (if observe	ed):							
Туре:							Hydrid	c soil presen	t? N
Depth (inche	es):								
Deserved									
Remarks.									
HYDROLO	DGY								
Wetland Hy	drology Indicato	rs:							
Primary Indi	cators (minimum o	of one is	required; check a	II that ap	ply)		<u>.</u>	Secondary Ind	dicators (minimum of two required
Surface	Water (A1)			Aquatic I	Fauna (B1	3)		Surface	Soil Cracks (B6)
High Wa	ater Table (A2)			True Aqu	uatic Plant	s (B14)		Drainage	Patterns (B10)
Saturatio	on (A3)			Hydroge	n Sulfide (Ddor (C1	1)	Dry-Seas	son Water Table (C2)
Water M	larks (B1)			Oxidized	l Rhizosph	eres on	Living Roots	Crayfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(C3)			0	Saturatio	on Visible on Aerial Imagery (C9)
Drift Dep	posits (B3)			Presence	e of Reduc	ced Iron	(C4)	Stunted	or Stressed Plants (D1)
 Algal Ma	at or Crust (B4)			Recent I	ron Reduc	tion in T	Tilled Soils	X Geomor	phic Position (D2)
Iron Dep	osits (B5)			(C6)				FAC-Neu	utral Test (D5)
Inundati	on Visible on Aeria	I Imagery	(B7)	Thin Mu	ck Surface	(C7)			
Sparsely	Vegetated Conca	ve Surfac	e (B8)	Gauge o	r Well Dat	a (D9)			
'	tained Leaves (B9)			Other (E	xplain in R	Remarks)		
Water-S				- _	•		,		
Water-S	vations								
Water-S Field Obser	vations:	Vac	No	x	Denth (in	ches).			
Water-S Field Obser Surface wate	vations: er present?	Yes	No	X	Depth (in	iches):		In	licators of wotland
Water-S Field Obser Surface wate Water table Saturation p	rvations: er present? present? resent?	Yes Yes Ves	No No	X X X	Depth (in Depth (in	iches): iches):		Inc	dicators of wetland
Water-S Field Obser Surface water Water table Saturation p	rvations: er present? present? resent? pillary fringe)	Yes Yes Yes	No No No	X X X	Depth (in Depth (in Depth (in	iches): iches): iches):		ind h	dicators of wetland ydrology present?N
Water-S Field Obser Surface wate Water table Saturation p (includes ca	er present? present? resent? pillary fringe)	Yes Yes Yes	No No No	X X X	Depth (in Depth (in Depth (in	iches): iches): iches):		ind hy	dicators of wetland ydrology present? N
Water-S Field Obser Surface wate Water table Saturation p (includes ca Describe rec	vations: er present? present? resent? pillary fringe) corded data (strea	Yes Yes Yes m gauge	No No No	X X X aerial ph	Depth (in Depth (in Depth (in notos, prev	iches): iches): iches): vious in:	spections), if	Ind h available:	dicators of wetland ydrology present? N
Water-S Field Obser Surface wate Water table Saturation p (includes ca Describe rec Remarks:	vations: er present? present? resent? pillary fringe) corded data (strea	Yes Yes Yes m gauge	No No No	X X X aerial ph	Depth (in Depth (in Depth (in notos, prev	iches): iches): iches): vious in	spections), if	Ind h available:	dicators of wetland ydrology present? <u>N</u>
Water-S Field Obser Surface wate Water table Saturation p (includes ca Describe rec Remarks:	er present? present? resent? pillary fringe) corded data (strea	Yes Yes Yes m gauge	ms were determ	X X aerial ph	Depth (in Depth (in Depth (in notos, prev	iches): iches): iches): vious in:	spections), if	available:	dicators of wetland ydrology present? <u>N</u>
Water-S Field Obser Surface wate Water table Saturation p (includes ca Describe rec Remarks: Anteceder	er present? present? resent? pillary fringe) corded data (strea	Yes Yes Yes m gauge	ms were detern	X X aerial ph	Depth (in Depth (in Depth (in notos, prev	iches): iches): iches): vious in: an nor	spections), if	available:	dicators of wetland ydrology present? <u>N</u>
Water-S Field Obser Surface wate Water table Saturation p (includes ca Describe rec Remarks: Anteceder	er present? present? resent? pillary fringe) corded data (strea	Yes Yes Yes m gauge	ms were detern	X X aerial ph nined "V	Depth (in Depth (in Depth (in notos, prev	iches): iches): iches): vious in an nor	spections), if	available:	dicators of wetland ydrology present? <u>N</u>

WETLAND DETERMIN	NATION D	ATA FORM	/I - Midwes	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mir	nnehaha Sa	ampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota Sa	mpling Point:	6W
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	ip, Range:	S28 T10	1N R49W
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ive, convex, n	one):	Concave
Slope (%): 1 Lat: 43° 30' 59.359" N		Long:	96° 42' 42.84	47" W 🛛 Da	atum: UTM N	AD83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NWI	Classification	ו:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (li	f no, explain i	n remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?		Ar	e "normal circum	istances"
Are vegetation , soil , or hydrology	naturally pr	oblematic?		7.03		present? Yes
SUMMARY OF FINDINGS				(If needed,	explain any ansv	vers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	ampled area	within a we	tland?	Y
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetla	nd site ID:	Wetland 6	
Remarks: (Explain alternative procedures here or in a separate re	eport)					
Sample Point collected in Watland 6	epon.)					
VEGETATION Use scientific names of plants.	Abaalata		L. P. d.	Dominance	Tost Worksho	ot
Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species	Status	Number of		
1	/0 00101	opeoloo	Olaldo	that are OB	L. FACW. or FAC	s 2: 1 (A)
2				Total Nu	imber of Dominar	(· ·)
3				Species	Across all Strata	a: 1 (B)
4				Percent of	Dominant Specie	s
5				that are OB	L, FACW, or FAC	: 100.00% (A/B)
	0 =	Total Cover				
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalence	Index Workshe	eet
1				Total % Cov	ver of:	
2					$\frac{100}{x^2}$	1 = 0
3 <u></u>				FAC specie	$\frac{100}{x}$	2 = 200
5				FACU specie	$\frac{0}{100} \times \frac{1}{100} \times \frac{1}$	4 = 0
	0 =	Total Cover		UPL specie	s <u>0</u> x	$\overline{b} = 0$
Herb stratum (Plot size: 5' Radius)				Column tota	als 100 (A) <u>200</u> (B)
1 Phalaris arundinacea Reed Canary Grass	100	Y	FACW	Prevalence	Index = B/A =	2.00
2						
3				Hydrophyti	ic Vegetation In	dicators:
4				X Rapid te	est for hydrophyt	ic vegetation
5				X Domina	ince test is >50%	, D
6				X Prevale	nce index is ≤3.0)*
7				Morpho	logical adaptatio	ns* (provide
8				support	ing data in Rema	arks or on a
9 <u></u> 10				Broblen	e sheet) natia hydranhytic	vogototion*
··	100 =	- Total Cover		(explain	natic nyurophytic i)	vegetation
Woody vine stratum (Plot size: 30' Radius)				*Indicators of	' f hydria cail and wat	and hydrology must be
1				prese	ent, unless disturbed	or problematic
2				Hydrop	ohytic	
	0	Total Cover		vegetat	tion	
Remarks: (Include photo numbers here or on a separate sheet)				presen	tr Y	
Nate: This data shast has been edented to use the 2010 M st	Motor	ant list				
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	tional Wetland P	ant LISt: Plant List, versid	on 2.4.0 (https://	/wetland_plants.	usace.army.mil). U.S	5. Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP, Cl	hapel Hill, NC. (2016	6)

Midwest Region

SOIL

Profile Desc	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm the abs	sence of indicators.)
Depth	Matrix		Rec	dox Feat	ures			
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 3/1	100					Silty Loam	
6-12	10VP 3/1	80		15	C	М	Silty Loom	
0-12	10110.3/1	00	511(4/4	15	0			
			7.5YR 4/4	5	С	M		
12-20	10YR 4/1	90	7.5YR 4/6	10	С	Μ	Course Sandy Loa	am
*Type: C = C	Concentration, D =	Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains. **Loc	cation: PL = Pore Lining, M = Matrix
Hvdric So	il Indicators:		,	,			Indicators for F	Problematic Hydric Soils:
Hist	tosol (A1)		San	dv Gleve	ed Matrix	(S4)	Coast Prair	ie Redox (A16) (LRR K. L. R)
Hist	tic Eninedon (A2)		San	dv Redo	x (S5)	(01)	Dark Surfac	ce (S7) (IRR K. I)
Blac	ck Histic (Δ 3)		Strij	nned Ma	r(00)		5 cm Mucky	Peat or Peat (S3) (IRR K I R)
	trogon Sulfido (AA)	Loa	my Muck	Winors) (E1)	Iron-Manga	nese Masses (F12) ($\mathbf{I} \mathbf{R} \mathbf{K} \mathbf{I} \mathbf{R}$)
	alogen Sumue (A4)	Loa		od Motrix	(E2)		$\frac{1}{12} \left(\mathbf{E} \mathbf{K} \mathbf{K}, \mathbf{L}, \mathbf{K} \right)$
	m Music (A10)		Loa			(FZ)		
	II IVIUCK (AIU)	0						an in remarks)
	Dieted Below Dark	Surrace		IOX Dark	Surface	(F6)		
	CK Dark Surface (/	412)		neted Da	Irk Surfac		*Indicators o	f hydrophytic vegetation and wetland
San	ndy Mucky Minera	I (S1)	Rec	lox Depr	essions (F8)	hydrology n	nust be present, unless disturbed or
								problematic
Restrictive	Layer (if observe	ed):						
Type:		-					Hydric soil p	resent? Y
Depth (inche	es):				-			
	, 				•			
Remarks:								
HYDROLO	DGY							
Wetland Hv	drology Indicato	rs:						
Primary Indi	cators (minimum (of one is	required: check a	ll that an			Second	any Indicators (minimum of two required)
			required, check a		i <u>piy)</u> Fauna (D	40)	Seconda	rfaas Call Cracks (DC)
Surface	vvater (AT)				Fauna (B	13)	Su	
	(A2)				n Sulfida	IIS (D14) Odor (C1		Allage Patterns (BTU)
	DII (AS) Jarka (D4)			- Hydroge)Diy	-Season Water Table (C2)
vvater ivi	larks (B1)			Oxidized	I Rhizosp	neres on	Living RootsCra	ayrish Burrows (C8)
Sedimer	it Deposits (B2)			(US)				turation visible on Aerial Imagery (C9)
	DOSITS (B3)			Presenc	e of Real	icea iron	(C4) Stu	Inted or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in 1	illed Soils X Ge	
Iron Dep	OSITS (B5)					(07)	X FA	C-Neutral Test (D5)
	on visible on Aeria	I Imagery	(B7)		ck Surfac	e (C7)		
Sparsely	/ vegetated Conca	ve Surrac	е (В8)	Gauge o	or Well Da	ata (D9)		
vvater-S	tained Leaves (B9)	·		Utner (E	xpiain in	kemarks))	
Field Obser	vations:							
Surface wate	er present?	Yes	No	X	Depth (i	nches):		
Water table	present?	Yes	No	X	Depth (i	nches):		Indicators of wetland
Saturation p	resent?	Yes	X No		Depth (i	nches):	0	hydrology present? Y
(includes ca	pillary fringe)				_			
Describe rec	corded data (strea	m gauge	, monitoring well,	aerial pł	notos, pre	evious ins	spections), if available	e:
	•	- 3	_ .	·			·	
Remarks:								
Anteceden	t precipitation of	conditio	ns were determ	nined "V	Vetter tl	han nor	mal" (Appendix C)).
	1			•			(++ + · · · · · · · · · · · · · · · · ·	
								Midwoot Dogion

WETLAND DETERMIN	NATION D	ATA FORM	A - Midwes	st Regior	า		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mir	nnehaha	Sampling Date	e: 9/25/201	8
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Poin	t: 7U	
Investigator(s): Rebecca Beduhn		Sect	tion, Townshi	ip, Range:	S28	T101N R49W	
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ve, conve	k, none):	Concave	
Slope (%): 3 Lat: 43° 30' 55.210" N		Long:	96° 42' 49.14	49" W	Datum: U1	TM NAD83 Zone	14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NWI	Classifica	tion:		
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (I	f no, explai	in in remarks)		
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal ci	rcumstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present?	res
SUMMARY OF FINDINGS				(If neede	ed, explain any	answers in rema	rks.)
Hydrophytic vegetation present? N							
Hydric soil present? N		Is the s	ampled area	a within a v	wetland?	N	
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected adjacent to Wetland 7	SP 0)						
VEGETATION							
	Absolute	Dominant	Indicator	Domina	nce Test Work	sheet	
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Sr		
1 '				that are	OBL, FACW, or	FAC: 1	(A)
2				Total	Number of Don	ninant	
3				Spec	cies Across all S	Strata: 3	(B)
4				Percent	of Dominant Sp	pecies	
5				that are	OBL, FACW, or	FAC: 33.33%	_(A/B)
	0 :	=Total Cover		Deserved		11	
<u>Sapling/Shrub stratun</u> (Plot size: <u>15 Radius</u>)					Cover of	Ksneet	
2						x1- 0	
3				FACW s	pecies 10	$x^{2} = \frac{0}{20}$	-
4				FAC spe	cies 25	$x_3 = 75$	-
5				FACU sp	becies 55	x 4 = 220	-
	0 :	=Total Cover		UPL spe	cies 10	x 5 = 50	
Herb stratum (Plot size: 5' Radius)				Column	totals 100	(A) 365	(B)
1 Cirsium arvense Canadian Thistle	25	Y	FACU	Prevalen	ice Index = B/A	.= 3.65	
2 Bromus inermis Smooth Brome	20	Y	FACU				
3 Poa pratensis Kentucky Blue Grass	15	Y	FAC	Hydroph	nytic Vegetatio	on Indicators:	
4 Setaria pumila Yellow Bristle Grass	10	N	FAC	Rapi	d test for hydro	phytic vegetation	n
5 Phalaris arundinacea Reed Canary Grass	10	<u> </u>	FACW	Dom	inance test is >	>50%	
6 Fallopia convolvulus Black-Birluweeu	10	<u> </u>		Prev	alence index is	s ≤3.0 [™]	
8	10			Morp	phological adap porting data in F	otations* (provide Romarks or on a	;
9				supp	irate sheet)		
10				Prob	lematic hvdrop	hvtic vegetation*	*
	100	=Total Cover		(expl	lain)		
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hydric soil and	d wetland hydrology	must be
1				рг	resent, unless dist	urbed or problematic	;
2				Hydi	rophytic		
	0 :	=Total Cover		vege	ent?	N	
Remarks: (Include photo numbers here or on a separate sheet)				P100			
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List					
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	ional Wetland	Plant List, versi	on 2.4.0 (https://	/wetland_pla	nts.usace.army.mi	I). U.S. Army Corps	of
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP	, Chapel Hill, NC.	(2016)	
US Army Corps of Engineers						Midwest Regi	Ion

SOIL

Color (maist) % Color (maist) % Type* Lac** Texture Remarks 0-14 10YR 3/1 100 Image: Sandy Learn Sandy Learn Image: Sandy Learn	Depth	Matrix		Re	dox Feat	ures				
0-14 10YR 3/2 100 Sandy Loam 14-20 10YR 3/2 100 Sandy Loam with rocks 14-20 10YR 3/2 100 Sandy Redweet Sandy Load Sandy Load Sandy Load Sandy Load Sandy Redweet Sand Grains **Location: PL = Pore Lining, M = Ma Ype: C = Concentration, D = Depletion, RM = Reduced Matrix (KS) Sandy Gleyed Matrix (SA) Stringfoed Matrix (SA) Stringfoed Matrix (SA) Histosol (A1) Sandy Gleyed Matrix (SA) Stringfoed Matrix (SA) Stringfoed Matrix (SA) Dark Surface (S7) (LRR K, L, R 13.20 Depleted Matrix (SA) Stringfoed Matrix (SA) Obst Paritie Redwa Sandrace (F7) Were Shaltow Mats Sandrace (F7) 14.20 Dark Surface (A12) Depleted Matrix (F2) Other (explain in remarks) Pore Lining, M atri Table (SA) 15.30 Depleted Dark Surface (F6) *Indicators of hydrophytic vegetation and wet hydrology must be present, unless disturble problematic 16.10 Canada Matrix (F2) <th>(Inches)</th> <th>Color (moist)</th> <th>%</th> <th>Color (moist)</th> <th>%</th> <th>Type*</th> <th>Loc**</th> <th>Text</th> <th>ture</th> <th>Remarks</th>	(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ture	Remarks
14-20 10'R 3/2 100 Sandy Learn with rocks 14-20 10'R 3/2 10'R 3/2 Sandy Learn with rocks 14-20 10'R 3/2 Sandy Learn with rocks Sandy Learn With rocks 14-20 10'R 3/2 Sandy Redox (Sc) Sandy Redox (Sc) Sandy Redox (Sc) 14-20 10'R 3/2 Sandy Redox (Sc) Sandy Redox (Sc) Sandy Redox (Sc) Sandy Redox (Sc) 14-20 10'R 3/2 Sandy Redox (Sc) Sandy Redox (Sc) Sandy Redox (Sc) Sandy Redox (Sc) 15'Stratific Layers (A6) Learny Bioyod Matrix (F2) Very Shallow Dark Surface (F7) 'Indicators of hydrophytic vegatation and wethydrology mater states 10'R 3/2 20'R Matrix (F2) Cotter (explain in remarks) Secondary Indicators (minimum of two ray indicators (R6) 10'R 3/2 20'R Matrix (A1) Aqua	0-14	10YR 3/1	100					Sandy Loa	m	
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Surface Water (A1) Aquatic Fauna (B13) Surface Soil Cracks (B6) High Water Table (A2) True Aquatic Plants (B14) Drainage Patterns (B10) Saturation (A3) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Water Marks (B1) Oxidized Rhizospheres on Living Roots Crayfish Burrows (C8) Sediment Deposits (B2) (C3) Saturation Visible on Aerial Imagery (C6) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Sparsely Vegetated Concave Surface (B8) Gauge or Well Data (D9) Water Table present? Yes No X Depth (inches): Indicators of wetland hydrology present? Itater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? No Scribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: marks: tecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	mary Indi	cators (minimum)	of one is	required: check a	ll that an	nlv)		c	Secondary Inc	dicators (minimum of two requ
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Water Marks (B1) Oxidized Rhizospheres on Living Roots Crayfish Burrows (C8) Sediment Deposits (B2) (C3) Saturation Visible on Aerial Imagery (C8) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils Geomorphic Position (D2) Iron Deposits (B5) (C6) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) Gauge or Well Data (D9) Other (Explain in Remarks) eld Observations: rface water present? Yes No Ater table present? Yes No X Depth (inches): cludes capillary fringe) No X Depth (inches): Indicators of wetland hydrology present? No scribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Indicators C). Indicators C).	- Saturatio	$(\Delta 3)$			Hydroge	n Sulfide	Odor (C1		Dru-Seas	son Water Table (C2)
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Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils Geomorphic Position (D2) Iron Deposits (B5) (C6) FAC-Neutral Test (D5) Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) FAC-Neutral Test (D5) Sparsely Vegetated Concave Surface (B8) Gauge or Well Data (D9) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Other (Explain in Remarks) Indicators of wetland Id Observations: rface water present? Yes No X Depth (inches): Indicators of wetland turation present? Yes No X Depth (inches): Indicators of wetland cludes capillary fringe) scribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: marks: marks: the cedent precipitation conditions were determined "Wetter than normal" (Appendix C).		(B3)			Presenc	e of Redu	iced Iron	(C4)	Stunted	or Stressed Plants (D1)
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Inundation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Sparsely Vegetated Concave Surface (B8) Gauge or Well Data (D9) Water-Stained Leaves (B9) Other (Explain in Remarks) Eld Observations: Indicators of wetland rface water present? Yes No X Depth (inches): Indicators of wetland turation present? Yes No X Depth (inches): Indicators of wetland turation present? Yes No X Depth (inches): Indicators of wetland cludes capillary fringe) scribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: marks: marks: ttecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	Iron Den	nosits (B5)			(C6)	Ton Redu			EAC-Nei	Itral Test (D5)
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Water-Stained Leaves (B9) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks) Indicators of wetland turation present? Yes No X Depth (inches): Indicators of wetland hydrology present? No X Depth (inches): Indicators of wetland hydrology present? Indicators of wetland hydrology present? No Scribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: marks: Indicators were determined "Wetter than normal" (Appendix C).	Sparsely	Vegetated Conca	ve Surfac	() e (B8)	Gauge o	or Well Da	ata (D9)			
eld Observations: Ves No X Depth (inches): Indicators of wetland hydrology present? ater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? ater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? ater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? ater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? ater table capillary fringe) No X Depth (inches): Indicators of wetland hydrology present? escribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Indicators of wetland hydrology present? emarks: Indicators were determined "Wetter than normal" (Appendix C). Indicators of wetland hydrology present?	Water-S	tained Leaves (R9)	- ()	Other (F	xplain in	Remarks)		
Indicators Yes No X Depth (inches): Indicators of wetland hydrology present? Indicators of wetland hydrology present? Yes No X Depth (inches): Indicators of wetland hydrology present? Indicators of wetland clubes capillary fringe) No X Depth (inches): Indicators of wetland hydrology present? No escribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Indicators of wetland hydrology present? No emarks: Indicators of wetland indicators of wetland indicators of well well, aerial photos, previous inspections), if available: Indicators of well well, aerial photos, previous inspections), if available:		vations:	/					/		
ater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? ater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? ater table present? Yes No X Depth (inches): Indicators of wetland hydrology present? cludes capillary fringe) scribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: emarks: marks: Intecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	Inface wat	er present?	Vee	No	x	Denth (i	inches).			
Addition table procents Yes No X Depth (inches): hydrology present? N inturation present? Yes No X Depth (inches): hydrology present? N cludes capillary fringe) escribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: hydrology present? N emarks: emarks: hydrology present N N hydrology present No No No No No	ater table	nresent?	Vee	No		Denth (i	inchee).		Inc	licators of wetland
cludes capillary fringe) scribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: marks: htecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	turation n	resent?	Yee	No		Denth (i	inches).		h	vdrology present? N
escribe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: emarks: Intecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	cludes ca	pillary fringe)	103		~	- -				
emarks: ntecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	escribe rec	corded data (strea	ım gauge	, monitoring well,	aerial pł	notos, pre	evious in	spections), if a	available:	
ntecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	emarks:									
	nteceder	t precipitation	conditio	ns were detern	nined "V	Vetter t	han nor	mal" (Anner	ndix C)	
	neceuel		Jonatio		med V			mai (Appel		

WETLAND DETERMIN	NATION D	ATA FORM	/I - Midwes	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/C	County: Si	oux Falls/Min	nehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota S	Sampling Point:	7W
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	p, Range:	S28 T1	01N R49W
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ve, convex,	none):	Concave
Slope (%): 1 Lat: 43° 30' 55.286" N		Long:	96° 42' 48.86	60" W	Datum: UTM	NAD83 Zone 14N
Soil Map Unit Name: Davis loam, 0 to 2 percent slopes			NWI	Classificati	on:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (li	f no, explair	n in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?		A	Are "normal circu	mstances"
Are vegetation , soil , or hydrology	naturally pr	oblematic?		,		present? Yes
SUMMARY OF FINDINGS				(If needed	l, explain any ans	wers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the s	ampled area	within a w	vetland?	Y
Indicators of wetland hydrology present? Y		lf yes, o	ptional wetlar	nd site ID:	Wetland 7	
Remarks: (Explain alternative procedures here or in a separate r	eport)					
Sample Point collected in Wetland 7	opon.)					
VEGETATION Use scientific flames of plants.	Abaaluta	Densinent	Indiantar	Dominan	co Tost Worksh	pot
Tree Stratum (Plot size: 30' Radius)	% Cover	Dominant Species	Status	Number	of Dominant Space	
1	/0 00101	opeelee	olaldo	that are C	BL, FACW, or FA	es .C: 2 (A)
2				Total N	Number of Domina	(· · /
3				Speci	es Across all Stra	ta: 2 (B)
4				Percent of	of Dominant Speci	es
5				that are C	BL, FACW, or FA	C: 100.00% (A/B)
	0 =	Total Cover				
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalen	ce Index Works	neet
1				Total % C	over of:	
2				OBL spec	$\frac{25}{5}$	1 = 25
					$\frac{10}{10}$	2 = 110
4 <u></u>				FAC Spec	$\frac{10}{2}$	3 = 30
°	0	Total Cover		UPL spec	ies 0 x	5 = 0
Herb stratum (Plot size: 5' Radius)				Column to	otals 90 (A) 165 (B)
1 Phalaris arundinacea Reed Canary Grass	35	Y	FACW	Prevalenc	= B/A =	1.83
2 Eleocharis obtusa Blunt Spike-Rush	25	Y	OBL			
3 Echinochloa crus-galli Large Barnyard Grass	10	Ν	FACW	Hydrophy	tic Vegetation I	ndicators:
4 Persicaria pensylvanica Pinkweed	10	Ν	FACW	X Rapid	test for hydroph	tic vegetation
5 Poa pratensis Kentucky Blue Grass	10	Ν	FAC	X Domir	nance test is >50	%
6				X Preva	llence index is ≤3	.0*
7				Morph	nological adaptat	ons* (provide
8	·			suppo	orting data in Ren	harks or on a
9 <u></u>				Separ	ale sneel)	
10	90	Total Cover		expla	ematic nydropnyt ain)	ic vegetation"
Woody vine stratum (Plot size: 30' Radius)						41
1				pre	sent, unless disturbe	ed or problematic
2				Hydro	ophytic	
	0 =	Total Cover		veget	ation	
Remarks: (Include photo numbers here or on a separate sheet)			<u> </u>	prese	entr Y	
Note: Inis data sneet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	i vvetland Pla tional Wetland P	ant LISt: Plant List, versio	on 2.4.0 (https://	/wetland_plant	ts.usace.army.mil). U	.S. Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Resear	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP,	Chapel Hill, NC. (20	16)

SOIL

Profile Des	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	or or confirm	the absence	of indicators.)
Depth	<u>Matrix</u>		<u>Rec</u>	dox Feat	ures - +		_		5
(Inches)	Color (moist)	%	Color (moist)	%	Type"	LOC""	lext	ture	Remarks
0-8	10YR 3/1	100					Silty Loam		
8-12	10YR 3/1	80	5YR 4/4	15	С	М	Silty Loam		
			7.5YR 4/4	5	С	М			
12-20	10YR 4/1	90	7.5YR 4/6	10	С	М	Course Sa	ndy Loam	
-								.,	
 ype: C = 0	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = M	asked Sa	and Grains.	**Location:	: PL = Pore Lining, M = Matrix
Hydric Sc	oil Indicators:		·				Indicato	rs for Proble	ematic Hydric Soils:
His	tosol (A1)		Sar	ndy Gleye	ed Matrix	: (S4)	Coa	st Prairie Red	dox (A16) (LRR K, L, R)
His	tic Epipedon (A2)		Sar	ndy Redo	x (S5)	. ,	Dark	k Surface (S7) (LRR K, L)
Bla	ck Histic (A3)		Stri	pped Ma	trix (S6)		5 cm	n Mucky Peat	t or Peat (S3) (LRR K, L, R)
Hyo	drogen Sulfide (A4	4)	Loa	my Mucł	ky Minera	al (F1)	Iron-	-Manganese	Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5))	Loa	my Gley	ed Matrix	(F2)	Very	/ Shallow Dai	k Surface (TF12)
2 ci	m Muck (A10)		Dep	leted Ma	atrix (F3)		Othe	er (explain in	remarks)
X De	oleted Below Dark	Surface	(A11) X Rec	lox Dark	Surface	(F6)		-	
Thi	ck Dark Surface (A	A12)	Dep	leted Da	rk Surfa	ce (F7)	*India	ators of hvdr	ophytic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	lox Depr	essions ((F8)	hydr	ology must b	e present, unless disturbed or
				-				0,	problematic
ostrictivo	l aver (if observe	vq).				1			
		suj.					Hydric	e coil procon	+2 ∨
ype. opth (i <mark>nch</mark>					-		Tiyunc	son presen	<u> </u>
epui (inchi					-				
lemarks:									
IYDROL	DGY								
Vetland Hy	drology Indicato	rs:							
rimary Indi	cators (minimum	of one is	required; check a	ll that ap	ply)		<u>s</u>	Secondary Ind	dicators (minimum of two require
Surface	Water (A1)		-	Aquatic	Fauna (B	13)		Surface \$	Soil Cracks (B6)
High Wa	ater Table (A2)			True Aq	uatic Plar	, nts (B14)	-	Drainage	Patterns (B10)
X Saturati	on (A3)			Hydroge	n Sulfide	Odor (C	1) -	Dry-Seas	son Water Table (C2)
Water M	larks (B1)			Oxidized	l Rhizosp	heres on	Living Roots	Crayfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(C3)	1			Saturatio	n Visible on Aerial Imagery (C9)
Drift Der	oosits (B3)			Presenc	e of Redu	uced Iron	(C4)	Stunted of	or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	Filled Soils	X Geomor	phic Position (D2)
Iron Dep	oosits (B5)			(C6)			-	X FAC-Neu	itral Test (D5)
Inundati	on Visible on Aeria	I Imagery	/ (B7)	Thin Mu	ck Surfac	e (C7)	-		
Sparsel	Vegetated Conca	ve Surfac	ce (B8)	Gauge o	or Well Da	ata (D9)			
Water-S	tained Leaves (B9)	· · ·	Other (E	xplain in	Remarks	5)		
ield Ohser	vations:	•		\			•		
Surface wat	er present?	Yes	No	х	Depth (i	inches).			
Vater tahle	present?	Yee	No		Denth (i	inchee).		Inc	licators of wetland
aturation n	resent?	Yes	X No	~	Denth (i	inches).	0	h	/drology present? Y
includes ca	pillary fringe)	100							
escribe re	corded data (strea	m daude		aerial pł	notos pre	evious in	spections) if a	available:	
		in gaage	, monitoring won,	uonai pi	10100, pr				
Remarks:									
\nteceder	nt precipitation of	conditio	ns were detern	nined "V	Vetter t	han nor	rmal" (Apper	ndix C).	
S Army C	orne of Engine	ore							Midwort Dogion
IS ALLIN (UIDS OF ENGINE	5 I S							iviluwest Region

WETLAND DETERMIN	IATION D	ATA FORM	/I - Midwes	st Region	1		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Si	oux Falls/Mir	nnehaha	Sampling Date	e: 9/25/20)18
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Poin	it: 8U	
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	ip, Range:	S27	T101N R49W	
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ive, convex	, none):	Concave	
Slope (%): 4 Lat: 43° 30' 59.370" N		Long:	96° 42' 32.78	30" W	Datum: UT	TM NAD83 Zone	e 14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NWI	Classificat	ion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	f the year?		N (l	f no, explai	n in remarks)		
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal ci	rcumstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present?	Yes
SUMMARY OF FINDINGS				(If neede	d, explain any	answers in rem	arks.)
Hydrophytic vegetation present? N							
Hydric soil present? N		Is the sa	ampled area	within a w	vetland?	Ν	
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	nd site ID:			
Remarks: (Explain alternative procedures here or in a separate re	eport.)			-			
Sample Point collected adjacent to Wetland 8	(p o)						
VEGETATION Use scientific names of plants							
	Absoluto	Dominant	Indicator	Dominar	nce Test Work	sheet	
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Sr	necies	
1 '				that are (OBL, FACW, or	FAC: 1	(A)
2				Total	Number of Don	ninant	
3				Spec	ties Across all S	Strata: 2	(B)
4				Percent	of Dominant Sp	pecies	
5				that are (OBL, FACW, or	FAC: 50.00%	5 (A/B)
	0 :	=Total Cover		Desertes		la ha a f	
<u>Sapling/Shrub stratun</u> (Piot size: <u>15' Radius</u>)				Total % (Ce Index wor	KSheet	
2	·					v1- 0	
3				FACW si	pecies 0	$x^{2} = 0$	_
4				FAC spe	cies 40	$x^{3} = 120$)
5				FACU sp	ecies 35	x 4 = 140)
	0 :	=Total Cover		UPL spe	cies 5	x 5 = 25	
Herb stratum (Plot size: 5' Radius)				Column t	otals 80	(A) 285	5 (B)
1 Setaria pumila Yellow Bristle Grass	40	Y	FAC	Prevalen	ce Index = B/A	3.56	
2 Fallopia convolvulus Black-Bindweed	30	Y	FACU				_
3 Medicago lupulina Black Medick	5	N	FACU	Hydroph	ytic Vegetatio	on Indicators:	
4 Physalis virginiana Virginia Ground Cherry	5	N	UPL	Rapio	d test for hydro	phytic vegetation	on
5	. <u></u>			Dom	inance test is >	>50%	
0 7				Preva	alence index is	s ≤3.0°	
8				Morp	hological adap orting data in F	otations* (provid	le
9				sepa	rate sheet)		a
10				Prob	/ lematic hvdrop	hvtic vegetation	י*
	80	=Total Cover		(expl	ain)	.,	
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hydric soil and	d wetland hvdrolog	y must be
1				pr	esent, unless dist	urbed or problemat	ic
2				Hydr	ophytic		
	0 :	=Total Cover		vege	tation ent?	N	
Remarks: (Include photo numbers here or on a separate sheet)				Pi 03			
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List					
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati	onal Wetland	Plant List, versio	on 2.4.0 (https://	/wetland_plar	nts.usace.army.mi	il). U.S. Army Corp	s of
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP,	Chapel Hill, NC.	(2016)	
US Army Corps of Engineers						Midwest Reg	gion

SOIL

Depth	Matrix		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Text	ure	Remarks
0-10	10YR 3/3	100	. ,				Silty Loam	with rocks	
10+									Rocks
10+									TOUCKS
									
ype: C = C	Concentration, D =	Depletic	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	ind Grains.	**Location	i: PL = Pore Lining, M = Matrix
Hydric So	oil Indicators:		-				Indicato	rs for Probl	ematic Hydric Soils:
Hist	tosol (A1)		Sar	idy Gleye	ed Matrix	(S4)	Coa	st Prairie Re	dox (A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		Sar	ndy Redo	x (S5)		Dark	Surface (S	7) (LRR K, L)
Blac	ck Histic (A3)		Stri	pped Ma	trix (S6)		5 cm	Mucky Pea	It or Peat (S3) (LRR K, L, R)
Hyc	drogen Sulfide (A4	.)	Loa	my Mucł	ky Minera	l (F1)	Iron-	Manganese	Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5)		Loa	my Gley	ed Matrix	(F2)	Very	Shallow Da	rk Surface (TF12)
2 cr	m Muck (A10)		Dep	pleted Ma	atrix (F3)		Othe	er (explain in	remarks)
Dep	oleted Below Dark	Surface	(A11) Red	dox Dark	Surface	(F6)			
Thio	ck Dark Surface (A	412)	Dep	pleted Da	irk Surfac	e (F7):	*Indic	ators of hyd	rophytic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	dox Depre	essions (F8)	hydr	ology must k	be present, unless disturbed or
									problematic
estrictive	Layer (if observe	ed):							
ype:							Hydric	soil preser	nt? N
epth (inche	es):				-		-		
YDROLO	DGY								
etiand Hy	drology indicato	rs:					_		
rimary Indi	cators (minimum o	of one is	required; check a	all that ap	ply)		<u>S</u>	econdary In	dicators (minimum of two requir
Surface	Water (A1)			Aquatic	Fauna (B	13)	-	Surface	Soil Cracks (B6)
High Wa	ater Table (A2)			True Aq	uatic Plan	ts (B14)	, -	Drainage	e Patterns (B10)
Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1)	Dry-Sea	son Water Table (C2)
Water M	larks (B1)			Oxidized	l Rhizospł	neres on	Living Roots	Crayfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(03)	(Saturatio	on Visible on Aerial Imagery (C9)
Drift Dep	posits (B3)			Presenc	e of Redu	ced Iron	(C4)	Stunted	or Stressed Plants (D1)
Algal Ma				Dooontl				~	
—	at or Crust (B4)			Keceni I	ron Redu	ction in T	illed Soils	Geomor	phic Position (D2)
Iron Dep	at or Crust (B4) posits (B5)			(C6)	ron Redu	ction in T	illed Soils	Geomor FAC-Ne	phic Position (D2) utral Test (D5)
Iron Dep	at or Crust (B4) posits (B5) on Visible on Aeria	I Imagery	(B7)	(C6)	ck Surface	e (C7)	illed Soils	Geomor FAC-Ne	phic Position (D2) utral Test (D5)
Iron Dep Inundatio Sparsely	at or Crust (B4) posits (B5) on Visible on Aeria / Vegetated Conca	l Imagery ve Surfac	(B7) e (B8)	(C6) Thin Mu Gauge o	ron Redu ck Surface r Well Da	ction in T e (C7) ta (D9)	illed Soils	Geomor FAC-Ne	phic Position (D2) utral Test (D5)
Iron Dep Inundatio Sparsely Water-S	at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9)	l Imagery ve Surfac	(B7) e (B8)	(C6) Thin Mu Gauge o Other (E	ron Redu ck Surfaco r Well Da xplain in I	ction in T e (C7) ta (D9) Remarks	illed Soils - -	Geomor FAC-Ne	phic Position (D2) utral Test (D5)
Iron Dep Inundatio Sparsely Water-S ield Obser	at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) rvations:	I Imagery ve Surfac	(B7) e (B8)	C6) Thin Mu Gauge o Other (E	ron Redu ck Surface r Well Da xplain in f	ction in T e (C7) ta (D9) Remarks	illed Soils - -	Geomor FAC-Ne	phic Position (D2) utral Test (D5)
Iron Dep Inundatio Sparsely Water-S ield Obser urface wate	at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca tained Leaves (B9) rvations: er present?	I Imagery ve Surfac Yes	(B7) e (B8)	(C6) Thin Mu Gauge o Other (E	ron Redu ck Surface r Well Da xplain in f Depth (ii	ction in T e (C7) ta (D9) Remarks nches):	illed Soils	Geomor FAC-Ne	phic Position (D2) utral Test (D5)
Iron Dep Inundation Sparsely Water-S ield Obser Jurface water Vater table	at or Crust (B4) posits (B5) on Visible on Aeria / Vegetated Conca itained Leaves (B9) rvations: er present? present?	I Imagery ve Surfac Yes Yes	(B7) e (B8) No	(C6) Thin Mu Gauge o Other (E	ron Redu ck Surface r Well Da xplain in f Depth (ii Depth (ii	ction in T e (C7) ta (D9) Remarks nches): nches):	illed Soils	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland
Iron Dep Inundation Sparsely Water-S ield Obser urface wate /ater table aturation p	at or Crust (B4) posits (B5) on Visible on Aeria / Vegetated Conca- itained Leaves (B9) vations: er present? present? resent?	l Imagery ve Surfac Yes Yes Yes	(B7) e (B8) No No	(C6) Thin Mu Gauge o Other (E X X X	ron Redu ck Surface r Well Da xplain in f Depth (ii Depth (ii	ction in 1 e (C7) ta (D9) Remarks nches): nches): nches):	illed Soils	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland ydrology present? N
Iron Dep Inundation Sparsely Water-S ield Obser Surface water Vater table vaturation p ncludes ca	at or Crust (B4) bosits (B5) on Visible on Aeria y Vegetated Conca tained Leaves (B9) vations: er present? present? present? pillary fringe)	l Imagery ve Surfac Yes Yes Yes	(B7) e (B8) No No No	(C6) Thin Mu Gauge o Other (E X X X	ron Redu ck Surface r Well Da xplain in I Depth (ii Depth (ii	ction in T e (C7) ta (D9) Remarks nches): nches): nches):	illed Soils	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland ydrology present? N
Iron Dep Inundation Sparsely Water-S ield Obser urface water /ater table aturation p includes can escribe rec	at or Crust (B4) bosits (B5) on Visible on Aeria y Vegetated Conca tained Leaves (B9) vations: er present? present? present? pillary fringe) corded data (strea	l Imagery ve Surfac Yes Yes Magauge	(B7) e (B8) No No No , monitoring well,	(C6) Thin Mu Gauge o Other (E X X X aerial ph	ron Redu ck Surface r Well Da xplain in f Depth (in Depth (in Depth (in notos, pre	e (C7) ta (D9) Remarks nches): nches): nches):	spections), if a	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland ydrology present? N
Iron Dep Inundation Sparsely Water-S ield Obser Jurface water Vater table aturation p ncludes can lescribe reco emarks:	at or Crust (B4) bosits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) vations: er present? present? present? pillary fringe) corded data (strea	l Imagery ve Surfac Yes Yes Mes m gauge	(B7) e (B8) No No No , monitoring well,	CC6) Thin Mu Gauge o Other (E X X X aerial ph	ron Redu ck Surface r Well Da xplain in f Depth (in Depth (in Depth (in	ction in T e (C7) ta (D9) Remarks nches): nches): nches): evious in:	spections), if a	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland ydrology present? N
Iron Dep Inundation Sparsely Water-S ield Obser urface water /ater table aturation p ncludes can escribe reco emarks: .nteceden	at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca tained Leaves (B9) tvations: er present? present? pillary fringe) corded data (strea	I Imagery ve Surfac Yes Yes Magauge	(B7) e (B8) No No , monitoring well,	C(C6) Thin Mu Gauge o Other (E X X X aerial ph	ron Redu ck Surface r Well Da xplain in f Depth (in Depth (in Depth (in notos, pre	ction in T e (C7) ta (D9) Remarks nches): nches): nches): evious in	spections), if a	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland ydrology present? N
Iron Dep Inundation Sparsely Water-S eld Obser urface water (ater table aturation p includes can escribe reconstruction emarks: inteceder	at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? pillary fringe) corded data (strea	I Imagery ve Surfac Yes Yes Yes m gauge	(B7) e (B8) No No , monitoring well,	CG6) Thin Mur Gauge o Other (E X X X aerial ph	ron Redu ck Surface r Well Da xplain in f Depth (in Depth (in Depth (in notos, pre	e (C7) ta (D9) Remarks nches): nches): nches): evious in-	spections), if a	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland ydrology present? N
Iron Dep Inundation Sparsely Water-S eld Obser urface wate dater table aturation p includes can escribe reconstruction emarks: nteceder	at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) rvations: er present? present? pillary fringe) corded data (strea nt precipitation c	I Imagery ve Surfac Yes Yes Yes m gauge	(B7) e (B8) No No , monitoring well, ns were detern	CG6) Thin Mu Gauge o Other (E X X X aerial ph	ron Redu ck Surface r Well Da xplain in f Depth (ii Depth (ii Depth (ii notos, pre	e (C7) ta (D9) Remarks nches): nches): nches): nches): evious in-	spections), if a	Geomor FAC-Ne	phic Position (D2) utral Test (D5) dicators of wetland ydrology present? <u>N</u>

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WETLAND DETERMIN	NATION D	ATA FORM	/I - Midwes	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/C	County: Sid	oux Falls/Min	nnehaha	Sampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota S	Sampling Point:	8W
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	p, Range:	S27 T10	1N R49W
Landform (hillslope, terrace, etc.): toeslope		Local	relief (conca	ve, convex,	none):	Concave
Slope (%): 1 Lat: 43° 30' 59.728" N		Long:	96° 42' 33.16	60" W	Datum: UTM N	NAD83 Zone 14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NWI	Classificati	on:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (li	f no, explair	n in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circur	nstances"
Are vegetation , soil , or hydrology	naturally pr	oblematic?		,		present? Yes
SUMMARY OF FINDINGS				(If needeo	d, explain any ans	wers in remarks.)
Hydrophytic vegetation present? Y						
Hydric soil present? Y		Is the sa	ampled area	within a w	vetland?	Y
Indicators of wetland hydrology present? Y		lf yes, op	otional wetlar	nd site ID:	Wetland 8	
Remarks: (Explain alternative procedures here or in a separate r	eport)					
Sample Point collected in Wetland 8	opon.)					
VEGETATION Use scientific flames of plants.	Abaaluta	Deminent	Indiantar	Dominan	co Tost Worksho	oot
Tree Stratum (Plot size: 30' Radius)	% Cover	Dominant Species	Status	Number	of Dominant Space	
1	/0 00101	opeelee	olaldo	that are C	BL, FACW, or FA	S C: 1 (A)
2		·		Total I	Number of Domina	(*)
3				Speci	es Across all Strat	a: 1 (B)
4				Percent of	of Dominant Specie	es
5				that are C	BL, FACW, or FA	C: <u>100.00%</u> (A/B)
	0 =	Total Cover				
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalen	ce Index Worksh	eet
				Total % C	Cover of:	
2				OBL spec	$60 \times 60 \times 10^{-10}$	1 = 60
					$\frac{20}{x}$	2 = 40
4 <u></u>				FAC Spec	$\frac{10}{x}$	3 = 30 4 = 40
°	0	Total Cover		UPL spec	$\frac{10}{10}$ x	5 = 0
Herb stratum (Plot size: 5' Radius)				Column to	otals 100 (A	A) 170 (B)
1 Typha latifolia Broad-Leaf Cat-Tail	50	Y	OBI	Prevalenc	= Index = B/A =	1.70
2 Nepeta cataria Catnip	10	N	FACU			
3 Persicaria lapathifolia Dock-Leaf Smartweed	10	Ν	FACW	Hydroph	ytic Vegetation In	ndicators:
4 Eleocharis acicularis Needle Spike-Rush	10	Ν	OBL	X Rapid	I test for hydrophy	tic vegetation
5 Hordeum jubatum Fox-Tail Barley	10	N	FAC	X Domi	nance test is >50%	6
6 Bidens frondosa Devil's-Pitchfork	5	N	FACW	X Preva	llence index is ≤3.	0*
7 Cyperus esculentus Chufa	5	N	FACW	Morpl	nological adaptati	ons* (provide
8				suppo	orting data in Rem	arks or on a
9 <u></u>		·······		Separ		+ - + *
10	100	Total Cover		(expla	ematic nydropnyti ain)	c vegetation"
Woody vine stratum (Plot size: 30' Radius)	100			(oxpre	<u>, , , , , , , , , , , , , , , , , , , </u>	
1				"Indicators pre	s of nyaric soil and we	d or problematic
2				Hydro	ophytic	
	0 =	Total Cover		veget	ation	
Remarks: (Include photo numbers here or on a separate shoot)				prese	ent? Y	
Note: Inis data sneet has been adapted to use the 2016 Nationa Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	i vvetland Pla tional Wetland P	ant LISt: Plant List, versio	on 2.4.0 (https://	/wetland_plan	ts.usace.army.mil). U.	S. Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Resear	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP,	Chapel Hill, NC. (201	6)

Profile Des	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	r or confirm the a	absence o	f indicators.)
Depth Matrix Redox Features									
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		Remarks
0-8	10YR 2/1	90	10YR 6/1	10	С	М	Silty Loam with	rocks	
8-18	10YR 2/1	85	7.5YR 4/6	15	C	М	Silty Loam with	rocks	
40.04		05		10	0		Cilty Loan with		
18-24	10YR 5/1	85	7.5YR 46	15	C	IVI	Slity Loam with	rocks	
*Type: C = C	Concentration, D =	= Depletio	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains. **L	_ocation: F	^p L = Pore Lining, M = Matrix
Hydric So	il Indicators:						Indicators fo	r Problen	natic Hydric Soils:
Hist	tosol (A1)		San	dy Gleye	ed Matrix	(S4)	Coast Pra	airie Redo	ox (A16) (LRR K, L, R)
Hist	tic Epipedon (A2)		San	dy Redo	x (S5)		Dark Sur	face (S7)	(LRR K, L)
Bla	ck Histic (A3)		Stri	oped Ma	trix (S6)		5 cm Mu	cky Peat c	or Peat (S3) (LRR K, L, R)
Hyd	drogen Sulfide (A4	ł)	Loa	my Muck	ky Minera	al (F1)	Iron-Man	ganese M	asses (F12) (LRR K, L, R)
Stra	atified Layers (A5)		Loa	my Gley	ed Matrix	(F2)	Very Sha	llow Dark	Surface (TF12)
2 cr	m Muck (A10)		Dep	leted Ma	atrix (F3)		Other (ex	plain in re	emarks)
Dep	oleted Below Dark	Surface	(A11) X Rec	lox Dark	Surface	(F6)			
X Thi	ck Dark Surface (A	A12)	X Dep	leted Da	rk Surfac	ce (F7)	*Indicators	s of hydror	phytic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	lox Depre	essions (F8)	hydrology	v must be	present, unless disturbed or
		()			·	,	,	, p	roblematic
Postrictivo	Lover (if cheery	<u>, d).</u>						•	
Tunor	Layer (II observe	eu):					Lhuduin poil		
Type:	\				-		Hydric soli	present?	<u> </u>
Depth (Inche	es):				-				
Remarks:									
HYDROLO	OGY								
Wetland Hy	drology Indicato	rs:							
Drimon (Indi		of one is	required; check a	ll that an			Cooor	مام سر اسمانه	otoro (minimum of two required)
Primary Indi		or one is	required; check a	<u>ii that ap</u>	<u>ipiy)</u>	40)	Secon	<u>idary Indic</u>	ators (minimum of two required)
Surface	Water (A1)			Aquatic	Fauna (B	13)		Surface So	
High Wa	ater Table (A2)			I rue Aqu	uatic Plar	its (B14)	、	Drainage F	atterns (B10)
X Saturatio	on (A3)			Hydroge	n Sulfide	Udor (C1)	Dry-Seaso	n Water Table (C2)
vvater IV	larks (B1)			Oxidized	Rhizosp	heres on	Living Roots	Crayfish Bi	urrows (C8)
Sedimer	nt Deposits (B2)			(C3)	(<u> </u>	Saturation	Visible on Aerial Imagery (C9)
Drift Dep	bosits (B3)			Presenc	e of Redu	iced Iron	(C4)	Stunted or	Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	illed Soils X	Geomorph	ic Position (D2)
Iron Dep	oosits (B5)			(C6)		(0-)	<u></u>	AC-Neutr	al Test (D5)
Inundatio	on Visible on Aeria	I Imagery	(B7)	Thin Mu	ck Surfac	e (C7)			
Sparsely	/ Vegetated Conca	ve Surfac	е (B8)	Gauge o	or Well Da	ata (D9)			
Water-S	tained Leaves (B9))		Other (E	xplain in	Remarks))		
Field Obser	vations:								
Surface wat	er present?	Yes	No	X	Depth (i	nches):			
Water table	present?	Yes	No	X	Depth (i	nches):		Indic	cators of wetland
Saturation p	resent?	Yes	X No		Depth (i	nches):	0	hyd	rology present? Y
(includes ca	pillary fringe)				-				
Describe rec	corded data (strea	im gauge	, monitoring well,	aerial ph	notos, pre	evious ins	spections), if availa	able:	
Remarks:									
Anteceder	nt precipitation of	conditio	ns were determ	nined "V	Vetter tl	han nor	mal" (Appendix	C).	
US Army C	orps of Engine	ers							Midwest Region
WETLAND DETERMIN	NATION D	ATA FORM	/ - Midwes	st Regior	1 I				
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Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/	County: Si	oux Falls/Mir	nnehaha	Sampling Date	»: <u> </u>	8		
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota	Sampling Point	i: 9U			
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	ip, Range:	S27	T101N R49W			
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ive, convex	, none):	Concave			
Slope (%): 4 Lat: 43° 30' 57.319" N		Long:	96° 42' 39.30	09" W	Datum: UT	M NAD83 Zone	14N		
Soil Map Unit Name: Baltic silty clay loam, ponded			NWI	Classificat	ion:	None			
Are climatic/hydrologic conditions of the site typical for this time of	f the year?		N (I	f no, explai	n in remarks)				
Are vegetation , soil , or hydrology	significantl	y disturbed?			Are "normal cir	cumstances"			
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Y	/es		
SUMMARY OF FINDINGS				(If neede	d, explain any a	answers in rema	rks.)		
Hydrophytic vegetation present? Y									
Hydric soil present? N		Is the s	ampled area	a within a v	wetland?	N			
Indicators of wetland hydrology present? N		lf yes, o	ptional wetla	nd site ID:					
Remarks: (Explain alternative procedures here or in a separate re	eport.)								
Sample Point collected adjacent to Wetland 9.	·P • · · ·)								
VEGETATION Lise scientific names of plants									
	Absolute	Dominant	Indicator	Dominar	nce Test Work	sheet			
<u>Tree Stratum</u> (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Sp	ecies			
1 '				that are 0	OBL, FACW, or	FAC: 1	(A)		
2				Total	Number of Dom	ninant	_		
3				Spec	cies Across all S	trata: 1	(B)		
4				Percent	of Dominant Sp	ecies			
5		<u></u>		that are 0	OBL, FACW, or	FAC: 100.00%	_(A/B)		
Sopling/Shruh stratup (Dist size: 15' Dadius)	0	= I otal Cover		Broyolor	oo Indox Mor	kabaat			
Saping/Shiub stratun (Piot size: 15 Radius)				Total % (Cover of:	KSneet			
2				OBL spe	cies 0	x 1 = 0			
3				FACW s	pecies 0	$-x^{2} = 0$	-		
4				FAC spe	cies 60	x 3 = 180	-		
5				FACU sp	ecies 35	x 4 = 140	_		
	0	= Total Cover		UPL spe	cies 15	x 5 = 75			
Herb stratum (Plot size: 5' Radius)				Column t	otals 110	(A) 395	(B)		
1 Setaria pumila Yellow Bristle Grass	60	Y	FAC	Prevalen	ce Index = B/A	= 3.59			
2 Asclepias syriaca Common Milkweed	20	N	FACU						
3 Cirsium arvense Canadian Thistle	10	<u>N</u>	FACU	Hydroph	ytic Vegetatio	n Indicators:			
4 Hieracium umbeliatum Narrow-Lear Hawkweed	10	<u>N</u>			d test for hydro	pnytic vegetation	ו		
6 Fallopia convolvulus Elary Spurge	5		FACU	Prev:	alence index is	50% <3.0*			
7			17.00						
8				supp	orting data in R	tations" (provide Remarks or on a			
9				sepa	rate sheet)				
10				Prob	lematic hydropl	nytic vegetation*			
	110	= Total Cover		(expl	ain)				
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hydric soil and	l wetland hydrology i	must be		
1				pr	esent, unless distu	irbed or problematic			
2		Tetal C		Hydr	opnytic				
	U	= I otal Cover		pres	ent?	Y			
Remarks: (Include photo numbers here or on a separate sheet)									
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	lant List:							
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nati Engineers, Engineer Research and Development Center, Cold Pagings Passar	ional Wetland	Plant List, version	on 2.4.0 (https://	/wetland_plai	nts.usace.army.mil, Chanel Hill NC). U.S. Army Corps ((2016)	of		
LIS Army Corns of Engineers	ana Engine		, , , , , , , , , , , , , , , , , , , ,		, Snaper I III, NO. (Midwest Real	on		
os miny ourps of Engineers						ivinawest Neyl			

SOIL

Depth	<u>Matrix</u>		Re	dox Feat	ures				
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Tex	ture	Remarks
0-12	10YR 3/1	100					Sandy Loa	m	
12-20	10YR 3/2	100					Sandy Loa	m with rocks	
	L Concentration D -	L Depleti		d Matrix		eelved Cr	nd Croine	**!	I - Dere Lining M - Metrix
/pe. C = C	Joncentration, D -	- Depietit	on, Rivi – Reduce	u maurix,	1013 - 1013	askeu Sa	anu Grains.	Location	I. FL - Fore Lining, M - Maurix
iyaric Sc			Cor		d Matrix	(04)	Indicato	ot Droirio Dr	North Control Solis:
HIS			Sar	idy Gleye	ed iviatrix	(54)		ISt Prairie Re	dox (A16) (LRR K, L, R)
His	tic Epipedon (A2)		Sar	ndy Redo	x (S5)		Dari	k Surface (S	7) (LRR K, L)
Bla	ck Histic (A3)		Stri	pped Ma	trix (S6)		5 cn	n Mucky Pea	at or Peat (S3) (LRR K, L, R)
Hyo	drogen Sulfide (A4	l)	Loa	my Muck	ky Minera	al (F1)	Iron	-Manganese	Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5)		Loa	my Gley	ed Matrix	(F2)	Very	/ Shallow Da	ark Surface (TF12)
2 ci	m Muck (A10)		Dep	pleted Ma	atrix (F3)		Othe	er (explain ir	remarks)
Dep	oleted Below Dark	Surface	(A11) Red	dox Dark	Surface	(F6)	-		
Thi	ck Dark Surface (A	A12)	Dep	pleted Da	irk Surfac	ce (F7)	*Indic	cators of hyd	rophytic vegetation and wetlar
Sar	ndy Mucky Minera	l (S1)	Red	dox Depre	essions ((F8)	hydi	rology must	be present, unless disturbed o
									problematic
strictive	Laver (if observe	ed):							
ne [.]							Hydric	soil prese	nt? N
nth (inch	oc).				-		nyana		
emarks:	·				<u>.</u>				
emarks:	<u> </u>				-				
marks: YDROL(DGY	rs:			-				
marks: YDROL(etland Hy	DGY drology Indicato	rs:	required: check a	all that an	-			Secondary In	dicators (minimum of two requ
YDROLO	DGY drology Indicato	rs: of one is	required; check a	all that ap	- pply) Fauna (B	13)	<u>c</u>	Secondary Ir	dicators (minimum of two requ
YDROL(etland Hy imary Indi Surface	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2)	r s: of one is	required; check a	all that ap Aquatic	- pply) Fauna (B	13)	<u></u>	Secondary Ir Surface	dicators (minimum of two requ Soil Cracks (B6)
YDROL(etland Hy imary Indi Surface High Wa Saturati	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3)	rs: of one is	required; check a	all that ap Aquatic True Aqu	- pply) Fauna (B uatic Plar no Sulfide	13) nts (B14) Odor (C2	<u><u> </u></u>	Secondary Ir Surface Drainag	<u>idicators (minimum of two requ</u> Soil Cracks (B6) e Patterns (B10)
YDROL(etland Hy imary Indi Surface High Wa Saturatio Water M	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) Jarke (B1)	rs: of one is	required; check a	all that ap Aquatic True Aq Hydroge	pply) Fauna (B uatic Plar in Sulfide	13) hts (B14) Odor (C ²	1)	Secondary Ir Surface Dry-Sea Cravite	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) Ison Water Table (C2)
YDROL(etland Hy mary Indi Surface High Wa Saturatio Water M Saduratio	DGY rdrology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) at Deposits (B2)	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3)	pply) Fauna (B uatic Plar n Sulfide I Rhizosp	13) hts (B14) Odor (C ² heres on	1) Living Roots	Secondary Ir Surface Drainag Dry-Sea Crayfish	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) ison Water Table (C2) i Burrows (C8) on Vicible on Aerial Imagery (CC
YDROL(etland Hy imary Indi Surface High Wa Saturatie Water M Sedimen Drift Den	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2)	r s: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3)	pply) Fauna (B uatic Plar n Sulfide I Rhizosp	13) hts (B14) Odor (C ² heres on	1) Living Roots	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) ison Water Table (C2) i Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1)
Marks: (DROL(etland Hy mary Indi Surface High Wa Saturatie Water M Sedimen Drift Dep Alga Ma	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4)	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidizec (C3) Presenc	p <u>ply)</u> Fauna (B uatic Plar n Sulfide I Rhizosp e of Redu	13) hts (B14) Odor (C ² heres on uced Iron	1) Living Roots	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) ison Water Table (C2) b Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1)
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YDROLO etland Hy imary Indi Surface High Wa Saturatie Water M Sedimer Drift Dep Algal Ma Iron Dep	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria	rs: of one is	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu	p <u>ply)</u> Fauna (B uatic Plar en Sulfide I Rhizosp e of Redu ron Redu	13) hts (B14) Odor (C ² heres on uced Iron uction in T	1) Living Roots (C4) Tilled Soils	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo FAC-Ne	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) Ison Water Table (C2) I Burrows (C8) on Visible on Aerial Imagery (CS or Stressed Plants (D1) phic Position (D2) Jutral Test (D5)
Provident States	DGY drology Indicato cators (minimum Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria	rs: of one is I Imagery ve Surfac	required; check a	all that ap Aquatic True Aqu Hydroge Oxidized (C3) Presenc Recent I (C6) Thin Mu Gauge o	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ron Redu ck Surfac or Well Da	13) hts (B14) Odor (C ² heres on uced Iron uction in T ce (C7) ata (D9)	1) Living Roots (C4) ïlled Soils	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomol FAC-Ne	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) ison Water Table (C2) a Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) phic Position (D2) autral Test (D5)
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YDROLO etland Hy imary Indi Surface High Wa Saturatio Vater M Sedimen Drift Dep Inundati Sparsely Water-S eld Obser urface wat ater table	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? pillary (fringe)	I Imagery ve Surfac) Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge c Other (E X X	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da cxplain in Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uction in T ee (C7) ata (D9) Remarks inches): inches):	1) Living Roots (C4) Tilled Soils	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomo FAC-Ne	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) ison Water Table (C2) b Burrows (C8) on Visible on Aerial Imagery (C8) or Stressed Plants (D1) phic Position (D2) outral Test (D5) dicators of wetland bydrology present?N
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YDROLO etland Hy imary Indi Surface High Wa Saturatie Water M Sedimen Drift Dep Algal Ma Iron Dep Inundati Sparsely Water-S eld Obser urface wat ater table aturation p cludes ca escribe ree	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria y Vegetated Conca itained Leaves (B9) vations: er present? present? present? present? pillary fringe) corded data (streat	I Imagery ve Surfac) Yes Yes Yes Yes	required; check a	Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge C Other (E X X X aerial ph	pply) Fauna (B uatic Plar in Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ixplain in Depth (i Depth (i Depth (i	13) hts (B14) Odor (C ² heres on uced Iron uced Iron inction in T ce (C7) ata (D9) Remarks inches): inches): inches): evious in	1) Living Roots (C4) 'illed Soils) spections), if a	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomor FAC-Ne	dicators (minimum of two requ Soil Cracks (B6) e Patterns (B10) ison Water Table (C2) n Burrows (C8) on Visible on Aerial Imagery (C9 or Stressed Plants (D1) phic Position (D2) utral Test (D5) dicators of wetland hydrology present? N
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YDROLO etland Hy imary Indi Surface High Wa Saturatio Water M Sedimer Drift Dep Inundati Sparsely Water-S eld Obser urface wat ater table aturation p icludes ca scribe red	DGY drology Indicato cators (minimum of Water (A1) ater Table (A2) on (A3) farks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) on Visible on Aeria v Vegetated Conca itained Leaves (B9) vations: er present? present? present? present? present? pillary fringe) corded data (streated the precipitation of	I Imagery ve Surfac) Yes Yes Yes am gauge	required; check a	all that ap Aquatic True Aqu Hydroge Oxidizec (C3) Presenc Recent I (C6) Thin Mu Gauge o Other (E X X X aerial ph	pply) Fauna (B uatic Plar en Sulfide I Rhizosp e of Redu ron Redu ck Surfac or Well Da ck Surfac ixplain in Depth (i Depth (i Depth (i Notos, pre	13) hts (B14) Odor (C ² heres on uced Iron uced Iron uced Iron ata (D9) Remarks inches): inches): evious in han nor	1) Living Roots (C4) Tilled Soils	Secondary Ir Surface Drainag Dry-Sea Crayfish Saturati Stunted Geomol FAC-Ne FAC-Ne	dicators (minimum of two req Soil Cracks (B6) e Patterns (B10) ison Water Table (C2) i Burrows (C8) on Visible on Aerial Imagery (C or Stressed Plants (D1) phic Position (D2) eutral Test (D5) dicators of wetland hydrology present?N

WETLAND DETERMIN	NATION D	ATA FORM	/I - Midwes	st Regior	า		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Sid	oux Falls/Mir	nnehaha	Sampling Date:	9/25/2018	8
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	9W	
Investigator(s): Rebecca Beduhn		Sect	ion, Townsh	ip, Range:	S27 T	101N R49W	
Landform (hillslope, terrace, etc.): footslope		Local	relief (conca	ave, convex	, none):	Concave	
Slope (%): 2 Lat: 43° 30' 56.901" N		Long:	96° 42' 39.5	29" W	Datum: UTN	/I NAD83 Zone 1	14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NWI	Classificat	tion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (I	lf no, explai	n in remarks)		
Are vegetation , soil , or hydrology	significantly	y disturbed?			Are "normal circ	umstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present? Y	es
SUMMARY OF FINDINGS				(If neede	d, explain any a	nswers in remar	ˈks.)
Hydrophytic vegetation present? Y							
Hydric soil present? Y		Is the sa	ampled area	a within a v	wetland?	Y	
Indicators of wetland hydrology present? Y		lf yes, o	otional wetla	nd site ID:	Wetland	9	
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected in Wetland 9	·P • · · ·)						
VEGETATION Use scientific names of plants							
	Absoluto	Dominant	Indicator	Domina	nce Test Works	heet	
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Spe	ries	
1 '				that are	OBL, FACW, or F	[:] AC: 2	(A)
2				Total	Number of Domi	nant	- ` `
3				Spec	cies Across all Str	ata: 2	(B)
4				Percent	of Dominant Spe	cies	
5				that are	OBL, FACW, or F	AC: 100.00%	_(A/B)
	0 :	=Total Cover		Durali		- 1 1	
<u>Sapling/Shrub stratun</u> (Plot size: <u>15 Radius</u>)				Total %	Ce Index work	sneet	
2			<u> </u>			v1- 0	
3				FACW s	pecies 80	$x^{2} = \frac{160}{160}$	-
4				FAC spe	cies 20	$x = \frac{100}{60}$	-
5				FACU sp	ecies 0	x 4 = 0	-
	0 :	=Total Cover		UPL spe	cies 0	x 5 = 0	-
Herb stratum (Plot size: 5' Radius)				Column t	totals 100	(A) 220	(B)
1 Phalaris arundinacea Reed Canary Grass	50	Y	FACW	Prevalen	ce Index = B/A =	= 2.20	
2 Hordeum jubatum Fox-Tail Barley	20	Y	FAC				-
3 Persicaria lapathifolia Dock-Leaf Smartweed	15	N	FACW	Hydroph	ytic Vegetation	Indicators:	
4 Cyperus esculentus Chufa	15	N	FACW	Rapi	d test for hydrop	hytic vegetation	
5				X Dom	inance test is >5	·0%	
0 7		<u> </u>		Prev	alence index is s	<u>≥</u> 3.0°	
8				Morp	hological adapta	ations* (provide	
9				supp	rate sheet)	inarks of on a	
10				Prob	lematic hvdroph	vtic vegetation*	
	100	=Total Cover		(expl	ain)		
Woody vine stratum (Plot size: 30' Radius)				*Indicator	s of hydric soil and v	wetland hydrology n	nust be
1				pr	esent, unless distur	bed or problematic	
2				Hydr	ophytic		
	0 :	=Total Cover		vege	ent?	Y	
Remarks: (Include photo numbers here or on a separate sheet)				P100			
Note: This data sheet has been adapted to use the 2016 National	Wetland PI	ant List:					
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: Nat	ional Wetland	Plant List, versio	on 2.4.0 (https:/	//wetland_plai	nts.usace.army.mil).	U.S. Army Corps of	f
Engineers, Engineer Research and Development Center, Cold Regions Research	ch and Enginee	ering Laboratory	, напover, NH,	, ana BONAP	, Cnapel Hill, NC. (2	UID)	
US Army Corps of Engineers					N	Judwest Regio	on

SOIL

Depth Mattix Coder (most) % Type Loc** Texture Remarks 0:8 10YR 31 80 7.5YR 4/8 20 C M Sily Loam 8:20 10YR 51 75 7.5YR 56 25 C M Sily Loam 8:20 10YR 51 75 7.5YR 56 25 C M Sily Loam 9:20 10YR 51 75 7.5YR 56 25 C M Sily Loam 9:20 10YR 51 75 7.5YR 56 25 C M Sily Loam 9:20 10YR 50 10Ricators: Indicators for Problematic Hydric Solis: Indicators for Problematic Hydric Solis: Coase Praitine Rodox (A16) (LRK K, L R) Simple Matrix (S0) Som Macky Meeta (F12) (LRK K, L R) Simple Matrix (S1) Secondary Macky Mineral (F12) Very Shallow Dark Sufface (F12) (LRK K, L R) Simple Macky Mineral (S1) Refere Sufface (F12) Confer (explain in remarks) 10:30 Depted Matrix (S2) 10.30 Depted Matrix (F2) Very Shallow Dark Sufface (F12) Thodcators of hydrophytic vegetation and wetland hydrology matate pr	Profile Dese	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	o <mark>r or conf</mark> irm th	ne absence	of indicators.)
Clinches Color (moist) %. Type* Loc** Texture Remarks 0:8 10YR 3/1 80 7.5YR 4/8 20 C M Sily Loam	Depth Matrix Redox Features									
0.8 10YR 31 80 7.5YR 4/6 20 C M Sity Loam 8-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Loam 9-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Loam 9-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Loam 9-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Loam 9-20 10YR 5/1 75 7.5YR 5/6 25 C M Sity Loam 9-20 2 Concentration, D Depleton Matrix, KS Matrix, KS Matrix, KS Matrix, KS 100 11 Sandy Klok (A1) Sandy Klok (A1) Concentration, CR Sity Concentration, CR Tom-Manganee Masses (F3) (LRR K, L, R) 11 The Koka Dark Surface (F1) The Koka Dark Surface (F6) The Concentration, CR Tom-Manganee Masses (F3) (LRR K, L, R) 11 The Koka Dark Surface (A1) Depletod Matrix, Kance (F6) The Concentration and wellan	(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	re	Remarks
8-20 10YR 5/1 75 7.5YR 5/6 25 C M Sitty Leam Type C = Concentration. D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains **Location PL = Pore Lining, M = Matrix Hydric Soll indicators: **Location (A1) Sandy Redox (S5) Coale Prolife Redox (A16) (LRR K, L, R) Black Histic (A3) Sintyped Matrix (S4) Coale Prolife Redox (A16) (LRR K, L, R) Thick Soll indicators: Sintyped Matrix (S3) Coale Prolife Redox (A16) (LRR K, L, R) Statiation Layers (A3) Learny Sintyped Matrix (F2) Other (syntain in remarks) 2 on Muck (A10) Doepleted Matrix (F2) Other (syntain in remarks) 3 Statiation Layers (A3) Explored Matrix (F3) Other (syntain in remarks) 3 Copjeted Below Dark Surface (A11) Depleted Matrix (F2) Toher (syntain in remarks) 3 Copjeted Jaker (A12) Topleted Dark Surface (F7) "Indicators of hydrophylic vegetation and wetland hydrology indicators: Type: Type: Type (riches): "Indicators of hydrophylic vegetation and wetland hydrology indicators: Statiation (A3) Hydrocay Surface (B13) Surface Water (A1) Dark Surface (B1) Statiation (A3) Hydrology Indicators: True	0-8	10YR 3/1	80	7.5YR 4/6	20	С	М	Silty Loam		
Observersions Output and the second	8-20	10YR 5/1	75	7.5YR 5/6	25	C	М	Silty Loam		
Type: C = Concentration. D = Depletion. RM = Reduced Matix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matix. "Type: C = Concentration. D = Depletion. RM = Reduced Matix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matix. "Histics [OIII Indicators:	0-20	1011(3/1	75	7.511 5/0	23	U U	IVI	Silty Loan		
Type: C = Concentration. D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Proze Lining, M = Matrix Hydric Soil Indicators: indicators for Problematic Hydric Soils: Histicac (A1) Sandy Redox (S5) Black Histic (A2) Sandy Redox (S5) Black Histic (A3) Strapped Matrix (S6) Black Histic (A3) Strapped Matrix (S6) Black Histic (A3) Strapped Matrix (S6) 2 orn Muck (A10) Depleted Matrix (F2) 2 orn Muck (A10) Depleted Matrix (F2) Cost Parise Other (sxplain in remarks) Thick Dark Surface (A11) Redox Dark Surface (F7) * Thick Dark Surface (A12) Redox Dark Surface (F7) * Restrictive Layer (if observed): Type: * Type: Hydric soil present? * Surface Water (A1) Aquatic Faura (B13) * Surface Water (A1) Aquatic Faura (B13) * Surface Water (A1) Cost Relation in Trable (A2) * Surface Water (A1) Aquatic Faura (B13) * Surface Water (A1) Cost Relation in Trable (A2) * Surface Water (A1) Aquatic Faura (B13) * Surface Water (A1) Cost Relation in Trable (A2) * Surface W										
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains **Location: PL = Pore Lining, M = Matrix Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains **Location: PL = Pore Lining, M = Matrix Histos [A1] Sandy Gleyed Matrix (S0) Indicators for Problematic Hydric Soils: Histos [Pippedon (A2) Sandy Redox (S5) Dark Surface (S7) (LRR K, L, R) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR K, L, R) Type: C = Concentration, D = Depletion (Attrix (S6) Dark Surface (S7) (LRR K, L, R) Stratified Layers (A5) Doarly Mucky Mineral (F1) Toro-Manganeee Masses (F2) (LRR K, L, R) Type: Depletion (Attrix (F3) Depletion (Attrix (F3) Other (explain in remarks) ** Type: Implematic Redox Depressions (F8) **Indicators of hydrophysic vegetation and wetland trydrology must be present, unless disturbed or problematic Restrictive Layer (If observed): True Aquatic Faura (B13) Secondary. Indicators (minimum of two required) Surface Soil Crass (S8) True Aquatic Faura (B13) Secondary. Indicators (minimum of two required) Surface Water (A1) Aquatic Faura (B13) Surface Soil Crass (S8) Surface Soil Crass (S8) Surface Water (A1) Aquatic Faura (B13) Surface Soil Crass (S8)										
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location PL = Pore Lining, M = Matrix Hydric Soil Indicators: Indicators for Problematic Netdox (A16) (LRR K, L, R) Histic Epipadon (A2) Sandy Gleyed Matrix (S4) Black Histic (A3) Stripped Matrix (S4) Hydrogen Sutfide (A4) Learny Ulevy Mineral (F1) Tron-Manganese Masses (F12) (LRR K, L, R) Stratified Layers (A5) Depleted Matrix (S5) 2 or Muck (A10) Depleted Matrix (S4) Thick Dark Surface (A12) Depleted Matrix (C9) Thick Dark Surface (A12) Depleted Matrix (C9) Thick Dark Surface (A12) Depleted Matrix (C9) Bandy Mucky Mineral (S1) Redox Dark Surface (F8) "Indicators (ininimum of one is required: check all that apply) Indicators (minimum of two required) Surface Watrix (A1) Aquatic Faura (B13) Surface Watrix (B1) Surface Soil Crossepheres on Living Roots Surface Watrix (B1) Oxidized Fibrain (B14) Drue Aquatic Plans (B13) Surface Soil Crossepheres (D1) Surface Watrix (B1) Oxidized Fibrain (B14) Surface Watrix (B1) Oxidized Fibrain (B14) Startable Vasible on Aerial Imagery (B7) True Aqu										
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils: Histics [A1] Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Stratified Layers (A10) Depleted Matrix (S6) Torn-Manganese Masses (F2) (LRR K, L, R) Depleted Matrix (S6) Doarn Mucky Mineral (F1) Torn-Manganese Masses (F2) (LRR K, L, R) Depleted Matrix (F2) Very Shallow Dark Surface (S1) (LRR K, L, R) Depleted Matrix (F2) Other (explain in remarks) Thick Dark Surface (A11) Redox Dark Surface (F6) **Inck Dark Surface (A12) Depleted Dark Surface (F7) **Inck Dark Surface (A12) Redox Dark Surface (F7) **Inck Dark Surface (A12) Redox Dark Surface (F7) **Inck Dark Surface (A12) Redox Dark Surface (F1) **Inck Dark Surface (A12) Aquatic Fearma (B13) Type: Depleted Dark Surface (F1) **Inck Marks (B1) Ocidated Rhizospheres on Living Roots Surface Water (A1) Aquatic Fearma (B13) Hydrology Indicators True Aquatic Planta (B13) Surface Water (A1) Presence										
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils: Histoci (A1) Sandy Gleyed Matrix (S4) Black Histo (A2) Sandy Redox (S5) Black Histo (A3) Disripped Matrix (S4) Damy Gleyed Matrix (S5) Dam Surface (S7) (LRR K, L, R) Depleted Layers (A4) Loamy Gleyed Matrix (S5) Depleted Dark Surface (TF1) Tork Marganese Masses (F2) (LRR K, L, R) Depleted Dark Surface (A1) Redox Dark Surface (F7) Thick Dark Surface (A12) Depleted Matrix (F3) Depleted Dark Surface (F7) Thick Dark Surface (A12) Sendy Mucky Mineral (S1) Redox Dark Surface (F7) Type: Hydric soil present? Y Popeleted Dark Surface (A12) Depleted Dark Surface (F7) *Indicators of hydrophytic vegetation and wetland hydrology indicators: Surface Soil Creace Soil Surface (A12) Depleted Dark Surface (F7) *Indicators (minimum of two required) Surface Vater (A1) Aquator Fauna (B13) Secondary Indicators (minimum of two required) Surface Vater (A1) Aquator Fauna (B13) Secondary Indicators (minimum of two required) Surface Vater (A1)										
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Maeked Sand Grains. **Location: PL = Pore Lining, M = Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils: Coast Praine Rodox (A16) (LRR K, L, R) Black Histic (A3) Sandy Redox (S5) Dank Surface (S7) (LRR K, L, R) Straiped Matrix (S6) S cm Mucky Peter Oreat (S3) (LRR K, L, R) Straified Layers (A5) Doarny Mucky Mineral (F1) C = Ommore Concentration (C4) Depleted Matrix (F2) C = Ommore Concentration (C4) Redox Dark Surface (F7) * Thick Dark Surface (A12) Depleted Matrix (F8) C = Ommore Concentration (C4) Redox Depressions (F8) * Hydric soil present? Y Peter (infohes): Problematic Problematic Secondary Indicators (minimum of one is required: check all that apply) Surface Variant (A1) Aquatic Fauna (B13) Type: Problematic Fauna (B13) Hydro Cost (B1) Doxidized Rhizospheres on Living Roots Surface Variant (A1) Reacont Iron Reduction in Titled So										
Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains **Location: PL = Pare Lining, M = Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils: Histic Explored n (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S4) Hydric Soil Indicators for Problematic Hydric Soils: Coast Pratic Redox (A16) (LRR K, L, R) Pydrogen Suffice (A4) Loarny Mucky Mineral (F1) Stripped Matrix (S5) Loarny Mucky Mineral (F1) Yendow Dark Surface (A12) Depleted Matrix (F2) Yendow Dark Surface (A11) Redox Dark Surface (F6) Depleted Below Dark Surface (A12) Redox Depressions (F8) *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): True Aquatic Fauna (B13) Type: Hydric soil present? Y Sandra Water (A1) Aquatic Fauna (B13) Surface Soil Cracks (B6) Drainage Patterns (B10) Drainage Patterns (B10) Drainage Patterns (B10) Saduration (A3) Hydrigen Water (A1) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Mage Mater (A3) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Drainage Patterns (B10										
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Histosal (A1) Sandy Gleyed Matrix (S4) Coast Prairie Rodox (A16) (LRR K, L, R) Histos Epipedon (A2) Sandy Redox (S5) Dark Surface (S7) (LRR K, L, R) Histos Epipedon (A2) Sandy Redox (S5) Dark Surface (S7) (LRR K, L, R) Hydrogen Suffice (A4) Loarry Wucky Mineral (F1) Tron-Manganese Masses (F12) (LRR K, L, R) 2 cm Muck (A10) Depleted Matrix (F3) Other (explain in remarks) Thick Dark Surface (A12) Depleted Matrix (S5) Other (explain in remarks) Sandy Mucky Mineral (S1) Redox Dark Surface (F6) Tinic Lators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Popth (inches):	Hvdric So	il Indicators:		,				Indicators	s for Proble	matic Hydric Soils:
Histic Epipedon (A2) Sandy Redox (S5) Black Histic (A3) Stripped Matrix (S6) Stratified Layers (A6) Loamy Mucky Mineral (P1) 2 cm Muck (A10) Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F6) Tinck Dark Surface (A12) Redox Depressions (F8) Tippe: Hydric soil present; unless disturbed or problematic Restrictive Layer (If observed): True Aquatic Fauna (B13) Surface Water (A1) Aquatic Fauna (B13) Surface Water (A1) Aquatic Fauna (B13) Startace Water (A1) Aquatic Fauna (B13) Startace Nater (B1) Oudized Rhizospheres on Living Roots Secondary Indicators (B2) (C6) Dift Deposits (B2) (C6) Dift Deposits (B3) Presence of Reduced Iron (C4) Agal Mator Custer (B4)	Hist	tosol (A1)		San	dv Gleve	ed Matrix	(S4)	Coast	Prairie Rec	lox (A16) (LRR K. L. R)
Black Lppdout(nct) Cash (Next) (Next, L, R) Black Hydrogen Sufficed (A4) Loamy Mucky Mineral (F1) Tron-Manganese Masses (F12) (LRR K, L, R) Stratiged Matrix (S6) Loamy Mucky Mineral (F1) Very Shallow Dark Sufface (TF12) 2 cm Muck (A10) Depleted Matrix (F3) Other (explain in remarks) 3 Depleted Below Dark Surface (A11) X Redox Dark Surface (F7) "Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Hydric soil present? Y Popeleted Matrix (S1) Areadox Depressions (F8) Surface Soil Cracks (B6) Drainage Patterns (B10) Surface Soil Cracks (M1) Aquatic Fauna (B13) Surface Soil Cracks (B6) Drainage Patterns (B10) Surface Soil Cracks (B1) Oxidized Rhicespheres on Living Roots Surface Soil Cracks (B6) Drainage Patterns (B10) Statiation (A3) Hydrogen Suffice Odor (C1) Dy:Seasen Water Table (C2) Surface Soil Cracks (B6) Secondary Indicators (B1) Coad Rhicespheres on Living Roots Surface Soil Cracks (B6) Drainage Patterns (B10) Statuation (A3) Hydrogen Suffice Odor (C1) Dy:Seasen Water Table (C2) Statuation (S4) Saturation (S4) Mater Makis (B1)<	Hist	tic Eninedon (A2)		Sar	dy Redo	v (95)	(0-1)	Dark	Surface (S7	
black fillsto (ka)		ak Histic (A3)				riv (S6)		5 cm	Mucky Post	or Peat (S3) (IRR K R)
Applicipal Sumble (k4) Duarny Mucky Winetal (F1) Indiriversiding the set source (F2) Stratified Balow Dark Surface (A11) X Redox Depressions (F8) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Depleted Matrix (F2) Other explain in remarks) Redox Depressions (F8) "Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Type: Depleted Matrix (F2) Very Shallow Dark Surface (F7) "Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Type: Depheted Matrix (F2) Surface Variantian (F6) Y HYDROLOGY Aquatic Fauna (B13) High Water Table (A2) Aquatic Fauna (B13) Surface Variantian (F3) Surface Soil Cracks (B6) Secondary Indicators C3) Variantian (F3) Presence of Reduced Iron (C4) Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Drift Deposits (B3) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (B7) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery		un mistic (A3)	1			uix (30)			Annannan I	(53) (ERR R, E, R)
Stratified Layers (AS) Dapleted Matrix (F2) Very shallow Dark Surface (F12) Stratified Layers (AS) Depleted Matrix (F2) Other (explain in remarks) Thick Dark Surface (A12) Depleted Dark Surface (F7) *Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Hydric soil present? Y Depleted Mydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Aquatic Fauna (B13) Surface Soil Cracks (B6) HYDROLOGY True Aquatic Plants (B14) Dry-Season Water Table (C2) Wetland Hydrology Indicators: True Aquatic Plants (B14) Dry-Season Water Table (C2) Surface Water (A1) Aquatic Fauna (B13) Dry-Season Water Table (C2) Saturation (A3) Hydrogen Suffice Odr (C1) Dry-Season Water Table (C2) Sectiment Deposits (B2) (C3) Dry-Season Water Table (C2) Dirt Deposits (B3) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Surface Ketter Saturation Season (B2) Gauge or Wetl Data (D9) Saturation Visible on Aerial Imagery (C9) Water Satiat Leaves (B9)	— Hyc	rogen Suitide (A4)	Loa					/langanese l	
2 cm Muck (A10) Depleted Matrx (1-3) Other (explain in remarks) X Depleted Below Dark Surface (A12) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) "Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Type: Hydric soil present? Y Remarks: Hydric soil present? Y Retransmission Aquatic Fauna (B13) Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required: check all that apply) Surface Water (A1) Aquatic Fauna (B13) Surface Soil Cracks (B6) Surface Water (A1) Aquatic Fauna (B13) Diarage Patterns (B10) Diarage Patterns (B10) Diarage Soil Cracks (B6) Surface Water (A1) Aquatic Fauna (B13) Saturation (A3) Diarage Soil Cracks (B6) Diarage Soil Cracks (B6) Startation (A3) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) Cash (C3) Sediment Deposits (B3) Presence of Reduced Iron (C4) Saturation (C4) Saturation (C4) Aga Mator Crust (B4) Redex Surface (C7) Thin Muck Surface (C7) Saturation (C2) FAC-Neutral Test (D2) Surface water present? Yes No Depth (inches): <td>Stra</td> <td>atified Layers (A5)</td> <td></td> <td></td> <td>my Gleye</td> <td>ed Matrix</td> <td>(F2)</td> <td>very :</td> <td>Shallow Dar</td> <td>K Surface (TF12)</td>	Stra	atified Layers (A5)			my Gleye	ed Matrix	(F2)	very :	Shallow Dar	K Surface (TF12)
X Depleted Below Dark Surface (A12) Constrained Dark Surface (F6) Y Depleted Dark Surface (F7) Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic Restrictive Layer (if observed): Hydric soil present? Y Depleted Hole Norface (F7) Hydric soil present? Y Depleted Hole Norface (F7) Hydric soil present? Y Depleted Selew Dark Surface (F7) Hydric soil present? Y Depleted Selew Dark Surface (F7) Hydric soil present? Y Depleted Selew Dark Surface (F7) Hydric soil present? Y Restrictive Layer (if observed): Y Hydric soil present? Y Depleted Hole Norface Norfalmum of one is required: check all that apply) Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Cimary Indicators (minimum of one is required: check all that apply) Surface Soil Cracks (B6) Dry-Seasen Water Table (C2) Saturation (A3) Hydrogen Sulfide Odor (C1) Dry-Seasen Water Table (C2) Caylish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils Geomorphic Position (D2) FAC-Neutral Test (D5) <	2 cr	m Muck (A10)		Dep	leted Ma	atrix (F3)		Other	(explain in	remarks)
	X Dep	bleted Below Dark	Surface	(A11) <u>X</u> Rec	lox Dark	Surface	(F6)			
	Thio	ck Dark Surface (/	412)	Dep	leted Da	irk Surfac	ce (F7)	*Indica	tors of hydr	ophytic vegetation and wetland
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Water table present? Yes No X Depth (inches): Indicators of wetland hydrology present? Y Saturation present? Yes X No Depth (inches): 0 Indicators of wetland hydrology present? Y Question conditions were determined Depth (inches): 0 0 Indicators of wetland hydrology present? Y Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Remarks: Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C). Depth (inches): 0 Depth (inches): Depth (inches): 0 Depth (inches): 0 Depth (inches): Y Depth (inches): Y Depth (inches): 0 Depth (inches): Y Depth (inches): No Depth (inches): Depth (inches): Depth (inches): No Dept	Surface wate	er present?	Yes	No	X	Depth (i	nches):			
Saturation present? Yes X No Depth (inches): 0 hydrology present? Y (includes capillary fringe) Depth (inches): 0 hydrology present? Y Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Remarks: Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	Water table	present?	Yes	No	X	Depth (i	nches):		Ind	licators of wetland
(includes capillary fringe) Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	Saturation p	resent?	Yes	X No		Depth (i	nches):	0	hy	vdrology present? Y
Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	(includes ca	pillary fringe)				-				
Remarks: Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	Describe rec	orded data (strea	m gauge	, monitoring well,	aerial ph	notos, pre	evious in:	spections), if av	/ailable:	
Remarks: Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).			5 5	, <u> </u>		<i>.</i>		. ,,		
Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).	Remarks:									
	Anteceder	t precipitation of	conditio	ns were determ	nined "V	Vetter t	han nor	mal" (Append	dix C).	
IN Army Corps of Engineers Midwest Pegion	IS Army C	orns of Engine	ors							Midwest Region

WETLAND DETERMI	NATION D	ATA FORM	1 - Midwes	st Region		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: Sid	oux Falls/Mir	nnehaha S	ampling Date:	9/25/2018
Applicant/Owner: South Dakota Department of Transportation		State:	South Da	akota S	ampling Point:	10U
Investigator(s): Rebecca Beduhn		Sect	ion, Townshi	ip, Range:	S27 T10	1N R49W
Landform (hillslope, terrace, etc.): backslope		Local	relief (conca	ive, convex,	none):	Concave
Slope (%): 4 Lat: 43° 31' 3.164" N		Long:	96° 42' 27.16	65" W 🛛 🛛 🗠	atum: UTM N	IAD83 Zone 14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NWI	Classificatio	n:	None
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		N (l	f no, explain	in remarks)	
Are vegetation , soil , or hydrology	significantly	y disturbed?		А	re "normal circum	istances"
Are vegetation , soil , or hydrology	naturally pr	roblematic?				present? Yes
SUMMARY OF FINDINGS				(If needed,	explain any answ	wers in remarks.)
Hydrophytic vegetation present? N						
Hydric soil present? N		Is the sa	ampled area	a within a we	etland?	Ν
Indicators of wetland hydrology present? N		lf yes, op	otional wetla	nd site ID:		
Remarks: (Explain alternative procedures here or in a separate r	eport)					
Sample Point collected adjacent to Wetland 10	00011.)					
VEGETATION						
	Abcoluto	Dominant	Indicator	Dominanc	e Test Workshe	et
Tree Stratum (Plot size: 30' Radius)	% Cover	Species	Status	Number of	Dominant Specie	
1				that are Of	BL, FACW, or FAC	C: 1 (A)
2		·		Total N	umber of Dominar	()
3				Specie	s Across all Strata	a: <u> </u>
4				Percent of	Dominant Specie	s
5				that are Of	BL, FACW, or FAC	C: 50.00% (A/B)
	0 =	=Total Cover			<u> </u>	
Sapling/Shrub stratun (Plot size: 15' Radius)				Prevalenc	e Index Worksho	eet
		·		Total % Co	over of:	1 0
					$\frac{1}{2}$	1 = 0
4				FAC specie	$\frac{1}{2}$	3 = 150
5				FACU spe	cies $\frac{1}{40}$ x $\frac{1}{2}$	4 = 160
	0	=Total Cover		UPL specie	es 10 x	5 = 50
Herb stratum (Plot size: 5' Radius)				Column to	als 100 (A	A) 360 (B)
1 Setaria pumila Yellow Bristle Grass	50	Y	FAC	Prevalence	e Index = B/A =	3.60
2 Fallopia convolvulus Black-Bindweed	30	Y	FACU			
3 Medicago lupulina Black Medick	10	Ν	FACU	Hydrophy	tic Vegetation In	dicators:
4 Physalis virginiana Virginia Ground Cherry	10	N	UPL	Rapid	test for hydrophy	tic vegetation
5				Domin	ance test is >50%	6
6		·		Preval	ence index is ≤3.	U*
/				Morph	ological adaptatio	ons* (provide
8 <u></u>		·		separa	ting data in Rema te sheet)	arks or on a
10		·		Proble	matic hydrophytic	vegetation*
	100 :	=Total Cover		(explai	n)	vegetation
<u>Woody vine stratum</u> (Plot size: <u>30' Radius</u>)				*Indicators of	of hydric soil and wet	and hydrology must be
2		·		Hydro	phytic	
	0 :	=Total Cover		vegeta	ition	
				preser	nt? N	
Remarks: (include photo numbers here or on a separate sheet)						
Note: This data sheet has been adapted to use the 2016 Nationa	tional Wetland Pl	ant List:	n 2 4 0 (https://	/wetland_plants	USACE army mil) 110	S Army Corps of
Engineers, Engineer Research and Development Center, Cold Regions Resear	ch and Enginee	ering Laboratory	, Hanover, NH,	and BONAP, C	Chapel Hill, NC. (2016	5)

US Army Corps of Engineers

Midwest Region

SOIL

Profile Des	cription: (Descri	be to the	e depth needed t	o docun	nent the	indicato	o <mark>r or c</mark> onfirm t	he absence	e of indicators.)
Depth Matrix Redox Features									
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Textu	ure	Remarks
0-12	10YR 3/3	100					Silty Loam	with rocks	
10⊥			<u> </u>						Rocks
12+									RUCKS
*Tvpe: C = 0	Concentration. D =	Depletio	on. RM = Reduce	d Matrix.	MS = Ma	asked Sa	and Grains.	**Location	: PL = Pore Lining. M = Matrix
Hydric Sc	il Indicators:						Indicator	s for Probl	ematic Hydric Soils:
His	tosol (A1)		San	dv Gleve	d Matrix	(S4)	Coas	t Prairie Re	dox (A16) (I BB K $I_{\rm c}$ B)
Hie	tic Eninedon (A2)		Sar	dy Redo	v (95)	(04)	Dark	Surface (S	
	(10 Lpipedon (A2))		Stri		$r_{\rm iv}$ (SG)		5 cm	Mucky Pop	t or Post (S3) (IPP K I P)
Bia	CK HISUC (A3)	IN IN			unx (56)			Mongonooo	Magaga (E12) (LRR R, L, R)
Hyc	arogen Sulfide (A4	•)	Loa		ky Minera	al (F1)		vianganese	Masses (F12) (LRR K, L, R)
Stra	atified Layers (A5)		Loa	my Gleye	ed Matrix	(F2)	Very	Shallow Da	rk Surface (TF12)
2 ci	m Muck (A10)		Dep	ieted Ma	atrix (F3)	·	Othe	r (explain in	remarks)
Dep	pleted Below Dark	Surface	(A11) Rec	lox Dark	Surface	(F6)			
Thi	ck Dark Surface (A	A12)	Dep	leted Da	rk Surfac	ce (F7)	*Indica	ators of hydi	rophytic vegetation and wetland
Sar	ndy Mucky Minera	l (S1)	Rec	lox Depre	essions (F8)	hydro	ology must b	be present, unless disturbed or
									problematic
Restrictive	l aver (if observe	d).							
		<i></i>					Hudric	coil procon	42 N
Type.					-		Hyunc	son presen	
Depth (inche					-				
Remarks:									
wetland Hy	drology indicato	rs:							
Primary Indi	<u>cators (minimum </u>	of one is	required; check a	II that ap	ply)		<u>S</u>	econdary In	dicators (minimum of two required
Surface	Water (A1)			Aquatic	Fauna (B	13)		Surface	Soil Cracks (B6)
High Wa	ater Table (A2)			True Aqu	uatic Plar	its (B14)	-	Drainage	e Patterns (B10)
Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1)	Dry-Sea	son Water Table (C2)
Water N	larks (B1)			Oxidized	l Rhizosp	heres on	Living Roots	Crayfish	Burrows (C8)
Sedimer	nt Deposits (B2)			(C3)			-	Saturatio	on Visible on Aerial Imagery (C9)
Drift Dep	oosits (B3)			Presenc	e of Redu	iced Iron	(C4)	Stunted	or Stressed Plants (D1)
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	illed Soils	Geomor	phic Position (D2)
Iron Dep	osits (B5)			(C6)			-	FAC-Nei	utral Test (D5)
Inundati	on Visible on Aeria	I Imagery	(B7)	Thin Mu	ck Surfac	e (C7)	-		
Sparsel	Vegetated Conca	ve Surfac	e (B8)	Gauge o	r Well Da	ita (D9)			
Water-S	tained Leaves (B9))	- (- /	Other (F	xolain in	Remarks)		
Field Ober	vations:			(-	1		•		
Surface wet	valions.	Voo	No	v	Donth /:	nchoc);			
Motor toble	brocont?	Vee		~~~~		nulles).		les.	diastors of watland
Soturotion	present?	res		~~~~		nunes):			uicators or wettand
Jaiuration p	nesent?	res	INO	~	Depth (I	ncnes):			
(includes ca	pillary mnge)								
Describe red	corded data (strea	m gauge	, monitoring well,	aerial ph	notos, pre	evious in	spections), if a	vailable:	
Remarks:									
Anteceder	nt precipitation of	conditio	ns were determ	nined "V	Vetter tl	nan no <mark>r</mark>	mal" (Appen	dix C).	
US Army C	orps of Engine	ers							Midwest Region

WETLAND DETERMIN	NATION D	ATA FOR	M - Midwe	st Regioi	n		
Project/Site PCN 05HN: I-229 Exit 4 Reconstruction	City/0	County: S	ioux Falls/Mi	nnehaha	Sampling Date:	9/25/201	18
Applicant/Owner: South Dakota Department of Transportation		State:	South D	akota	Sampling Point:	10W	
Investigator(s): Rebecca Beduhn		Sec	tion, Townsh	ip, Range:	S27 T10)1N R49W	
Landform (hillslope, terrace, etc.): toeslope		Loca	l relief (conca	ave, conve	x, none):	Concave	
Slope (%): 2 Lat: 43° 31' 3.312" N		Long:	96° 42' 27.4	19" W	Datum: UTM N	NAD83 Zone	14N
Soil Map Unit Name: Baltic silty clay loam, ponded			NW	I Classifica	tion:	None	
Are climatic/hydrologic conditions of the site typical for this time of	of the year?		<u>N</u> (lf no, expla	in in remarks)		
Are vegetation, soil, or hydrology	significantl	y disturbed?	•		Are "normal circur	nstances"	
Are vegetation , soil , or hydrology	naturally p	roblematic?				present?	Yes
SUMMARY OF FINDINGS				(If neede	ed, explain any ans	wers in rema	arks.)
Hydrophytic vegetation present? Y							
Hydric soil present? Y		Is the s	sampled area	a within a	wetland?	Y	
Indicators of wetland hydrology present? Y		lf yes, c	optional wetla	and site ID:	Wetland 10		
Remarks: (Explain alternative procedures here or in a separate re	eport.)						
Sample Point collected in Wetland 10.							
VEGETATION Use scientific names of plants.							
	Absolute	Dominant	Indicator	Domina	nce Test Workshe	et	
<u>Tree Stratum</u> (Plot size: 30' Radius)	% Cover	Species	Status	Number	of Dominant Specie	es	
1				that are	OBL, FACW, or FA	C: 1	(A)
2				Total	Number of Domina	nt	
3				Spee	cies Across all Strat	a: 2	(B)
4				Percent	of Dominant Specie	es Si Fo cont	
5		-Total Covo	r	that are	OBL, FACW, OF FAU	50.00%	_(A/B)
Sanling/Shruh stratun (Plot size: 15' Radius)	0		1	Prevale	nce Index Worksh	eet	
				Total %	Cover of:		
2				OBL spe	ecies 50 x	1 = 50	
3				FACW s	pecies 25 x	2 = 50	_
4				FAC spe	cies 5 x	3 = 15	_
5				FACU sp	pecies 20 x	4 = 80	
	0	=Total Cove	r	UPL spe	cies <u>0</u> x	5 = 0	_
Herb stratum (Plot size: 5' Radius)				Column	totals <u>100</u> (A	A) 195	(B)
1 Typha latifolia Broad-Leaf Cat-Tail	40	Y	OBL	Prevaler	nce Index = B/A =	1.95	_
2 Nepeta cataria Catnip	20	<u>Y</u>	FACU	L			
3 Persicaria iapatnirolia Dock-Lear Smartweed	15	<u>N</u>	FACW	Hydropi	nytic Vegetation II	ndicators:	~
Eleochans acculans Neeule Spike-Rush Hordeum jubatum Fox-Tail Barley	5		FAC		ninance test is 50°		11
6 Bidens frondosa Devil's-Pitchfork	5	N	FACW	X Prev	alence index is ≤3	0*	
7 Cyperus esculentus Chufa	5	N	FACW	Mor		- anc* (nrovida	
8				supp	orting data in Rem	arks or on a	-
9				sepa	arate sheet)		
10				Prob	lematic hydrophyti	c vegetation'	*
	100	=Total Cove	r	(exp	lain)		
<u>Woody vine stratum</u> (Plot size: <u>30' Radius</u>)				*Indicato	rs of hydric soil and we	tland hydrology	must be
				p Hydr	resent, unless disturbed	d or problematio	C
۲ <u></u>		-Total Cava	.r	veae	etation		
	U		1	pres	sent? Y		
Remarks: (Include photo numbers here or on a separate sheet)							
Note: This data sheet has been adapted to use the 2016 National	Wetland Pl	ant List:				.	(
Engineers, Engineer Research and Development Center, Cold Regions Research	ional wetland ch and Enginee	riant List, vers ering Laborator	юп 2.4.0 (https:/ y, Hanover, NH	//wetland_pla , and BONAF	nis.usace.army.mil). U. P, Chapel Hill, NC. (201	5. Army Corps 6)	UT
US Army Corps of Engineers	-				Mi	dwest Reg	ion

Profile Des	cription: (Descri	be to th	e depth needed t	o docun	nent the	indicato	r or confirm the a	bsence of	indicators.)		
Depth	<u>Matrix</u>		Rec	dox Featu	ures						
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**	Texture		Remarks		
0-10	10YR 2/1	90	10YR 6/1	10	С	М	Silty Loam with	rocks			
10-18	10YR 2/1	85	7 5YR 4/6	15	C	М	Silty Loam with	rocks			
10-10	1011(2/1	00	7.511(4/0	15	0						
18-24	10YR 5/1	85	7.5YR 46	15	С	M	Silty Loam with	rocks			
*Type: C = C	Concentration, D =	= Depleti	on, RM = Reduce	d Matrix,	MS = Ma	asked Sa	nd Grains. **L	.ocation: P	L = Pore Lining, M = Matrix		
Hydric So	oil Indicators:		,	,			Indicators for	r Problem	atic Hydric Soils:		
, Hist	tosol (A1)		Sar	dv Gleve	ed Matrix	(S4)	Coast Pra	airie Redox	(A16) (LRR K. L. R)		
Hist	tic Epipedon (A2)		San	dv Redo	x (S5)	(0.)	Dark Surf	ace (S7) (LRR K. L)		
Bla	ck Histic (A3)		Stri	nned Ma	r(00)		5 cm Muc	sky Peat or	Peat (S3) (I RR K I R)		
	drogon Sulfido (A/	I)	Loa	my Muck	Winors) (E1)	Iron-Man	nanese Ma	$(\mathbf{E}, \mathbf{E}, \mathbf{E})$		
C+~	atified Lavera (AF)	"		my Clove		(F2)		llow Dark	Surface $(TE12)$		
	m Muck (A40)	1			eu ivialit) atriv (E2)	(1 2)		now Dark S	$\frac{1}{2}$		
2 ci	III IVIUCK (ATU)	Curtooo			Curface	(50)		piain in rei	naiks)		
			(ATI) X Rec	IOX Dark	Sunace	(FO)					
	CK Dark Surface (A12)		ieted Da	irk Surfac		*Indicators	of hydrop	hytic vegetation and wetland		
Sar	ndy Mucky Minera	I (S1)	Rec	lox Depre	essions (F8)	hydrology	must be p	present, unless disturbed or		
								pr	oblematic		
Restrictive	Layer (if observe	ed):									
Type:		,					Hydric soil	present?	Y		
Depth (inche	es):				-		,				
Remarks:											
HYDROLO	OGY										
Wetland Hv	drology Indicato	rs:									
Drimony Indi	ators (minimum)	of one is	roquired: aback a	ll that an			Saaaa	donuladio	ators (minimum of two required)		
		or one is	required, check a		<u>ріу)</u> Балас (В	40)	<u>Secon</u>		ators (minimum or two required		
Surface	vvater (A1)				Fauna (B	13) 1- (D14)	—	Surface Sol			
High Wa	ater Table (A2)			I rue Aqu	uatic Plar	its (B14)	、	Drainage Pa	atterns (B10)		
X Saturatio	on (A3)			Hydroge	n Sulfide	Odor (C1)L	Jry-Season	Water Table (C2)		
Water N	larks (B1)			Oxidized	Rhizosp	heres on	Living Roots	crayfish Bu	rrows (C8)		
Sedimer	nt Deposits (B2)			(03)			· · · · · · · · · · · · · · · · · · ·	Saturation \	/isible on Aerial Imagery (C9)		
Drift Dep	posits (B3)			Presenc	e of Redu	iced Iron	(C4) <u> </u>	Stunted or S	Stressed Plants (D1)		
Algal Ma	at or Crust (B4)			Recent I	ron Redu	ction in T	illed Soils X C	Seomorphic	c Position (D2)		
Iron Dep	oosits (B5)			(C6)			<u> </u>	FAC-Neutra	al Test (D5)		
Inundation	on Visible on Aeria	Imagery	(B7)	Thin Mu	ck Surfac	e (C7)					
Sparsely	/ Vegetated Conca	ve Surfac	ce (B8)	Gauge o	or Well Da	ata (D9)					
Water-S	tained Leaves (B9)		Other (E	xplain in	Remarks)					
Field Obser	vations:										
Surface wat	er present?	Yes	No	Х	Depth (i	nches):					
Water table	present?	Yes	No	Х	Depth (i	nches):	[Indic	ators of wetland		
Saturation p	resent?	Yes	X No		Depth (i	nches):	0	hydr	ology present? Y		
(includes ca	pillary fringe)				-	-	[
Describe rec	corded data (strea	m daude	monitoring well	aerial pł	notos pre	evious ins	spections) if availa	ble:			
Decembered		in gaage	, mormoring won,	aona pi	lotoo, pro						
Remarks:											
Antecodor	t precipitation	onditio	ne were datara	nined "V	Vottor +	han nor	mal" (Annondiy (\sim			
AIRECEUEI		Jonutio		meu v		1011101		0).			
	orpe of Freeline	ore							Midwaat Darian		
us anny C	orbs or Eudine	CI 2							iviluwest Region		

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 – Shallow Marsh



Photo 6 Wetland 3 – Shallow Marsh



Photo 7 Wetland 4 – Fresh (Wet) Meadow



Photo 8 Wetland 4 – Fresh (Wet) Meadow



Photo 9 Wetland 5 – Fresh (Wet) Meadow



Photo 10 Wetland 5 – Fresh (Wet) Meadow



Photo 11 Wetland 6 - Fresh (Wet) Meadow



Photo 12 Wetland 6 - Fresh (Wet) Meadow



Photo 13 Wetland 7 – Fresh (Wet) Meadow



Photo 14 Wetland 7 – Fresh (Wet) Meadow



Photo 15 Wetland 8 – Fresh (Wet) Meadow



Photo 16 Wetland 8 - Fresh (Wet) Meadow



Photo 17 Wetland 9 - Fresh (Wet) Meadow



Photo 18 Wetland 9 - Fresh (Wet) Meadow



Photo 19 Wetland 10 – Shallow Marsh



Photo 20 Wetland 10 – Shallow Marsh



Photo 21 Upland Sample Point (U-A)



Photo 22 Upland Sample Point (U-B)



Climate Summary Data

Field Visit Date: August 25, 2018

		Long-te	erm rainfall r	records					
	Month	3 yrs. in 10 less than	Normal	3 yrs. in 10 more than	Rain fall	Condition: dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month*	September	1.84	2.93	3.54	7.32	3	Dry	3	9
2nd prior month*	August	1.86	3.01	3.64	5.33	3	Wet	2	6
3rd prior month*	July	1.46	2.58	3.15	4.94	3	Wet	1	3

*Monthly data prior to field date

Note: If sum is

6-9	then prior period has been
	drier than normal

10-14 then prior period has been normal

15-18 then prior period has been wetter than normal

Condition value:

Sum

18

Wet'

Dry	=1
Normal	=2
Wet	=3

Appendix D

Hydrogeomorphic Functional Assessment Workbooks

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:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #1

	Variable	Data entered		Subindex
		wetland perimeter (feet):	2145.60	1.00
	V _{GRASSCONT}	grassland along perimeter (feet):	2145.60	
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	43.00	
		Point 2:	45.00	
		Point 3:	50.00	
		Point 4:	33.00	0.88
n		Point 5:	32.00	
tio	V	Point 6:	50.00	
tat	• GRASSWIDTH	Point 7:	50.00	
el Bel	Point 8 Point 9 Point 10 Point	Point 8:	50.00	
/eg		Point 9:	50.00	
		50.00		
		Point 11:	33.00	
		Point 12:	34.00	
-		mean width (feet):	43.33	
		(see vegetation worksheet for species entered)		
		sum of species:	11.00	0.14
	V _{VEGCOMP}	sum of C values:	9.00	
		mean coefficient of conservatism:	0.82	
		FQI:	2.71	

	VRECHARCE	Soil Recharge Potential Subindex:	0.50	0.50
	ALCHARGE	Eastern Prairie Potholes		
	X 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes	1.00	
		mean depth to B horizon (inches):	12.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	V	sample 2:	2.00	0.05
	♥ SQI	sample 3:	1.50	0.05
		sample 4:	2.00	
		average SQI score:	1.88	
		Indirect Measurements		
		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	
	V _{SOM}	ADI for 4 samples:		
Ξ		Sample 1 hue:	10.00	
0		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 2 hue:	10.00	
		value:	3.00	
		chroma:	2.00	0.23
		ADI:	9.00	0.23
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		average ADI:	7.75	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
	E	% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.44	

		a		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		massant (on constructed) invent alevation.	1208.00	
		elevation of the edge of the historic wetland:	1398.00	
		cievation of the edge of the instorie wetland.	1393.00	
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1396.00	0.05
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. $25\%=25$), otherwise enter 0:	0.00	
rph		ratio of the constructed elevation to the natural outlet elevation:	-2.00	
m		depth of surface drainage invert:		
103	V _{SUBOUT}	distance from WAA edge:		0.25
B		location/spacing of subsurface tile within the WAA:		
lro		type & effect of surface alteration(s):		
yd	V	% of historic catchment area still contributing runoff:		0.50
H	* SOURCE	additions of water from other sources:		0.30
		change in wetland regime class?		
		wetland perimeter (feet):	2145.60	
	V _{EDGE}	wetland area (acres):	0.91	1.00
		Shoreline Development Index:	3.04	
		wetland area (acres):	0.91	
	V _{CATCHWET}	catchment area (acres):	8.00	1.00
		ratio of catchment size to wetland size:	8.79	
		total acre size of the present day catchment:	8.00	
	Vuduce	acres of catchment for each curve number:		
		98	8.00	
		90		
		79		
		77		
		72		
		75		
ISC		73		0.00
np	UTUSE	71		
ID		72		
L		74		
S I		69		
e		/9		
ap		/4		
SC		09		
pd		01	08.00	
al,		distance to nearest watland(feet);	98.00	
Г		distance to learest wetland(leet).	228.00	
		distance to 2nd nearest wetland:	452.00	
		UNALLE IU NU DEALEN WEITAND		0.77
	V _{WETPROX}	distance to Ath nearest wetland:	634.00	0.77
	V _{WETPROX}	distance to 514 nearest wetland: distance to 5th nearest wetland:	634.00 671.00	0.77
	V _{WETPROX}	distance to 514 nearest wetland: distance to 5th nearest wetland: mean distance (feet):	634.00 671.00 449.20	0.77
	VWETPROX	distance to 51d nearest wetland: distance to 4th nearest wetland: distance to 5th nearest wetland: mean distance (feet): acres of palustrine wetlands within a 1-mile radius:	634.00 671.00 449.20 40.00	0.77
	V _{WETPROX}	distance to 514 nearest wetland: distance to 4th nearest wetland: distance to 5th nearest wetland: mean distance (feet): acres of palustrine wetlands within a 1-mile radius:	634.00 671.00 449.20 40.00	0.77
	V _{WETPROX} V _{WETAREA} V _{BASINS}	distance to 51d nearest wetland: distance to 5th nearest wetland: distance to 5th nearest wetland: mean distance (feet): acres of palustrine wetlands within a 1-mile radius: number of palustrine wetlands within a 1-mile radius: miles of roods and linear attributes miles a 1 mile - 1	634.00 671.00 449.20 40.00 41.00	0.77

Function	FCI	FCU
1. Water Storage	0.18	0.16
2. Groundwater Recharge	0.18	0.17
3. Retain Particlulates	0.60	0.55
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.15
5. Plant Community Resilience and Carbon Cycling	0.15	0.14
6a. Provide Faunal Habitat	0.16	0.15
6b. Provide Faunal Habitat (Alternate Formula)	0.10	0.09

PCN 05HN

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:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #2

	Variable	Data entered		Subindex
		wetland perimeter (feet):	382.70	1.00
	V _{GRASSCONT}	grassland along perimeter (feet):	382.70	
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	50.00	0.87
n		Point 5:	31.00	
tio	V _{GRASSWIDTH} Point 6: Point 7: Point 7: Point 8: Point 9: Point 10: Point 1	Point 6:	34.00	
tat		Point 7:	37.00	
<u>e</u> el		Point 8:	50.00	
∕eå		Point 9:	50.00	
~		16.00		
		Point 11:	47.00	
		Point 12:	50.00	
-		mean width (feet):	42.92	
		(see vegetation worksheet for species entered)		
		sum of species:	5.00	0.00
	V _{VEGCOMP}	sum of C values:	0.00	
		mean coefficient of conservatism:	0.00	
		FQI:	0.00	

	VPECHAPCE	Soil Recharge Potential Subindex:	0.50	0.50
	RECHARGE	Eastern Prairie Potholes		
	X 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes	1.00	
		mean depth to B horizon (inches):	18.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	V	sample 2:	2.00	0.06
	v sqi	sample 3:	2.00	0.00
		sample 4:	2.00	
		average SQI score:	2.00	
		Indirect Measurements		
		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	
	V _{SOM}	ADI for 4 samples:		
		Sample 1 hue:	10.00	
20		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	3.00	
		chroma:	1.00	0.32
		ADI:	8.00	0.02
		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 U-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:	1 74	
		% organic carbon:	1./4	

		historic invert elevation in relation to wetland maximum depth:	1395.00		
		present (or constructed) invert alevation:	1308.00		
rphic		elevation of the edge of the historic wetland:	1395.00		
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1397.50	0.05	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland $(a_x, 25\% - 25)$ otherwise enter 0:	0.00		
		ratio of the constructed elevation to the natural outlet elevation:	-0.20		
no		depth of surface drainage invert:			
10;	V _{SUBOUT}	distance from WAA edge:		1.00	
ge	502001	location/spacing of subsurface tile within the WAA:			
ro		type & effect of surface alteration(s):			
yd	V	% of historic catchment area still contributing runoff:		0.50	
H	V SOURCE	additions of water from other sources:		0.30	
		change in wetland regime class?			
		wetland perimeter (feet):	382.70		
	V _{EDGE}	wetland area (acres):	0.12	1.00	
		Shoreline Development Index:	1.49		
	T 7	wetland area (acres):	0.12	1.00	
	VCATCHWET	catchment area (acres):	2.10	1.00	
		ratio of catchment size to wetland size:	17.50		
		total acre size of the present day catchment:	2.10		
			2.10		
		98	2.10		
		70			
		רי רי			
		72			
		75			
e		73		0.00	
sn	V _{UPUSE}	71		0.00	
pu		72			
a		74			
S.		69			
S S		79			
bdi		74			
ca		69			
spi		61			
an		weighted average score for upland land use:	98.00		
Γ		distance to nearest wetland(feet):	260.00		
		distance to 2nd nearest wetland:	318.00		
	V _{WETPROX}	distance to 5rd hearest wetland:	404.00	0.86	
_		distance to 5th nearest wetland:	432.00		
		mean distance (feet).	381.00		
	VWETADEA	acres of palustrine wetlands within a 1-mile radius.	40.00	0.07	
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07	
	V _{WETAREA} V _{BASINS}	acres of palustrine wetlands within a 1-mile radius: number of palustrine wetlands within a 1-mile radius: miles of roads and linear attributes within a 1 mile radius:	40.00 41.00 29.00	0.07 0.18 0.00	

PCN 05HN

Function	FCI	FCU
1. Water Storage	0.18	0.02
2. Groundwater Recharge	0.18	0.02
3. Retain Particlulates	0.57	0.07
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.02
5. Plant Community Resilience and Carbon Cycling	0.15	0.02
6a. Provide Faunal Habitat	0.15	0.02
6b. Provide Faunal Habitat (Alternate Formula)	0.09	0.01

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:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #3

	Variable	Data entered	Subindex		
		wetland perimeter (feet):	3186.10		
	V _{GRASSCONT}	grassland along perimeter (feet):	300.00	0.09	
		percent continuity:	9.42		
		grassland width (feet) at 12 points:			
		Point 1:	0.00		
		Point 2:	0.00		
		Point 3:	0.00		
		Point 4:	0.00		
n		Point 5:	0.00		
tio	Van Garage	Point 6:	50.00	0.17	
tat	• GRASSWIDTH	Point 7:	0.00	0.17	
eget		Point 8:	0.00		
		Point 9:	50.00		
		Point 10:	0.00		
		Point 11:	0.00		
	Point 12:		0.00		
		mean width (feet):	8.33		
		(see vegetation worksheet for species entered)			
		sum of species:	5.00		
	V _{VEGCOMP}	sum of C values:	8.00	0.19	
		mean coefficient of conservatism:	1.60		
		FQI:	3.58		

	VPECHAPCE	Soil Recharge Potential Subindex:	0.50	0.50
	V _{SED}	Eastern Prairie Potholes		
		mean depth to B horizon (inches):		1.00
		Western Prairie Potholes	1.00	
		mean depth to B horizon (inches):	10.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	V	sample 2:	1.50	0.04
	* SQI	sample 3:	2.00	0.04
		sample 4:	2.00	
		average SQI score:	1.75	
		Indirect Measurements		
		Litter Depth for 4 samples:		
		sample 1:	1.00	
		sample 2:	1.00	
		sample 3:	2.00	
		sample 4:	2.00	
		Average Litter Depth (inches):	1.50	
		ADI for 4 samples:		
i		Sample 1 hue:	10.00	
Soj		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 2 hue:	10.00	
	V _{SOM}	value:	3.00	
		chroma:	1.00	0.39
		ADI:	8.00	
		Sample 3 hue:	10.00	
		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		average ADI:	7.50	
		Direct Measurements		
		% organic carbon for U-15cm depth:		
		% organic carbon for 15-50cm depth:		
		mean percentage:	1.00	
		% organic carbon:	1.96	

norphic		historic invert elevation in relation to wetland maximum depth:	1395.00			
		present (or constructed) invert elevation:	1392.00			
		elevation of the edge of the historic wetland:	1392.00			
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1392.00	0.05		
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland $(a_x, 25\% = 25)$, otherwise enter 0:	0.00			
		ratio of the constructed elevation to the natural outlet elevation:	0.00			
		depth of surface drainage invert:				
10;	V _{SUBOUT}	distance from WAA edge:		1.00		
ge	502001	location/spacing of subsurface tile within the WAA:				
ro		type & effect of surface alteration(s):				
yd	V	% of historic catchment area still contributing runoff:		0.50		
H	V SOURCE	additions of water from other sources:		0.30		
		change in wetland regime class?				
		wetland perimeter (feet):	3186.10			
	V _{EDGE}	wetland area (acres):	6.66	1.00		
		Shoreline Development Index:	1.67			
		wetland area (acres):	6.66	0.74		
	VCATCHWET	catchment area (acres):	24.00	0.54		
		ratio of catchment size to wetland size:	3.60			
		total acre size of the present day catchment:	24.00			
			24.00			
	$\mathbf{V}_{\mathrm{UPUSE}}$	90	24.00			
		70				
		77				
		72				
		75				
e		73		0.00		
Sn		71		0.00		
pu		72				
a		74				
S. I		69				
S S		79				
bdi		74				
SCa		69				
spi		61				
an		weighted average score for upland land use:	98.00			
Γ		distance to nearest wetland(feet):	297.00			
		distance to 2nd nearest wetland:	422.00			
	V _{WETPROX}	distance to 5rd hearest wetland:	433.00	0.73		
		distance to 5th nearest wetland:	756.00			
		man distance (fast)	187.60			
		mean misiance creen.	40/10/			
	VWETADEA	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07		
	V _{WETAREA}	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07		
	V _{WETAREA} V _{BASINS}	acres of palustrine wetlands within a 1-mile radius: number of palustrine wetlands within a 1-mile radius: miles of roads and linear attributes within a 1-mile radius:	40.00 41.00 29.00	0.07 0.18 0.00		

PCN 05HN

Function	FCI	FCU
1. Water Storage	0.18	1.18
2. Groundwater Recharge	0.17	1.15
3. Retain Particlulates	0.32	2.14
4. Remove, Convert, and Sequester Dissolved Substances	0.12	0.82
5. Plant Community Resilience and Carbon Cycling	0.13	0.85
6a. Provide Faunal Habitat	0.14	0.94
6b. Provide Faunal Habitat (Alternate Formula)	0.11	0.71

South Dakota Riverine HGM Model, Version 1.1									
Variable Score Field Form									
Field Office Assessment Area ID				nt Area ID. (if more than	4			
County Minnehaha County W			Wetland ad	and acres (Pre-project) 0.16			16		
Date 9/25/2018			Wetland ad	cres (Post-pi	roject)				
Producer/L	andowner	South Da	kota DOT			Type of we	tland (fringe	adjacent to	stream
Yellow fla	g? (Y/N)		If Y, what?			channel, or	depressiona	l or linear o	n flood
Red flag? (Y/N)		If Y, what?			plain)?			
						Discu	ission/	Variab	le Score
Variable	М	easuremei	nt or Cond	lition Resu	llts	Rati	onale	Pre-proj.	Post-proj.
	Flood plain	hydrology ((H _{fp})						
	Alteratior	ns present (Y	//N)?		Ν				
	If Y, wha	t?							
	(H _{fp}) pr	e-project			1				
V , , ,	(H _{fp}) po	ost-project						1.00	0.00
• hydalt	Wetland hy	drology (H _w	,)					1.00	0.00
	Alteratior	Alterations present (Y/N)?			Ν				
	If Y, wha	If Y, what?							
	(H _w) pre-project				1				
	(H _w) post-project								
	Watershed alterations present? (Y/N) Y				Y				
V _{source}	If Y, what? Drain Tiles, culverts, stormwater facilities						0.00		
	% of watershed area 80								
	Wetland topography (T_w)								
	Alteration	Alterations present? (Y/N)							
	If Y, wha	(0		1				
	% of area	(pre)	0	(\mathbf{I}_{w}) pre =	1				
\mathbf{V}_{topog}	% of area	(post)		(1w) post =				0.20	0.00
	Flood plain topography (T_{fp})								
	If V who	Alterations present? (Y/N) y							
	% of area	(pre)	40	(T_{s}) pre –	0.5				
	% of area	(post)	40	(T_{fp}) pro =	0.5				
	Dominant u	pland uses (3 maximum)					
	pre	1 Index	0.1	% area	40				
	pre	2 Index	1	% area	30				
V _{upuse}	pre	3 Index	0.75	% area	30			0.57	#DIV/0!
	pos	t1 Index		% area					
	pos	t2 Index		% area					
	pos	t3 Index		% area					
V _{detritus}	Detritus this	ckness (in.)-			0				
	Accelerated	<mark>l sediment</mark> ir	n wetland? (Y/N)	N				

Wetland Delineation Report
N Z	If Y, evidence?			
V _{sed}				
	Sediment thickness (in.)		0	
X 7	Dominant soil texture in upper 18" -	Sand Loam		
V _{som}	Dominant soil color (value) upper 1	2"	10YR 3/1	
	Soil pores observed	Fine		
V _{soil}	Soil structure Sub Angula	r Blky		
	Rupture resistance			
	Pre-project			
	Buffer continuity (%)	100		
	Average buffer width (ft.)	60		
	Continuity/width rating (B ₁)	0.6		
	Buffer condition			
X 7	Condition rating (B ₂)	0.1		
V buffer	Post-project			
	Buffer continuity (%)			
	Average buffer width (ft.)			
	Continuity/width rating (B ₁)			
	Buffer condition			
	Condition rating (B ₂)			
	Woody species present in WAA? (Y	//N)	Y	
X 7	(If N, score variable based on the herbaceous part.)			
V denhw	Herbaceous density (%)	100%		
	Woody density (%, if applicable)		5%	
V	Native species present in wetland (%	6 of total		
V pratio	dominants)		50%	
	Vegetative canopy coverage (%)		5	
V	Number of vegetative strata present		3	
• veg	Deviation from normal (number o	f strata beli	eved to	
	be absent)		0	
V _{wetuse}	Dominant use of wetland			

S.D. RIVERINE HGM MODEL WORKSHEET 1, VER. 1.1							
Use this worksheet for depressional or linear wetlands that are disconnected from the channel and that have the ability to							
store surface	water. For wet	lands adjacent to	the channel an	d that lack this a	ability, use worl	csheet 2.	
DATE		09/25/18		OWNER/OPEI	RATOR	South Dakota I	TOC
WETLAND ID)	4		ASSESSMENT	Г ТҮРЕ	Field	
OBSERVERS		Rebecca Bedul	n	WETLAND TY	YPE (NWI)	R2USC	
CONDITIONS				WETLAND TY	YPE (FSA)		
PROJECT NA	ME	PCN 05HN (I-2	229 Exit 4)	REMARKS			
PLANNED AC	TIVITY	Roadway impro	ovements				
YELLOW FLA	AG (Y/N)			RED FLAG (Y	/N)		
WETLAND A	CRES (EXISTI	NG)	0.16	WETLAND A	CRES (PREDIC	(TED)	0
		FUNCTION	AL INDICES	(VARIABLE	E) SCORING		
		Variable			Existing		Predicted
V _{hydalt} - Flood	l Plain/Wetlan	d Hydrology A	Alterations		1.00		0.00
V _{source} - Wate	rshed Hydrolo	ogy Alterations	5		0.50		0.00
V _{topog} - Flood	Plain/Wetlan	d Topographic	Complexity		0.20		0.00
V _{upuse} - Uplan	nd Use				0.57		#DIV/0!
V _{detritus} - Detr	itus				0.00		0.00
V _{sed} - Sedime	ntation Withir	n the Wetland			0.00		0.00
V _{som} - Soil Or	ganic Matter				0.00		0.00
V _{soil} - Soil Po	rosity				0.00		0.00
V _{buffer} - Buffe	r Condition, C	Continuity, and	Width		0.24		0.00
V _{denhw} - Dens	ity of Perennia	al Herbaceous	and Woody V	egetation	0.00		0.00
V _{pratio} - Ratio	of Native to N	Non-Native Pla	ant Species		0.00		0.00
V _{veg} - Vegetat	tive Strata and	Canopy Cove	rage		0.00		0.00
V _{wetuse} - Wetl	and Use				0.00		0.00
]	1			
	F			Exis	Existing Predicted		
	Fun	ction		FCI	FCU	FCI	FCU
1.0 Storage of	Surface Water			0.00	0.00	0.00	0.00
2.0 Velocity R	eduction of Sur	face Water Flow	v	0.32	0.05	#DIV/0!	#DIV/0!
3.0 Storage and	d Release of Su	bsurface Water		0.52	0.08	#DIV/0!	#DIV/0!
4.0 Removal o	f Imported Eler	ments and Comp	ounds	0.00	0.00	#DIV/0!	#DIV/0!
5.0 Retention	of Particulates a	nd Organic Mat	erials	0.12	0.02	#DIV/0!	#DIV/0!
6.0 Organic Ca	arbon Export			0.15	0.02	0.00	0.00
7.0 Maintains	Characteristic P	lant Community	/	0.00	0.00	#DIV/0!	#DIV/0!
8.0 Maintains	Habitat Structur	re Within Wetla	nd	0.08	0.01	0.00	0.00
9.0 Maintains	Hab. Str. and C	onnect. Among	Wetlands	0.20	0.03	#DIV/0!	#DIV/0!
FUNCTION	CHANGE	E IN FCU's	MINIMAL EFFECT	JUSTIFICATI	ON OF MINIM	IAL EFFECT II	F THERE IS A
FUNCTION	NUMERICAL	%	(Y or N)	NET FUNC	CTIONAL LOS	S OF 10 TO 20	PERCENT
1.0	0.00	#DIV/0!	#DIV/0!				
2.0	#DIV/0!	#DIV/0!	#DIV/0!				
3.0	#DIV/0!	#DIV/0!	#DIV/0!				
4.0	#DIV/0!	#DIV/0!	#DIV/0!				
5.0	#DIV/0!	#DIV/0!	#DIV/0!				
6.0	-0.02	-100.00%	No				
7.0	#DIV/0!	#DIV/0!	#DIV/0!				
8.0	-0.01	-100.00%	No				
9.0	#DIV/0!	#DIV/0!	#DIV/0!				

Wetland Delineation Report

S.D. RIVERINE HGM MODEL WORKSHEET 2, VER. 1.1							
Use this worksheet for wetlands that are adjacent and parallel to the channel and that lack the ability to store surface							
water. For depressional and linear wetlands with the ability to store surface water, use worksheet 1.							
DATE		09/25/18		OWNER/OPEI	RATOR	South Dakota I	TOC
WETLAND ID)	4		ASSESSMENT	Г ТҮРЕ		
OBSERVERS				WETLAND T	YPE (NWI)		
CONDITIONS				WETLAND T	YPE (FSA)		
PROJECT NA	ME			REMARKS			
PLANNED AC	TIVITY						
YELLOW FLA	AG (Y/N)			RED FLAG (Y	/N)		
WETLAND A	CRES (EXISTI	NG)	0.16	WETLAND A	CRES (PREDIC	TED)	0
		FUNCTION	AL INDICES	(VARIABLE	E) SCORING		
		Variable			Existing		Predicted
V _{hydalt} - Flood	l Plain/Wetlan	d Hydrology A	Alterations		1.00		0.00
V _{source} - Wate	rshed Hydrolo	gy Alterations	5		0.50		0.00
V _{topog} - Flood	Plain/Wetland	d Topographic	Complexity		0.20		0.00
V _{upuse} - Uplan	id Use				0.57		#DIV/0!
V _{detritus} - Detr	itus				0.00		0.00
V _{sed} - Sedime	ntation Withir	the Wetland			0.00		0.00
V_{som} - Soil Or	ganic Matter				0.00		0.00
V _{soil} - Soil Po	rosity				0.00		0.00
V _{buffer} - Buffe	r Condition, C	Continuity, and	l Width		0.24		0.00
V _{denhw} - Dens	ity of Perennia	al Herbaceous	and Woody V	egetation	0.00		0.00
V _{pratio} - Ratio	of Native to N	Non-Native Pla	ant Species		0.00		0.00
V _{veg} - Vegetat	tive Strata and	Canopy Cove	rage		0.00		0.00
V _{wetuse} - Wetla	and Use				0.00		0.00
CA	LCULATION	OF FUNCTI	ONAL CAPA	CITY INDICE	ES (FCI's) ANI	D UNITS (FC	U's)
	Fund	ction		Exis	sting	Pred	icted
	- •			FCI	FCU	FCI	FCU
1.0 Storage of	Surface Water						
2.0 Velocity R	eduction of Sur	face Water Flow	V	0.32	0.05	#DIV/0!	#DIV/0!
3.0 Storage and	d Release of Su	bsurface Water		0.52	0.08	#DIV/0!	#DIV/0!
4.0 Removal o	f Imported Elen	nents and Comp	ounds	0.00	0.00	#DIV/0!	#DIV/0!
5.0 Retention of	of Particulates a	nd Organic Mat	terials	0.12	0.02	#DIV/0!	#DIV/0!
6.0 Organic Ca	arbon Export	. ~ .		0.15	0.02	0.00	0.00
7.0 Maintains	Characteristic P	lant Community	1	0.00	0.00	#DIV/0!	#DIV/0!
8.0 Maintains	Habitat Structur	e Within Wetla	nd	0.08	0.01	0.00	0.00
9.0 Maintains	Hab. Str. and Co	onnect. Among	wetlands	0.20	0.03	#DIV/0!	#DIV/0!
FUNCTION		IN FCU's	MINIMAL EFFECT	JUSTIFICATI	ON OF MINIM	IAL EFFECT II	F THERE IS A
NUMERICAL % (Y or N)				NET FUNC	TIONAL LOS	S OF 10 10 20	PERCENT
1.0							1.40
2.0	#DIV/0!	#DIV/0!	#DIV/0!				1.40
3.0	#DIV/0!	#DIV/0!	#DIV/0!				0.22
4.0	#DIV/0!	#DIV/0!	#DIV/0!				
5.0	#DIV/0!	#DIV/0!	#DIV/U!				
7.0	-0.02 #DIV/01	-100.00%					
7.0	#DIV/0!	#DIV/0!	#DIV/U!				
<u>8.0</u>	-0.01 #DIV/01	-100.00% #DIV/01					
9.0	#DIV/0!	#DIV/0!	#DIV/0!				

South Dakota Riverine HGM Model, Version 1.1									
Variable Score Field Form									
Field Offic	e				Assessmen	nt Area ID. (if more than	one)	5
County		Minnehal	na County		Wetland ad	cres (Pre-pro	oject)	0	.2
Date		9/25/2018	8		Wetland ad	cres (Post-p	roject)		
Producer/L	andowner	South Da	kota DOT			Type of we	tland (fringe	adjacent to	stream
Yellow fla	g? (Y/N)		If Y, what?			channel, or	depressiona	<mark>l or linear o</mark>	n flood
Red flag? ((Y/N)		If Y, what?			plain)?			
						Discu	ission/	Variab	le Score
Variable	М	easuremei	nt or Cond	lition Resu	llts	Rati	onale	Pre-proj.	Post-proj.
	Flood plain	hydrology ((H _{fp})						
	Alteratior	ns present (Y	//N)?		Ν				
	If Y, wha	t?							
	(H _{fp}) pr	e-project			1				
V	(H _{fp}) post-project						1.00	0.00	
 hydalt 	Wetland hydrology (H _w)						1.00	0.00	
	Alterations present (Y/N)?			Ν					
	If Y, what?								
	(H _w) pr	e-project			1				
	(H _w) post-project								
	Watershed alterations present? (Y/N)			Y					
V _{source}	If Y, what? Drain Tiles, Culverts, Stormwater facilities				acilities		0.00		
	% of wate	% of watershed area							
	Wetland top	ography (T	w)						
	Alteratior	is present? (Y/N)		Y				
	If Y, wha	t?	rip rap						
	% of area	(pre)	30	(T_w) pre =	1				
Vtopog	% of area	(post)		(Tw) post =				0.50	0.00
topog	Flood plain	topography	(T _{fp})						
	Alteration	is present? (Y/N)		Y				
	If Y, wha	t?	Rip rap, tra	ils, parks					
	% of area	(pre)	40	$(\Gamma_{\rm fp})$ pre =	0.5				
	% of area	(post)		$(T_{fp}) \text{ post} =$					
	Dominant u	pland uses (5 maximum	U					
		1 Index	0.1	0/	40				
V _{upuse}	pre	1 Index	0.1	% area	40				
	pre	2 Index	1	% area	30 20			0.57	#DIV/0!
	pre	tl Index	0.75	% area	30				
	pos	t? Index		% area					
	pos	t3 Index		% area					
V	Detritus thi	oknoss (in.)		70 alca	0				
• detritus	Deutius uno	KIIESS (III.)-	.1 10 /		0				
	Accelerated	sediment in	n wetland? (Y/N)	N				

Wetland Delineation Report

N Z	If Y, evidence?			
V _{sed}				
	Sediment thickness (in.)		0	
X 7	Dominant soil texture in upper 18" -	Silty Loam		
V _{som}	Dominant soil color (value) upper 1	2"	10YR 2/2	
	Soil pores observed	Fine		
V _{soil}	Soil structure Sub Angula	r Blky		
	Rupture resistance Firm			
	Pre-project			
	Buffer continuity (%)	50		
	Average buffer width (ft.)	30		
	Continuity/width rating (B ₁)	0.2		
	Buffer condition			
N7	Condition rating (B ₂)			
V buffer	Post-project			
	Buffer continuity (%)			
	Average buffer width (ft.)			
	Continuity/width rating (B ₁)			
	Buffer condition			
	Condition rating (B ₂)			
	Woody species present in WAA? (Y	//N)	N	
X 7	(If N, score variable based on the herbaceous part.)			
▼ denhw	Herbaceous density (%)	100%		
	Woody density (%, if applicable)		0%	
X 7	Native species present in wetland (%	6 of total		
V pratio	dominants)		100%	
	Vegetative canopy coverage (%)		0	
V	Number of vegetative strata present		1	
• veg	Deviation from normal (number o	f strata beli	eved to	
	be absent)		0	
V _{wetuse}	Dominant use of wetland			

S.D. RIVERINE HGM MODEL WORKSHEET 1, VER. 1.1								
Use this worl	Use this worksheet for depressional or linear wetlands that are disconnected from the channel and that have the ability to							
store surface	water. For wet	lands adjacent to	o the channel an	d that lack this	ability, use worl	csheet 2.		
DATE		09/25/18		OWNER/OPEI	RATOR	South Dakota I	TOO	
WETLAND ID) _.	5		ASSESSMENT	Г ТҮРЕ	Field		
OBSERVERS		Rebecca Bedul	n	WETLAND TY	YPE (NWI)	R2USC		
CONDITIONS				WETLAND T	YPE (FSA)			
PROJECT NA	МЕ	PCN 05HN (I-2	229 Exit 4)	REMARKS				
PLANNED AC	TIVITY	Roadway impro	ovements					
YELLOW FLA	G (Y/N)			RED FLAG (Y	/N)			
WETLAND A	CRES (EXISTI	NG)	0.2	WETLAND A	CRES (PREDIC	(TED)	0	
		FUNCTION	AL INDICES	(VARIABLE	E) SCORING			
		Variable		、 ······	Existing		Predicted	
V _{hydalt} - Flood	l Plain/Wetlan	d Hydrology A	Alterations		1.00		0.00	
V _{source} - Wate	rshed Hydrold	gy Alterations	5		0.50		0.00	
V _{topog} - Flood	Plain/Wetland	d Topographic	Complexity		0.50		0.00	
V _{upuse} - Uplar	nd Use				0.57		#DIV/0!	
V _{detritus} - Detr	itus				0.00		0.00	
V _{sed} - Sedime	ntation Withir	the Wetland			0.00		0.00	
V _{som} - Soil Oi	ganic Matter				0.00		0.00	
V _{soil} - Soil Po	rosity				0.00		0.00	
V _{buffer} - Buffe	er Condition, C	Continuity, and	Width		0.14		0.00	
V _{denhw} - Dens	ity of Perennia	al Herbaceous	and Woody V	egetation	0.00		0.00	
V _{pratio} - Ratio	of Native to N	Non-Native Pla	int Species	2	0.00		0.00	
V _{veg} - Vegetat	tive Strata and	Canopy Cove	rage		0.00		0.00	
V _{wetuse} - Wetl	and Use	17			0.00		0.00	
]	1				
				Existing Predicted			icted	
	Fune	ction		FCI	FCU	FCI	FCU	
1.0 Storage of	Surface Water			0.00	0.00	0.00	0.00	
2.0 Velocity R	eduction of Sur	face Water Flov	v	0.37	0.07	#DIV/0!	#DIV/0!	
3.0 Storage an	d Release of Su	bsurface Water		0.52	0.10	#DIV/0!	#DIV/0!	
4.0 Removal o	f Imported Eler	nents and Comp	ounds	0.00	0.00	#DIV/0!	#DIV/0!	
5.0 Retention	of Particulates a	nd Organic Mat	erials	0.16	0.03	#DIV/0!	#DIV/0!	
6.0 Organic Ca	arbon Export			0.19	0.04	0.00	0.00	
7.0 Maintains	Characteristic P	lant Community	7	0.00	0.00	#DIV/0!	#DIV/0!	
8.0 Maintains	Habitat Structur	e Within Wetla	nd	0.08	0.02	0.00	0.00	
9.0 Maintains	Hab. Str. and Co	onnect. Among	Wetlands	0.24	0.05	#DIV/0!	#DIV/0!	
FUNCTION	CHANGE	E IN FCU's	MINIMAL EFFECT	JUSTIFICATI	ON OF MINIM	IAL EFFECT IF	F THERE IS A	
FUNCTION	NUMERICAL	%	(Y or N)	NET FUNC	CTIONAL LOS	S OF 10 TO 20	PERCENT	
1.0	0.00	#DIV/0!	#DIV/0!					
2.0	#DIV/0!	#DIV/0!	#DIV/0!					
3.0	#DIV/0!	#DIV/0!	#DIV/0!					
4.0	#DIV/0!	#DIV/0!	#DIV/0!					
5.0	#DIV/0!	#DIV/0!	#DIV/0!					
6.0	-0.04	-100.00%	No					
7.0	#DIV/0!	#DIV/0!	#DIV/0!					
8.0	-0.02	-100.00%	No					
9.0	#DIV/0!	#DIV/0!	#DIV/0!					

Wetland Delineation Report

S.D. RIVERINE HGM MODEL WORKSHEET 2, VER. 1.1									
Use this worksheet for wetlands that are adjacent and parallel to the channel and that lack the ability to store surface									
water. For depressional and linear wetlands with the ability to store surface water, use worksheet 1.									
DATE		09/25/18		OWNER/OPEI	RATOR	South Dakota I	TOOT		
WETLAND ID)	5		ASSESSMENT	Г ТҮРЕ				
OBSERVERS				WETLAND TY	YPE (NWI)				
CONDITIONS				WETLAND TY	YPE (FSA)				
PROJECT NA	ME			REMARKS					
PLANNED AC	TIVITY								
YELLOW FLA	AG (Y/N)			RED FLAG (Y	/N)				
WETLAND A	CRES (EXISTI	NG)	0.2	WETLAND A	CRES (PREDIC	(TED)	0		
	FUNCTIONAL INDICES (VARIABLE) SCORING								
		Variable			Existing		Predicted		
V _{hydalt} - Flood	l Plain/Wetlan	d Hydrology A	Alterations		1.00		0.00		
V _{source} - Wate	rshed Hydrolo	gy Alterations	5		0.50		0.00		
V _{topog} - Flood	Plain/Wetland	d Topographic	Complexity		0.50		0.00		
V _{upuse} - Uplan	nd Use				0.57		#DIV/0!		
V _{detritus} - Detr	itus				0.00		0.00		
V _{sed} - Sedime	ntation Withir	the Wetland			0.00		0.00		
V _{som} - Soil Oi	ganic Matter				0.00		0.00		
V_{soil} - Soil Po i	rosity				0.00		0.00		
V _{buffer} - Buffe	er Condition, C	Continuity, and	l Width		0.14		0.00		
V _{denhw} - Dens	ity of Perennia	al Herbaceous	and Woody V	egetation	0.00		0.00		
V _{pratio} - Ratio	of Native to N	Non-Native Pla	ant Species		0.00		0.00		
V _{veg} - Vegetat	tive Strata and	Canopy Cove	rage		0.00		0.00		
V _{wetuse} - Wetl	and Use				0.00		0.00		
CA	LCULATION	I OF FUNCTI	ONAL CAPA	CITY INDICE	S (FCI's) ANI	D UNITS (FCI	J's)		
	Fund	ction		Exis	sting	Pred	icted		
	T UIII	- tron		FCI	FCU	FCI	FCU		
1.0 Storage of	Surface Water								
2.0 Velocity R	eduction of Sur	face Water Flow	V	0.37	0.07	#DIV/0!	#DIV/0!		
3.0 Storage and	d Release of Su	bsurface Water		0.52	0.10	#DIV/0!	#DIV/0!		
4.0 Removal o	f Imported Elen	nents and Comp	ounds	0.00	0.00	#DIV/0!	#DIV/0!		
5.0 Retention	of Particulates a	nd Organic Mat	terials	0.16	0.03	#DIV/0!	#DIV/0!		
6.0 Organic Ca	arbon Export	. ~ .		0.19	0.04	0.00	0.00		
7.0 Maintains	Characteristic P	lant Community	/	0.00	0.00	#DIV/0!	#DIV/0!		
8.0 Maintains	Habitat Structur	e Within Wetla	nd	0.08	0.02	0.00	0.00		
9.0 Maintains	Hab. Str. and Co	onnect. Among	wetlands	0.24	0.05	#DIV/0!	#DIV/0!		
FUNCTION CHANGE IN FCU'S MINIMAL EFFECT				JUSTIFICATI	ON OF MINIM	IAL EFFECT I	THERE IS A		
1.0	NUMERICAL	%	(Y or N)	NET FUNC	L'HONAL LOS	S OF 10 TO 20	PERCENT		
1.0							1.55		
2.0	#DIV/0!	#DIV/0!	#DIV/0!				1.55		
5.0	#DIV/0!	#DIV/0!	#DIV/0!				0.31		
4.0	#DIV/0!	#DIV/0!	#DIV/0!						
5.0	#DIV/0!	#DIV/0!	#DIV/0!						
0.0	-0.04 #DIV/01	-100.00%							
7.0	#DIV/0!	#DIV/0!	#DIV/0!						
8.0	-0.02 #DIV/01	-100.00%							
9.0	#DIV/0!	#DIV/0!	#DIV/0!						

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:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #6

	Variable	Data entered		Subindex
		wetland perimeter (feet):	803.90	
	V _{GRASSCONT}	grassland along perimeter (feet):	803.90	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	15.00	
		Point 2:	15.00	
		Point 3:	15.00	
		Point 4:	30.00	
U		Point 5:	19.00	
tio		Point 6:	33.00	0.48
tat	GRASSWIDTH	Point 7:	48.00	0.10
e		Point 8:	10.00	
/ea		Point 9:	20.00	
-		Point 10:	50.00	
		Point 11:	15.00	
		Point 12:	15.00	
		mean width (feet):	23.75	
		(see vegetation worksheet for species entered)		
		sum of species:	1.00	
	V _{VEGCOMP}	sum of C values:	0.00	0.00
		mean coefficient of conservatism:	0.00	
		FQI:	0.00	

Base in Strike Eastern Prairie Potholes 1.00 Western Prairie Potholes 1.00 Strike Sample 10 B horizon (inches): 12.00 SQ1 scores for 4 samples: sample 1: 1.50 sample 2: 2.00 0.04 sample 3: 1.50 0.04 average SQ1 score: 1.75 0.04 Indirect Measurements 1.00 0.04 Sample 3: 0.00 0.04 Sample 4: 0.00 sample 1: 0.00 Average Litter Depth for 4 samples: 0.00 0.00 Average Litter Depth (inches): 0.00 0.00 ADI for 4 samples: 0.00 0.00 Sample 1 wate: 3.00 0.00 ADI for 4 samples: 0.00 0.21 0.21 Sample 2 hue: 1.00 0.21 0.21 Sample 3 wate: 3.00 0.01 0.21 Sample 4 hue: 1.00 0.21 0.21 Sample 4 hue: 1.00 </th <th></th> <th>VRECHARCE</th> <th>Soil Recharge Potential Subindex:</th> <th>0.75</th> <th>0.75</th>		VRECHARCE	Soil Recharge Potential Subindex:	0.75	0.75
Vscb mean depth to B horizon (inches): Western Prairie Potholes 1.00 SQI scores for 4 samples: 1.50 sample 1: 1.50 sample 2: 2.00 asample 3: 1.50 sample 4: 2.00 asample 4: 2.00 average SQI score: 1.75 Indirect Measurements 0.04 Sample 4: 0.00 sample 1: 0.00 sample 3: 0.00 sample 4: 0.00 sample 4: 0.00 Sample 1: 0.00 Sample 1: 0.00 Abt of 4 samples: 0.00 Abt of 4 samples: 0.00 Sample 1 0.00 Sample 2: 0.00 Sample 1: 0.00 Sample 2: 0.00 Sample 3: 0.00 Sample 4: 0.00 Sample 2: 0.00 Sample 3: 0.00 Sample 4: 0.00 Sample 3: 0.00		RECHARGE	Eastern Prairie Potholes		
Vsin Western Prairie Potholes 1.00 mean deph to B horizon (inches): 12.00 12.00 SQI scores for 4 samples: 15.0 sample 1: 1.50 sample 3: 1.50 sample 4: 2.00 0.04 sample 4: 2.00 average SQI score: 1.75 0.04 sample 4: 2.00 average SQI score: 1.75 0.04 Sample 2: 0.00 sample 2: 0.00 sample 2: 0.00 sample 2: 0.00 Sample 2: 0.00 sample 4: 0.00 ADI for 4 samples: 0.00 average Litter Depth (inches): 0.00 ADI for 4 samples: 1.00		T 7	mean depth to B horizon (inches):		1.00
Image: Second stample is a simple is in the image of the ima		V _{SED}	Western Prairie Potholes		1.00
SQI scores for 4 samples:			mean depth to B horizon (inches):	12.00	
V _{SQI} sample 1: 1.50 sample 2: 2.00 sample 3: 1.50 0.04 0.04 Indirect Messurements 0.04 Indirect Messurements 0.00 Litter Depth for 4 sample 1: 0.00 sample 2: 0.00 0.00 Sample 1: 0.00 sample 2: 0.00 0.00 Matrix Depth for 4 samples: 0.00 0.00 Matrix Depth for 4 samples: 0.00 0.00 Sample 1: 0.00 0.00 Sample 2: 0.00 0.00 Sample 1: 0.00 0.00 ADI for 4 samples: 0.00 0.00 Sample 1: 0.00 0.00 Sample 2: 0.00 0.00 Sample 1: 0.00 0.00 Sample 2: 0.00 0.00 Sample 2: 0.00 0.00 Sample 3: 0.00 0.00 Sample 3: 0.00 0.00 Sample 4: 0.00 0.00 Sample 3: 0.00 0.00 Sample 4: 0.00 <t< td=""><td></td><td></td><td>SQI scores for 4 samples:</td><td></td><td></td></t<>			SQI scores for 4 samples:		
V _{SQI} sample 2: 2.00 (sample 3: 1.50) (sample 4: 2.00) (average SQI score: 1.75) 0.04 Indirect Measurements (sample 2: 0.00) (sample 2: 0.00) (sample 2: 0.00) (sample 4: 0.00) (sample 4: 0.00) (Average Litter Depth (inches): 0.00) (ADI for 4 samples: (sample 1: 0.00) (ADI for 4 samples: (sample 1: 0.00) (sample 2: 0.00) (sample 1: 0.00) (sample 1: 0.00) (sample 2: 0.00) (sample 1: 0.00) (sample 2: 0.00) (sample 4: 0.00			sample 1:	1.50	
V SQI Sample 3: 1.50 0.04 asample 4: 2.00 average SQI score: 1.75 Indirect Measurements 1.15 0.00 sample 1: 0.00 Sample 2: 0.00 sample 2: 0.00 sample 4: 0.00 Sample 1: 0.00 sample 4: 0.00 sample 4: 0.00 Average Litter Depth (inches): 0.00 0.00 sample 4: 0.00 ADI for 4 samples:		V	sample 2:	2.00	0.04
Indirect Measurements Litter Depth for 4 samples: Sample 1: 0.00 sample 2: 0.00 sample 3: 0.00 sample 4: 0.00 sample 2: 0.00 sample 4: 0.00 sample 4: 0.00 Sample 1: werage Litter Depth (inches): 0.00 ADI for 4 samples: Sample 1 weie 0.00 chroma: 0.00 Chroma: 0.00 Sample 2 hue: 0.00 Chroma: 1.00 ADI: 8.00 Sample 3 hue: 0.00 Chroma: 0.01 Sample 4 hue: 0.00 ADI: 8.00 Direct Measurements % organic carbon		* SQI	sample 3:	1.50	0.04
Visual Notation Indirect Measurements Indirect Measurements Indirect Measurements Litter Depth for 4 samples: 0.00 sample 2: 0.00 sample 3: 0.00 AVerage Litter Depth (inches): 0.00 AVerage Litter Depth (inches): 0.00 ADI for 4 samples: 0.00 Sample 1 hue: 10.00 ADI for 4 samples: 0.00 0.00 Sample 1 hue: 10.00 Chroma: 1.00 0.00 Sample 2 hue: 10.00 Sample 3 hue: 10.00 Vsont Sample 3 hue: 10.00 Sample 3 hue: 10.00 0.21 Sample 4 hue: 10.00 0.21 Direct Measurements 0.00 average ADI: 8.00 Matter Measurements 0.01 8.00 average ADI: 8.00 Matter Advalue: 3.00 chroma: 1.00 0.21			sample 4:	2.00	
Vson Altired Measurements Litter Depth for 4 samples: 0.00 sample 2: 0.00 sample 3: 0.00 sample 3: 0.00 Average Litter Depth (inches): 0.00 ADI for 4 samples: 0.00 Sample 1 hue: 10.00 ADI for 4 samples: 0.00 Chroma: 1.00 Sample 1 hue: 10.00 Chroma: 1.00 Sample 2 hue: 10.00 Chroma: 1.00 0.21			average SQI score:	1.75	
Litter Depth for 4 samples: sample 1: 0.00 sample 2: 0.00 Sample 4: 0.00 Average Litter Depth (inches): 0.00 Average ADI: 8.00 ADI: 8.00 </td <td></td> <td></td> <td>Indirect Measurements</td> <td></td> <td></td>			Indirect Measurements		
VSM			Litter Depth for 4 samples:		
Vsom Sample 3: 0.00 Sample 3: 0.00 Average Litter Depth (inches): 0.00 ADI for 4 samples: 0.00 Sample 1 hue: 10.00 value: 3.00 0.00 Chroma: 1.00 0.01 Sample 2 hue: 10.00 Sample 2 hue: 10.00 Chroma: 1.00 0.01 Sample 3 hue: 10.00 Sample 3 hue: 10.00 Sample 4 hue: 10.00 Sample 4 hue: 10.00 Sample 4 hue: 10.00 Matter 4.00 ADI: 8.00 Sample 4 hue: 10.00 ADI: 8.00 ADI: B.00 average ADI: 8.00 ADI: 8.00 average ADI: Morganic carbon for 0-15cm depth: % organic carbon for 0-15cm depth: % organic carbon for 15-30cm depth: % organic carbon for 13-30cm depth:			sample 1:	0.00	
Vsout sample 3: 0.00 sample 4: 0.00 Average Litter Depth (inches): 0.00 ADI for 4 samples: Sample 1 0.00 NO Vsout 3.00 Chroma: 1.00 Sample 2 0.00 NO Vsout 3.00 Chroma: 1.00 Sample 2 0.00 NO Sample 3 hue: 10.00 NO 0.21 0.21 0.21			sample 2:	0.00	
VSOM Image: Sample 4: 0.00 (ADI for 4 samples: 0.00 (ADI for 4 sample 1) (but is 3.00 (ADI is (ADI is 3.00 (ADI is (ADI is			sample 3:	0.00	
Vsom Average Litter Depth (inches): 0.00 ADI for 4 samples: 0.00 Sample 1 hue: 10.00 chroma: 1.00 ADI: 8.00 Sample 2 hue: 10.00 value: 3.00 0.21			sample 4:	0.00	
Vson 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 Sample 2 hue: 10.00 0.21 Vson Sample 3 hue: 10.00 Sample 3 hue: 10.00 0.21 Sample 4 hue: 10.00 chroma: 1.00 Sample 4 hue: 10.00 chroma: 1.00 Organic carbon for 0-15cm depth: 8.00 average ADI: 8.00 Morganic carbon for 0-150cm depth: % organic carbon for 15.30cm depth: 1.35			Average Litter Depth (inches):		
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 Sample 2 hue: 10.00 Vsom Chroma: 1.00 Sample 3 hue: 10.00 Sample 3 hue: 10.00 Chroma: 1.00 0.21	Soil		ADI for 4 samples:		
Vsom image: state intervalue interval			Sample 1 hue:	10.00	
Vsom Chroma: 1.00 ADI: 8.00 value: 3.00 chroma: 1.00 0.21 0.21			value:	3.00	
ADI: 8.00 Sample 2 hue: 10.00 value: 3.00 chroma: 1.00 0 0.21 0.21 Vsom ADI: 8.00 0.21 Sample 3 hue: 10.00 0.21 Sample 3 hue: 10.00 0.21 Chroma: 1.00 0.00 0.21 Sample 4 hue: 10.00 0.21 Sample 4 hue: 10.00 0.21 Mathematical action of the summer action of th			chroma:	1.00	
Sample 2 hue: 10.00 value: 3.00 0.21 V _{SOM} ADI: 8.00 Sample 3 hue: 10.00 Value: 3.00 0.21 Sample 3 hue: 10.00 Chroma: 1.00 0.21 Sample 4 hue: 10.00 Chroma: 1.00 0.21 Sample 4 hue: 10.00 ADI: 8.00 0.21 Bander 4 hue: 1.00 ADI: 8.00 0.21 Bander 4 hue: 1.00 ADI: 8.00 0.21 Bander 4 hue: 1.00 Morganic carbon for 0-15cm depth: 0.21 <			ADI:	8.00	
V _{SOM} 0.21 V _{SOM} 0.21 0.21 0.21			Sample 2 hue:	10.00	
V _{SOM} Chroma: 1.00 0.21 ADI: 8.00 0.21 Sample 3 hue: 10.00 value: 3.00 0.21 Chroma: 1.00 0.21 MDI: 8.00 0.21 Sample 4 hue: 10.00 Value: 3.00 0.21 Sample 4 hue: 10.00 Value: 3.00 0.21 Chroma: 1.00 0.21 MDI: 8.00 0.21 MDI: 8.00 0.21 Moreage ADI: 8.00 0.21 Moreage ADI: 8.00 0.21 Moreage Carbon for 0-15cm depth: 0.21 0.21 % organic carbon for 15-30cm depth: 0.21 0.21			value:	3.00	
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 Chroma: 1.00 ADI: 8.00 Object Measurements 8.00 Ø organic carbon for 0-15cm depth: 9% organic carbon for 15-30cm depth: mean percentage: 135		V _{SOM}	chroma:	1.00	0.21
Sample 3 nue: 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 chroma: 1.00 ADI: 8.00 Object Measurements 8.00 Direct Measurements 8.00 % organic carbon for 0-15cm depth: 9% organic carbon for 15-30cm depth: % organic carbon for 15-30cm depth: 1.35			ADI:	8.00	
value: 3.00 chroma: 1.00 ADI: 8.00 Sample 4 hue: value: 3.00 chroma: 1.00 chroma: 1.00 ADI: 8.00 average ADI: 8.00 Direct Measurements 8.00 % organic carbon for 0-15cm depth: 9% organic carbon for 15-30cm depth: mean percentage: 1.35			Sample 3 hue:	10.00	
ADI: 8.00 ADI: 8.00 Sample 4 hue: 10.00 value: 3.00 chroma: 1.00 ADI: 8.00 ADI: 8.00 Direct Measurements 8.00 % organic carbon for 0-15cm depth: 9% organic carbon for 15-30cm depth: % organic carbon for 15-30cm depth: 1.35			value:	3.00	
Sample 4 hue: 10.00 value: 3.00 chroma: 1.00 ADI: 8.00 average ADI: 8.00 Direct Measurements 8.00 % organic carbon for 0-15cm depth: 9% organic carbon for 15-30cm depth: mean percentage: % organic carbon: 1.35				8.00	
Sample 4 Inde. 10.00 value: 3.00 chroma: 1.00 ADI: 8.00 average ADI: 8.00 Direct Measurements 8.00 % organic carbon for 0-15cm depth: 9% organic carbon for 15-30cm depth: mean percentage: 9% organic carbon: 1.35			ADI.	10.00	
chroma: 1.00 ADI: 8.00 average ADI: 8.00 Direct Measurements 8.00 % organic carbon for 0-15cm depth: 9% organic carbon for 15-30cm depth: mean percentage: 9% organic carbon: 1.35			Sample 4 Inde.	3.00	
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			chroma:	1.00	
average ADI: 6.00 average ADI: 8.00 Direct Measurements 6.00 % organic carbon for 0-15cm depth: 6.00 % organic carbon for 15-30cm depth: 6.00 mean percentage: 7.00 % organic carbon 1.35				8.00	
Direct Measurements % organic carbon for 0-15cm depth: % organic carbon for 15-30cm depth: mean percentage: % organic carbon: 1.35			ADI.	8.00	
% organic carbon for 0-15cm depth: % organic carbon for 15-30cm depth: mean percentage: % organic carbon: 1 35			Direct Measurements	8.00	
% organic carbon for 15-30cm depth: mean percentage: % organic carbon = 1.35			% organic carbon for 0-15cm denth:		
mean percentage:			% organic carbon for 15-30cm depth.		
% organic carbon: 1 35			mean percentage		
			% organic carbon	1 35	

		historic invert elevation in relation to wetland maximum depth:	1395.00			
		present (or constructed) invert alevation:	1307.00			
		elevation of the edge of the historic wetland:	1397.00			
		clevation of the edge of the historie wetland.	1375.00			
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1397.00	0.05		
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00			
iic		(ex. 25%=25), otherwise enter 0:	0.00			
rph		ratio of the constructed elevation to the natural outlet elevation:	0.00			
ma		depth of surface drainage invert:				
103	V _{SUBOUT}	distance from WAA edge:		0.25		
g e		location/spacing of subsurface tile within the WAA:				
r0		type & effect of surface alteration(s):				
yd	V	% of historic catchment area still contributing runoff:		0.50		
Ĥ	V SOURCE	additions of water from other sources:		0.30		
		change in wetland regime class?				
		wetland perimeter (feet):	803.90			
	V _{EDGE}	wetland area (acres):	0.19	1.00		
		Shoreline Development Index:	2.49			
	V _{CATCHWET}	wetland area (acres):	0.19			
		catchment area (acres):	1.10	0.98		
		ratio of catchment size to wetland size:	5.79			
		total acre size of the present day catchment:	1.10			
		acres of catchment for each curve number:				
		98	1.10			
		90				
		79				
		77				
		72				
		75				
ISE	V _{UPUSE}	73		0.00		
qu		71				
an		72				
L:		/4				
S S		09				
e		79				
ap		/4				
SC		61				
pr		weighted average score for unland land use:	98.00			
a 1		distance to nearest wetland(feet):	82.00			
I		distance to 2nd nearest wetland:	210.00			
		distance to 3rd nearest wetland:	298.00			
	V _{WETPROX}	distance to 4th nearest wetland:	473.00	0.89		
		distance to 5th nearest wetland:	716.00			
		mean distance (feet):	355.80	-		
	VWETADEA	acres of palustrine wetlands within a 1-mile radius:	40.00	0.07		
		number of palustrine wetlands within a 1-mile radius:	41.00	0.18		
	VHADEDAG	miles of roads and linear attributes within a 1-mile radius.	29.00	0.00		
	' HABFRAG	miles of roads and mean attributes within a 1-mile faulus.	27.00	0.00		

Function	FCI	FCU
1. Water Storage	0.18	0.03
2. Groundwater Recharge	0.19	0.04
3. Retain Particlulates	0.51	0.10
4. Remove, Convert, and Sequester Dissolved Substances	0.15	0.03
5. Plant Community Resilience and Carbon Cycling	0.14	0.03
6a. Provide Faunal Habitat	0.15	0.03
6b. Provide Faunal Habitat (Alternate Formula)	0.09	0.02

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:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #7

	Variable	Data entered		Subindex
		wetland perimeter (feet):	1332.00	
	V _{GRASSCONT}	grassland along perimeter (feet):	1300.00	0.98
		percent continuity:	97.60	
		grassland width (feet) at 12 points:		
		Point 1:	35.00	
		Point 2:	25.00	
		Point 3:	16.00	
		Point 4:	13.00	
U		Point 5:	22.00	
tio	Van A source the	Point 6:	24.00	0.60
tat	' GRASSWIDTH	Point 7:	35.00	
e		Point 8:	39.00	
/ea		Point 9:	50.00	
-		Point 10:	37.00	
		Point 11:	30.00	
		Point 12:	26.00	
		mean width (feet):	29.33	
		(see vegetation worksheet for species entered)		
		sum of species:	6.00	
	V _{VEGCOMP}	sum of C values:	3.00	0.04
		mean coefficient of conservatism:	0.50	
		FQI:	1.22	

	VRECHARGE	Soil Recharge Potential Subindex:	0.75	0.75
	RECHARGE	Eastern Prairie Potholes		
	X 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	12.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	V	sample 2:	1.50	0.03
	* SQI	sample 3:	1.50	0.03
		sample 4:	2.00	
		average SQI score:	1.63	
		Indirect Measurements		
		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:	10.00	
lio		Sample 1 hue:	10.00	
Sc		value:	3.00	
		chroma:	1.00	
		ADI:	8.00	
		Sample 2 Ilue:	3.00	
		value.	1.00	
	V _{SOM}		8.00	0.16
		Sample 3 huev	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:	8.50	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.21	

		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert alevation:	1308.00	
		elevation of the edge of the historic wetland:	1398.00	
		clevation of the edge of the historie wetland.	1375.00	
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1396.50	0.05
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
rph		ratio of the constructed elevation to the natural outlet elevation:	-1.00	
no		depth of surface drainage invert:		
103	V _{SUBOUT}	distance from WAA edge:		0.25
ge		location/spacing of subsurface tile within the WAA:		
ro		type & effect of surface alteration(s):		
yd	V	% of historic catchment area still contributing runoff:		0.50
Ĥ	V SOURCE	additions of water from other sources:		0.50
		change in wetland regime class?		
		wetland perimeter (feet):	1332.00	
	V _{EDGE}	wetland area (acres):	0.75	1.00
		Shoreline Development Index:	2.08	
		wetland area (acres):	0.75	
	V _{CATCHWET}	catchment area (acres):	2.30	0.43
		ratio of catchment size to wetland size:	3.07	
		total acre size of the present day catchment:	2.30	
		acres of catchment for each curve number:		
		98	2.30	
		90		
		79		
		77		
		72		
		75		
Se	$\mathbf{V}_{\mathbf{UPUSE}}$	73		0.00
np		71		0100
n		72		
La		74		
×		69		
e e		79		
ap		/4		
SC		69		
ands			00.00	
		weighted average score for upland land use:	98.00	
		distance to hearest wetland(leet):	82.00	
		distance to 2nd nearest wetland:	120.00	
	V _{WETPROX}	distance to 510 hearest wetland:	452.00	1.00
		distance to 5th pagest wetland:	452.00	
		uistance to sui nearest welland. mean distance (feet):	253 40	
	V	acres of palustrine wetlands within a 1 mile redius:	40.00	0.07
	V WETAREA	number of palustring wotlands within a 1-mile radius.	41.00	0.07
	V BASINS	number of parusume wettands within a 1-mile radius:	41.00	0.18
	V HABFRAG	miles of roads and linear attributes within a 1-mile radius:	29.00	0.00

Function	FCI	FCU
1. Water Storage	0.18	0.13
2. Groundwater Recharge	0.18	0.13
3. Retain Particlulates	0.53	0.40
4. Remove, Convert, and Sequester Dissolved Substances	0.15	0.11
5. Plant Community Resilience and Carbon Cycling	0.14	0.10
6a. Provide Faunal Habitat	0.15	0.12
6b. Provide Faunal Habitat (Alternate Formula)	0.10	0.07

Summary Sheet

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Project Name/Location:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #8

	Variable	Data entered		Subindex
		wetland perimeter (feet):	1851.00	
	V _{GRASSCONT}	grassland along perimeter (feet):	1851.00	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	44.00	
		Point 2:	50.00	
		Point 3:	45.00	
		Point 4:	50.00	
U		Point 5:	50.00	
tio	Vantagummer	Point 6:	50.00	0.91
tat	' GRASSWIDTH	Point 7:	50.00	
e		Point 8:	50.00	
/ea		Point 9:	50.00	
-		Point 10:	16.00	
		Point 11:	43.00	
		Point 12:	40.00	
		mean width (feet):	44.83	
		(see vegetation worksheet for species entered)		
		sum of species:	7.00	
	VVEGCOMP	sum of C values:	8.00	0.15
		mean coefficient of conservatism:	1.14	
		FQI:	3.02	

	VRECHARGE	Soil Recharge Potential Subindex:	0.50	0.50
	A COMMOL	Eastern Prairie Potholes		
	V 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	18.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	$\mathbf{V}_{}$	sample 2:	2.00	0.05
	• SQI	sample 3:	2.00	0.03
		sample 4:	1.50	
		average SQI score:	1.88	
		Indirect Measurements		
		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	
90		value:	2.00	
•1		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	Vsom	chroma:	2.00	0.31
	· 30M	ADI:	7.00	0.01
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		average ADI:	6.50	
		Direct Measurements		
		% organic carbon for U-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:	1 71	
		% organic carbon:	1./1	

		• • • • • • • • • • • • • • • • • • •		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert alevation:	1304.00	
		elevation of the edge of the historic wetland:	1394.00	
		clevation of the edge of the instone wetland.	1375.00	
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1394.00	0.05
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
rph		ratio of the constructed elevation to the natural outlet elevation:	0.00	
no		depth of surface drainage invert:		
103	V _{SUBOUT}	distance from WAA edge:		0.25
ge		location/spacing of subsurface tile within the WAA:		
r0		type & effect of surface alteration(s):		
yd	V	% of historic catchment area still contributing runoff:		0.50
Ĥ	V SOURCE	additions of water from other sources:		0.30
		change in wetland regime class?		
		wetland perimeter (feet):	1851.00	
	V _{EDGE}	wetland area (acres):	1.30	1.00
		Shoreline Development Index:	2.19	
		wetland area (acres):	1.30	
	V _{CATCHWET}	catchment area (acres):	3.40	0.34
		ratio of catchment size to wetland size:	2.62	
		total acre size of the present day catchment:	3.40	
		acres of catchment for each curve number:		
		98	3.40	
		90		
		79		
		77		
		72		
		75		
ISE	$\mathbf{V}_{\mathbf{UPUSE}}$	73		0.00
qu		71		
an		72		
L:		/4		
S S		09		
e		 74		
ap		/4		
SC		61		
Land		weighted average score for unland land use:	98.00	
		distance to nearest wetland(feet):	89.00	
		distance to 2nd nearest wetland:	89.00	
		distance to 3rd nearest wetland:	109.00	
	V _{WETPROX}	distance to 4th nearest wetland:	205.00	1.00
		distance to 5th nearest wetland:	300.00	
		mean distance (feet):	158.40	
	Vweta de 4	acres of palustrine wetlands within a 1-mile radius.	40.00	0.07
		number of palustrine wetlands within a 1-mile radius:	41.00	0.18
	V	miles of roads and linear attributes within a 1 mile radius.	29.00	0.00
	• HABFRAG	nines of roads and finear autoutes within a 1-time faulus:	29.00	0.00

Function	FCI	FCU
1. Water Storage	0.18	0.23
2. Groundwater Recharge	0.17	0.22
3. Retain Particlulates	0.61	0.79
4. Remove, Convert, and Sequester Dissolved Substances	0.17	0.22
5. Plant Community Resilience and Carbon Cycling	0.16	0.20
6a. Provide Faunal Habitat	0.16	0.21
6b. Provide Faunal Habitat (Alternate Formula)	0.10	0.14

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:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #9

	Variable	Data entered		Subindex
		wetland perimeter (feet):	247.50	
	V _{GRASSCONT}	grassland along perimeter (feet):	247.50	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	50.00	
n		Point 5:	50.00	
tio	Van i gauren	Point 6:	50.00	0.94
tat	' GRASSWIDTH	Point 7:	50.00	
el Bel		Point 8:	50.00	
/ea		Point 9:	50.00	
~		Point 10:	29.00	
		Point 11:	30.00	
		Point 12:	46.00	
		mean width (feet):	46.25	
		(see vegetation worksheet for species entered)		
		sum of species:	5.00	
	VVEGCOMP	sum of C values:	1.00	0.00
		mean coefficient of conservatism:	0.20	
		FQI:	0.45	

	VRECHARGE	Soil Recharge Potential Subindex:	0.75	0.75
	A LOHINGE	Eastern Prairie Potholes		
	N7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	8.00	
		SQI scores for 4 samples:		
		sample 1:	1.50	
	V	sample 2:	1.50	0.04
	♥ SQI	sample 3:	2.00	0.04
		sample 4:	2.00	
		average SQI score:	1.75	
		Indirect Measurements		
		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:		
Ξ		Sample 1 hue:	10.00	
0		value:	3.00	
		chroma:	2.00	
		ADI:	9.00	
		Sample 2 hue:	10.00	
		value:	3.00	
	Van	chroma:	1.00	0.19
	* SOM	ADI:	8.00	0.17
		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:	8.25	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.30	

		• • • • • • • • • • • • • • • • • • •		
		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert alevation:	1308.00	
		elevation of the edge of the historic wetland:	1395.00	
		clevation of the edge of the instone wetland.	1375.00	
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1398.00	0.05
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland	0.00	
iic		(ex. 25%=25), otherwise enter 0:	0.00	
rph		ratio of the constructed elevation to the natural outlet elevation:	0.00	
na		depth of surface drainage invert:		
	V _{SUBOUT}	distance from WAA edge:		1.00
5 6		location/spacing of subsurface tile within the WAA:		
LO		type & effect of surface alteration(s):		
yd	V	% of historic catchment area still contributing runoff:		0.50
Ĥ	V SOURCE	additions of water from other sources:		0.50
		change in wetland regime class?		
		wetland perimeter (feet):	247.50	
	V _{EDGE}	wetland area (acres):	0.01	1.00
		Shoreline Development Index:	3.35	
		wetland area (acres):	0.01	
	V _{CATCHWET}	catchment area (acres):	2.50	1.00
		ratio of catchment size to wetland size:	250.00	
		total acre size of the present day catchment:	2.50	
		acres of catchment for each curve number:		
		98	2.50	
		90		
		79		
		77		
		72		
		75		
Se	VUDUSE	73		0.00
q	OFUSE	71		0.00
Ĭ		72		
La		74		
X		69		
e		79		
ap		74		
SC		69		
pi		61	00.00	
an		weighted average score for upland land use:	98.00	
		distance to nearest wetland(feet):	90.00	
		distance to 2nd nearest wetland:	139.00	
	V _{WETPROX}	distance to 3rd nearest wetland:	297.00	0.99
		distance to 4th hearest wetland:	500.00	
		distance to 5th nearest Wetland:	270.60	
	V	inean distance (leet):	40.00	0.07
	V WETAREA	acres of parusume wetlands within a 1-inne radius:	40.00	0.07
	V BASINS	number of palustrine wetlands within a 1-mile radius:	41.00	0.18
	V HABFRAG	miles of roads and linear attributes within a 1-mile radius:	29.00	0.00

Function	FCI	FCU
1. Water Storage	0.18	0.00
2. Groundwater Recharge	0.19	0.00
3. Retain Particlulates	0.58	0.01
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.00
5. Plant Community Resilience and Carbon Cycling	0.14	0.00
6a. Provide Faunal Habitat	0.16	0.00
6b. Provide Faunal Habitat (Alternate Formula)	0.09	0.00

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:

Interstate 229 Exit 4 Reconstruction
Sioux Falls/Minnehaha County
Wetland #10

	Variable	Data entered		Subindex
		wetland perimeter (feet):	2358.90	
	V _{GRASSCONT}	grassland along perimeter (feet):	2358.90	1.00
		percent continuity:	100.00	
		grassland width (feet) at 12 points:		
		Point 1:	8.00	
		Point 2:	11.00	
		Point 3:	38.00	
		Point 4:	50.00	
U		Point 5:	23.00	
tio		Point 6:	24.00	0.55
tat	' GRASSWIDTH	Point 7:	39.00	0.55
e		Point 8:	28.00	
/ei		Point 9:	38.00	
		Point 10:	50.00	
		Point 11:	10.00	
		Point 12:	5.00	
		mean width (feet):	27.00	
		(see vegetation worksheet for species entered)		
		sum of species:	8.00	
	V _{VEGCOMP}	sum of C values:	9.00	0.16
		mean coefficient of conservatism:	1.13	
		FQI:	3.18	

	VRECHARGE	Soil Recharge Potential Subindex:	0.50	0.50
	A COMMOL	Eastern Prairie Potholes		
	V 7	mean depth to B horizon (inches):		1.00
	V _{SED}	Western Prairie Potholes		1.00
		mean depth to B horizon (inches):	18.00	
		SQI scores for 4 samples:		
		sample 1:	2.00	
	$\mathbf{V}_{}$	sample 2:	2.00	0.05
	• SQI	sample 3:	2.00	0.03
		sample 4:	1.50	
		average SQI score:	1.88	
		Indirect Measurements		
		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:		
i		Sample 1 hue:	10.00	
20		value:	2.00	
•1		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
	V _{SOM}	chroma:	2.00	0.33
	5014	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:	1 77	
		% organic carbon:	1.//	

		historic invert elevation in relation to wetland maximum depth:	1395.00	
		present (or constructed) invert elevation:	1394.00	
		elevation of the edge of the historic wetland:	1395.00	
	V _{OUT}	elevation of a representative deepest portion of the wetland:	1392.00	0.68
c		if evaluating pit or fill, enter % volume of pit/fill vs. wetland $(ax 25\% - 25)$ otherwise enter 0:	0.00	
rphi		ratio of the constructed elevation to the natural outlet elevation:	0.67	
00		depth of surface drainage invert:		
00	V _{SUBOUT}	distance from WAA edge:		0.25
ge	505001	location/spacing of subsurface tile within the WAA:		
ro		type & effect of surface alteration(s):		
yd	V	% of historic catchment area still contributing runoff:		0.50
Ĥ	V SOURCE	additions of water from other sources:		0.50
		change in wetland regime class?		
		wetland perimeter (feet):	2358.90	
	$\mathbf{V}_{\mathbf{EDGE}}$	wetland area (acres):	0.86	1.00
		Shoreline Development Index:	3.44	
		wetland area (acres):	0.86	
	V _{CATCHWET}	catchment area (acres):	6.00	1.00
		ratio of catchment size to wetland size:	6.98	
		total acre size of the present day catchment:	6.00	
		acres of catchment for each curve number:	6.00	
		98	6.00	
		90		
		77		
		72		
		75		
e		73		
Sn	V _{UPUSE}	71		0.00
pu		72		
a]		74		
1.2		69		
S S		79		
μθ		74		
ca		69		
ds		61		
an		weighted average score for upland land use:	98.00	
T		distance to nearest wetland(feet):	86.00	
		distance to 2nd nearest wetland:	373.00	
	V _{WETPROX}	distance to 3rd nearest wetland:	/84.00	0.59
		distance to 4th nearest wetland:	800.00	
		uistance to sur near distance (feat)	601.80	
	V	acres of nalustrine wetlands within a 1-mile radius:	40.00	0.07
	V WETAREA	number of palustrine wetlands within a 1-mile radius.	41.00	0.18
	V BASINS	miles of roads and linear attributes within a 1 mile radius.	20.00	0.00
	V HARERAG	mines of roads and intear autoutes within a 1-mile radius:	29.00	0.00

Function	FCI	FCU
1. Water Storage	0.40	0.34
2. Groundwater Recharge	0.41	0.35
3. Retain Particlulates	0.60	0.52
4. Remove, Convert, and Sequester Dissolved Substances	0.36	0.31
5. Plant Community Resilience and Carbon Cycling	0.33	0.29
6a. Provide Faunal Habitat	0.35	0.30
6b. Provide Faunal Habitat (Alternate Formula)	0.24	0.20



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APPENDIX C – Approved Jurisdiction Determination

Wetland Finding Report – I-229 Exit 4 Interchange

From:	Carnahan, Bridget G CIV USARMY CENWO (USA)
To:	Babcock, Chad
Cc:	Juhas, Catherine D CIV USARMY CENWO (USA)
Subject:	RE: [EXT] AJD - NWO-2022-00214-PIE
Date:	Thursday, October 26, 2023 4:19:27 PM
Attachments:	image001.png

Chad,

Good afternoon. We've just received confirmation from our district jurisdiction subject matter expert that AJD's completed under the pre-2015 regulatory regime, pre-Sackett are still valid. In reviewing the types of waters present within the review area, there were wetlands that abut a relatively permanent water and isolated wetlands. We no longer use the term abutting wetlands, they are now adjacent wetlands, but even with the change of guidance, they would still be jurisdictional. The other features identified were isolated wetlands, which is another term we don't use. Technically these wetlands would not meet the adjacency test and would not be jurisdictional. So it boils down to the fact that the only real changes are to vocabulary and an AJD would not be necessary. I hope that helps to clear up your concerns.

Thanks,

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

Chad,

Good afternoon. We've just received confirmation from our district jurisdiction subject matter expert that AJD's completed under the pre-2015 regulatory regime, pre-Sackett are still valid. In reviewing the types of waters present within the review area, there were wetlands that abut a relatively permanent water and isolated wetlands. We no longer use the term abutting wetlands, they are now adjacent wetlands, but even with the change of guidance, they would still be jurisdictional. The other features identified were isolated wetlands, which is another term we don't use. Technically these wetlands would not meet the adjacency test and would not be jurisdictional. So it boils down to the fact that the only real changes are to vocabulary and an AJD would not be necessary. I hope that helps to clear up your concerns.

Thanks,

Bridget Carnahan U.S. Army Corps of Engineers South Dakota Regulatory Office 28563 Powerhouse Road, Room 118 Pierre, South Dakota 57501 From: Babcock, Chad <Chad.Babcock@state.sd.us>
Sent: Monday, October 16, 2023 1:51 PM
To: Juhas, Catherine D CIV USARMY CENWO (USA) <Catherine.D.Juhas@usace.army.mil>; Carnahan, Bridget G CIV USARMY CENWO (USA) <Bridget.G.Carnahan@usace.army.mil>
Subject: [Non-DoD Source] AJD

Good afternoon,

We received an AJD for SDDOT Project I229 Exits 3 and 4 on March 31, 2022. Is this still valid for 5 years (from the date of issuance) or would we need to submit a new application given changes in federal definitions? Thanks



Chad Babcock Environmental Manager | South Dakota Department of Transportation Better Lives Through Better Transportation 700 E. Broadway Ave, Pierre SD 57501 O: 605.773.3721 | C: 605.280.6035 | dot.sd.gov

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

REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): March 31, 2022 Α.

DISTRICT OFFICE, FILE NAME, AND NUMBER: Omaha District - SDDOT I-229 Exits 3 and 4 - NWO-2022-00214-PIE В.

C. PROJECT LOCATION AND BACKGROUND INFORMATION: The project consists of two review areas: I-229 Exits 3 and 4. Eleven wetlands are located at Exit 3; 7 are adjacent to the Big Sioux River and 4 are isolated. Exit 4 contains 10 wetlands; 5 are adjacent to the Big Sioux River and 5 are isolated. The Big Sioux River is a TNW.

County/parish/borough:Minnehaha County City:Corson State:South Dakota

Center coordinates of site (lat/long in degree decimal format): Lat.43.510150 N; Long.-96.731234 W

Universal Transverse Mercator: 14

Name of nearest waterbody: Big Sioux River

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:March 8, 2022
- 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 acres. Wetlands:10.24 acres.
- c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual Elevation of established OHWM (if known):

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: Four aquatic resources at Exit 3 (Wetlands 7, 8, 9, and 10) and five aquatic resources at Exit 4 (Wetlands 6, 7, 8, 9, and 10) are isolated waters that are not located within a reasonably close proximity to jurisdictional waters; whereby, nonspeculative ecological connection(s) could be made. Further, these aquatic resources: 1) are not used by interstate or foreign travelers for recreational or other purposes; 2) do not support fish or shellfish that could be taken and sold in interstate or foreign commerce; and 3) are not used for industrial purposes by industries in interstate commerce. Based upon these principle considerations, it is determined that these aquatic resources are non-jurisdictional under the auspices of Section 404 of the Clean Water Act.

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:acresDrainage area:acresAverage annual rainfall:inchesAverage annual snowfall:inches

(ii) Physical Characteristics:

 (a) <u>Relationship with TNW:</u>
 □ 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 F	Pick List	tributaries before enterin	ig TNW
---------------------------	-----------	----------------------------	--------

	Project waters are Project waters arePick List river miles from RPW.Project waters are Project waters arePick List aerial (straight) miles from TNW.Project waters are Project waters cross or serve as state boundaries. Explain:.
	Identify flow route to TNW ⁵ : Tributary stream order, if known:
(b)	General Tributary Characteristics (check all that apply): Tributary is: Instant 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): Silts Sands Concrete Cobbles Gravel Muck Bedrock Vegetation. Type/% cover: 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)	<u>Flow:</u> 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:
	Tributary has (check all that apply): Bed and banks OHWM ⁶ (check all indicators that apply): clear, natural line impressed on the bank changes in the character of soil shelving vegetation matted down, bent, or absent leaf litter disturbed or washed away sediment deposition water staining 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: oil or scum line along shore objects fine shell or debris deposits (foreshore) High Tide Line indicated by: high Tide Line indica

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.

pny

sical markings/characteristics tidal gauges

vegetation lines/changes in vegetation types.

□ other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water guality; 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

Physical Characteristics: (i)

(a) General Wetland Characteristics:

Properties: Wetland size: 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:

Characteristics of all wetlands adjacent to the tributary (if any) 3.

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:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
-----------------------	-----------------	-----------------------	-----------------

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):

- 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:	width (ft).
	i i i i i i i i i i i i i i i i i i i	

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 1, 2, 3, 4, 5, 6 and 11 at Exit 3 and Wetlands 1, 2, 3, 4, and 5 at Exit 4 exhibit a contiguous surface connection to the Big Sioux River, a perennial TNW.
- 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: 10.24 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 jurisidictional. 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).
- 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):

⁸See Footnote # 3.

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 EPAHQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

		Tributary waters: linear feet width (ft). Other non-wetland waters: acres. Identify type(s) of waters: . Wetlands: acres.							
F.		 DN-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 <i>"SWANCC</i>," the review area would have been regulated based <u>solely</u> on the <i>"</i>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): 							
	Pro fact jud D D M	vide acreage estimates for non-jurisdictional waters in the review area, where the <u>sole</u> potential basis of jurisdiction is the MBR tors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional gment (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: 4.71 acres.							
	Pro a fi D D	vide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such nding 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.							
<u>SEC</u>	тю	DN 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:JD request received January 26, 2022. Data sheets prepared/submitted by or on behalf of the applicant/consultant. Office concurs 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:1:24,000 Sioux Falls East. USDA Natural Resources Conservation Service Soil Survey. Citation: National wetlands inventory map(s). Cite name:FWS Online Mapper. State/Local wetland inventory map(s): FEMA/FIRM maps: 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929) Photographs: Aerial (Name & Date):Google Earth Pro and ORM2 Database. or ☑ Other (Name & Date):Onsite provided on behalf of applicant (2021). 								
		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:





APPENDIX D – Wetland Impacts

Wetland Finding Report – I-229 Exit 4 Interchange



SEH s

401 East 8th Street Suite 309 Sioux Falls, SD 57103 (605) 330-7000

Wetland Impacts I-229 Exit 4 (Cliff Avenue) Interchange Minnehaha County, SD

APPENDIX E – Letter of Credit Availability

Wetland Finding Report – I-229 Exit 4 Interchange

Goeden Properties II LLC, Wetland Bank

Andy Harr Mitigation POC

4500 E 33rd St #49 Sioux Falls, SD 57110 605-201-1559 andy@totalaar.com

SDDOT

700 E Broadway Ave Pierre, SD 57501 605-773-4336

10/31/2023

Dear SDDOT,

This is a letter of credit availability regarding Corps ID NO: NWO-2022-00214-PIE. We have 4.10 Riverine credits that would be available for purchase. The purchase price is \$20,000.00 per wetland credit for a total of \$82,000.00. These credits would need to be purchased by May 01 2024.

Harold Goeden X Hard Det

Owner, Goeden Properties II LLC,

Point of Contact

Andy Harr

605-201-1559

andy@totalaar.com

4500 E 33rd Street #49 Sioux Falls SD 57110

APPENDIX F – Project Coordination

Wetland Finding Report - I-229 Exit 4 Interchange



DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES

JOE FOSS BUILDING 523 EAST CAPITOL PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

December 27, 2018

Joanne Hight Department of Transportation 700 East Broadway Avenue Pierre, South Dakota 57501

RE: SD DOT Project IM 2292(101)4 PCN 05HN Minnehaha County

Dear Ms. Hight:

The South Dakota Department of Environment and Natural Resources (DENR), Division of Environmental Regulation, has reviewed the above referenced project.

This office has no objections to this project, which should not result in any violations of applicable statutes or regulations provided the Department of Transportation and/or its contractor(s) comply with the following requirements.

SURFACE WATER QUALITY

- 1. All fill material shall be free of substances in quantities, concentrations, or combinations which are toxic to aquatic life.
- 2. Removal of vegetation shall be confined to those areas absolutely necessary to construction.
- 3. At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site. Any construction activity that disturbs an area of one or more acres of land must have authorization under the General Permit for Storm Water Discharges Associated with Construction Activities. Contact the Department of Environment and Natural Resources for additional information or guidance at 1-800-SDSTORM (800-737-8676) or http://denr.sd.gov/des/sw/stormwater.aspx.
- 4. All material identified in the application as removed waste material, material stockpiles, dredged or excavated material shall be placed for either temporary or permanent disposal in an upland site that is not a wetland, and measures taken to ensure that the material cannot enter the watercourse through erosion or any other means.
- 5. Methods shall be implemented to minimize the spillage of petroleum, oils and lubricants used in vehicles during construction activities. If a discharge does occur, suitable containment procedures such as banking or diking shall be used to prevent entry of these materials into a waterway.

- 6. All newly created and disturbed area above the ordinary high water mark which are not riprapped shall be seeded or otherwise revegetated to protect against erosion.
- 7. This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that water quality standards are not violated.

This project is in the vicinity of the Big Sioux River. This waterbody is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

- (5) Warmwater semipermanent fish life propagation waters;
- (7) Immersion recreation waters;
- (8) Limited contact recreation waters;
- (9) Fish and wildlife propagation, recreation, and stock watering waters; and
- (10) Irrigation waters.

Because of these beneficial uses, special construction measures may have to be taken to ensure that the 30-day average total suspended solids criterion of 90 mg/L is not violated.

HAZARDOUS and SOLID WASTES

- 1. Should any hazardous waste be generated during the implementation of this project, the generator must abide by all applicable hazardous waste regulations found in ARSD 74:28 and 40 CFR Part 262.
- 2. If any contamination is encountered during construction activities, the contractor, owner, or party responsible for the release must report the contamination to the department at 605-773-3296. Any contaminated soil encountered must be temporarily stockpiled and sampled to determine disposal requirements.
- 3. It is not expected that any hazardous wastes sites will be encountered during road construction in any rural area. However, if road construction is planned for areas within a city or town, the DOT or contractor should contact this Department prior to construction.
- 4. Some solid waste may be generated during this project. Any solid waste generated that will not be reused in some beneficial manner must be disposed or managed at a permitted solid waste facility.
- 5. Regional landfills able to accept all solid waste generated are listed on our website available here: https://apps.sd.gov/NR60SolidWaste/main.html#. Only Regional landfills are permitted to accept all wastes generated. If you have any questions please contact Waste Management at 605-773-3153.
- 6. Demolition or renovation of a building structure may be subject to asbestos abatement requirements. If demolition is part of the construction projects please contact our Asbestos Coordinator at 605-773-3153.

<u>AIR QUALITY</u>

- 1. It appears that Department of Transportation projects may have only a minor impact on the air quality in South Dakota. This impact would be through point source and fugitive emissions.
- 2. Equipment with point source emissions in many cases are required to have an air quality permit to operate. Permit applications can be obtained from the Air Quality or Minerals and Mining Programs.

- 3. Fugitive emissions, although not covered under State air quality regulations, are a common source of public concern and may be subject to local or county ordinances. Fugitive emissions add to the deterioration of the ambient air quality and should be controlled to protect the health of communities within the construction areas.
- 4. For further air quality information, please contact Rick Boddicker, Air Quality Program, telephone number 605-773-3151.

This office requests the opportunity to review and comment on any significant changes that may be proposed before the project is completed. Thank you for the opportunity to comment on the proposed project. If you have any questions, please contact me at 605-773-3351 or <u>Shannon.Minerich@state.sd.us</u>.

Sincerely,

hannon Minerick

Shannon Minerich Environmental Scientist Surface Water Quality Program

Cc: Deanna Lehrkamp, DENR Waste Management Program Rick Boddicker, DENR Air Quality Program



SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS

523 EAST CAPITOL AVENUE | PIERRE, SD 57501

December 27, 2018

Joanne Hight SD Department of Transportation 700 E. Broadway Avenue Pierre, SD 57501

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave) in Sioux Falls Interchange Improvements

Dear Joanne,

The Department of Game, Fish and Parks has reviewed the above project involving interchange improvements on I-229, Exit 4 in Sioux Falls.

A search of the South Dakota Natural Heritage Database found records of trout-perch (*Percopsis omiscomaycus*), a species of greatest conservation need in the Big Sioux River, downstream of the project area.

Based on the information provided, there is no anticipated significant impact to fish and wildlife resources and would anticipate that to remain if the following suggestions are considered during the planning and construction of the project:

- 1. Disturbance to riparian and wetland areas should be kept to an absolute minimum.
- 2. If riparian vegetation is lost it should be quantified and replaced on site. Seeding of indigenous species should be accomplished immediately after construction to reduce sediment and erosion.
- 3. A site specific sediment and erosion control plan should be part of the project.
- 4. A post construction erosion control plan should be implemented in order to provide interim control prior to re-establishing permanent vegetative cover on the disturbed site.
- 5. Stream bottoms impacted by construction activities should be restored to pre-project elevations.
- 6. In stream work should not be conducted during fish spawning periods. Most spawning occurs during April, May and June.

If you have any questions, please feel free to contact me at 605-773-6208.

Sincerely,

delaw of

Hilary Meyer Environmental Review Senior Biologist 523 East Capitol Avenue Pierre, SD 57501

605.223.7660 | GFP.SD.GOV WILDINFO@STATE.SD.US | PARKINFO@STATE.SD.US







OF EDUCATION

June 12, 2019

Received SDDOT Environmental JUN 14 2019

Ms. Joanne Hight Department of Transportation Environmental Office 700 E. Broadway Avenue Pierre, SD 57501-2586

SECTION 106 PROJECT CONSULTATION

Project: 190424003F - IM 2292(84)3 & IM 2292(101)4, PCN 000S & 05HN - I-229 Exit 3 & Exit 4 Interchange Modification & Improvements Minnehaha County (FHWA/DOT)

Dear Ms. Hight,

Thank you for the opportunity to comment on the above-referenced project pursuant to 54 U.S.C. 306108, Section 106 of the National Historic Preservation Act of 1966 (as amended). The Office of the South Dakota State Historic Preservation Officer (SHPO) has the following comments regarding the effect of the proposed undertaking on the non-renewable cultural resources of South Dakota.

On April 24, 2019, we received your letter and the report entitled "An Intensive Cultural Resources Survey for SEH, Inc. of Interstate I-229 Exits 3 and 4 IMJR and NEPA, Minnehaha County, South Dakota" by Cassie Vogt (CIS No. 3345). The report indicated that 11 structures, 2 bridges, and a new segment of Eligible site 39MH2000 were recorded during the survey. In email exchanges during May and June of 2019, you clarified the project's APE, stating that, at this time, no project activities will be occurring outside of the area surveyed for Ms. Vogt's report and you clarified the effects to the newly-recorded segment of 39MH2000. Based upon the information provided, SHPO concurs with your determination that structures MH00002403 through MH00002413 and bridges MH00002401 and MH00002402 should be considered Not Eligible for listing in the National Register of Historic Places. Site 39MH2000 is Eligible for listing in the National Register of Historic Places. However, the effect of the off-ramp to 39MH2000, as indicated in your June 12, 2019 email, will not affect the site's overall eligibility.

Therefore, we recommend a finding of "No Adverse Effect" for the proposed undertaking on the Area of Potential Effect (APE) labeled as 'survey area' in Ms. Vogt's report. Once a preferred alternative for each interchange's modification and improvements is selected, if activities are planned for the area outside of the APE identified in Ms. Vogt's report, such as the use of the

900 GOVERNORS DR . PIERRE . SD 57501 . P { 605 . 773 . 3458 } F { 605 . 773 . 6041 } . HISTORY.SD.GOV DEPARTMENT OF EDUCATION { DOE.SD.GOV}

remaining railroad grade as an access road or the selection of Alternative 6 for the Cliff Avenue (Exit 4) interchange, additional documentation pertaining to the identification of historic properties, as described in 36 C.F.R. § 800.4, must be submitted to SHPO for consultation.

Concurrence of the SHPO does not relieve the federal agency official from consulting with other appropriate parties, as described in 36 C.F.R. § 800.2(c).

If historic properties are discovered or unanticipated effects on historic properties are found after the agency official has completed the process outlined by 54 U.S.C. 306108 (Section 106) of the National Historic Preservation Act, the agency official shall avoid, minimize, or mitigate the adverse effects to such properties and notify the SHPO and Indian tribes that might attach religious and cultural significance to the affected property within 48 hours of the discovery, pursuant to 36 C.F.R. § 800.13.

Should you require any additional information, please do not hesitate to contact Jenna Carlson Dietmeier at Jenna.CarlsonDietmeier@state.sd.us or (605)773-8370. Your concern for the non-renewable cultural heritage of our state is appreciated.

Sincerely,

Jay D. Vogt State Historic Preservation Officer

Jenna Carla Ditan

Jenna Carlson Dietmeier Review and Compliance Archaeologist

CC: Jane Watts - Archaeological Research Center, Rapid City David Williams – Archaeological Research Center, Rapid City



September 12, 2023

Chad Babcock SDDOT 700 E Broadway Pierre, SD 57501

SECTION 106 PROJECT CONSULTATION

Project: 230908003F – IM 2292(84)2, PCN 000S; NH 2115(46), PCN 08DN; IM-B 2292(101)4, PCN 05HN; IM2292(105)3, PCN 07CY; IM 2292(106)2, PCN 07CX, Minnehaha County Location: Minnehaha FHWA - Federal Highway Administration

Dear Chad,

Thank you for the opportunity to comment on the above referenced project pursuant to 54 U.S.C. 306108, also known as Section 106 of the National Historic Preservation Act of 1966 (as amended). The South Dakota Office of the State Historic Preservation Officer (SHPO) concurs with your determination regarding the effect of the proposed undertaking on the non-renewable cultural resources of South Dakota.

On September 8, 2023, SHPO received your letter, maps of the Area of Potential Effects (APE), and a report titled "A Class III Cultural Resources Survey for South Dakota Department of Transportation Projects IM 2292(84)2 and IM-B-CR 2292(101)3, PCNs 000S and 05HN, Interstate 229 Exits 3 & 4, Lincoln and Minnehaha Counties, South Dakota" prepared by Fidel Martinez-Greer and Joes B. Jones of the Archaeological Research Center. Included in this report were efforts to identify cultural resources, maps showing the APE, and photographic overviews of the project area.

Based upon the information provided, the proposed undertaking is for interchange modifications, crossovers, and improvements. This project had been previously coordinated un SHPO# 190424003F. In the letter dated June 12, 2019 SHPO concurred with a determination of "No Adverse Effect". Since that time, revisions to the project design have necessitated additional consultation. According to the information submitted, the site 39MH2000 lies within the APE. This railroad is considered Eligible for listing in the National Register of Historic Places. Due to its heavily disturbed condition within the APE, it is considered not integral to the site's overall eligibility . No additional Historic Properties were identified within the APE. Therefore, SHPO concurs with your determination of "No Adverse Effect" for the proposed undertaking, provided that the work remains within the area surveyed.

Changes in the location and/or nature of activities from those identified in your request will require the submission of additional documentation pertaining to the identification of historic properties, as described in 36 C.F.R. § 800.4, and/or the undertaking's effects on historic properties, as described in 36 C.F.R. § 800.11.

Concurrence of the SHPO does not relieve the federal agency official from consulting with other appropriate parties, as described in 36 C.F.R. § 800.2(c).

If historic properties are discovered or unanticipated effects on historic properties are found after the



agency official has completed the Section 106 process, the agency official shall avoid, minimize or mitigate the adverse effects to such properties and notify the SHPO and Indian tribes that might attach religious and cultural significance to the affected property within 48 hours of the discovery, pursuant to 36 C.F.R. § 800.13.

Should you require any additional information, please contact Jozef Lamfers at Jozef.Lamfers@state.sd.us or at 605-773-6004. Your concern for the non-renewable cultural heritage of our state is appreciated.

Sincerely, Jenna Carlson Dietmeier Interim State Historic Preservation Officer

fozet Sanser

Jozef Lamfers Review & Compliance Archaeologist

CC:

Cassie Vogt - Archaeological Research Center

Lynn Griffin - Archaeological Research Center

USFWS Received 01/04/2022



Planning and Engineering

Environmental Office 700 E Broadway Avenue Pierre, SD 57501-2586 O: 605.773.4336 dot.sd.gov

December 17, 2021

Dylan Turner U.S. Fish & Wildlife Service 420 S. Garfield Ave - Suite 400 Pierre, SD 57501-5408 The U.S. Fish and Wildlife Service concurs with your conclusions that the described project will not adversely affect listed species. Contact this office if changes are made or new information becomes available. Digitally signed by Amity Bass Date: 2022.02.01 16:14:06 -06'00'

Field Supervisor

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County

I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Modification

Dear Mr. Turner:

This letter includes information on the above project for your review and comment. Previous coordination with USFWS regarding this project occurred on November 30, 2018. Since this time design alternatives have been determined so that finalization of species impacts could be assessed.

Attached is information on the above project, including:

- Project background/description
- Project location map
- NLEB Habitat survey
- Concurrence Verification Letter for NLEB (first page)

This project may impact aquatic resources. The project area contains National Wetland Inventory Wetlands. The project will be reviewed for wetland impacts, and the project will comply with all federal and state environmental regulations.

According to the U.S. Fish & Wildlife Service (FWS) IPaC Information for Planning and Conservation system, the following species are known to occur in Lincoln and Minnehaha County: (Consultation code: 06E14000-2019-SLI-0269).

Consultation Code	Species	Status	SDDOT Determination	Comments
06E14000- 2019-SLI- 0269	Northern Long-eared Bat	Threatened	May Affect, Not Likely to Adversely Affect	The USFWS IPaC determination key was completed for this species on April 5, 2019 and reviewed on October 18, 2021. A determination of "may effect – not likely to adversely affect" was made for the project.



Planning and Engineering Environmental Office

700 E Broadway Avenue Pierre, SD 57501-2586 O: 605.773.4336 dot.sd.gov

06E14000- 2019-SLI- 0269	Red Knot	Threatened	No Effect	No project impacts are expected for the Red Knot. This species is migratory and is known to avoid inhabited, urbanized areas. Although no critical habitat has been defined for this species, no shallow water is available that would support feeding during migration, making the study area an unideal stopover site.
06E14000- 2019-SLI- 0269	Western Prairie Fringed Orchid	Threatened	No Effect	No project impacts are expected for this species. Impacts from the project would occur primarily on Mowed rights-of-way and developed urban area, which are not suitable habitats for this species.
06E14000- 2019-SLI- 0269	Monarch butterfly	Candidate	No Effect	There are no section 7 requirements for this species. However, this project, which will occur within mowed rights-of-way and developed urban area, is not anticipated to negatively impact habitat for this species.

I am requesting FWS concurrence with the above determinations. Please provide your acknowledgment of this request at your earliest convenience.

Please submit your response so that the project's environmental documentation can be completed, and the project can be let and constructed in a timely manner.

Sincerely,

Kit Bramples

Kit Bramblee Environmental Scientist Manager 605.773.3721 CC: Amity Bass



Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Garrie Killsahundred Flandreau Santee Sioux Tribe THPO P.O. Box 283 Flandreau, SD 57028

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Mr. Killsahundred:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us



Department of Transportation

Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Clair Green, Section 106 Coordinator Lower Brule Sioux Tribe P.O. Box 187 Lower Brule, SD 57548

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Ms. Green:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us



Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Diane Desrosiers Sisseton-Wahpeton Oyate THPO P.O. Box 907 Sisseton, SD 57028

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Ms. Desrosiers:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us



Department of Transportation

Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Jon Eagle Standing Rock Sioux Tribe THPO P.O. Box D Fort Yates, ND 58538-0522

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Mr. Eagle:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us



Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Kip Spotted Eagle Yankton Sioux Tribe THPO P.O. Box 1153 Wagner, SD 57380-1153

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Mr. Spotted Eagle:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us



Department of Transportation

Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Elgin Crows Breast Three Affiliated Tribes (Mandan Hidatsa Arikara Nation) THPO 404 Frontage Road New Town, ND 58763-9404

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Mr. Crows Breast:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us



Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Shannon Wright Ponca Tribe of Nebraska THPO P.O. Box 288 Niobrara, NE 68760

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Mr. Wright:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

If you have any questions, please feel free to contact me at the phone number or email address below, or you may contact Tom Lehmkuhl, FHWA Environmental Protection Specialist, at (605) 224-8033.

Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us

Attachments



Department of Transportation Environmental Office

700 E Broadway Avenue Pierre, South Dakota 57501-2586 605/773-4336

December 10, 2018

Jonathan Windy Boy Chippewa Cree Tribe THPO P.O. Box 230 Box Elder, MT 59521

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229 – Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Mr. Windy Boy:

Attached is the scope summary and map detailing the location of the above referenced project. The proposed project will correct deficiencies at the interchange of I-229 and Cliff Avenue in Sioux Falls, SD. The project will comply with all federal and state environmental regulations.

Pursuant to Section 106 of the National Historic Preservation Act (36 CFR Part 800), the South Dakota Department of Transportation, on behalf of the Federal Highway Administration – SD Division, is soliciting comments on this project from tribes that have expressed an interest in highway projects in Minnehaha County. Please provide your comments by February 11, 2019, so that the project can move toward a timely letting and construction.

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Sincerely,

Joanne Hight

Joanne Hight Engineering Supervisor 605.773.3721 Joanne.Hight@state.sd.us

Project Description and Background

The South Dakota Department of Transportation (SDDOT), in partnership with the City of Sioux Falls, the Sioux Falls Metropolitan Planning Organization (MPO) and Federal Highway Administration (FHWA) – the Study Partners – are proposing to improve the Interstate 229 (I-229) interchanges and their approach roadways at Exits 3 (Minnesota Avenue) and 4 (Cliff Avenue) in Sioux Falls, South Dakota. Potential I-229 Corridor Study improvements were documented in a recently completed Major Investment Corridor Study (MIS) from the Solberg Avenue Bridge crossing to the East 60th Street Bridge crossing. Five interchange substudies resulted from the MIS, including Exit 3 (Substudy 2) and Exit 4 (Substudy 6).

Next steps for advancing the interchange studies include preparation of Interchange Justification Modification Reports (IMJR), NEPA documentation, topographic surveys and subsurface utility engineering and exploration. With the preceding MIS groundwork completed, the Study Partners are moving forward with refining and continuing to narrow the range of reasonable alternatives, construct a defensible purpose and need for both projects through required NEPA documentation, and complete topographic surveys and utility locates for each project to determine existing rights-of-way, access control and potential utility conflicts.

Rather than completing long-term improvements in a piecemeal fashion along the I-229 corridor, the Study Partners determined that the best approach would be to develop a Vision project that could be accomplished in fundable segments over time. The Study Partners also recognized that the cost and detailing of the Vision project would be extensive and thus would need to be completed in stages and proceed through individual projects coordinated with supporting local roadway and other integrated multimodal projects. This approach also ensures the components "fit together" over time, especially as redevelopment projects and park and recreation uses adjacent to the I-229 Corridor evolve and change. The MPO's current 2040 Long Range Transportation Plan (LRTP) provides for this range of interchange and mainline I-229 improvement costs spread over a 20-year period, with priority determined by needs, funding availability and community-wide acceptance.

Based on project partner consensus – as well as efficiencies to be gained through concurrent traffic/other data collection, analysis in the IMJR and NEPA documentation processes, survey and utility investigations and public involvement efforts – it was strategically determined that Exit 3 and Exit 4 would be advanced simultaneously and proceed together to future design and construction staging. For each substudy area, MIS-identified alternatives may be further modified and some may potentially be eliminated during the completion of the IMJR documentation and/or NEPA processes.

I-229 Exit 4 (Cliff Avenue)



The I-229 Exit 4 southbound entrance ramp intersection experiences congestion in the peak traffic hours. This is due in part to Lincoln High School traffic, but also as because this heavily traveled commuter corridor distributes traffic between northern neighborhoods, downtown and southern parts of the community. Cliff Avenue provides direct access to Spencer and Tuthill Parks, and, similar to Minnesota Avenue, is a major north-south arterial roadway that crosses Sioux Falls with direct access to I-229.

By the year 2035, congestion is anticipated to increase at the current interchange ramp terminals. Preliminary concepts for the Cliff Avenue interchange to address the existing and year 2035 transportation deficiencies were developed for MIS

Substudy 6. No additional improvements were deemed necessary beyond the interchange area, so no additional corridor options were analyzed in the MIS.

Preliminary concepts were developed and, through a screening process using established evaluation criteria, it was determined that the following three alternative scenarios should be carried forward for study in the IMJR:

- Cliff-1 NB Cliff to SB I-229 Loop Ramp
- Cliff-6 SPUI, 41st Street Realigned
- · Cliff-7 SPUI, SB I-229 Exit Ramp Thru and Rights at 41st Street



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January 31, 2019

Joanne Hight South Dakota Department of Transportation Environmental Office 700 E. Broadway Ave. Pierre, SD 57501-2586

RE: Project IM 2292(101)4, PCN 05HN, Minnehaha County I-229-Exit 4 (Cliff Ave.) in Sioux Falls Interchange Improvements

Dear Madam,

We have reviewed the documentation for the referenced project(s). Based on the information provided, we would like to notify you the Yankton Sioux Tribe Tribal Historic Preservation Office does not have interest in the proposed project at this time but would like to be notified if any cultural artifacts are found.

Please retain this letter in your files as compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Finally, be advised that this correspondence is not consultation with the Yankton Sioux Tribe. The Ihanktonwan Consultation Wo'ope (Protocols for Consultation with the Yankton Sioux Tribe) are attached for your reference. Thank you for your cooperation. If there are any questions or concerns, please do not hesitate to contact us at our office by phone at 605-384-3641 ext. 1032/1033 or by e-mail at yst.thpo@gmail.com.

Sincerely,

Kip Spotted Eagle, THPO Director Tribal Historic Preservation Office Yankton Sioux Tribe of South Dakota