Appendix F – Wetland Delineation Report

Wetland Boundary Verification

I-229 Exit 3 Reconstruction Project

Minnehaha County, SD

IM2292(83)3 N, PCN 000S, 08DN - Sioux Falls CIP #11099 - Sioux Falls #11 (2023 Bike Plan)

October 30, 2023

Building a Better World for All of Us®

July 11, 2024

RE: I-229 Exit 3 Interchange Reconstruction
Sioux Falls, Minnehaha County, SD
Wetland Boundary Verification
IM2292(83)3 N, PCN 000S, 08DN
Sioux Falls CIP #11099
Sioux Falls #11 (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. No newly formed wetlands were found during this investigation.

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

Sincerely,

Rebecca Beduhn
Professional Wetland Scientist
Certified Professional Soil Scientist

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MEMORANDUM

TO: US Army Corps of Engineers

FROM: Rebecca Beduhn, SEH

DATE: August 5, 2021

RE: Interstate 229 Exit 3 Reconstruction Wetland Delineation
SDDOT PCN 000S
SEH No. SDDOT 147016

Please find the enclosed wetland delineation report and Approved Jurisdictional Determination (AJD) request for the Interstate 229 Exit 3 Reconstruction project. An AJD is requested for Wetlands 3, 5, 6 , 7, 8, and 9.

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

BN

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

CORPS USE ONLY:
DATE RECEIVED:

PROJECT NO.:

1. PROPERTY LOCATION:

Street Address: Exit 3 (I-229 and Minnesota Ave)

City/Township/Parish: Sioux Falls

County: Minnehaha County State: SD

Acreage of Parcel/Review Area for JD: 120

Section: 28 Township: 101 Range: 49

Latitude: 43.51015 Longitude: -96.731234

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

2.REQUESTOR CONTACT INFORMATION:

Typed or Printed Name: Steve Gramm

Company Name: SDDOT

Street Address: 700 East Broadway Avenue

City: Pierre State: SD ZIP: 77501

Phone Number: (605) 773-6641

E-mail: steve.gramm@state.sd.us

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

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

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

5. TYPE OF DETERMINATION BEING REQUESTED:

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

6. OWNERSHIP DETAILS:

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

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

Signature: Bailey Nelson Digitally signed by Bailey Nelson Date: 2021.08.05 14:22:19 -05'00' Date:

Building a Better World for All of Us®

October 20, 2021

RE: Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County, South Dakota
Wetland Delineation Report
SDDOT PCN : 000S
SEH Project Number:. SDDOT 147016

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 25, 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,

Rebecca Beduhn
Professional Wetland Scientist
Certified Professional Soil Scientist

Wetland Delineation Report

South Dakota Department of Transportation (SDDOT)

Interstate 229 Exit 3 Reconstruction

Sioux Falls, Minnehaha County, South Dakota

SDDOT Number: PCN 000S | SEH Number: SDDOT 147016

October 2021

SEH
Building a Better World for All of Us®
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Wetland Delineation Report

Interstate 229 Exit 3 Reconstruction
PCN 000S
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:  1/20/2019
Bailey Nelson, Wetland Biologist — Date

Reviewed by:  10/20/2021
Rebecca Beduhn, Wetland Scientist — Date
Professional Wetland Scientist, No. 2758
Certified Professional Soil Scientist, No. 333315

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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 28, 29, and 33 in Township 101 North, Range 49 West in Sioux Falls, Minnehaha County, South Dakota as shown on **Figure 1**. The approximately 120-acre site is bounded on the north by W 37th Street, on the east by S Cliff Avenue, on the south by W 57th Street, and on the west by S Western 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

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.

11 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**.

Table 1 – Wetland and Aquatic Resource Characteristics

Wetland ID	Size (acres)[1]	HGM Classification	Cowardin Classification	Location (Decimal Degrees)	Jurisdictional Status
1	0.06706	Prairie Pothole	PUBH	43.5083, -96.731	Jurisdictional, Culverts provide connection to river
2	0.05952	Riverine	PEMB	43.5085, -96.730	Jurisdictional, Adjacent to river
3	0.14251	Prairie Pothole	PEMB	43.5094, -96.731	Jurisdictional, Culverts provide connection to river
4	0.04776	Prairie Pothole	PEMC	43.5089, -96.730	Jurisdictional, Culverts provide connection to river
5	0.34224	Prairie Pothole	PEMC	43.5097, -96.730	Jurisdictional, Culverts provide connection to river
6	0.89335	Prairie Pothole	PEMC	43.5112, -96.730	Jurisdictional, Culverts provide connection to river
7	0.29862	Prairie Pothole	PEMB	43.5109, -96.730	Not Jurisdictional, No Surficial Connection observed
8	0.26041	Prairie Pothole	PEMB	43.5104, -96.731	Not Jurisdictional, No Surficial Connection
9	0.90768	Prairie Pothole	PEMC	43.5100, -96.733	Not Jurisdictional, No Surficial Connection
10	0.04097	Prairie Pothole	PEMB	43.5088, -96.731	Not Jurisdictional, No Surficial Connection
11	0.62692	Riverine	PEMC	43.5075, -96.731	Jurisdictional, Adjacent to river
TOTAL	**3.6870**				

[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.

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 PUBH Wetlands

Table 2 – Summary of PUBH Prairie Potholes

Wetland ID	Size (acres)	Cowardin
1	0.06706	PUBH
Total acreage	**0.06706**	

One (1) Wetland within the project limits is classified utilizing the Prairie Pothole Classification, and is described as a Shallow Open Water wetland community. This included Wetland 1 (**Figure 4-1** and **4-2**). It is located west of S Minnesota Avenue and south of Interstate 229.

Vegetation was not present in this shallow open water wetland community.

A typical soil profile in the shallow open water community met the technical hydric soil indicator A11 – Depleted Below Dark Surface. The Minnehaha County soil survey identifies soils in this wetland as predominantly hydric, consistent with field observations.

The primary wetland hydrology indicators observed included A3 – Saturation, A2 – High Water Table, A1 – Surface Water, and B7 – Inundation Visible on Aerial Imagery. Inundation of approximately two inches was present.

The wetland boundary placement was primarily based upon a slight topographic rise and a presence of vegetation. The surrounding upland areas were dominated by American elm (*Ulmus americana* – FACW) in the tree stratum; European buckthorn (*Rhamnus cathartica* – FAC) in the shrub stratum; and common dandelion (*Taraxacum officinale* – FACU), groundivy (*Glechoma hederacea* – FACU), Pennsylvania sedge (*Carex pensylvanica* – UPL), Allegheny blackberry (*Rubus allegheniensis* – FACU), and European buckthorn in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Primary indicator A3 – Saturation was present at the upland sample point.

3.1.2 PEMB Wetlands

Table 3 – Summary of PEMB Prairie Potholes

Wetland ID	Size (acres)	Cowardin
3	0.1425	PEMC
7	0.29862	PEMC
8	0.26041	PEMC
10	0.04097	PEMC
Total acreage	**0.7425**	

There are four (4) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Fresh (wet) Meadow wetland communities. They include Wetlands 3, 7, 8, and 10 (**Figure 4-1** and **4-2**). Wetlands 3, and 10 are located south of Interstate 229, while Wetlands 7 and 8 are located north of Interstate 229.

Dominant vegetation in the fresh (wet) meadow communities included reed canary grass (*Phalaris arundinacea* – FACW), dock-leaf smartweed (*Persicaria lapathifolia* – FACW), and/or large barnyard grass (*Echinochloa crus-galli* – FACW) 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. 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. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface.

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 European buckthorn in the tree stratum, and/or stinging needle (*Urtica dioica* – FACW), eastern daisy fleabane (*Erigeron annuus* – FACU), Pensylvania sedge, saw-tooth sunflower (*Helianthus grosseserratus* – FACW), yellow bristle grass (*Setaria pumila* – FACU), Canadian thistle (*Cirsium arvense* - FACU), and/or smooth brome (*Bromus inermis* – FACU) 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 10, but was not present at the other upland sample points.

3.1.3 PEMC Wetlands

Table 4 – Summary of PEMC Prairie Potholes

Wetland ID	Size (acres)	Cowardin
4	0.04776	PEMC
5	0.34224	PEMC
6	0.89335	PEMC
9	0.90768	PEMC
Total acreage	**2.19103**	

There are four (4) wetlands within the project limits is classified utilizing the Prairie Pothole Classification that are described as Shallow Marsh wetland communities. These wetlands included Wetlands 4-6, and 9 (**Figure 4-1** and **4-2**). Wetlands 4 and 5 are located south of Interstate 229, while Wetlands 6 and 9 are located north of Interstate 229.

Dominant vegetation in the shallow marsh communities included quaking aspen (*Populus tremuloides* – FAC) and/or silver maple (*Acer saccharinum* – FACW) in the tree stratum; quaking aspen, European buckthorn, and/or meadow willow (*Salix petiolaris* – OBL) in the shrub stratum; and/or narrow-leaf cat-tail (*Typha angustifolia* – OBL), pointed broom sedge (*Carex scoparia* – FACW), reed canary grass, blunt spike rush (*Eleocharis obtuse* – OBL), broad-leaf cat-tail (*Typha latifolia* – OBL), curly dock (*Rumex crispus* – FAC), and/or spotted touch-me-not (*Impatiens capensis* – FACW) in the herbaceous stratum.

A typical soil profile in these communities met the technical hydric soil indicator A11 – 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 A3 – Saturation, A2 – High Water Table, and/or A1 – Surface Water. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface. At the wetland sample point for Wetland 6, there was 3 inches of inundation.

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 European buckthorn in the shrub stratum; and/or yellow bristle grass, Japanese bristle grass (*Setaria faberi* – FACU), Siberian elm (*Ulmus pumila* – UPL), horseweed (*Conyza canadensis* – UPL), and/or smooth brome in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not observed in the upland.

3.2 Riverine Wetlands

Wetlands 2 and 11 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 5 – Summary of PEMB Riverine Wetlands

Wetland ID	Size (acres)	Cowardin
2	0.0595	PEMB
Total acreage	**0.0595**	

Wetland 2, within the project limits, is classified utilizing the Riverine Classification and can be best described as a Fresh (wet) Meadow wetland community. It is located along the riverbanks of the Big Sioux River (**Figure 4-1** and **4-2).**

Dominant vegetation in the fresh (wet) meadow communities included reed canary grass (*Phalaris arundinacea* – FACW), dock-leaf smartweed (*Persicaria lapathifolia* – FACW), and/or large barnyard grass (*Echinochloa crus-galli* – FACW) 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. 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. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface.

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 European buckthorn in the tree stratum, and/or stinging needle (Urtica dioica – FACW), eastern daisy

fleabane (Erigeron annuus – FACU), Pensylvania sedge, saw-tooth sunflower (Helianthus grosseserratus – FACW), yellow bristle grass (Setaria pumila – FACU), Canadian thistle (Cirsium arvense - FACU), and/or smooth brome (Bromus inermis – FACU) 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 10, but was not present at the other upland sample points.

3.2.2 PEMC Wetlands

Table 6 – Summary of PEMC Riverine Wetlands

Wetland ID	Size (acres)	Cowardin
11	0.6269	PEMC
Total acreage	**0.6269**	

Wetland 11, within the project limits, is classified utilizing the Riverine Classification and can be best described as a Shallow Marsh wetland community. It is located along the riverbanks of the Big Sioux River (**Figure 4-1** and **4-2).**

Dominant vegetation in the shallow marsh communities included quaking aspen (*Populus tremuloides* – FAC) and/or silver maple (*Acer saccharinum* – FACW) in the tree stratum; quaking aspen, European buckthorn, and/or meadow willow (*Salix petiolaris* – OBL) in the shrub stratum; and/or narrow-leaf cat-tail (*Typha angustifolia* – OBL), pointed broom sedge (*Carex scoparia* – FACW), reed canary grass, blunt spike rush (*Eleocharis obtuse* – OBL), broad-leaf cat-tail (*Typha latifolia* – OBL), curly dock (*Rumex crispus* – FAC), and/or spotted touch-me-not (*Impatiens capensis* – FACW) in the herbaceous stratum.

A typical soil profile in these communities met the technical hydric soil indicator A11 – 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 A3 – Saturation, A2 – High Water Table, and/or A1 – Surface Water. A water table was encountered at 0-6 below soil surface, while saturation was observed 0-2 inches below the ground surface. At the wetland sample point for Wetland 6, there was 3 inches of inundation.

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 European buckthorn in the shrub stratum; and/or yellow bristle grass, Japanese bristle grass (*Setaria faberi* – FACU), Siberian elm (*Ulmus pumila* – UPL), horseweed (*Conyza canadensis* – UPL), and/or smooth brome in the herbaceous stratum. Upland soils did not meet for hydric soils criteria. Hydrology indicators were not observed in the upland.

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 11 delineated wetland basin described above. A summary table of the HGM scores is included in Table 7. Full calculations for HGM can be found in the Hydrogeomophic Model Worksheets in **Appendix D**. The total HGM score for the site is **7.79 FCUs**.

Table 7 – HGM Workbook Functions and Values

			HGM Functions [1, 2]										
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 FCU[4]
1	0.07	Prairie Pothole	0.36	0.37	0.28	0.26	0.26	0.29	0.21	N/A	N/A	2.03	0.14
2	0.06	Riverine	N/A	0.34	0.52	0	0.15	0.15	0	0.1	0.24	1.5	0.09
3	0.14	Prairie Pothole	0.34	0.37	0.51	0.35	0.31	0.31	0.17	N/A	N/A	2.36	0.33
4	0.05	Prairie Pothole	0.56	0.58	0.66	0.49	0.51	0.55	0.42	N/A	N/A	3.77	0.18
5	0.34	Prairie Pothole	0.51	0.7	0.4	0.69	0.59	0.64	0.3	N/A	N/A	3.83	1.31
6	0.89	Prairie Pothole	0.17	0.17	0.47	0.14	0.14	0.16	0.11	N/A	N/A	1.36	1.22
7	0.3	Prairie Pothole	0.51	0.73	0.39	0.68	0.56	0.61	0.21	N/A	N/A	3.69	1.1
8	0.26	Prairie Pothole	0.25	0.37	0.32	0.34	0.29	0.31	0.13	N/A	N/A	2.01	0.52
9	0.91	Prairie Pothole	0.25	0.35	0.33	0.34	0.29	0.32	0.16	N/A	N/A	2.04	1.86
10	0.04	Prairie Pothole	0.16	0.19	0.53	0.16	0.14	0.15	0.08	N/A	N/A	1.41	0.06
11	0.63	Riverine	N/A	0.37	0.52	0	0.16	0.19	0	0.08	0.24	1.56	0.98

[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

11 wetland basins were identified, delineated, and classified (**Figures 4-1** and **4-2**) with in the project limits. A total of 3.6780 acres of wetland habitat was delineated within the project limits for a total of 7.79 FCUs, as calculated utilizing the HGM. Two (2) of the wetlands are classified as Riverine under the HGM assessments, and the remaining nine (9) 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 these seven (7) wetlands (1,2,3, 4, 5, 6, and 11) are

presumed to be jurisdictional by the USACE. The remaining four (4) wetlands (7, 8, 9, and 10) have no apparent connection to the river and are presumed to be not jurisdictional by the USACE.

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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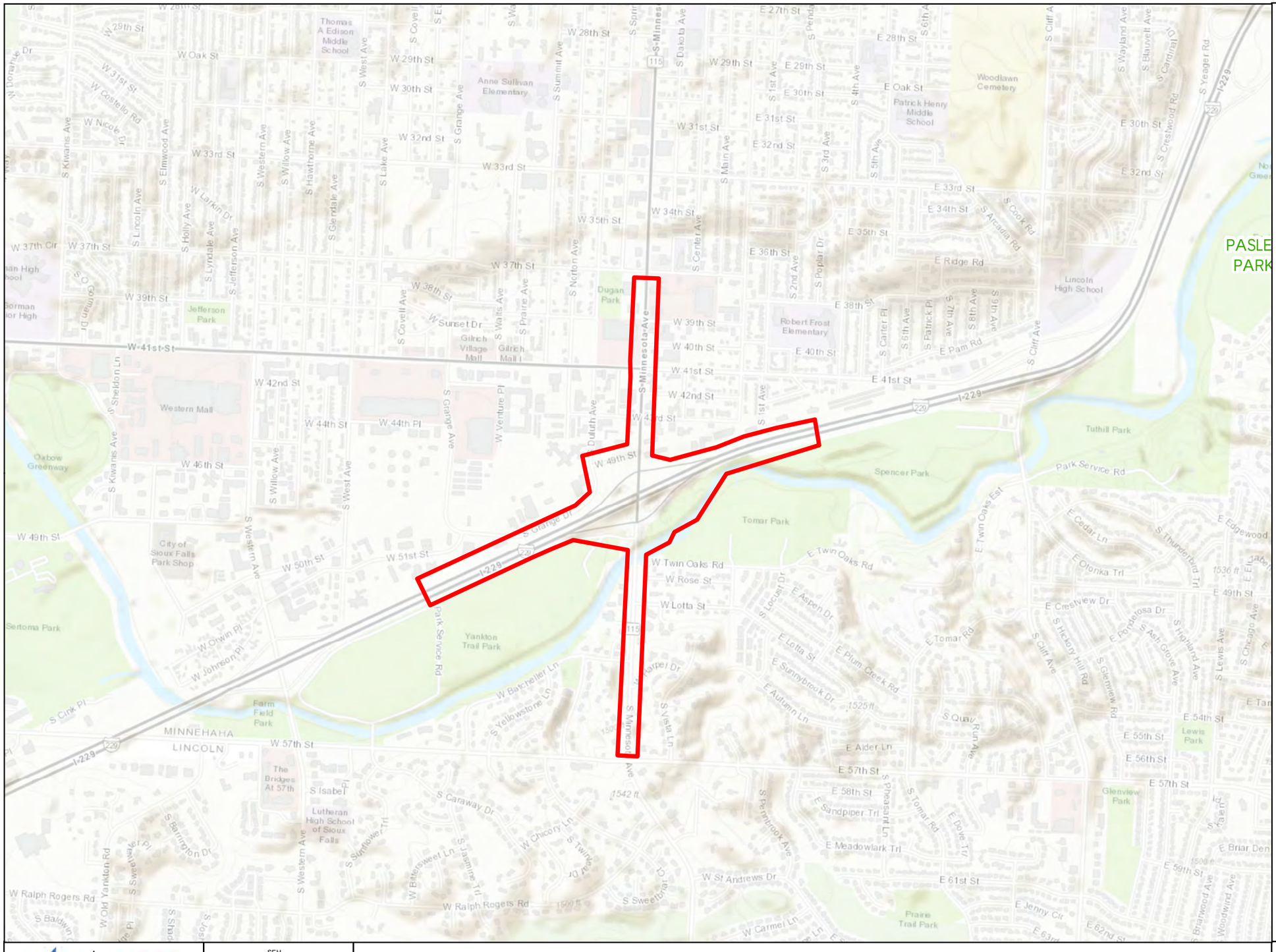
Figures



Legend

Area of Investigation

0 0.125 0.25 0.5 Miles

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

Path: S:\PT\S\SDDOT\147016\3-env-stdy-regs\30-env-doc\90-wetlands\October 2021 Updated Report\Exit 3 - 000S\GIS\Figure 1 - Site Location.mxd

SEH
PHONE: (651) 490-2000
FAX: (651) 490-2150
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Map by: rbeduhn
Projection: UTM NAD 83 Zone 14N
Source: SEH, SDDOT, ESRI, FWS USGS, NRCS, USDA

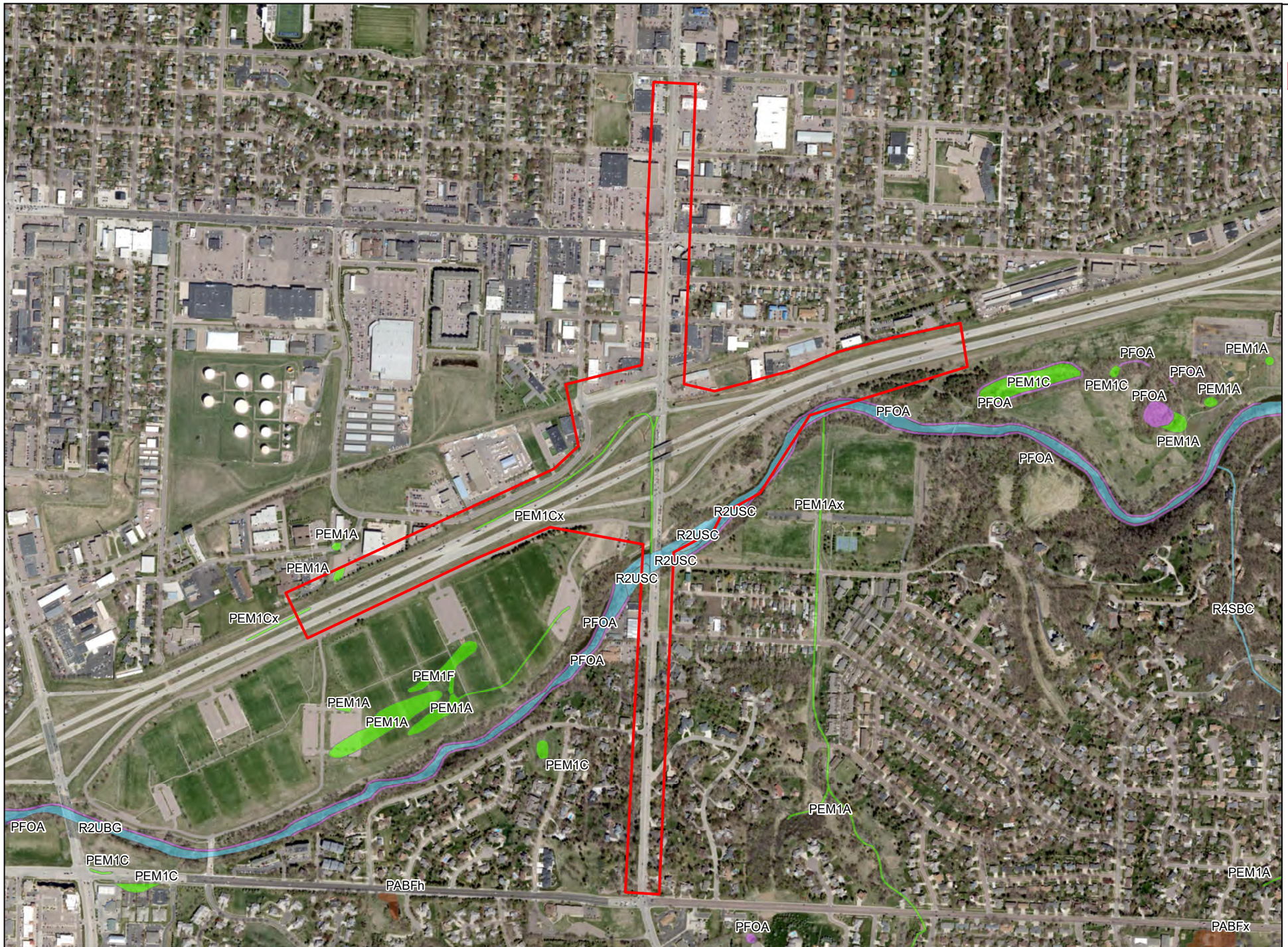
Print Date: 10/19/2021

SITE LOCATION AND TOPOGRAPHY

Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County

Exit 3
Project: PCN 000S
SEH Number: SDDOT 147016

Figure 1



Legend

Area of Investigation

NWI Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

0 500 1,000 2,000 Feet

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.

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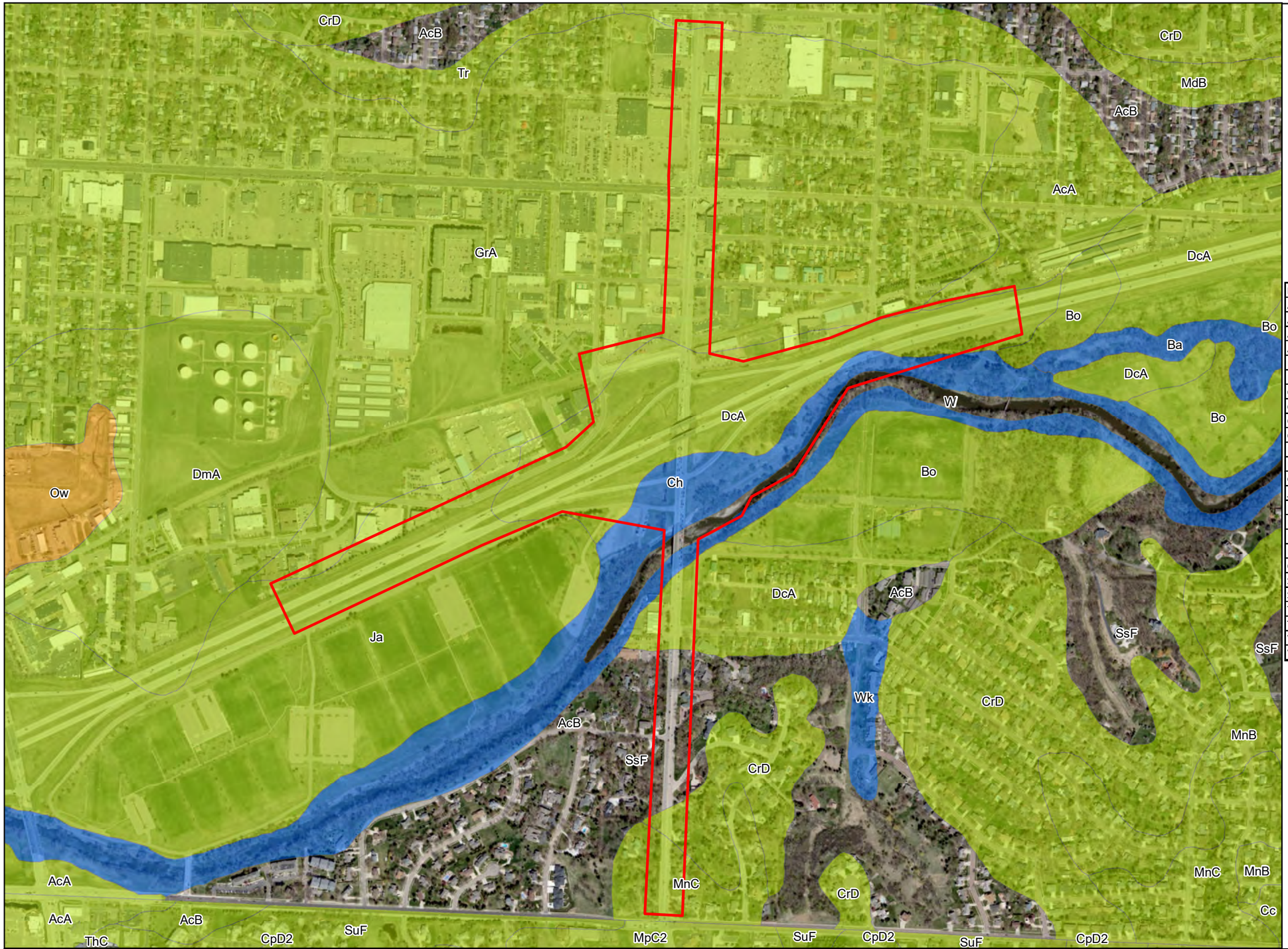
NATIONAL WETLANDS INVENTORY (NWI)

Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County

Exit 3
Project: PCN 000S
SEH Number: SDDOT 147016

Figure 2



Legend

Area of Investigation

Hydric Rating

- Nonhydric
- Predominantly Nonhydric
- Partially Hydric
- Predominantly Hydric

Map Unit	Soil Name
AcA	Alcester silty clay loam, 0 to 2 percent slopes
AcA	Alcester silty clay loam, cool, 0 to 2 percent slopes
AcB	Alcester silty clay loam, 2 to 6 percent slopes
AcB	Alcester silty clay loam, cool, 2 to 6 percent slopes
Ba	Baltic silty clay loam, 0 to 1 percent slopes
Bo	Bon loam, 0 to 2 percent slopes, occasionally flooded
Cc	Chancellor-Tetonka complex, 0 to 2 percent slopes
Ch	Chaska loam, channeled
CpD2	Crofton-Nora complex, 11 to 17 percent slopes, eroded
CrD	Crofton-Nora complex, 9 to 15 percent slopes
DcA	Davis loam, 0 to 2 percent slopes
DmA	Dempster silt loam, 0 to 2 percent slopes
GrA	Graceville silty clay loam, 0 to 2 percent slopes
Ja	Janude fine sandy loam, 0 to 2 percent slopes
MdB	Moody silty clay loam, cool, 2 to 6 percent slopes
MnB	Moody-Nora complex, 2 to 6 percent slopes
MnC	Moody-Nora silty clay loams, 6 to 9 percent slopes
MpC2	Moody-Nora silty clay loams, 6 to 10 percent slopes, eroded
Ow	Orthents-Aquents complex, gravelly
SsF	Steinauer-Shindler clay loams, 25 to 60 percent slopes
SuF	Steinauer-Shindler clay loams, 24 to 40 percent slopes
ThC	Thurman loamy fine sand, terrace, 6 to 11 percent slopes
Tr	Trent silty clay loam, 0 to 3 percent slopes
W	Water
Wk	Whitewood silty clay loam, 0 to 2 percent slopes

N

0 500 1,000 2,000 Feet

Path: S:\PT\S\SDDOT\147016\3-env-stdy-regs\30-env-doc\90-wetlands\October 2021 Updated Report\Exit 3 - 000S\GIS\Figure 3 - Soils.mxd

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Map by: rbeduhn
Projection: UTM NAD 83 Zone 14N
Source: SEH, SDDOT, ESRI, FWS USGS, NRCS, USDA
Print Date: 10/19/2021

MINNEHAHA COUNTY SOIL SURVEY

Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County

Exit 3
Project: PCN 000S
SEH Number: SDDOT 147016

Figure 3

Legend

- Area of Investigation
- Wetland Boundary

N

0 500 1,000 2,000 Feet

Path: S:\PTS\SDDOT\147016\3-env-stdy-regs\30-env-doc\90-wetlands\Wetlands GIS\Exit 3\Wetland Delineation Results.mxd

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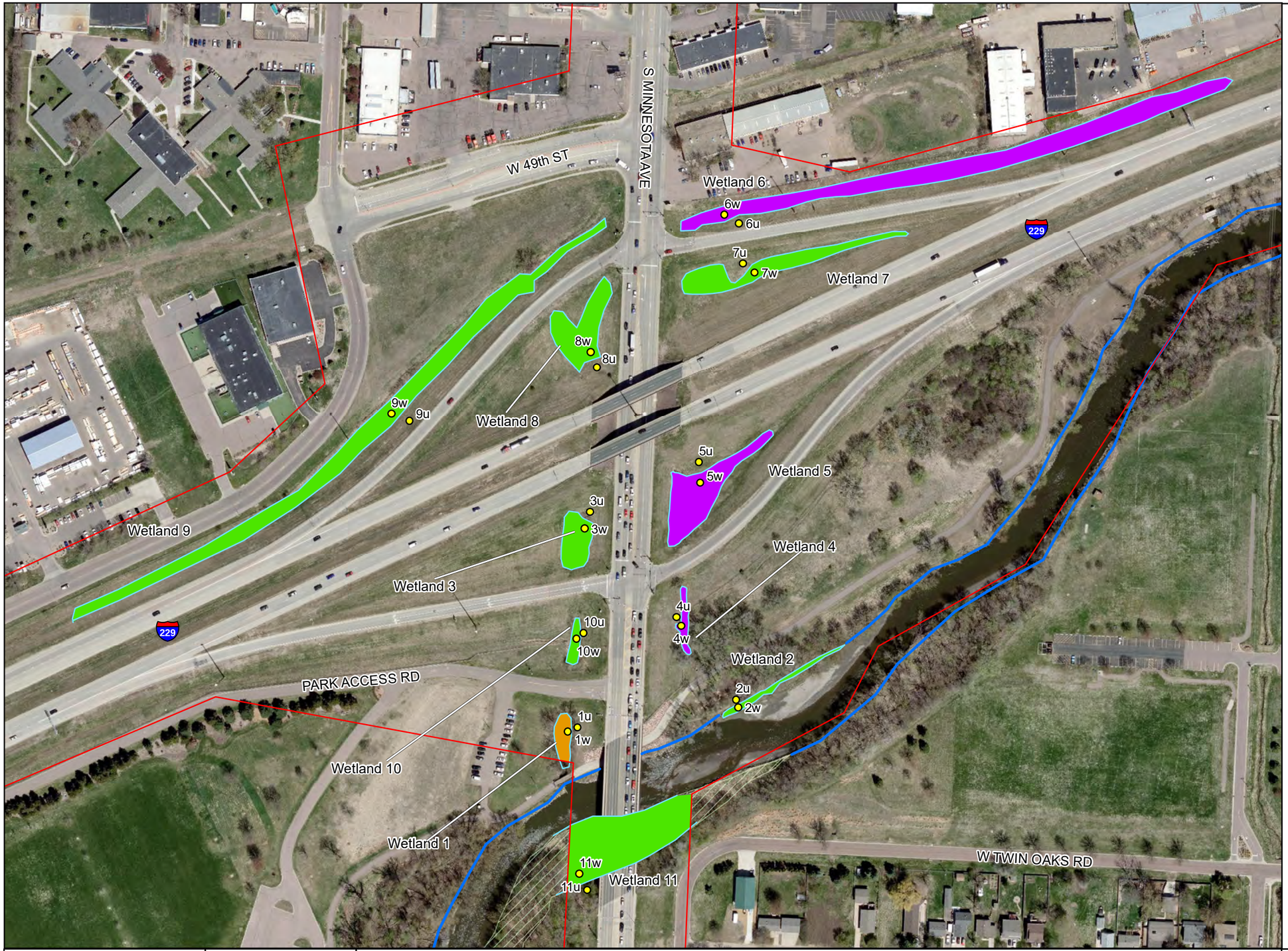
WETLAND DELINEATION RESULTS

Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County

Exit 3
Project: PCN 000S
SEH Number: SDDOT 147016

Figure 4-1



Legend

- Area of Investigation
- Sample Point
- Wetland Boundary
- Big Sioux River - Top of Bank

Wetland Type

- Fresh (Wet) Meadow
- Shallow Marsh
- Shallow Open Water
- Not Delineated Wetland *(outside of Area of Investigation)*

0 125 250 500 Feet

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Map by: rbeduhn
Projection: UTM NAD 83 Zone 14N
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WETLAND COMMUNITY TYPES

Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County

Exit 3
Project: PCN 000S
SEH Number: SDDOT 147016

Figure 4-2

Path: S:\PT\S\SDDOT\147016\3-env-stdy-regs\30-env-doc\90-wetlands\October 2021 Updated Report\Exit 3 - 000S\GIS\Figure 4-2 - Communities.mxd

Appendix A

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 1U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave

Slope (%): 8 | Lat: 43° 30' 30.053" N | Long: 96° 43' 53.611" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

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

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

Sample Point collected adjacent to Wetland 1.

VEGETATION -- Use scientific names of plants.

	Tree Stratum (Plot size: 30' Radius)		Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	-- *American Elm*	10	Y	FACW
2		--			
3		--			
4		--			
5		--			
			10	= Total Cover	
	Sapling/Shrub stratun (Plot size: 15' Radius)				
1	*Rhamnus cathartica*	-- *European Buckthorn*	20	Y	FAC
2		--			
3		--			
4		--			
5		--			
			20	= Total Cover	
	Herb stratum (Plot size: 5' Radius)				
1	*Taraxacum officinale*	-- *Common Dandelion*	15	Y	FACU
2	*Glechoma hederacea*	-- *Groundivy*	10	Y	FACU
3	*Carex pensylvanica*	-- *Pennsylvania sedge*	10	Y	UPL
4	*Rubus allegheniensis*	-- *Allegheny Blackberry*	10	Y	FACU
5	*Rhamnus cathartica*	-- *European Buckthorn*	10	Y	FAC
6		--			
7		--			
8		--			
9		--			
10		--			
			55	= Total Cover	
	Woody vine stratum (Plot size: 30' Radius)				
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 42.86% (A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	10	x 2 =	20	
FAC species	30	x 3 =	90	
FACU species	35	x 4 =	140	
UPL species	10	x 5 =	50	
Column totals	85	(A)	300	(B)

Prevalence Index = B/A = 3.53

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- ____ Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 1U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 4/3	100					Sand	
10-20	10YR 4/2	100					Sand	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	6

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 1W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 1 | Lat: 43° 30' 30.053" N | Long: 96° 43' 53.611" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation X, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	N		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 1

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

Sample Point collected in Wetland 1.

VEGETATION -- Use scientific names of plants.

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

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: 0 (B)

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

Prevalence Index Worksheet

Total % Cover of:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- ____ Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

This wetland has no vegetation- likely from stormwater inputs

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 1W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/1	100					Sand	
6-10	10YR 4/2	90	7.5YR 4/6	10	C	PL	Sand	
10-20	10YR 6/1	85	7.5YR 4/6	15	C	M	Sand	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	2
Water table present?	Yes	X	No		Depth (inches):	0
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 2U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Concave

Slope (%): 4 | Lat: 43° 30' 30.768" N | Long: 96° 43' 49.198" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected adjacent to Wetland 2.

VEGETATION -- Use scientific names of plants.

	Tree Stratum (Plot size: 30' Radius)		Absolute % Cover	Dominant Species	Indicator Status
1	*Rhamnus cathartica*	-- *European Buckthorn*	50	Y	FAC
2		--			
3		--			
4		--			
5		--			
			50	= Total Cover	
	Sapling/Shrub stratun (Plot size: 15' Radius)				
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
	Herb stratum (Plot size: 5' Radius)				
1	*Urtica dioica*	-- *Stinging Nettle*	15	Y	FACW
2	*Erigeron annuus*	-- *Eastern Daisy Fleabane*	10	Y	FACU
3	*Carex pensylvanica*	-- *Pennsylvania sedge*	10	Y	UPL
4	*Helianthus grosseserratus*	-- *Saw-Tooth Sunflower*	10	Y	FACW
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			45	= Total Cover	
	Woody vine stratum (Plot size: 30' Radius)				
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 60.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	50	x 3 =	150
FACU species	10	x 4 =	40
UPL species	10	x 5 =	50
Column totals	95 (A)		290 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 2U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 3/2	100					Silt Loam	
10-18	10YR 3/3	95	7.5YR 4/4	5	C	M	Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 2W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 2 | Lat: 43° 30' 30.611" N | Long: 96° 43' 49.136" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected in Wetland 2.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Phalaris arundinacea*	-- *Reed Canary Grass*	35	Y	FACW
2	*Persicaria lapathifolia*	-- *Dock-Leaf Smartweed*	25	Y	FACW
3	*Eleocharis obtusa*	-- *Blunt Spike-Rush*	20	N	OBL
4	*Impatiens capensis*	-- *Spotted Touch-Me-Not*	15	N	FACW
5	*Schoenoplectus tabernaemontani*	-- *Soft-Stem Club-Rush*	10	N	OBL
6	--				
7	--				
8	--				
9	--				
10	--				
			105	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:				
OBL species	30	x 1 =	30	
FACW species	75	x 2 =	150	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	105	(A)	180	(B)

Prevalence Index = B/A = 1.71

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 2W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 3/2	100					Silt Loam	
6-12	10YR 2/1	80	10YR 5/8	20	C	M	Sandy Loam	
12-18	10YR 6/2	80	10YR 5/6	20	C	PL	Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	6
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	2

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 3U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Concave

Slope (%): 3 | Lat: 43° 30' 34.465" N | Long: 96° 43' 53.535" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected adjacent to Wetland 3.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Setaria pumila*	-- *Yellow Bristle Grass*	50	Y	FAC
2	*Cirsium arvense*	-- *Canadian Thistle*	35	Y	FACU
3	*Asclepias syriaca*	-- *Common Milkweed*	15	N	FACU
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column totals	100 (A)		350 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- ____ Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 3U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					Silt Loam	
6-12	10YR 3/3	100					Silt Loam	
12-20	10YR 4/4	100					Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 3W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 3 | Lat: 43° 30' 34.121" N | Long: 96° 43' 53.670" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 3

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

Sample Point collected in Wetland 3.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Echinochloa crus-galli*	-- *Large Barnyard Grass*	45	Y	FACW
2	*Persicaria lapathifolia*	-- *Dock-Leaf Smartweed*	40	Y	FACW
3	*Phalaris arundinacea*	-- *Reed Canary Grass*	15	N	FACW
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 3W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-5	10YR 2/2	100					Silt Loam	
5-15	10YR 4/1	80	10YR 5/8	20	C	M	Silt Loam	
15-20	10YR 6/2	80	10YR 5/6	20	C	PL	Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	6
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	2

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 4U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Concave

Slope (%): 6 | Lat: 43° 30' 32.395" N | Long: 96° 43' 50.973" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

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

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

Sample Point collected adjacent to Wetland 4.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Setaria pumila*	-- *Yellow Bristle Grass*	50	Y	FAC
2	*Setaria faberi*	-- *Japanese Bristle Grass*	20	Y	FACU
3	*Ulmus pumila*	-- *Siberian Elm*	20	Y	UPL
4	*Andropogon gerardii*	-- *Big Bluestem*	5	N	FAC
5	*Euphorbia esula*	-- *Leafy Spurge*	5	N	UPL
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	55	x 3 =	165
FACU species	20	x 4 =	80
UPL species	25	x 5 =	125
Column totals	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- ____ Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 4U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					Sandy Loam	
8-18	10YR 3/2	100					Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 4W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 3 | Lat: 43° 30' 32.218" N | Long: 96° 43' 50.834" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 4

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

Sample Point collected in Wetland 4.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	*Salix petiolaris*	-- *Meadow Willow*	10	Y	OBL
2		--			
3		--			
4		--			
5		--			
			10	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	45	Y	OBL
2	*Carex scoparia*	-- *Pointed Broom Sedge*	25	Y	FACW
3	*Phalaris arundinacea*	-- *Reed Canary Grass*	20	Y	FACW
4	*Verbena hastata*	-- *Simpler's-Joy*	10	N	FACW
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1		--			
2		--			
			0	= Total Cover	

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

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across all Strata: 4 (B)

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	55	x 1 =	55
FACW species	55	x 2 =	110
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		165 (B)

Prevalence Index = B/A = 1.50

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 4W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 2/1	100					Loam	
8-16	10YR 4/1	80	7.5YR 5/6	20	C	M	Silt Loam	
16-20	10YR 6/1	90	10YR 5/6	10	C	PL	Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	1
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 5U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Concave

Slope (%): 6 | Lat: 43° 30' 35.585" N | Long: 96° 43' 50.546" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected adjacent to Wetland 5.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Setaria pumila*	-- *Yellow Bristle Grass*	70	Y	FAC
2	*Cirsium arvense*	-- *Canadian Thistle*	10	N	FACU
3	*Medicago sativa*	-- *Alfalfa*	10	N	FACU
4	*Persicaria lapathifolia*	-- *Dock-Leaf Smartweed*	5	N	FACW
5	*Setaria faberi*	-- *Japanese Bristle Grass*	5	N	FACU
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	70	x 3 =	210
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column totals	100 (A)		320 (B)

Prevalence Index = B/A = 3.20

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 5U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					Sandy Loam	
8-20	10YR 3/3	100					Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 5W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): footslope | Local relief (concave, convex, none): Concave

Slope (%): 1 | Lat: 43° 30' 35.161" N | Long: 96° 43' 50.479" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? Y	
Hydric soil present? Y	**Is the sampled area within a wetland?** Y
Indicators of wetland hydrology present? Y	If yes, optional wetland site ID: Wetland 5

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

Sample Point collected in Wetland 5.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	40	Y	OBL
2	*Eleocharis obtusa*	-- *Blunt Spike-Rush*	20	Y	OBL
3	*Persicaria lapathifolia*	-- *Dock-Leaf Smartweed*	10	N	FACW
4	*Cyperus esculentus*	-- *Chufa*	10	N	FACW
5	*Phalaris arundinacea*	-- *Reed Canary Grass*	10	N	FACW
6	*Schoenoplectus tabernaemontani*	-- *Soft-Stem Club-Rush*	5	N	OBL
7	*Hordeum jubatum*	-- *Fox-Tail Barley*	5	N	FAC
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	65	x 1 =	65
FACW species	30	x 2 =	60
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		140 (B)

Prevalence Index = B/A = 1.40

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 5W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10YR 2/1	100					Silt Loam	
2-10	10YR 4/1	80	10YR 5/8	20	C	M	Silt Loam	
10-20	10YR 5/1	80	10YR 5/6	20	C	PL	Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	6
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	2

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 6U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave

Slope (%): 6 | Lat: 43° 30' 40.497" N | Long: 96° 43' 49.722" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected adjacent to Wetland 6.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	*Rhamnus cathartica*	-- *European Buckthorn*	5	Y	FAC
2		--			
3		--			
4		--			
5		--			
			5	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Setaria pumila*	-- *Yellow Bristle Grass*	50	Y	FAC
2	*Cirsium arvense*	-- *Canadian Thistle*	15	N	FACU
3	*Medicago lupulina*	-- *Black Medick*	10	N	FACU
4	*Alliaria petiolata*	-- *Garlic-Mustard*	10	N	FAC
5	*Asclepias syriaca*	-- *Common Milkweed*	5	N	FACU
6	*Fallopia convolvulus*	-- *Black-Bindweed*	5	N	FACU
7	*Linaria vulgaris*	-- *Yellow Toadflax*	5	N	UPL
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	65	x 3 =	195
FACU species	35	x 4 =	140
UPL species	5	x 5 =	25
Column totals	105 (A)		360 (B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 6U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-9	10YR 4/3	100					Sandy Loam	
9-18	10YR 4/3	100					Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 6W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 2 | Lat: 43° 30' 40.658" N | Long: 96° 43' 50.142" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 6

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

Sample Point collected in Wetland 6.

VEGETATION -- Use scientific names of plants.

	Tree Stratum (Plot size: 30' Radius)		Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	-- *Quaking Aspen*	10	Y	FAC
2		--			
3		--			
4		--			
5		--			
			10	= Total Cover	
	Sapling/Shrub stratun (Plot size: 15' Radius)				
1	*Populus tremuloides*	-- *Quaking Aspen*	10	Y	FAC
2	*Rhamnus cathartica*	-- *European Buckthorn*	10	Y	FAC
3	*Salix petiolaris*	-- *Meadow Willow*	5	Y	OBL
4		--			
5		--			
			25	= Total Cover	
	Herb stratum (Plot size: 5' Radius)				
1	*Typha latifolia*	-- *Broad-Leaf Cat-Tail*	55	Y	OBL
2	*Phalaris arundinacea*	-- *Reed Canary Grass*	25	Y	FACW
3	*Persicaria lapathifolia*	-- *Dock-Leaf Smartweed*	10	N	FACW
4	*Persicaria pensylvanica*	-- *Pinkweed*	10	N	FACW
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			100	= Total Cover	
	Woody vine stratum (Plot size: 30' Radius)				
1		--			
2		--			
			0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 6 (B)

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	60	x 1 =	60
FACW species	45	x 2 =	90
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	135 (A)		240 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 6W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-7	10YR 2/1	100					Loam	
7-14	10YR 4/2	90	7.5YR 4/6	10	C	PL	Sandy Loam	
14-20	10YR 5/2	85	7.5YR 4/6	15	C	M	Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	X	No		Depth (inches):	3
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes		No	X	Depth (inches):	

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 7U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Concave

Slope (%): 4 | Lat: 43° 30' 39.679" N | Long: 96° 43' 49.559" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected adjacent to Wetland 7.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Bromus inermis*	-- *Smooth Brome*	30	Y	FACU
2	*Setaria pumila*	-- *Yellow Bristle Grass*	30	Y	FAC
3	*Cirsium arvense*	-- *Canadian Thistle*	20	Y	FACU
4	*Amaranthus retroflexus*	-- *Red-Root*	10	N	FACU
5	*Asclepias syriaca*	-- *Common Milkweed*	5	N	FACU
6	*Euphorbia esula*	-- *Leafy Spurge*	5	N	UPL
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	65	x 4 =	260
UPL species	5	x 5 =	25
Column totals	100 (A)		375 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- ____ Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 7U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-5	10YR 2/2	100					Silt Loam	
5-15	10YR 4/1	80	10YR 5/8	20	C	M	Silt Loam	
15-20	10YR 6/2	80	10YR 5/6	20	C	PL	Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 7W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): footslope | Local relief (concave, convex, none): Concave

Slope (%): 2 | Lat: 43° 30' 39.505" N | Long: 96° 43' 49.223" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: None

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 7

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

Sample Point collected in Wetland 7.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Persicaria lapathifolia*	-- *Dock-Leaf Smartweed*	50	Y	FACW
2	*Cyperus esculentus*	-- *Chufa*	15	N	FACW
3	*Phalaris arundinacea*	-- *Reed Canary Grass*	15	N	FACW
4	*Setaria pumila*	-- *Yellow Bristle Grass*	10	N	FAC
5	*Echinochloa crus-galli*	-- *Large Barnyard Grass*	10	N	FACW
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

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

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 7W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10YR 2/1	95	7.5YR 4/6	5	C	PL	Sandy Loam	
2-10	10YR 4/1	80	10YR 5/8	20	C	M	Silt Loam	
10-20	10YR 5/1	80	10YR 5/6	20	C	PL	Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):
Water table present?	Yes	X	No		Depth (inches): 0
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches): 0

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 8U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Concave

Slope (%): 3 | Lat: 43° 30' 37.419" N | Long: 96° 43' 53.520" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected adjacent to Wetland 8.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Setaria pumila*	-- *Yellow Bristle Grass*	80	Y	FAC
2	*Euphorbia esula*	-- *Leafy Spurge*	10	N	UPL
3	*Physalis pubescens*	-- *Husk-Tomato*	10	N	UPL
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column totals	100 (A)		340 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 8U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 3/2	100					Silt Loam	
10-18	10YR 3/3	95	7.5YR 4/4	5	C	M	Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 8W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): footslope | Local relief (concave, convex, none): Concave

Slope (%): 1 | Lat: 43° 30' 37.732" N | Long: 96° 43' 53.723" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 8

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

Sample Point collected in Wetland 8.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Phalaris arundinacea*	-- *Reed Canary Grass*	50	Y	FACW
2	*Cyperus esculentus*	-- *Chufa*	15	N	FACW
3	*Echinochloa crus-galli*	-- *Large Barnyard Grass*	15	N	FACW
4	*Setaria pumila*	-- *Yellow Bristle Grass*	10	N	FAC
5	*Persicaria pensylvanica*	-- *Pinkweed*	10	N	FACW
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 8W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10YR 2/1	100					Silt Loam	
2-10	10YR 4/1	80	10YR 5/8	20	C	M	Silt Loam	
10-20	10YR 5/1	80	10YR 5/6	20	C	PL	Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	5
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 9U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave

Slope (%): 6 | Lat: 43° 30' 36.159" N | Long: 96° 43' 58.716" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Sample Point collected adjacent to Wetland 9.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Setaria pumila*	-- *Yellow Bristle Grass*	50	Y	FAC
2	*Conyza canadensis*	-- *Horseweed*	20	Y	UPL
3	*Humulus japonicus*	-- *Japanese Hop*	15	N	FACU
4	*Arctium minus*	-- *Lesser Burrdock*	5	N	FACU
5	*Cirsium arvense*	-- *Canadian Thistle*	5	N	FACU
6	*Bromus inermis*	-- *Smooth Brome*	5	N	FACU
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	30	x 4 =	120
UPL species	20	x 5 =	100
Column totals	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- ____ Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 9U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 4/3	100					Sand	
10-20	10YR 4/2	100					Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Interstate 229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: SDDOT | State: South Dakota | Sampling Point: 9W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 2 | Lat: 43° 30' 36.286" N | Long: 96° 43' 59.232" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Davis loam, 0 to 2 percent slopes | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 9

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

Sample Point collected in Wetland 9.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)		Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharinum* -- *Silver Maple*	10	Y	FACW
2	--			
3	--			
4	--			
5	--			
		10	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)				
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	
Herb stratum (Plot size: 5' Radius)				
1	*Phalaris arundinacea* -- *Reed Canary Grass*	40	Y	FACW
2	*Typha latifolia* -- *Broad-Leaf Cat-Tail*	15	Y	OBL
3	*Rumex crispus* -- *Curly Dock*	15	Y	FAC
4	*Urtica dioica* -- *Stinging Nettle*	15	Y	FACW
5	*Persicaria lapathifolia* -- *Dock-Leaf Smartweed*	10	N	FACW
6	*Acer saccharinum* -- *Silver Maple*	5	N	FACW
7	--			
8	--			
9	--			
10	--			
		100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)				
1	--			
2	--			
		0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across all Strata: 5 (B)

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

Prevalence Index Worksheet

Total % Cover of:				
OBL species	15	x 1 =	15	
FACW species	80	x 2 =	160	
FAC species	15	x 3 =	45	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	110	(A)	220	(B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 9W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-2	10YR 2/1	100					Silt Loam	
2-10	10YR 4/1	80	10YR 5/8	20	C	M	Silt Loam	
10-20	10YR 5/1	80	10YR 5/6	20	C	PL	Silt Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	1
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 10U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Backslope | Local relief (concave, convex, none): Concave

Slope (%): 3 | Lat: 43° 30' 31.986" N | Long: 96° 43' 53.564" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

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

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

Sample Point collected adjacent to Wetland 1.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1		--			
2		--			
3		--			
4		--			
5		--			
			0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15' Radius)					
1	*Rhamnus cathartica*	-- *European Buckthorn*	20	Y	FAC
2		--			
3		--			
4		--			
5		--			
			20	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Setaria pumila*	-- *Yellow Bristle Grass*	30	Y	FAC
2	*Bromus inermis*	-- *Smooth Brome*	20	Y	FACU
3	*Carex pensylvanica*	-- *Pennsylvania sedge*	10	N	UPL
4	*Rubus allegheniensis*	-- *Allegheny Blackberry*	10	N	FACU
5	*Rhamnus cathartica*	-- *European Buckthorn*	10	N	FAC
6	*Taraxacum officinale*	-- *Common Dandelion*	10	N	FACU
7	*Glechoma hederacea*	-- *Groundivy*	10	N	FACU
8		--			
9		--			
10		--			
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1		--			
2		--			
			0	= Total Cover	

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

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	60	x 3 =	180	
FACU species	50	x 4 =	200	
UPL species	10	x 5 =	50	
Column totals	120	(A)	430	(B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 10U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-9	10YR 4/2	100					Sandy loam	
9-18	10YR 4/3	100					Sand	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes		No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	6

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 10W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S32 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 2 | Lat: 43° 30' 31.865" N | Long: 96° 43' 53.753" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: PEMA

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 10

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

Sample Point collected in Wetland 10.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Phalaris arundinacea*	-- *Reed Canary Grass*	75	Y	FACW
2	*Echinochloa crus-galli*	-- *Large Barnyard Grass*	15	N	FACW
3	*Cyperus esculentus*	-- *Chufa*	10	N	FACW
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 10W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/1	100					Sand	
6-10	10YR 4/2	90	7.5YR 4/6	10	C	PL	Sand	
10-20	10YR 6/1	85	7.5YR 4/6	15	C	M	Sand	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	0
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of wetland hydrology 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).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 11U

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Footslope | Local relief (concave, convex, none): Concave

Slope (%): 4 | Lat: 43° 30' 26.737" N | Long: 96° 43' 53.135" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: R2UBG

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS

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

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

Sample Point collected adjacent to Wetland 11.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Bromus inermis*	-- *Smooth Brome*	45	Y	FACU
2	*Setaria pumila*	-- *Yellow Bristle Grass*	20	Y	FAC
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			65	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:				
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	20	x 3 =	60	
FACU species	45	x 4 =	180	
UPL species	0	x 5 =	0	
Column totals	65	(A)	240	(B)

Prevalence Index = B/A = 3.69

Hydrophytic Vegetation Indicators:

- ____ Rapid test for hydrophytic vegetation
- ____ Dominance test is >50%
- ____ Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

35% rock (rip-rap) cover

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL **Sampling Point:** 11U

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 3/2	100					Sandy Loam	
4+							ROCKS	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):
Type: Rocks
Depth (inches): 4"

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	___	No	X	Depth (inches):	___

Indicators of wetland hydrology present? N

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

Remarks:

Antecedent precipitation conditions were determined "Wetter than normal" (Appendix C).

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: PCN 000S: I-229 Exit 3 Reconstruction | City/County: Sioux Falls/Minnehaha | Sampling Date: 9/25/2018

Applicant/Owner: South Dakota Department of Transportation | State: South Dakota | Sampling Point: 11W

Investigator(s): Rebecca Beduhn | Section, Township, Range: S33 T101N R49W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): Concave

Slope (%): 2 | Lat: 43° 30' 27.069" N | Long: 96° 43' 53.382" W | Datum: UTM NAD83 Zone 14N

Soil Map Unit Name: Chaska loam, channeled | NWI Classification: R2UBG

Are climatic/hydrologic conditions of the site typical for this time of the year? N (If no, explain in remarks)

Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation ____, soil ____, or hydrology ____ naturally problematic?

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y		
Hydric soil present?	Y	**Is the sampled area within a wetland?**	Y
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 11

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

Sample Point collected in Wetland 11.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' Radius)			Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Sapling/Shrub stratun (Plot size: 15' Radius)					
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	
Herb stratum (Plot size: 5' Radius)					
1	*Phalaris arundinacea*	-- *Reed Canary Grass*	80	Y	FACW
2	*Impatiens capensis*	-- *Spotted Touch-Me-Not*	20	Y	FACW
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			100	= Total Cover	
Woody vine stratum (Plot size: 30' Radius)					
1	--				
2	--				
			0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- X Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:

Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2016)

SOIL

Sampling Point: 11W

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					Sandy Loam	
6-12	10YR 2/1	80	10YR 5/8	20	C	M	Sandy Loam	
12-18	10YR 6/2	80	10YR 5/6	20	C	PL	Sandy Loam	

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

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L)**
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (explain in remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	6
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0

Indicators of wetland hydrology 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).

Appendix B

Site Photographs

Photo 1 Wetland 1 – Shallow Open Water

Photo 2 Wetland 1 – Shallow Open Water

Photo 3 Wetland 2 – Fresh (Wet) Meadow

Photo 4 Wetland 2 – Fresh (Wet) Meadow

Photo 5 Wetland 3 – Fresh (Wet) Meadow

Photo 6 Wetland 3 – Fresh (Wet) Meadow

Photo 7 Wetland 4 – Shallow Marsh

Photo 8 Wetland 4 – Shallow Marsh

Photo 9 Wetland 5 – Shallow Marsh

Photo 10 Wetland 5 – Shallow Marsh

Photo 11 Wetland 6 – Shallow Marsh

Photo 12 Wetland 6 – Shallow Marsh

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 - Fresh (Wet) Meadow

Photo 20 Wetland 11 (view from across the river) - Fresh (Wet) Meadow

Appendix C

Climate Summary Data

Field Visit Date: August 25, 2018

		Long-term rainfall 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

Sum 18

*Monthly data prior to field date "Wet"

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:

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 Exit 3 Reconstruction
Sioux Falls/Minnehaha County
Wetland #1

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	260.00	0.00
		grassland along perimeter (feet):	0.00	
		percent continuity:	0.00	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.00
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	0.00	
		Point 10:	0.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	0.00	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.15
		sum of species:	3.00	
		sum of C values:	5.00	
		mean coefficient of conservatism:	1.67	
		FQI:	2.89	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.10	0.10
	V_{SED}	**Eastern Prairie Potholes**		0.80
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	6.00	
	V_{SQI}	SQI scores for 4 samples:		0.13
		sample 1:	2.50	
		sample 2:	2.50	
		sample 3:	3.00	
		sample 4:	2.50	
		average SQI score:	2.63	
	V_{SOM}	**Indirect Measurements**		0.58
		Litter Depth for 4 samples:		
		sample 1:	1.00	
		sample 2:	2.00	
		sample 3:	3.00	
		sample 4:	2.00	
		Average Litter Depth (inches):	2.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.25	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	2.60	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	1.00
		present (or constructed) invert elevation:	1395.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1394.50	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V_{SUBOUT}	depth of surface drainage invert:		0.25
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	260.00	0.84
		wetland area (acres):	0.07	
		Shoreline Development Index:	1.33	
	$V_{CATCHWET}$	wetland area (acres):	0.07	1.00
		catchment area (acres):	0.80	
		ratio of catchment size to wetland size:	11.43	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	0.80	0.00
		acres of catchment for each curve number:		
		98	0.80	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	101.00	1.00
		distance to 2nd nearest wetland:	117.00	
		distance to 3rd nearest wetland:	271.00	
		distance to 4th nearest wetland:	297.00	
		distance to 5th nearest wetland:	335.00	
		mean distance (feet):	224.20	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.36	0.03
2. Groundwater Recharge	0.37	0.03
3. Retain Particlulates	0.28	0.02
4. Remove, Convert, and Sequester Dissolved Substances	0.26	0.02
5. Plant Community Resilience and Carbon Cycling	0.26	0.02
6a. Provide Faunal Habitat	0.29	0.02
6b. Provide Faunal Habitat (Alternate Formula)	0.21	0.01

South Dakota Riverine HGM Model, Version 1.1
Variable Score Field Form

Field Office ----------		Assessment Area ID. (if more than one) -----	2
County ----------	Minnehaha County	Wetland acres (Pre-project) ------	0.06
Date ----------	9/25/2018	Wetland acres (Post-project) ----	
Producer/Landowner	South Dakota DOT	Type of wetland (fringe adjacent to stream	
Yellow flag? (Y/N) ---	If Y, what?	channel, or depressional or linear on flood	
Red flag? (Y/N) -------	If Y, what?	plain)? ---	

Variable	Measurement or Condition Results				Discussion/ Rationale	Variable Score Pre-proj.	Variable Score Post-proj.
V_{hydalt}	Flood plain hydrology (H_{fp})					1.00	0.00
	Alterations present (Y/N)? ----------			N			
	If Y, what? --------						
	(H_{fp}) pre-project ----------			1			
	(H_{fp}) post-project ----------						
	Wetland hydrology (H_w)						
	Alterations present (Y/N)? ----------			N			
	If Y, what? --------						
	(H_w) pre-project ----------			1			
	(H_w) post-project ----------						
V_{source}	Watershed alterations present? (Y/N) -------			Y		0.50	0.00
	If Y, what?	Drain Tiles, Culverts, Stormwater facilities					
	% of watershed area ----------			80			
V_{topog}	Wetland topography (T_w)					0.20	0.00
	Alterations present? (Y/N) ----------			N			
	If Y, what? ----------						
	% of area (pre) -----	0	(T_w) pre =	1			
	% of area (post) ---		(Tw) post =				
	Flood plain topography (T_{fp})						
	Alterations present? (Y/N) ----------			Y			
	If Y, what? ----------	Rip rap, trails, parks					
	% of area (pre) -----	40	(T_{fp}) pre =	0.5			
	% of area (post) ---		(T_{fp}) post =				
V_{upuse}	Dominant upland uses (3 maximum)					0.57	#DIV/0!
	pre1 Index ----	0.1	% area ---	40			
	pre2 Index ----	1	% area ---	30			
	pre3 Index ----	0.75	% area ---	30			
	post1 Index ---		% area ---				
	post2 Index ---		% area ---				
	post3 Index ---		% area ---				
$V_{detritus}$	Detritus thickness (in.)----------			0			
V_{sed}	Accelerated sediment in wetland? (Y/N) -----			N			
	If Y, evidence? --------						
	Sediment thickness (in.) ----------			0			
V_{som}	Dominant soil texture in upper 18" ----------			Silt Loam			
	Dominant soil color (value) upper 12" --------			10YR 3/2			
V_{soil}	Soil pores observed ----------	Fine					
	Soil structure ---------	Sub Angular Blky					
	Rupture resistance ----------	Firm					
V_{buffer}	Pre-project					0.45	
	Buffer continuity (%) ----------	100					
	Average buffer width (ft.) --------	42					
	Continuity/width rating (B_1) ----------			0.4			
	Buffer condition ------						
	Condition rating (B_2) ----------			0.5			
	Post-project						0.00
	Buffer continuity (%) ----------						
	Average buffer width (ft.) --------						
	Continuity/width rating (B_1) ----------						
	Buffer condition ------						
	Condition rating (B_2) ----------						
V_{denhw}	Woody species present in WAA? (Y/N) ----			Y			
	(If N, score variable based on the herbaceous part.)						
	Herbaceous density (%) ----------			60%			
	Woody density (%, if applicable) ----------			10%			
V_{pratio}	Native species present in wetland (% of total						
	dominants) ----------			100%			
V_{veg}	Vegetative canopy coverage (%) ----------			10			
	Number of vegetative strata present ----------			2			
	Deviation from normal (number of strata believed 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 wetlands adjacent to the channel and that lack this ability, use worksheet 2.

DATE ----------	09/25/18	OWNER/OPERATOR ------	South Dakota DOT
WETLAND ID. ----------	2	ASSESSMENT TYPE -------	Field
OBSERVERS ----------	Rebecca Beduhn	WETLAND TYPE (NWI) ---	R2USC
CONDITIONS ----------		WETLAND TYPE (FSA) ----	
PROJECT NAME ----------	PCN 000S (I-229 Exit 3)	REMARKS --	
PLANNED ACTIVITY ------	Roadway improvements		
YELLOW FLAG (Y/N) -----		RED FLAG (Y/N) ----------	
WETLAND ACRES (EXISTING) ----------	0.06	WETLAND ACRES (PREDICTED) --------	0

FUNCTIONAL INDICES (VARIABLE) SCORING

Variable	Existing	Predicted
V_{hydalt} - Flood Plain/Wetland Hydrology Alterations	1.00	0.00
V_{source} - Watershed Hydrology Alterations	0.50	0.00
V_{topog} - Flood Plain/Wetland Topographic Complexity	0.20	0.00
V_{upuse} - Upland Use	0.57	#DIV/0!
$V_{detritus}$ - Detritus	0.00	0.00
V_{sed} - Sedimentation Within the Wetland	0.00	0.00
V_{som} - Soil Organic Matter	0.00	0.00
V_{soil} - Soil Porosity	0.00	0.00
V_{buffer} - Buffer Condition, Continuity, and Width	0.45	0.00
V_{denhw} - Density of Perennial Herbaceous and Woody Vegetation	0.00	0.00
V_{pratio} - Ratio of Native to Non-Native Plant Species	0.00	0.00
V_{veg} - Vegetative Strata and Canopy Coverage	0.00	0.00
V_{wetuse} - Wetland Use	0.00	0.00

]1

Function	Existing		Predicted	
	FCI	FCU	FCI	FCU
1.0 Storage of Surface Water	0.00	0.00	0.00	0.00
2.0 Velocity Reduction of Surface Water Flow	0.34	0.02	#DIV/0!	#DIV/0!
3.0 Storage and Release of Subsurface Water	0.52	0.03	#DIV/0!	#DIV/0!
4.0 Removal of Imported Elements and Compounds	0.00	0.00	#DIV/0!	#DIV/0!
5.0 Retention of Particulates and Organic Materials	0.15	0.01	#DIV/0!	#DIV/0!
6.0 Organic Carbon Export	0.15	0.01	0.00	0.00
7.0 Maintains Characteristic Plant Community	0.00	0.00	#DIV/0!	#DIV/0!
8.0 Maintains Habitat Structure Within Wetland	0.10	0.01	0.00	0.00
9.0 Maintains Hab. Str. and Connect. Among Wetlands	0.24	0.01	#DIV/0!	#DIV/0!

FUNCTION	CHANGE IN FCU's		MINIMAL EFFECT	JUSTIFICATION OF MINIMAL EFFECT IF THERE IS A NET FUNCTIONAL LOSS OF 10 TO 20 PERCENT
	NUMERICAL	%	(Y or N)	
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	-0.01	-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!	

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 3 Reconstruction
Sioux Falls/Minnehaha County
Wetland #3

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	314.82	1.00
		grassland along perimeter (feet):	314.82	
		percent continuity:	100.00	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.91
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	42.00	
		Point 5:	45.00	
		Point 6:	25.00	
		Point 7:	26.00	
		Point 8:	48.00	
		Point 9:	50.00	
		Point 10:	50.00	
		Point 11:	50.00	
		Point 12:	50.00	
		mean width (feet):	44.67	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.02
		sum of species:	7.00	
		sum of C values:	2.00	
		mean coefficient of conservatism:	0.29	
		FQI:	0.76	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.75	0.75
	V_{SED}	**Eastern Prairie Potholes**		0.67
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	5.00	
	V_{SQI}	SQI scores for 4 samples:		0.04
		sample 1:	1.50	
		sample 2:	1.50	
		sample 3:	2.00	
		sample 4:	2.00	
		average SQI score:	1.75	
	V_{SOM}	**Indirect Measurements**		0.30
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		average ADI:	6.50	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.68	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	1.00
		present (or constructed) invert elevation:	1407.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1397.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V_{SUBOUT}	depth of surface drainage invert:		0.25
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	314.82	0.41
		wetland area (acres):	0.14	
		Shoreline Development Index:	1.14	
	$V_{CATCHWET}$	wetland area (acres):	0.14	1.00
		catchment area (acres):	2.25	
		ratio of catchment size to wetland size:	16.07	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	2.25	0.00
		acres of catchment for each curve number:		
		98	2.25	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	100.00	1.00
		distance to 2nd nearest wetland:	156.00	
		distance to 3rd nearest wetland:	225.00	
		distance to 4th nearest wetland:	290.00	
		distance to 5th nearest wetland:	297.00	
		mean distance (feet):	213.60	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.34	0.05
2. Groundwater Recharge	0.37	0.05
3. Retain Particlulates	0.51	0.07
4. Remove, Convert, and Sequester Dissolved Substances	0.35	0.05
5. Plant Community Resilience and Carbon Cycling	0.31	0.04
6a. Provide Faunal Habitat	0.31	0.04
6b. Provide Faunal Habitat (Alternate Formula)	0.17	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 3 Reconstruction
Sioux Falls/Minnehaha County
Wetland #4

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	316.70	0.50
		grassland along perimeter (feet):	158.40	
		percent continuity:	50.02	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.51
		Point 1:	0.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	0.00	
		Point 5:	0.00	
		Point 6:	0.00	
		Point 7:	0.00	
		Point 8:	0.00	
		Point 9:	50.00	
		Point 10:	50.00	
		Point 11:	50.00	
		Point 12:	50.00	
		mean width (feet):	25.00	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.54
		sum of species:	5.00	
		sum of C values:	21.00	
		mean coefficient of conservatism:	4.20	
		FQI:	9.39	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.50	0.50
	V_{SED}	**Eastern Prairie Potholes**		1.00
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	8.00	
	V_{SQI}	SQI scores for 4 samples:		0.05
		sample 1:	2.00	
		sample 2:	2.00	
		sample 3:	2.00	
		sample 4:	1.50	
		average SQI score:	1.88	
	V_{SOM}	**Indirect Measurements**		0.38
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	1.00	
		sample 3:	0.00	
		sample 4:	1.00	
		Average Litter Depth (inches):	0.50	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.25	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.93	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	1.00
		present (or constructed) invert elevation:	1399.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1400.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V_{SUBOUT}	depth of surface drainage invert:		0.50
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	316.70	1.00
		wetland area (acres):	0.05	
		Shoreline Development Index:	1.95	
	$V_{CATCHWET}$	wetland area (acres):	0.05	1.00
		catchment area (acres):	7.50	
		ratio of catchment size to wetland size:	156.25	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	7.50	0.00
		acres of catchment for each curve number:		
		98	7.50	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	87.00	1.00
		distance to 2nd nearest wetland:	141.00	
		distance to 3rd nearest wetland:	198.00	
		distance to 4th nearest wetland:	274.00	
		distance to 5th nearest wetland:	495.00	
		mean distance (feet):	239.00	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.56	0.03
2. Groundwater Recharge	0.58	0.03
3. Retain Particlulates	0.66	0.03
4. Remove, Convert, and Sequester Dissolved Substances	0.49	0.02
5. Plant Community Resilience and Carbon Cycling	0.51	0.02
6a. Provide Faunal Habitat	0.55	0.03
6b. Provide Faunal Habitat (Alternate Formula)	0.42	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 3 Reconstruction
Sioux Falls, Minnehaha County
Wetland #5

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	728.60	1.00
		grassland along perimeter (feet):	728.60	
		percent continuity:	100.00	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.91
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	50.00	
		Point 5:	50.00	
		Point 6:	50.00	
		Point 7:	45.00	
		Point 8:	32.00	
		Point 9:	33.00	
		Point 10:	37.00	
		Point 11:	39.00	
		Point 12:	50.00	
		mean width (feet):	44.67	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.13
		sum of species:	7.00	
		sum of C values:	7.00	
		mean coefficient of conservatism:	1.00	
		FQI:	2.65	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.50	0.50
	V_{SED}	**Eastern Prairie Potholes**		0.27
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	2.00	
	V_{SQI}	SQI scores for 4 samples:		0.04
		sample 1:	1.50	
		sample 2:	1.50	
		sample 3:	2.00	
		sample 4:	2.00	
		average SQI score:	1.75	
	V_{SOM}	**Indirect Measurements**		0.32
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		average ADI:	6.25	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.74	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	1.00
		present (or constructed) invert elevation:	1401.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1400.50	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V_{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	728.60	1.00
		wetland area (acres):	0.34	
		Shoreline Development Index:	1.69	
	$V_{CATCHWET}$	wetland area (acres):	0.34	1.00
		catchment area (acres):	2.00	
		ratio of catchment size to wetland size:	5.88	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	2.00	0.00
		acres of catchment for each curve number:		
		98	2.00	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	91.00	1.00
		distance to 2nd nearest wetland:	156.00	
		distance to 3rd nearest wetland:	243.00	
		distance to 4th nearest wetland:	330.00	
		distance to 5th nearest wetland:	360.00	
		mean distance (feet):	236.00	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.25	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.51	0.17
2. Groundwater Recharge	0.70	0.24
3. Retain Particlulates	0.40	0.14
4. Remove, Convert, and Sequester Dissolved Substances	0.69	0.24
5. Plant Community Resilience and Carbon Cycling	0.59	0.20
6a. Provide Faunal Habitat	0.64	0.22
6b. Provide Faunal Habitat (Alternate Formula)	0.30	0.10

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 3 Reconstruction
Sioux Falls, Minnehaha County
Wetland #6

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	2404.00	0.50
		grassland along perimeter (feet):	1200.00	
		percent continuity:	49.92	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.43
		Point 1:	0.00	
		Point 2:	0.00	
		Point 3:	0.00	
		Point 4:	50.00	
		Point 5:	40.00	
		Point 6:	40.00	
		Point 7:	34.00	
		Point 8:	29.00	
		Point 9:	28.00	
		Point 10:	30.00	
		Point 11:	0.00	
		Point 12:	0.00	
		mean width (feet):	20.92	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.30
		sum of species:	9.00	
		sum of C values:	16.00	
		mean coefficient of conservatism:	1.78	
		FQI:	5.33	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.50	0.50
	V_{SED}	**Eastern Prairie Potholes**		0.94
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	7.00	
	V_{SQI}	SQI scores for 4 samples:		0.03
		sample 1:	1.50	
		sample 2:	1.50	
		sample 3:	2.00	
		sample 4:	1.50	
		average SQI score:	1.63	
	V_{SOM}	**Indirect Measurements**		0.28
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.75	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.60	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	0.05
		present (or constructed) invert elevation:	1397.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1397.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	0.00	
	V_{SUBOUT}	depth of surface drainage invert:		0.25
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	2404.00	1.00
		wetland area (acres):	0.89	
		Shoreline Development Index:	3.44	
	$V_{CATCHWET}$	wetland area (acres):	0.89	0.38
		catchment area (acres):	2.50	
		ratio of catchment size to wetland size:	2.81	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	2.50	0.00
		acres of catchment for each curve number:		
		98	2.50	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	86.00	0.95
		distance to 2nd nearest wetland:	154.00	
		distance to 3rd nearest wetland:	181.00	
		distance to 4th nearest wetland:	450.00	
		distance to 5th nearest wetland:	623.00	
		mean distance (feet):	298.80	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.17	0.15
2. Groundwater Recharge	0.17	0.15
3. Retain Particlulates	0.47	0.42
4. Remove, Convert, and Sequester Dissolved Substances	0.14	0.13
5. Plant Community Resilience and Carbon Cycling	0.14	0.13
6a. Provide Faunal Habitat	0.16	0.14
6b. Provide Faunal Habitat (Alternate Formula)	0.11	0.10

Summary Sheet

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Project Name/Location:

Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County
Wetland #7

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	1045.00	1.00
		grassland along perimeter (feet):	1045.00	
		percent continuity:	100.00	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.90
		Point 1:	39.00	
		Point 2:	35.00	
		Point 3:	32.00	
		Point 4:	50.00	
		Point 5:	50.00	
		Point 6:	50.00	
		Point 7:	50.00	
		Point 8:	50.00	
		Point 9:	50.00	
		Point 10:	43.00	
		Point 11:	35.00	
		Point 12:	50.00	
		mean width (feet):	44.50	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.00
		sum of species:	5.00	
		sum of C values:	1.00	
		mean coefficient of conservatism:	0.20	
		FQI:	0.45	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.75	0.75
	V_{SED}	**Eastern Prairie Potholes**		0.27
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	2.00	
	V_{SQI}	SQI scores for 4 samples:		0.04
		sample 1:	2.00	
		sample 2:	2.00	
		sample 3:	1.50	
		sample 4:	1.50	
		average SQI score:	1.75	
	V_{SOM}	**Indirect Measurements**		0.34
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		average ADI:	6.00	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.79	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	1.00
		present (or constructed) invert elevation:	1401.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1399.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V_{SUBOUT}	depth of surface drainage invert:		1.00
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	1045.00	1.00
		wetland area (acres):	0.30	
		Shoreline Development Index:	2.58	
	$V_{CATCHWET}$	wetland area (acres):	0.30	1.00
		catchment area (acres):	2.20	
		ratio of catchment size to wetland size:	7.33	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	2.20	0.00
		acres of catchment for each curve number:		
		98	2.20	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	85.00	1.00
		distance to 2nd nearest wetland:	145.00	
		distance to 3rd nearest wetland:	191.00	
		distance to 4th nearest wetland:	370.00	
		distance to 5th nearest wetland:	507.00	
		mean distance (feet):	259.60	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.51	0.15
2. Groundwater Recharge	0.73	0.22
3. Retain Particlulates	0.39	0.12
4. Remove, Convert, and Sequester Dissolved Substances	0.68	0.20
5. Plant Community Resilience and Carbon Cycling	0.56	0.17
6a. Provide Faunal Habitat	0.61	0.18
6b. Provide Faunal Habitat (Alternate Formula)	0.21	0.06

Summary Sheet

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Project Name/Location:

Interstate 229 Exit 3 Reconstruction
Sioux Falls, Minnehaha County
Wetland #8

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	569.40	1.00
		grassland along perimeter (feet):	569.40	
		percent continuity:	100.00	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.85
		Point 1:	50.00	
		Point 2:	36.00	
		Point 3:	18.00	
		Point 4:	35.00	
		Point 5:	44.00	
		Point 6:	46.00	
		Point 7:	50.00	
		Point 8:	50.00	
		Point 9:	50.00	
		Point 10:	50.00	
		Point 11:	50.00	
		Point 12:	21.00	
		mean width (feet):	41.67	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.08
		sum of species:	8.00	
		sum of C values:	5.00	
		mean coefficient of conservatism:	0.63	
		FQI:	1.77	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.75	0.75
	V_{SED}	**Eastern Prairie Potholes**		0.27
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	2.00	
	V_{SQI}	SQI scores for 4 samples:		0.04
		sample 1:	1.50	
		sample 2:	1.50	
		sample 3:	2.00	
		sample 4:	2.00	
		average SQI score:	1.75	
	V_{SOM}	**Indirect Measurements**		0.30
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.50	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.68	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	1.00
		present (or constructed) invert elevation:	1402.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1399.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V_{SUBOUT}	depth of surface drainage invert:		0.25
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	569.40	1.00
		wetland area (acres):	0.26	
		Shoreline Development Index:	1.51	
	$V_{CATCHWET}$	wetland area (acres):	0.26	1.00
		catchment area (acres):	2.10	
		ratio of catchment size to wetland size:	8.08	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	2.10	0.00
		acres of catchment for each curve number:		
		98	2.10	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	57.00	1.00
		distance to 2nd nearest wetland:	161.00	
		distance to 3rd nearest wetland:	184.00	
		distance to 4th nearest wetland:	280.00	
		distance to 5th nearest wetland:	289.00	
		mean distance (feet):	194.20	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.25	0.07
2. Groundwater Recharge	0.37	0.10
3. Retain Particlulates	0.32	0.08
4. Remove, Convert, and Sequester Dissolved Substances	0.34	0.09
5. Plant Community Resilience and Carbon Cycling	0.29	0.07
6a. Provide Faunal Habitat	0.31	0.08
6b. Provide Faunal Habitat (Alternate Formula)	0.13	0.03

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:

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	2832.40	1.00
		grassland along perimeter (feet):	2832.40	
		percent continuity:	100.00	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.75
		Point 1:	36.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	39.00	
		Point 5:	24.00	
		Point 6:	36.00	
		Point 7:	42.00	
		Point 8:	39.00	
		Point 9:	30.00	
		Point 10:	50.00	
		Point 11:	31.00	
		Point 12:	18.00	
		mean width (feet):	37.08	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.16
		sum of species:	8.00	
		sum of C values:	9.00	
		mean coefficient of conservatism:	1.13	
		FQI:	3.18	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.50	0.50
	V_{SED}	**Eastern Prairie Potholes**		0.27
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	2.00	
	V_{SQI}	SQI scores for 4 samples:		0.03
		sample 1:	2.00	
		sample 2:	1.50	
		sample 3:	1.50	
		sample 4:	1.50	
		average SQI score:	1.63	
	V_{SOM}	**Indirect Measurements**		0.31
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.25	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.71	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	1.00
		present (or constructed) invert elevation:	1400.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1401.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	1.00	
	V_{SUBOUT}	depth of surface drainage invert:		0.25
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	2832.40	1.00
		wetland area (acres):	0.91	
		Shoreline Development Index:	4.01	
	$V_{CATCHWET}$	wetland area (acres):	0.91	1.00
		catchment area (acres):	7.00	
		ratio of catchment size to wetland size:	7.69	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	7.00	0.00
		acres of catchment for each curve number:		
		98	7.00	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	56.00	0.99
		distance to 2nd nearest wetland:	155.00	
		distance to 3rd nearest wetland:	191.00	
		distance to 4th nearest wetland:	463.00	
		distance to 5th nearest wetland:	470.00	
		mean distance (feet):	267.00	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.25	0.23
2. Groundwater Recharge	0.35	0.32
3. Retain Particlulates	0.33	0.30
4. Remove, Convert, and Sequester Dissolved Substances	0.34	0.31
5. Plant Community Resilience and Carbon Cycling	0.29	0.27
6a. Provide Faunal Habitat	0.32	0.29
6b. Provide Faunal Habitat (Alternate Formula)	0.16	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 3 Reconstruction
Sioux Falls, Minnehaha County
Wetland #10

	Variable	Data entered		Subindex
Vegetation	$V_{GRASSCONT}$	wetland perimeter (feet):	219.30	1.00
		grassland along perimeter (feet):	219.30	
		percent continuity:	100.00	
	$V_{GRASSWIDTH}$	grassland width (feet) at 12 points:		0.99
		Point 1:	50.00	
		Point 2:	50.00	
		Point 3:	50.00	
		Point 4:	50.00	
		Point 5:	50.00	
		Point 6:	50.00	
		Point 7:	35.00	
		Point 8:	50.00	
		Point 9:	50.00	
		Point 10:	50.00	
		Point 11:	50.00	
		Point 12:	50.00	
		mean width (feet):	48.75	
	$V_{VEGCOMP}$	(see vegetation worksheet for species entered)		0.00
		sum of species:	3.00	
		sum of C values:	0.00	
		mean coefficient of conservatism:	0.00	
		FQI:	0.00	

Soil	$V_{RECHARGE}$	Soil Recharge Potential Subindex:	0.75	0.75
	V_{SED}	**Eastern Prairie Potholes**		0.80
		mean depth to B horizon (inches):		
		Western Prairie Potholes		
		mean depth to B horizon (inches):	6.00	
	V_{SQI}	SQI scores for 4 samples:		0.13
		sample 1:	2.50	
		sample 2:	2.50	
		sample 3:	2.50	
		sample 4:	3.00	
		average SQI score:	2.63	
	V_{SOM}	**Indirect Measurements**		0.35
		Litter Depth for 4 samples:		
		sample 1:	0.00	
		sample 2:	0.00	
		sample 3:	0.00	
		sample 4:	0.00	
		Average Litter Depth (inches):	0.00	
		ADI for 4 samples:		
		Sample 1 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 2 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		Sample 3 hue:	10.00	
		value:	2.00	
		chroma:	1.00	
		ADI:	6.00	
		Sample 4 hue:	10.00	
		value:	2.00	
		chroma:	2.00	
		ADI:	7.00	
		average ADI:	6.75	
		Direct Measurements		
		% organic carbon for 0-15cm depth:		
		% organic carbon for 15-30cm depth:		
		mean percentage:		
		% organic carbon:	1.83	

Hydrogeomorphic	V_{OUT}	historic invert elevation in relation to wetland maximum depth:	1395.00	0.05
		present (or constructed) invert elevation:	1396.00	
		elevation of the edge of the historic wetland:	1395.00	
		elevation of a representative deepest portion of the wetland:	1396.00	
		if evaluating pit or fill, enter % volume of pit/fill vs. wetland (ex. 25%=25), otherwise enter 0:	0.00	
		ratio of the constructed elevation to the natural outlet elevation:	0.00	
	V_{SUBOUT}	depth of surface drainage invert:		0.25
		distance from WAA edge:		
		location/spacing of subsurface tile within the WAA:		
	V_{SOURCE}	type & effect of surface alteration(s):		0.50
		% of historic catchment area still contributing runoff:		
		additions of water from other sources:		
		change in wetland regime class?		
	V_{EDGE}	wetland perimeter (feet):	219.30	1.00
		wetland area (acres):	0.04	
		Shoreline Development Index:	1.48	
	$V_{CATCHWET}$	wetland area (acres):	0.04	1.00
		catchment area (acres):	4.38	
		ratio of catchment size to wetland size:	109.50	
Landscape & Landuse	V_{UPUSE}	total acre size of the present day catchment:	4.38	0.00
		acres of catchment for each curve number:		
		98	4.38	
		90		
		79		
		77		
		72		
		75		
		73		
		71		
		72		
		74		
		69		
		79		
		74		
		69		
		61		
		weighted average score for upland land use:	98.00	
	$V_{WETPROX}$	distance to nearest wetland(feet):	100.00	1.00
		distance to 2nd nearest wetland:	101.00	
		distance to 3rd nearest wetland:	198.00	
		distance to 4th nearest wetland:	243.00	
		distance to 5th nearest wetland:	318.00	
		mean distance (feet):	192.00	
	$V_{WETAREA}$	acres of palustrine wetlands within a 1-mile radius:	21.00	0.03
	V_{BASINS}	number of palustrine wetlands within a 1-mile radius:	24.00	0.09
	$V_{HABFRAG}$	miles of roads and linear attributes within a 1-mile radius:	42.50	0.00

Function	FCI	FCU
1. Water Storage	0.16	0.01
2. Groundwater Recharge	0.19	0.01
3. Retain Particlulates	0.53	0.02
4. Remove, Convert, and Sequester Dissolved Substances	0.16	0.01
5. Plant Community Resilience and Carbon Cycling	0.14	0.01
6a. Provide Faunal Habitat	0.15	0.01
6b. Provide Faunal Habitat (Alternate Formula)	0.08	0.00

South Dakota Riverine HGM Model, Version 1.1
Variable Score Field Form

Field Office ----------		Assessment Area ID. (if more than one) -----	11
County ----------	Minnehaha County	Wetland acres (Pre-project) ------	0.63
Date ----------	9/25/2018	Wetland acres (Post-project) ----	
Producer/Landowner	South Dakota DOT	Type of wetland (fringe adjacent to stream	
Yellow flag? (Y/N) ---	If Y, what?	channel, or depressional or linear on flood	
Red flag? (Y/N) -------	If Y, what?	plain)? ---	

Variable	Measurement or Condition Results				Discussion/ Rationale	Variable Score Pre-proj.	Variable Score Post-proj.
V_{hydalt}	Flood plain hydrology (H_{fp})					1.00	0.00
	Alterations present (Y/N)? ----------			N			
	If Y, what? --------						
	(H_{fp}) pre-project ----------			1			
	(H_{fp}) post-project ----------						
	Wetland hydrology (H_w)						
	Alterations present (Y/N)? ----------			N			
	If Y, what? --------						
	(H_w) pre-project ----------			1			
	(H_w) post-project ----------						
V_{source}	Watershed alterations present? (Y/N) -------			Y		0.50	0.00
	If Y, what?	Drain Tiles, culvert, stormwater facilities					
	% of watershed area ----------			80			
V_{topog}	Wetland topography (T_w)					0.50	0.00
	Alterations present? (Y/N) ----------			Y			
	If Y, what? ----------	rip rap					
	% of area (pre) -----	30	(T_w) pre =	1			
	% of area (post) ---		(Tw) post =				
	Flood plain topography (T_{fp})						
	Alterations present? (Y/N) ----------			Y			
	If Y, what? ----------	Rip rap, trails, parks					
	% of area (pre) -----	40	(T_{fp}) pre =	0.5			
	% of area (post) ---		(T_{fp}) post =				
V_{upuse}	Dominant upland uses (3 maximum)					0.57	#DIV/0!
	pre1 Index ----	0.1	% area ---	40			
	pre2 Index ----	1	% area ---	30			
	pre3 Index ----	0.75	% area ---	30			
	post1 Index ---		% area ---				
	post2 Index ---		% area ---				
	post3 Index ---		% area ---				
$V_{detritus}$	Detritus thickness (in.)----------			0			
V_{sed}	Accelerated sediment in wetland? (Y/N) -----			N			
	If Y, evidence? --------						
	Sediment thickness (in.) ----------			0			
V_{som}	Dominant soil texture in upper 18" ----------			Sand Loam			
	Dominant soil color (value) upper 12" --------			10YR 2/2			
V_{soil}	Soil pores observed ----------	Fine					
	Soil structure ---------	Sub Angular Blky					
	Rupture resistance ----------	Firm					
V_{buffer}	Pre-project					0.14	
	Buffer continuity (%) ----------	100					
	Average buffer width (ft.) --------	22					
	Continuity/width rating (B_1) ----------			0.2			
	Buffer condition ------						
	Condition rating (B_2) ----------			0.1			
	Post-project						0.00
	Buffer continuity (%) ----------						
	Average buffer width (ft.) --------						
	Continuity/width rating (B_1) ----------						
	Buffer condition ------						
	Condition rating (B_2) ----------						
V_{denhw}	Woody species present in WAA? (Y/N) ----			Y			
	(If N, score variable based on the herbaceous part.)						
	Herbaceous density (%) ----------			90%			
	Woody density (%, if applicable) ----------			10%			
V_{pratio}	Native species present in wetland (% of total						
	dominants) ----------			100%			
V_{veg}	Vegetative canopy coverage (%) ----------			10			
	Number of vegetative strata present ----------			3			
	Deviation from normal (number of strata believed 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 wetlands adjacent to the channel and that lack this ability, use worksheet 2.

DATE ----------	09/25/18	OWNER/OPERATOR ------	South Dakota DOT
WETLAND ID. ----------	11	ASSESSMENT TYPE -------	Field
OBSERVERS ----------	Rebecca Beduhn	WETLAND TYPE (NWI) ---	R2USC
CONDITIONS ----------		WETLAND TYPE (FSA) ----	
PROJECT NAME ----------	PCN 000S (I-229 Exit 3)	REMARKS --	
PLANNED ACTIVITY ------	Roadway improvements		
YELLOW FLAG (Y/N) -----		RED FLAG (Y/N) ----------	
WETLAND ACRES (EXISTING) ----------	0.63	WETLAND ACRES (PREDICTED) --------	0

FUNCTIONAL INDICES (VARIABLE) SCORING

Variable	Existing	Predicted
V_{hydalt} - Flood Plain/Wetland Hydrology Alterations	1.00	0.00
V_{source} - Watershed Hydrology Alterations	0.50	0.00
V_{topog} - Flood Plain/Wetland Topographic Complexity	0.50	0.00
V_{upuse} - Upland Use	0.57	#DIV/0!
$V_{detritus}$ - Detritus	0.00	0.00
V_{sed} - Sedimentation Within the Wetland	0.00	0.00
V_{som} - Soil Organic Matter	0.00	0.00
V_{soil} - Soil Porosity	0.00	0.00
V_{buffer} - Buffer Condition, Continuity, and Width	0.14	0.00
V_{denhw} - Density of Perennial Herbaceous and Woody Vegetation	0.00	0.00
V_{pratio} - Ratio of Native to Non-Native Plant Species	0.00	0.00
V_{veg} - Vegetative Strata and Canopy Coverage	0.00	0.00
V_{wetuse} - Wetland Use	0.00	0.00

]1

Function	Existing		Predicted	
	FCI	FCU	FCI	FCU
1.0 Storage of Surface Water	0.00	0.00	0.00	0.00
2.0 Velocity Reduction of Surface Water Flow	0.37	0.23	#DIV/0!	#DIV/0!
3.0 Storage and Release of Subsurface Water	0.52	0.33	#DIV/0!	#DIV/0!
4.0 Removal of Imported Elements and Compounds	0.00	0.00	#DIV/0!	#DIV/0!
5.0 Retention of Particulates and Organic Materials	0.16	0.10	#DIV/0!	#DIV/0!
6.0 Organic Carbon Export	0.19	0.12	0.00	0.00
7.0 Maintains Characteristic Plant Community	0.00	0.00	#DIV/0!	#DIV/0!
8.0 Maintains Habitat Structure Within Wetland	0.08	0.05	0.00	0.00
9.0 Maintains Hab. Str. and Connect. Among Wetlands	0.24	0.15	#DIV/0!	#DIV/0!

FUNCTION	CHANGE IN FCU's		MINIMAL EFFECT	JUSTIFICATION OF MINIMAL EFFECT IF THERE IS A NET FUNCTIONAL LOSS OF 10 TO 20 PERCENT
	NUMERICAL	%	(Y or N)	
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	-0.12	-100.00%	No	
7.0	#DIV/0!	#DIV/0!	#DIV/0!	
8.0	-0.05	-100.00%	No	
9.0	#DIV/0!	#DIV/0!	#DIV/0!	

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