Appendix D. Wetland Delineation Report

WETLAND DELINEATION REPORT

Northshore Drive Realignment
North Sioux City, South Dakota

EM 8064(32), PCN 097K
Consultant Project Number 122309-01

UNION COUNTY, SOUTH DAKOTA

SUBMITTED:
September 2023

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1.0 Introduction

1.1 Project Description and Location

The proposed project is located within the City of North Sioux City in Union County, South Dakota (**Figure 1**). The extent of the project follows Northshore Drive from 484th Avenue/Westshore Drive to the I-29 northbound interchange ramp. This project would construct approximately 1 mile of new road on new alignment, a realigned segment of Northshore Drive to create a connection between Interstate 29 (I-29)/Streeter Drive on the east end and Westshore Drive on the west end. The work is being completed in coordination with the South Dakota Department of Transportation (SDDOT) and is federally funded.

The Environmental Study Area (ESA) for this wetland delineation covered areas of potential ground disturbance between the east end and west end of the proposed realignment. The ESA did not include areas east of I-29 or the I-29 interchange ramps. The ESA is shown in **Figure 2**.

1.2 Purpose and Need

The proposed project will improve traffic efficiency and accessibility to driveways by creating a new roadway that bypasses the existing Northshore Drive. This is needed due to future anticipated development in the North Sioux City area that is anticipated to result in increased traffic volumes. The project will also improve pedestrian and bicycle safety and connectivity to Dakota Valley schools by providing an access-controlled route that limits the number of vehicle and pedestrian conflict points.

2.0 Survey Methodology

This delineation was conducted for compliance with Section 404 of the Clean Water Act. Under Section 404, the U.S. Army Corps of Engineers (USACE) regulates impacts to waters of the U.S. (WOUS). Any project that requires the placement of dredged or fill material into WOUS, including wetlands, must obtain a Section 404 permit from USACE before initiating construction. As part of the permit program, the project is also reviewed for compliance with Section 401 Water Quality Certification as implemented by the South Dakota Department of Environment and Natural Resources (SD DENR).

Wetland delineation procedures follow protocols described in the:

1. U.S. Army Corps of Engineers Wetland Delineation Manual (USACE 1987)
2. Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual: Midwest (USACE 2010)

A point method is used to collect at least one sample point per wetland and at least one sample point in the uplands near the upland/wetland interface. Sample points are examined for the presence or absence of the three wetland parameters: hydrophytic vegetation, hydric soils, and wetland hydrology. Sample point data is recorded on USACE Wetland Determination Data Forms (USACE 2010). Delineated wetlands are classified according to the Classification of Wetland and Deepwater Habitats of the United States (Cowardin et al. 1979) based on field conditions. Wetlands are further classified as Depressional, Riverine or Slope Wetland Type based on field observations. Based on SDDOT guidance, a hydrogeomorphic (HGM) analysis was not conducted as part of the wetland delineation. If needed, an HGM analysis would be supplemental to this investigation.

Areas with flowing water or a defined bed and bank are assessed for an ordinary high-water mark (OHWM) when the channels are determined to be wider than 3 feet. The OHWM in a stream channel is generally an area free of vegetation along the bank below the 2-year channel-forming storm event (USACE 2005). Additionally, there is often a visible impression or scour line on the bank that is an indication of the OHWM.

Locations of the wetland/upland boundary, sample points, channels, and other features within the ESA are mapped using a Trimble R1 or similar Global Positioning System (GPS) unit with sub-meter accuracy.

2.1 Hydrology

Direct observations of wetland hydrology indicators (primary and secondary) are noted at each sampling location. One primary indicator is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, two or more secondary indicators are required to conclude that wetland hydrology is present (USACE 2010). The project occurs within the watershed of the Missouri River.

Farmed Wetland Review Methodology

A farmed wetland review was conducted prior to the field survey to determine the presence of potential farmed wetlands within the ESA. The Natural Resource Conservation Service (NRCS) employs the use of remote sensing and a step-by-step process to determine the wetland hydrology associated with a subject area. The use of remote sensing helps to determine which years of aerial photography have signatures that can be correlated with the hydrology of natural wetlands and thus provides independent validation of the wetland hydrology. The following procedure based on NRCS (1997) methodologies was used:

Step 1— Determine available aerial photography and use at least 5 years for the analysis. It is recommended that 5 to 10 years be examined, depending on how many normal years are identified (see **Step 2**).

Step 2— Determine precipitation for the 3 months prior to the date of each aerial image and classify as wet, dry, or normal. Precipitation levels are assigned "wet," "dry," or "normal" designations based on a comparison of actual precipitation in the 3 months preceding the date when the aerial photo was taken and the "30 percent chance" values assigned to the nearest climate station in the associated NRCS climate table that defines normal monthly precipitation, referred to as a WETS table. Actual precipitation values above the "more than 30 percent chance value" are considered "wet." Actual precipitation values between the "less than 30 percent chance value" and the "more than 30 percent chance value" are considered "normal." Actual precipitation values below the "less than 30 percent chance value" are considered "dry." Precipitation classification for each aerial photograph can be found in **Appendix C**.

Step 3— Select aerial photographs from years with normal precipitation levels. If normal precipitation levels occurred in less than five normal years, an equal number of wet and dry years should be used after discarding years where the rainfall was extremely high or low. Review signatures in all available years, while concentrating primarily on normal years.

Step 4—Analyze images for wet signatures such as standing water, stunted vegetation, and vegetation color patterns. If a wet signature appears in a site only in wet years, it is probable that there is no wetland hydrology under normal circumstances. If a wet signature is seen in both wet and dry years, it is probable the site meets the wetland hydrology criteria.

Step 5—Where wet signatures appear in more than half the total number of aerial images, field confirmation is needed to determine whether wetland hydrology and/or hydric soils are present.

2.2 Soils

Where possible, soils are examined by excavating to the depth needed to identify hydric soils or a minimum of 18 inches (USACE 2017). The soil profile is documented for changes in soil horizons, matrix and mottle colors, and redoximorphic features (USDA 2018). Redoximorphic concentrations are the

apparent accumulation of iron and manganese oxides within the soil profile. Redoximorphic depletions are areas of low chroma and high value that indicate the removal of reduced iron from the soil. Concentrations or depletions of iron are usually an indication of periodically, seasonally, or permanently saturated soil conditions. Photographs of each soil sample are taken at each sample point and kept in the project file. Some of the soil types mapped within the ESA contain hydric inclusions which may indicate the potential for wetlands (NRCS 2020). Soil types within the ESA are listed in **Table 1**, along with information on their hydric rating.

Table 1: Dominant Soils Within Survey Area

Map Unit Name	Map Unit Symbol	Approximate Area (acres)	Slope (percent)	Hydric Soil (Y/N)	Associated Data Points
Albaton silty clay	Ac	44.2	0 to 1	Yes	None
Albaton silty clay, depressional	Ad	3.2	0 to 1	Yes	DP-9
Norway loamy sand	Fb	7.4	0 to 2	Yes	DP-10, DP-11
Forney silty clay	Fc	157.3	0 to 1	Yes	DP-1, DP-2, DP-3, DP-4, DP-5
Haynie silt loam	Ha	31.9	0 to 2	Yes	None
Haynie silty clay loam	Hb	15.9	0 to 1	Yes	None
Modale silt loam	Mb	89.9	0 to 2	Yes	DP-6, DP-7, DP-8
Onawa silty clay	Ob	191.1	0 to 1	Yes	DP-14, DP-15
Percival silty clay	Pa	10.9	0 to 1	Yes	DP-12

2.3 Vegetation

Vegetation at each sample plot is identified to the species level, when possible, and recorded. Sample plots for each stratum follow guidelines provided in the Midwest Regional Supplement (USACE 2010). The wetland indicator status of each plant identified is also recorded and used to determine if hydrophytic vegetation is present (USACE 2017). The purpose of the vegetation evaluation is to document plant species present, assess plant assemblage, and differentiate wetland types.

3.0 Delineation Results

The site visit for the project was conducted May 18, 2023 by FHU environmental scientists Kody Unstad and Anna Keenan. A follow up visit for additional data was conducted on July 10, 2023 by Kody Unstad. Field data was collected to: 1) delineate wetlands, and 2) document other water resources.

A total of 7.68 acres of wetland was identified during the delineation. More information for the delineated wetlands and the other Waters of the United State (WOUS) within the survey area can be found in the sections and tables below.

3.1 Delineated Wetlands

3.1.1 Depressional Wetlands

Depressional wetlands were located within depressions or low areas within the I-29 ROW or within old channel scars or oxbows.

Wetland 1 is a 0.11-acre palustrine emergent temporarily flooded (PEMA/C) wetland located in a depression within the ROW northwest of the I-29 interchange at Northshore Drive. Wetland 1 is dominated by Emory's sedge (*Carex emoryi*). The wetland is likely non-jurisdictional due to its location within an isolated depression within the ROW.

Wetland 2 is a 0.16-acre palustrine emergent temporarily flooded (PEMA/C) wetland located in a depression within the ROW west of I-29 and north of Northshore Drive. Wetland 2 is dominated by reed canarygrass (*Phalaris arundiancea*). The wetland is likely non-jurisdictional due to its location within an isolated depression within the ROW.

Wetland 3 is a 0.22-acre farmed wetland that would likely be palustrine emergent temporarily flooded (PEMA/C) were it allowed to revert back to natural vegetation. Wetland 3 is located in a depression east of Westshore Drive and may be within an old channel scar. Despite annual plowing and farming, this area has wetness signatures in a majority of historical aerial photos during the growing season and therefore has wetland hydrology. The wetland is generally unvegetated although it had been planted with corn. The wetland is likely non-jurisdictional due to its location within an isolated depression. Although Wetland 3 is hydrologically connected to a wetland on the west side of Westshore Drive, this wetland also does not appear to have a direct surface connection to a WOUS or other relatively permanent water.

Wetland 4 is a 4.10-acre palustrine emergent temporarily flooded (PEMA/C) wetland located in a depression west of Westshore Drive. Wetland 3 may be in an old channel scar and was likely farmed in the past, but has reverted back to wetland vegeation. The dominant species is reed canarygrass. The wetland is likely non-jurisdictional because it does not appear to have a direct surface connection to a WOUS or other relatively permanent water.

Wetland 5 is a 2.14-acre palustrine emergent temporarily flooded (PEMA/C) wetland located within a

depression north and south of Northshore Drive, west of the intersection with Westshore Drive. Wetland 5 appears to be within an old oxbow scar. The wetland will periodically be flooded with standing water. The dominant species is reed canarygrass. The wetland is likely jurisdictional due to its location a direct surface connection to Mud Lake, an oxbow of the Missouri River that is a relatively permanent water. Wetland 5 is located in the Adams Homestead and State Nature Preserve.

Wetland 6 is a 0.85-acre palustrine emergent forested (PFOA) wetland located within a depression south of Northshore Drive, west of the intersection with Westshore Drive. Wetland 5 appears to be within an old oxbow scar and is directly adjacent to Wetland 5. The wetland will periodically be flooded with standing water. The dominant species is reed canarygrass. The wetland is likely jurisdictional due to its location a direct surface connection to Mud Lake, an oxbow of the Missouri River that is a relatively permanent water. Wetland 6 is located in the Adams Homestead and State Nature Preserve.

Wetland 7 is a 0.107-acre PEMA palustrine emergent temporarily flooded (PEMA/C) wetland located within a constructed drainage path north of the existing Northshore Drive and adjacent to a newly constructed driveway to the school. The wetland is only present within slight depressions dominated by spikerush (*Eleocharis palustris*). Outside of the depressions, most of the drainage path is distinctly upland.

Table 2: Delineated Wetlands Within Survey Area

Feature	Area* (acres)	Latitude (Dec Deg)	Longitude (Dec Deg)	Cowardin Classification	Wetland Type**	Jurisdictional Status***	Associated Wetland Data Point	NWI Identifier
Wetland 1	0.109*	42.550536	-96.510503	PEMA/C	Depression	Likely non-jurisdictional	DP-1	PEM1C
Wetland 2	0.163	42.550336	-96.510585	PEMA/C	Depression	Likely non-jurisdictional	DP-5	PEM1Cx
Wetland 3	0.218	42.5514901	-96.510609	Farmed PEMA/C	Depression	Likely non-jurisdictional	DP-6	None
Wetland 4	4.102	42.553997	-96.512345	PEMA/C	Depression	Likely non-jurisdictional	DP-9	None
Wetland 5	2.135*	42.546276	-96.530047	PEMA/C	Depression	Likely jurisdictional	DP-10	PAB/EM1F
Wetland 6	0.845	42.546251	-96.530443	PFOA	Depression	Likely jurisdictional	DP-11	PAB/EM1F
Wetland 7	0.107*	42.549967	-96.521506	PEMA/C	Depression	Likely non-jurisdictional	DP-14	None
Total Wetland	**7.679**							

*Wetland 1, Wetland 5, and Wetland 7 each consist of multiple areas of wetland. The acreage reported in the table represents the combined acreage for all areas of each wetland.

**Wetland type refers to the HGM classification: depressional, riverine, or slope wetlands.

***Jurisdictional Status assists SDDOT with determining whether or not the feature is under the authority of the USACE.

3.2 Other Waters of the US

No channels or other waters of the US were identified within the wetland environmental study area. McCook Lake is an old oxbow of the Missouri River. Mud Lake, on the extreme western edge of the ESA, is mapped as PAB wetland. However, neither of these resources are anticipated to be impacted by project activities and therefore were not included in the wetland environmental study area. No channels are present within the environmental study area.

4.0 Conclusion

FHU conducted a wetland delineation for the proposed Northshore Drive Realignment project. Conditions were considered normal and appropriate for conducting this delineation.

The wetland delineation identified 7.68 acres of palustrine wetlands within the study area. Most of the identified wetland acreage was located within the Adams Homestead and State Nature Preserve toward the west end of the project; or west of Westshore Drive, within a fallow field that was likely farmed in the past. Other wetlands were located within road ROW, within an actively farmed field, or within a constructed drainage path on school property. There were no channels or other WOUS identified within the wetland study area.

USACE has regulatory authority over Waters of the U.S. including adjacent wetlands. Based on historical and current aerials, NHD, LIDAR, and USGS topographic maps, it is likely that some of the wetlands within the project area are not jurisdictional. These include wetlands that are not relatively permanent waters and lack a continuous surface connection to other relatively permanent waters. However, the wetlands located on the Adams Homestead and State Nature Preserve have a direct connection to Mud Lake, an oxbow of the Missouri River, that likely qualifies as a relatively permanent water. Therefore, these wetlands are likely jurisdictional.

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Delineators Credentials

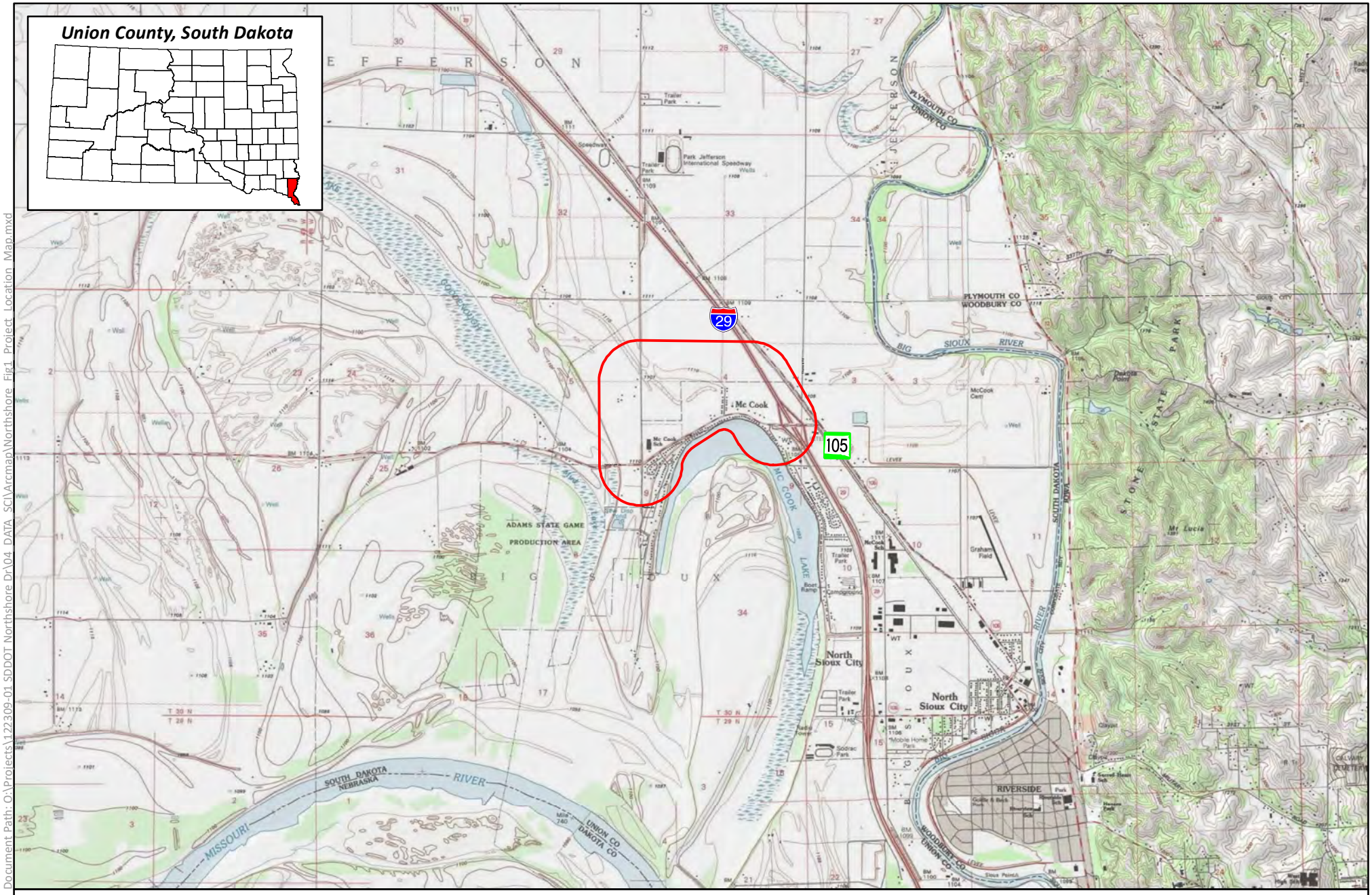
KODY UNSTAD – ENVIRONMENTAL SCIENTIST

Kody is an environmental scientist with more than eighteen years of experience in the natural resources disciplines with an emphasis on life sciences and wildlife biology. He has a broad background in ecology, and has worked in a variety of settings with prairie and wetland restorations, invasive plant management, bird surveys, and insect research. Kody currently conducts threatened and endangered species habitat assessments and surveys, biological assessments, wetland delineations, stream assessments, and a variety of NEPA services. He has been conducting wetland delineations for over a decade. Relevant trainings Kody has taken include Wetland Training Institute (WTI) Wetland Delineation training, WTI Graminoid Identification, WTI Advanced Hydric Soils Training, SDDOT Environmental Procedures Manual Training, and National Highway Institute NEPA and Transportation Training.

ANNA KEENAN – ENVIRONMENTAL SCIENTIST

Anna is a wildlife biologist specializing in avian research and raptor ecology. She is an experienced field biologist with a background in working for federal and state agencies as a wildlife technician, including the US Fish and Wildlife Service, the US Forest Service, and the Nebraska Forest Service. She has 10 years of experience working with a variety of threatened and endangered species from grizzly bears to dragonflies. At FHU, she is involved in wetland delineations, threatened and endangered species surveys, GIS mapping, and data collection. Ms. Keenan possesses an in-depth knowledge of Great Plains ecosystems, wildlife habitat management, and prairie grassland ecology.

Figures



Environmental Study Area

0 NORTH 2 Miles

Figure 1

Project Location Map

Northshore Drive Realignment

Union County, South Dakota

Topographic Source: 2013 national Geographic Society, i-cubed(Esri 2022); USGS 1:24,000 scale metric Topographic Map, Jefferson 1994; Sioux City North 1994.

Document Path: O:\Projects\122309-01 SDDOT Northshore Dr\04 DATA SC\Arcmap\Northshore Fig1 Project Location Map.mxd

NOTE: No NHD flow lines or floodplains are present within the ESA and therefore none are shown..

Wetland ESA
Hydric Soil
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Riverine
Lake
Other

0 NORTH 0.25 Miles

Figure 2
Aerial Photograph Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

Document Path: O:\Projects\122309-01 SDDOT Northshore Dr\04_DATA_SC\Arcmap\Northshore_Fig2_Aerial_Photograph_Map_KMUJun2023.mxd

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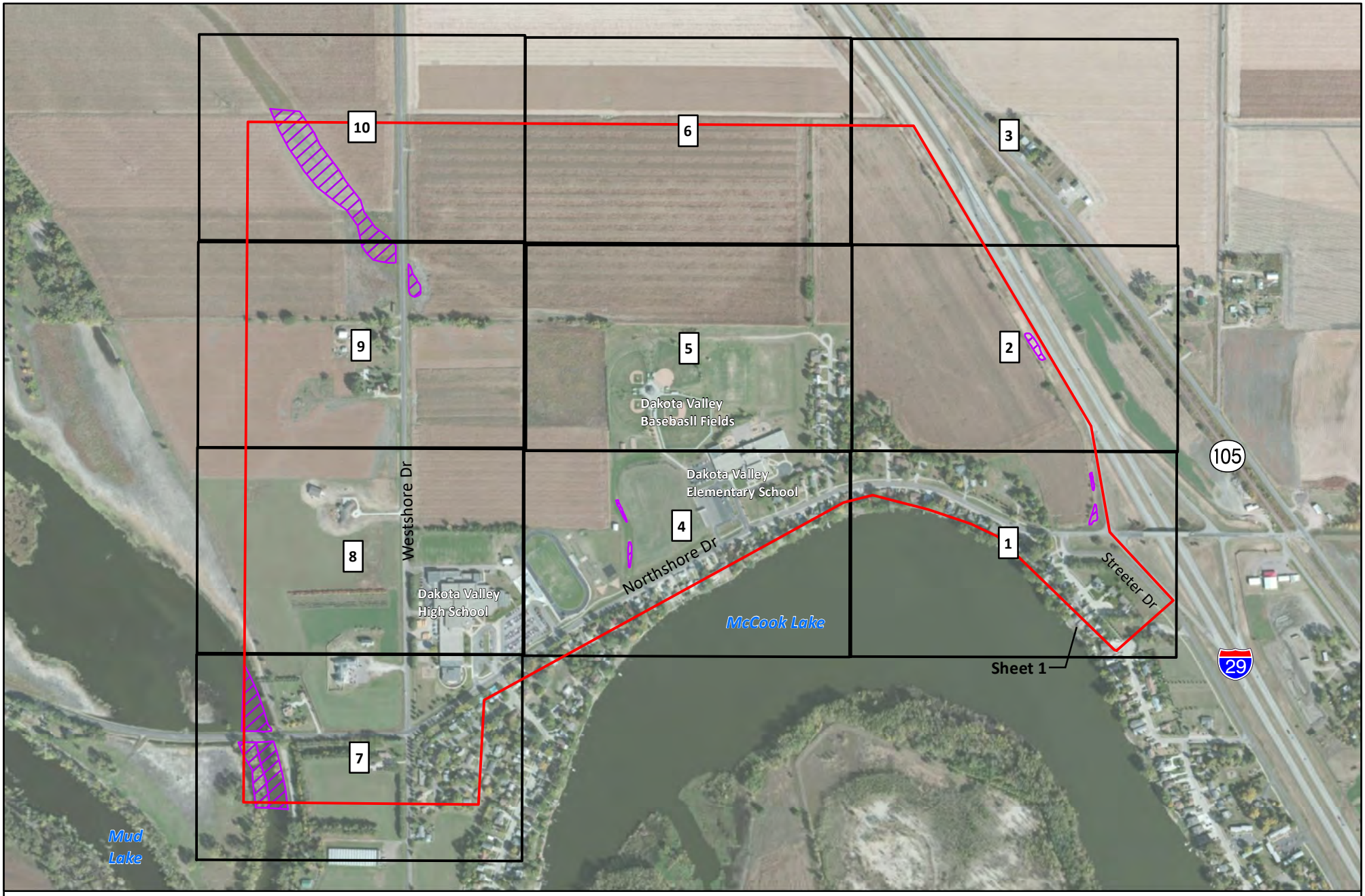
PCN 097K



Wetland Environmental Study Area

Wetland

0 NORTH 0.25 Miles

Figure 3 - Sheet Index

Water/Wetland Delineation Map

Northshore Drive Realignment

Union County, South Dakota

EM 8064(32)
PCN 097K

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 1
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

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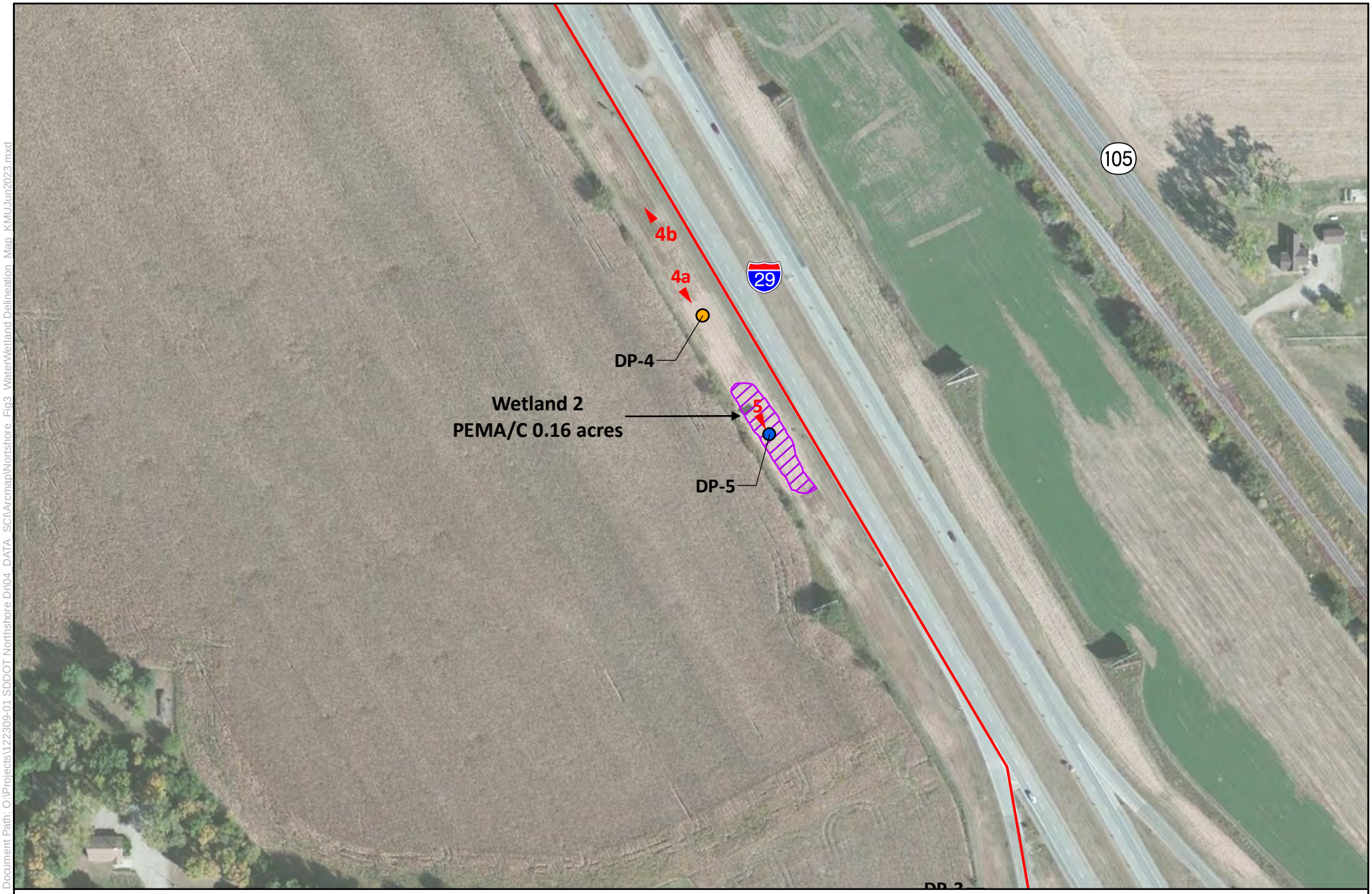

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 2
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

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Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 3
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

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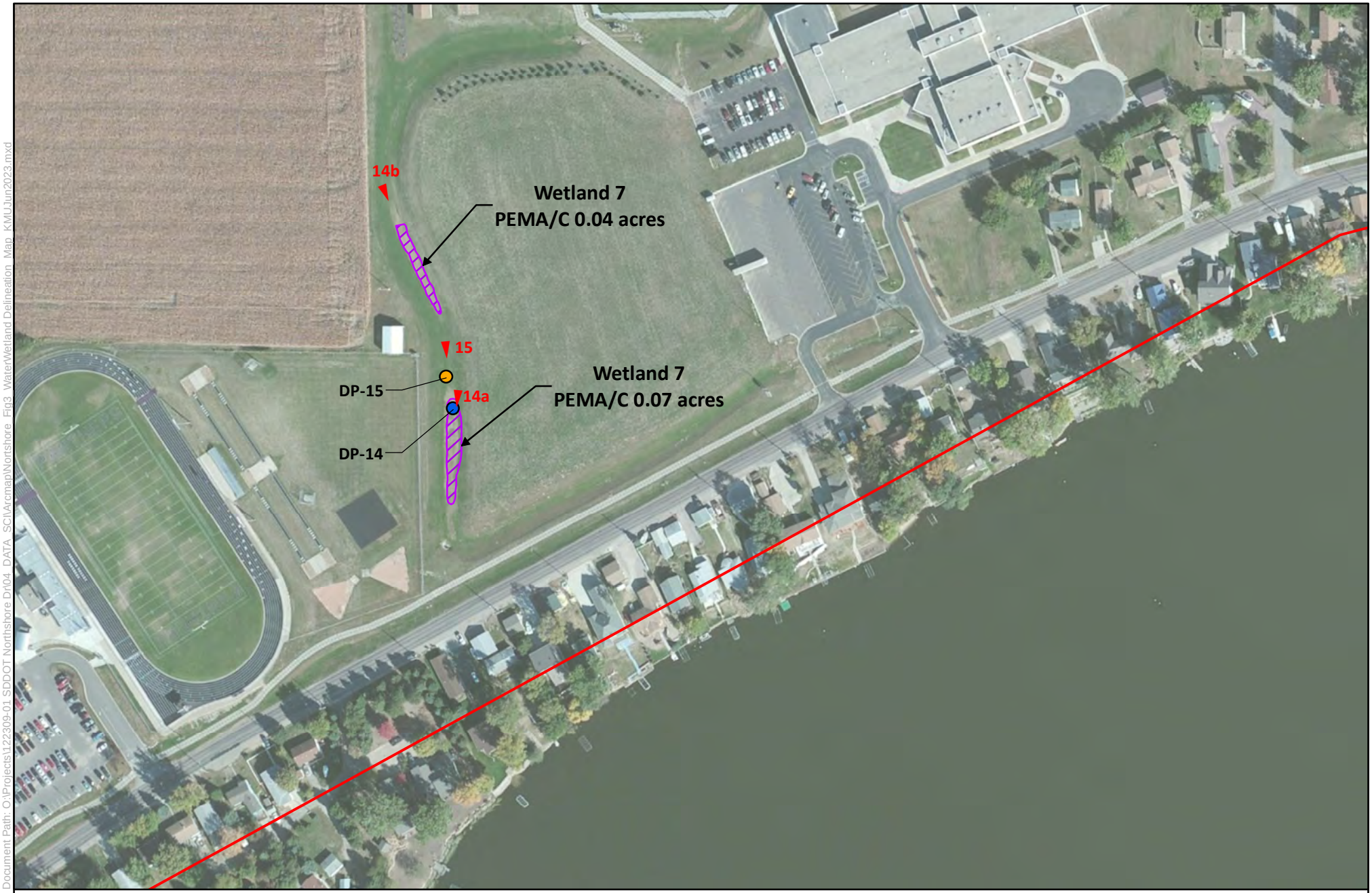

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 4
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

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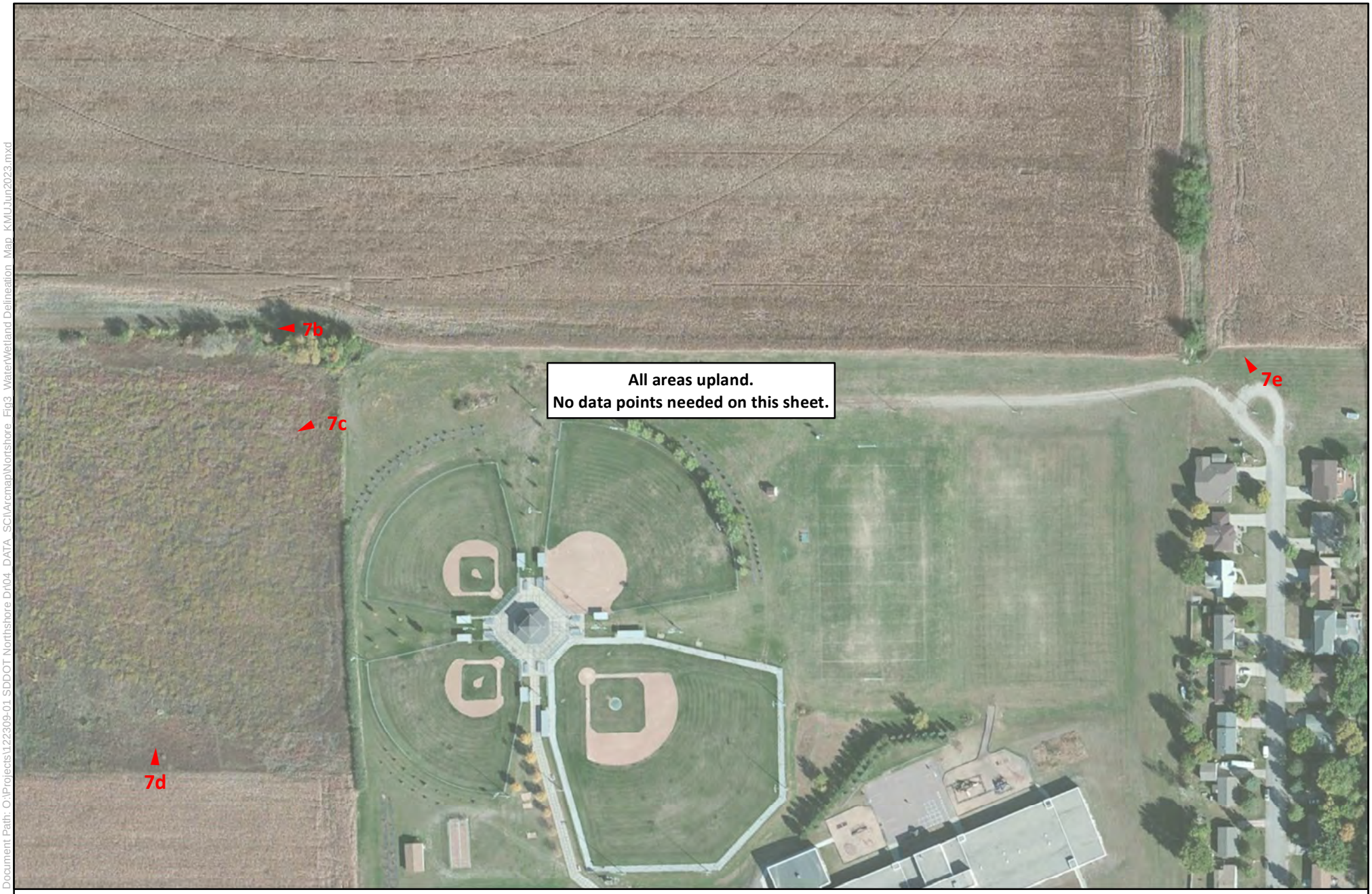

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 5
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

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Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 6
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

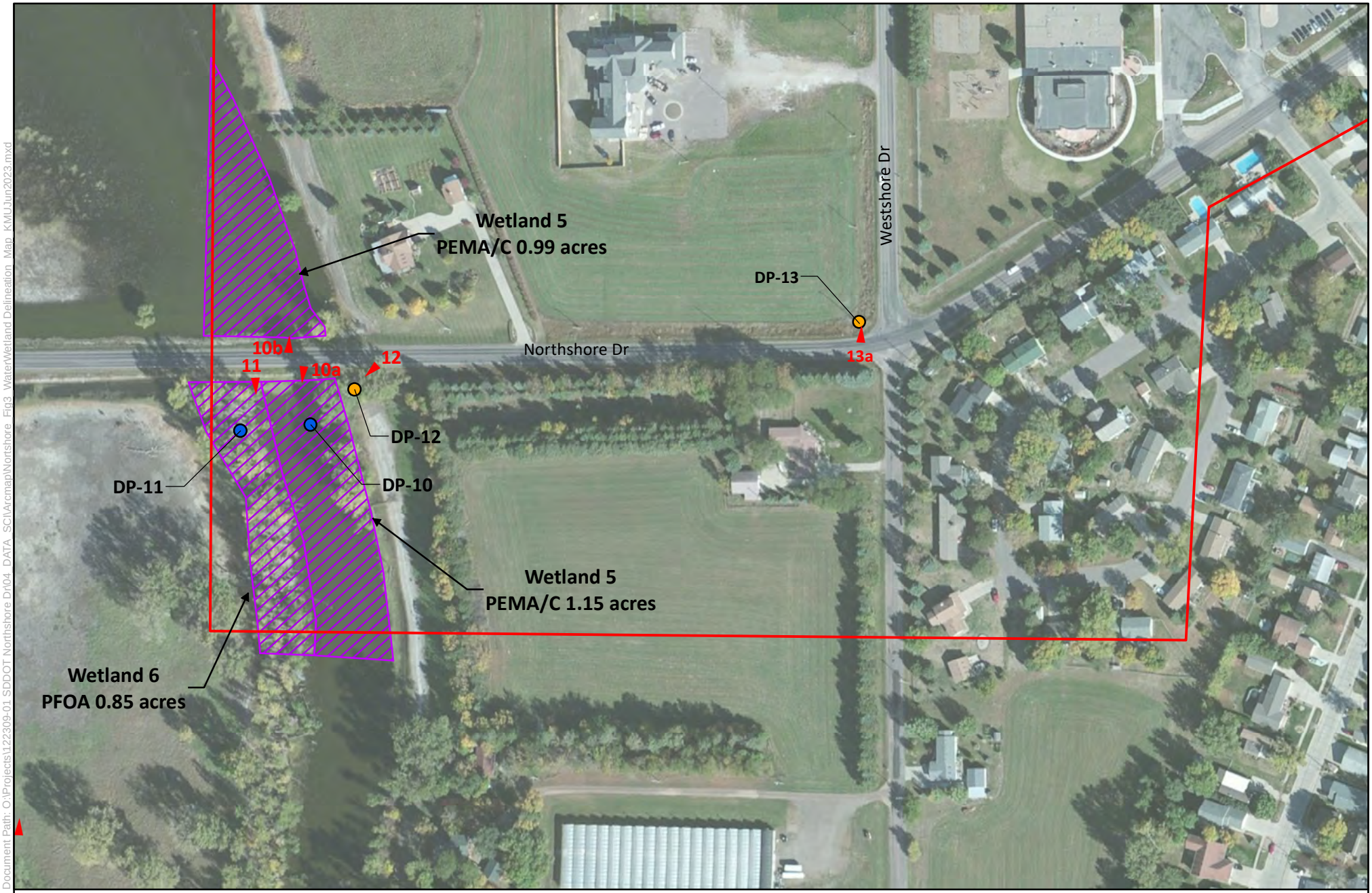

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 7
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

Document Path: O:\Projects\122309-01 SDDOT Northshore Dr\04_DATA_SC\ArcmapNortshore_Fig3_WaterWetland Delineation_Map_KMUJun2023.mxd

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 8
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

Document Path: O:\Projects\122309-01 SDDOT Northshore Dr\04_DATA_SC\Arcmap\Northshore_Fig3_WaterWetland Delineation_Map_KMUJun2023.mxd

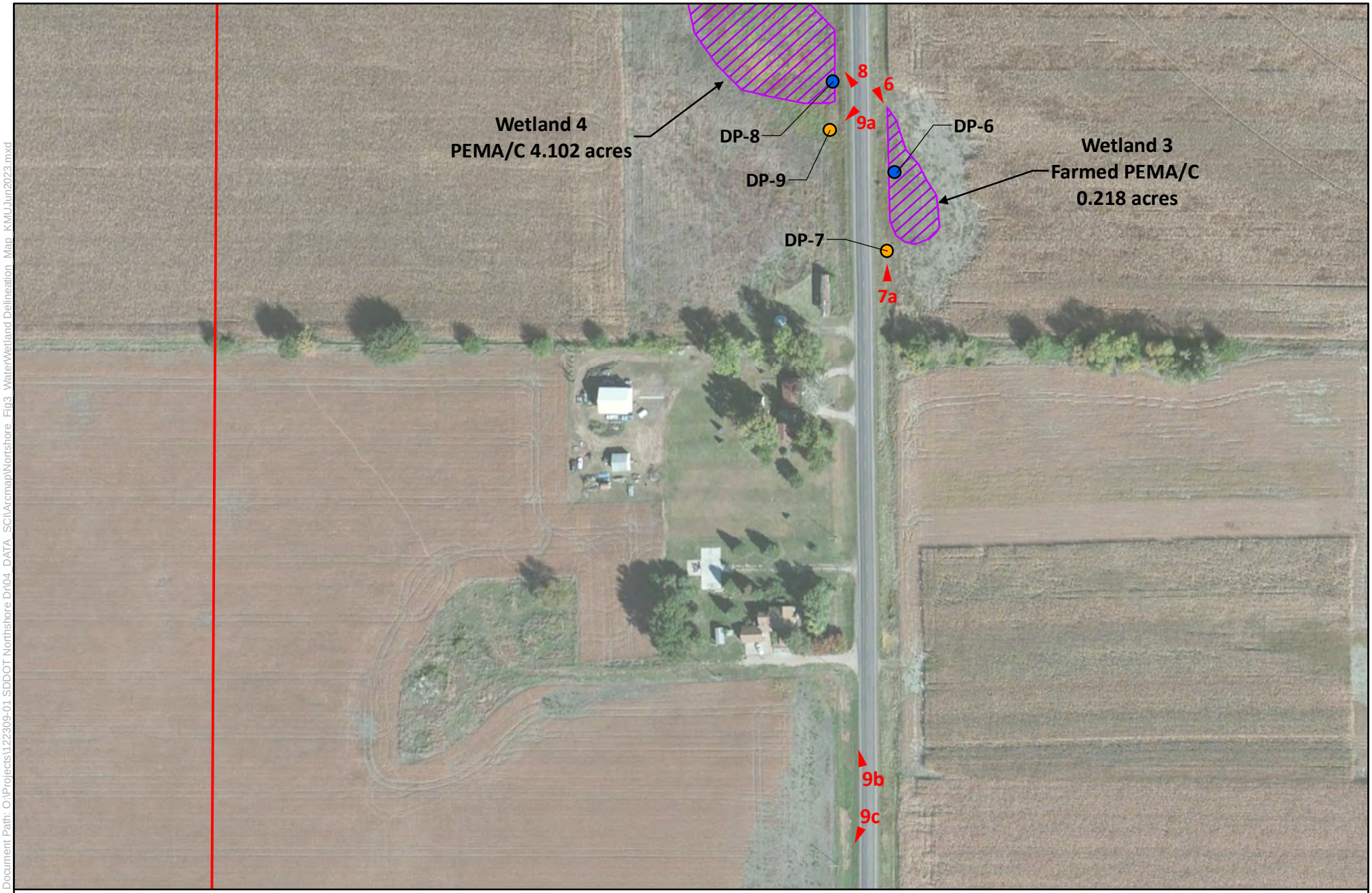

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 9
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

Document Path: O:\Projects\122309-01 SDDOT Northshore Dr\04_DATA_SC\Arcmap\Northshore_Fig3_WaterWetland Delineation_Map_KMUJun2023.mxd

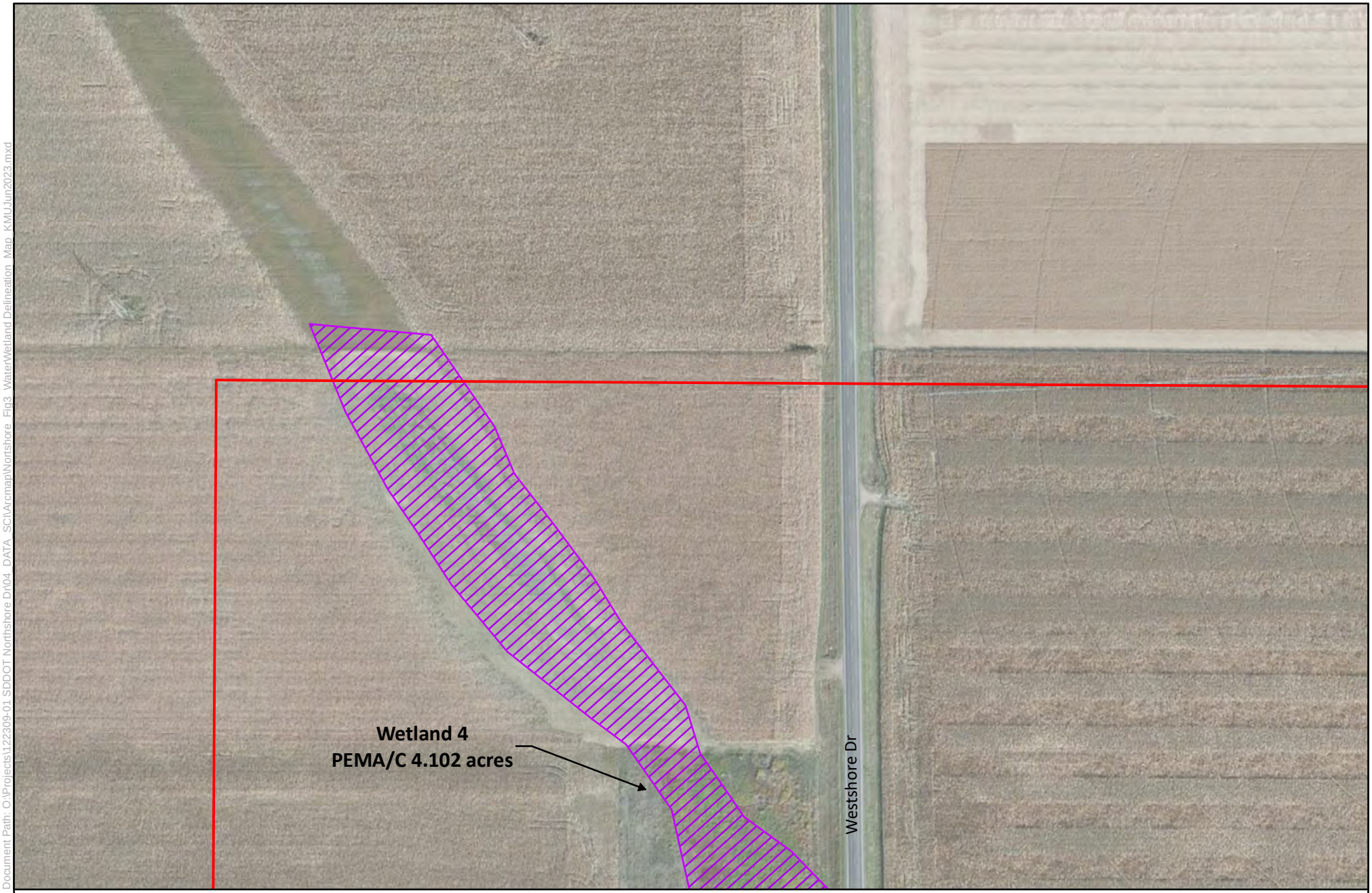

Photo Point
Wetland Data Point
Upland Data Point
Wetland
Wetland Environmental Study Area

0 NORTH 500 Feet

Figure 3 - Sheet 10
Water/Wetland Delineation Map
Northshore Drive Realignment
Union County, South Dakota

Aerial Source: Esri Aerial Imagery Service, 2023

Document Path: O:\Projects\122309-01 SDDOT Northshore Dr\04_DATA_SC\Arcmap\Nortshore_Fig3_WaterWetland Delineation_Map_KMUJun2023.mxd

Appendix A

Site Photographs

Photograph 1. View northeast toward DP-1 and Wetland 1, a PEMA/C wetland located in the ROW northwest of the I-29 interchange at Northshore Drive.

Photograph 2a. View northeast toward DP-2, the upland outpoint for Wetland 1.

Photograph 2b. View southheast toward an upland area at the location of a mapped NWI wetland. The area is maintained parkland and there is no indication of a wetland.

Photograph 2c. View east toward an upland area of maintained right-of-way between Northshore Drive and Streeter Drive. There is no indication of wetlands or channels.

Photograph 3. View east toward DP-3, an upland area in the I-29 ROW. The area was sampled due to the presence of two culverts and marginally hydrophytic vegetation.

Photograph 4a. View southeast toward DP-4, the upland outpoint for Wetland 2. The sample is representative of conditions in much of the I-29 ROW.

Photograph 4b. View northwest toward the upland area documented by DP-4 in the I-29 ditch. The sample is representative of conditions in the I-29 ROW to the northwest.

Photograph 4c. View southwest toward upland agricultural field in which the new alignment would be constructed.

Photograph 5. View southeast toward DP-5 and Wetland 2, located in a slight depression within the I-29 ROW. This area was distinctly wetter than surrounding areas of the ditch documented by DP-4.

Photograph 6. View southeast toward DP-6 and Wetland 3, a farmed PEMA/C wetland. Surface water and soil saturation were present. Planted corn was absent or stunted within the boundaries of the wetland.

Photograph 7a. View north toward DP-7, the upland outpoint for Wetland 3. DP-7 is located in a drier area of the cornfield adjacent to the wetland.

Photograph 7b. View west toward an upland area located at the edge of a cornfield. The treeline is on a raised berm and consists of white mulberry, hackberry, green ash, and wild plum with an understory of smooth brome. Corn does not appear stunted and there is no indication of wetlands.

Photograph 7c. View toward an upland area located in an unmaintained grassland. The field contains upland grass species dominated by smooth brome (*Bromus inermis*) mixed with native species such a big bluestem (*Andropogon gerardii*) and a scattering of young green ash (*Fraxinus pennsylvanica*) trees/shrubs. There is no indication of wetlands.

Photograph 7d. View north toward an upland area located in an unmaintained grassland. The field contains upland grass species dominated by smooth brome (*Bromus inermis*) mixed with native species such a big bluestem (*Andropogon gerardii*) and a scattering of young green ash (*Fraxinus pennsylvanica*) trees/shrubs. There is no indication of wetlands.

Photograph 7e. View northwest toward an upland area located between cornfields. The treeline is on a raised berm and consists of white mulberry with an understory of smooth brome. There is no indication of wetlands.

Photograph 8. View northwest toward DP-8 and Wetland 4, a PEMA/C wetland. Wetland 4 is located on the west side of Westshore Drive.

Photograph 9a. View southwest toward DP-9, the upland outpoint for Wetland 4.

Photograph 9b. View north toward upland areas within the roadside ditch west of Westshore Drive. The ditch is dominated by smooth brome and the adjacent corn is not stunted or stressed.

Photograph 9c. View south toward upland areas within the roadside ditch west of Westshore Drive. The ditch is dominated by smooth brome and the adjacent corn is not stunted or stressed.

Photograph 10a. View southwest toward DP-10 and Wetland 5, a PEMA/C wetland located north and south of Northshore Drive within the Adams Homestead and Nature Preserve.

Photograph 10b. View north toward Wetland 5, a PEMA/C wetland located north and south of Northshore Drive within the Adams Homestead and Nature Preserve.

Photograph 11. View south toward DP-11 and Wetland 6, a PFOA wetland located south of Northshore Drive within the Adams Homestead and Nature Preserve.

Photograph 12. View southwest toward DP-12, the upland outpoint for Wetlands 5 and 6. DP-12 is located at a higher elevation upslope from the adjacent wetlands.

Photograph 13a. View north toward sample point DP-13, an upland area located in the roadside ditch northwest of the intersection of Northshore Drive and Westshore Drive.

Photograph 13a. View west toward the roadside ditch and adjacent upland field dominated by smooth brome (*Bromus inermis*).

Photograph 14a. View south toward sample point DP-14 and Wetland 7, a PEMA/C wetland.

Photograph 14b. View southeast toward an additional area of Wetland 7, a PEMA/C wetland. This area is located at a culvert outlet under a newly constructed school drive.

Photograph 15. View south toward sample point DP-15, the upland outpoint for Wetland 7. There is a distinct change to upland vegetation outside the wetland.

Appendix B

Wetland Determination Data Forms: Midwest Region

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Drive Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-1
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S4, T89N, R48W
Landform (hillslope, terrace, etc.): ditch / depression | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.550536 | Long: -96.510503 | Datum: NAD 83
Soil Map Unit Name: Forney silty clay | NWI classification: PEMC1
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 1

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

Sample documents a PEMA/C wetland located in a depression within the roadiside ditch northwest of the I-29 interchange at Northshore Drive.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1 *Carex emoryi*	65	Y	FACW
2 *Poa pratensis*	15	N	FAC
3 *Helianthus maximiliani*	12	N	UPL
4 *Taraxacum officinale*	8	N	FACU
5 *Cirsium arvense*	2	N	FACU
6			
7			
8			
9			
10			
	102 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	12	x 5 =	60
Column Totals	102 (A)		275 (B)

Prevalence Index = B/A = 2.70

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

The area is marginal wetland habitat mixed with some upland species.

SOIL

Sampling Point: DP-1

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[1]	Loc[2]	Texture	Remarks
0-2	10YR2/2	100					clay loam	
2-5	10YR3/1	50	5YR4/6	50	C	M	clay	prominent redox
5-18	10YR4/2	75	7.5YR6/8	25	C	M	silt loam	prominent redox

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

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

Remarks:

The area is a depression with no outlet.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-2
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S4, T89N, R48W
Landform (hillslope, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 2-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.550336 | Long: -96.510585 | Datum: NAD 83
Soil Map Unit Name: Forney silty clay | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents the upland outpoint for Wetland 1 and is located in the roadside ditch in the right-of-way of Northshore Drive. This area drains toward the wetland which is within a lower depression.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1 *Bromus inermis*	75	Y	FACU
2 *Helianthus maximiliani*	10	N	FACU
3 *Poa pratensis*	8	N	FACU
4 *Rosa arkansana*	2	N	FACU
5 *Taraxacum officinale*	2	N	FACU
6 *Pastinaca sativa*	2	N	UPL
7 *Solidago gigantea*	1	N	FACW
8			
9			
10			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1			
2			
	0 = Total Cover		

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	97	x 4 =	388
UPL species	2	x 5 =	10
Column Totals	100 (A)		400 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

SOIL

Sampling Point: DP-2

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[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/1	100					clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

This higher elevation area in the roadside ditch drains toward a lower depression that contains Wetland 1.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-3
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S4, T89N, R48W
Landform (hillslope, terrace, etc.): drainage path / ditch | Local relief (concave, convex, none): none | Slope (%): 2-4
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.5514901 | Long: -96.510609 | Datum: NAD 83
Soil Map Unit Name: Forney silty clay | NWI classification: none
Are climatic/hydrologic conditions on 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? No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

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

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 documents an upland area located where two culverts drain into the roadside ditch within the I-29 right-of-way. The ditch drains south toward Wetland 1.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1 *Phalaris arundinacea*	55	Y	FACW
2 *Poa pratensis*	20	Y	FAC
3 *Taraxacum officinale*	5	N	FACU
4 *Polygonum coccineum*	3	N	FAC
5 *Ambrosia artemisiifolia*	2	N	FACU
6			
7			
8			
9			
10			
	85 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	23	x 3 =	69
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals	85 (A)		207 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

SOIL

Sampling Point: DP-3

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[1]	Loc[2]	Texture	Remarks
0-16	10YR2/2	100					clay loam	
16-18	10YR2/2	85	7.5YR4/6	15	C	M	clay loam	prominent redox

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

Redox concentrations are present below 16 inches. The soil does not meet any hydric indicators.

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)
- X 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:

The area slopes and drains south in ditch toward Wetland 1. Although water likely flows through the area from the culverts, it does not appear to be retained and therefore does not have geomorphic position.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-4
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S4, T89N, R48W
Landform (hillslope, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.553997 | Long: -96.512345 | Datum: NAD 83
Soil Map Unit Name: Forney silty clay | NWI classification: PEM1Cx
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 is the upland outpoint for Wetland 2 and is located within the right-of-way of I-29.This area is characterized by a broad, flat ditch and was sampled due to the presence of reed canarygrass. It is representative of similar areas within the I-29 ditch.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1 *Phalaris arundinacea*	80	Y	FACW
2 *Carex emoryi*	7	N	OBL
3 *Taraxacum officinale*	3	N	FACU
4 *Helianthus maximiliani*	2	N	UPL
5			
6			
7			
8			
9			
10			
	92 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
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:		Multiply by:	
OBL species	7	x 1 =	7
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	3	x 4 =	12
UPL species	2	x 5 =	10
Column Totals	92 (A)		189 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

SOIL

Sampling Point: DP-4

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[1]	Loc[2]	Texture	Remarks
0-11	10YR3/2	100					clay loam	
11-14	10YR4/2	50					clay loam	
	10YR3/2	50						
14-18	10YR4/2	90	7.5YR5/8	10	C	M	clay loam	prominent redox

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

Redox is present below 14 inches which does not meet any hydric indicators.

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)
- X 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:

The area is characterized by a broad, flat ditch. The area is not a depression and therefore does not have geomorphic position.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-5
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S4, T89N, R48W
Landform (hillslope, terrace, etc.): ditch / depression | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.553491 | #Long: -96.51195 | Datum: NAD 83
Soil Map Unit Name: Ferney silty clay | NWI classification: PEM1Cx
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents a PEMA/C wetland located in a depression within the I-29 right-of-way. The depression is slight, but distinctly wetter than surrounding areas even though there is not a distinct change in vegetation. Substantial redox is present in the soils of this area whereas other areas dominated by reed canarygrass did not have hydric soils.

VEGETATION -- Use scientific names of plants.

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

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1 *Phalaris arundinacea*	90	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	90	= Total Cover	

Woody Vine Stratum (Plot size:)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	90 (A)		180 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

SOIL

Sampling Point: DP-5

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[1]	Loc[2]	Texture	Remarks
0-8	10YR3/1	100					clay	
8-18	10YR5/2	50	7.5YR4/6	50	C	M	silty clay	prominent redox

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

Substantial redox present below 8 inches.

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)
- X 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):	<1
Water Table Present?	Yes		No	X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	X	No		Depth (inches):	0-2

Indicators of Wetland Hydrology Present? Y

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

Remarks:

Surface water and saturation are present at the surface. These are likely from recent rains and therefore not treated as indicators. However, no other areas of the ditch had surface water or saturation, indicating that this a wetter area located in a slight depression. The substantial redox compared to DP-4 supports that this is a consistently wetter area.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Relignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-6
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S4, T89N, R48W
Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.5545781 | Long: -96.526802 | Datum: NAD 83
Soil Map Unit Name: Modale silt loam | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation X, Soil X, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

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

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 documents a farmed PEMA/C wetland located within a row-crop agricultural field east of Westshore Drive. A culvert is present under Westshore Drive connecting to Wetland 4.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1 *Bromus inermis*	4	Y	FACU
2 *Cirsium arvense*	3	Y	FACU
3			
4			
5			
6			
7			
8			
9			
10			
	7 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
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: 2 (B)

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

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals	7 (A)		28 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)
X

[1]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.)

The wetland has been planted in corn. However, corn has not grown within the majority of the wetland or appears stressed/strunted toward the edges of the wetland. A small amount of *Bromus inermis* is present where the wetland transitions into maintained right-of-way. Due to the disturbance from annual plowing, this is being considered problematic hydrophytic vegetation.

SOIL

Sampling Point: DP-6

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[1]	Loc[2]	Texture	Remarks
0-18	10YR4/1	95	10YR4/4	5	C	M	clay	distinct redox

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes	X	No		Depth (inches):	0-3
Water Table Present?	Yes		No	X	Depth (inches):	
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:

See NAIP aerial imagery in Appendix C.

Remarks:

Corn debris is present indicating drainage patterns. Standing water and saturation are present throughout the wetland. However, these appear to be associated with recent precipiation and therefore are not included as indicators. Based on NRCS procedures, this area had wet signatures in more than 50% of aerial imagery and meets the C9 indicator.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-7
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S4, T89N, R48W
Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): none | Slope (%): 2-4
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.554238 | Long: -96.526802 | Datum: NAD 83
Soil Map Unit Name: Modale silt loam | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (If no, explain in Remarks.)
Are Vegetation X, Soil X, or Hydrology ____ significantly disturbed? | Are "Normal Circumstances" present? Yes
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? | (If needed, explain answers in Remarks.)

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

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 is the upland outpoint for Wetland 3, located in area of the cornfield adjacent to the wetland.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1 *Bromus inermis*	3	N	FACU
2 *Cirsium arvense*	3	N	FACU
3			
4			
5			
6			
7			
8			
9			
10			
	6	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column Totals	6 (A)		24 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

Corn planted throughout the area appears healthy, not stunted or stressed. A small of amount of smooth brome and thistle are present within the cornfield where it transitions to maintained right-of-way.

SOIL

Sampling Point: DP-7

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[1]	Loc[2]	Texture	Remarks
0-14	10YR3/2	100					clay loam	
14-40	10YR4/2	65	7.5YR4/6	35	C	M	clay	Prominent redox

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

Redox is present but only below 14" which does not meet any hydric indicators. In contrast, the adjacent farmed wetland (Wetland 3) had redox present starting at the surface.

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:

The area is at a slightly higher elevation than the adjacent wetland and is clearly drier as there is not saturation or surface water and the planted corn is not stunted.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-8
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S5, T89N, R48W
Landform (hillslope, terrace, etc.): depression drainage | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.5547521 | Long: -96.52714 | Datum: NAD 83
Soil Map Unit Name: Albaton silty clay, depressional | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents a PEMA/C wetland within a fallow field. The field may have been farmed in the past, but has since reverted back to wetland.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb Stratum (Plot size: 5' radius)			
1 *Carex elymus*	50	Y	FACW
2 *Phalaris arundinacea*	40	Y	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	90	= Total Cover	
Woody Vine Stratum (Plot size:)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	90 (A)		180 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

SOIL

Sampling Point: DP-8

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[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/1	95	10YR 4/4	5	C	M	clay	distinct redox

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X 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	___	No	X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0-2

Indicators of Wetland Hydrology Present? Y

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

Remarks:

Washed up corn debris is evidence of drainage patterns. Surface saturation is likely due to recent rains and therefore not including as an indicator. However, multiple secondary indicators are present.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-9
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S5, T89N, R48W
Landform (hillslope, terrace, etc.): ditch depression | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.554968 | Long: -96.527095 | Datum: NAD 83
Soil Map Unit Name: Albaton silty clay, depressional | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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.)

Upland outpoint for Wetland 4.

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0 = Total Cover		
Herb Stratum (Plot size: 5' radius)			
1 *Bromus inermis*	75	Y	FACU
2 *Poa pratensis*	20	Y	FAC
3 *Carex elymus*	5	N	FACW
4			
5			
6			
7			
8			
9			
10			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals	100 (A)		370 (B)

Prevalence Index = B/A = 3.70

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

SOIL

Sampling Point: DP-9

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[1]	Loc[2]	Texture	Remarks
0-18	10YR3/2	100					clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

Area is at a higher elevation than adjacent wetland.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: N Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: N Sioux City | State: SD | Sampling Point: DP-10
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S8, T89N, R48W
Landform (hillslope, terrace, etc.): drainage path / depression | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.546276 | Long: -96.530047 | Datum: NAD 83
Soil Map Unit Name: Albaton silty clay, depressional | NWI classification: PAB/EM1F
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents a PEMA/C wetland located north and south of Northshore Drive and connected by a culvert. The wetland is within the Adams Homestead and State Nature Preserve and appears to connect to Mud Lake. Standing water was present throughout the wetland at the time of the site visit.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species	Indicator Status
1 *Salix amygdaloides*	10		FACW
2			
3			
4			
5			
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1 *Phalaris arundinacea*	85	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	85	= Total Cover	

Woody Vine Stratum (Plot size:)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	95 (A)		190 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

Approximately 15% was open water at the time of the site visit.

SOIL

Sampling Point: DP-10

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[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

No soil sample was taken because the sample point meets the USACE 1987 Manual criteria to assume hydric soils. Soils are assumed hydric based on the presence of a plant community where all dominants are OBL or FACW and a primary wetland hydrology indicator (i.e., standing water) is present.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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)
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X 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):	6-12
Water Table Present?	Yes	___	No	___	Depth (inches):	unknown
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:

See NAIP aerial imagery in Appendix C.

Remarks:

Water table is marked as unknown because no soil sample was taken. Inundation was visible on NAIP aerial imagery in 2012 and a small amount in 2020, but was not present in 5 other years of NAIP imagery and therefore B7 was not considered to be an indicator.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-11
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S8, T89N, R48W
Landform (hillslope, terrace, etc.): drainage path/depression | Local relief (concave, convex, none): concave | Slope (%): 0-3
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.546251 | Long: -96.530443 | Datum: NAD 83
Soil Map Unit Name: Norway loamy sand | NWI classification: PAB/EM1F
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents a PFOA wetland that runs parallel to Wetland 5, an adjacent PEMA/C wetland.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Salix amygdaloides*	40	Y	FACW
2 *Populus deltoides*	30	Y	FAC
3			
4			
5			
	70	= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1 *Phalaris arundinacea*	100	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	140	x 2 =	280
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	170 (A)		370 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

SOIL

Sampling Point: DP-11

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[1]	Loc[2]	Texture	Remarks

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

No soil sample was taken because the sample point meets the USACE 1987 Manual criteria to assume hydric soils. Soils are assumed hydric based on the presence of a plant community where all dominants are OBL or FACW and a primary wetland hydrology indicator (i.e., standing water) is present.

HYDROLOGY

Wetland Hydrology Indicators:

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

- X 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)
- X 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):	6-12
Water Table Present?	Yes		No		Depth (inches):	unk
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:

See NAIP aerial imagery in Appendix C.

Remarks:

This wetland is directly adjacent and essentially a continuation of Wetland 5, but is at a slightly higher elevation. Water table is marked as unknown because no soil sample was taken.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-12
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S8, T89N, R48W
Landform (hillslope, terrace, etc.): sideslope | Local relief (concave, convex, none): convex | Slope (%): 5-8
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.554968 | Long: -96.527095 | Datum: NAD 83
Soil Map Unit Name: Percival silty clay | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents the outpoint for Wetlands 4 and 5.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Populus deltoides*	60	Y	FAC
2			
3			
4			
5			
	60	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1 *Bromus inermis*	100	Y	FACU
2			
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size:)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals	160 (A)		580 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

Cottonwoods with an understory of smooth brome.

SOIL

Sampling Point: DP-12

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[1]	Loc[2]	Texture	Remarks
0-18	10YR3/2	100					loam	gravel

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

This area slopes and drains toward the adjacent wetlands.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 5/18/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-13
Investigator(s): Kody Unstad, Anna Keenan | Section, Township, Range: S8, T89N, R48W
Landform (hillslope, terrace, etc.): roadside ditch | Local relief (concave, convex, none): concave | Slope (%): 2-5
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.546728 | Long: -96.526919 | Datum: NAD 83
Soil Map Unit Name: Onawa silty clay | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents an upland point located in the roadside ditch northwest of the intersection of Northshore Drive and Westshore Drive.

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:)			
1	*Cornus drummondii*	5	Y	FAC
2	*Rhus glabra*	3	Y	UPL
3	*Morus alba*	1	N	FAC
4				
5				
		9	= Total Cover	
	Herb Stratum (Plot size: 5' radius)			
1	*Polygonum coccineum*	30	Y	FAC
2	*Phalaris arundinacea*	20	Y	FACW
3	*Bromus inermis*	15	Y	FACU
4	*Helianthus grosseserratus*	15	Y	FACW
5	*Pastinaca sativa*	15	Y	UPL
6	*Convolvulus arvensis*	10	N	UPL
7	*Asclepias syriaca*	5	N	FACU
8				
9				
10				
		110	= Total Cover	
	Woody Vine Stratum (Plot size:)			
1				
2				
		0	= Total Cover	

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 7 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 57.14% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	36	x 3 =	108
FACU species	20	x 4 =	80
UPL species	28	x 5 =	140
Column Totals	119 (A)		398 (B)

Prevalence Index = B/A = 3.34

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

A mix of hydrophytic and upland vegetation is present. But overall, vegetation is not hydrophytic. The determination of FAC for P. coccineum is based on Larson (1993) and Kaul et al. (2006).

SOIL

Sampling Point: DP-13

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[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					silt loam	
10-18	10YR 3/2	100					silty clay loam	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ 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[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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:

No redox present.

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:

No culverted outlet is present and there may be a slight depression within the ditch at this location.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 7/10/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-14
Investigator(s): Kody Unstad | Section, Township, Range: S8, T89N, R48W
Landform (hillslope, terrace, etc.): drainage path | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.549967 | Long: -96.521506 | Datum: NAD 83
Soil Map Unit Name: Onawa silty clay | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents a PEMA/C wetland located within a constructed drainage path adjacent to a school drive.

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: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1 *Eleocharis palustris*	95	Y	OBL
2 *Hordeum jubatum*	5	N	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
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: 1 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 200.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL species	95	x 1 =	95
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals	100 (A)		110 (B)

Prevalence Index = B/A = 1.10

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

Some cattails are present near the culvert outlet at the north end of the wetland, but not within the sample area. There are distinct patches of spikerush within the drainage path.

SOIL

Sampling Point: DP-14

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[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					silty clay loam	
3-18	2.5Y 4/2	95	7.5YR 5/8	5	C	M	silt	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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)
- ___ 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):	1
Water Table Present?	Yes	X	No	___	Depth (inches):	10
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:

Slight depressions within the drainage path are distinctly wetter than surrounding areas within the drainage path.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: Northshore Road Realignment | City/County: North Sioux City | Sampling Date: 7/10/2023
Applicant/Owner: North Sioux City | State: SD | Sampling Point: DP-15
Investigator(s): Kody Unstad | Section, Township, Range: S8, T89N, R48W
Landform (hillslope, terrace, etc.): drainage path | Local relief (concave, convex, none): concave | Slope (%): 0-2
Subregion (LRR): M (Central Feed Grains & Livestock) | Lat: 42.550095 | Long: -96.521541 | Datum: NAD 83
Soil Map Unit Name: Onawa silty clay | NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of the year? Y (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 answers in Remarks.)

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

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 documents the upland outpoint for Wetland 6, located within the same drainage path.

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: ____)			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb Stratum (Plot size: 5' radius)			
1 *Poa pratensis*	70	Y	FAC
2 *Trifolium repens*	25	Y	FACU
3 *Plantago rugelii*	5	N	FAC
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody Vine Stratum (Plot size: ____)			
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:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals	100 (A)		325 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤3.0[1]
____ 4 - Morphological Adaptations[1] (provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]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.)

Outside of the Wetland 6 spike rush patches documented by S-14, there is a distinct change to typical lawn vegetation within the drainage path.

SOIL

Sampling Point: DP-15

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[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					silty clay loam	
10-18	2.5Y 4/2	95	7.5YR 4/6	5	C	M	silt	

[1]Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. [2]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)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- 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:

The sample is located in the same drainage path as Wetland 6, but is distinctly drier than the wetland areas which appear to be in slight depressions.

Appendix C

Aerial Imagery and Rainfall Documentation

2022-08-30. Dry conditions. https://datagateway.nrcs.usda.gov/GDGHome_DirectDownLoad.aspx; Weather Station = Sioux City AP, IA

Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition Value*	Month Weight Value	Product of Columns
Jul	1.77	3.22	3.93	1.86	N	2	3	6
Jun	2.36	3.78	4.57	1.15	D	1	2	2
May	2.71	3.76	4.53	2.18	D	1	1	1
							Sum**	9

*For condition value: Dry = 1; Normal = 2; Wet = 3.

**For sum: 6-9 = Dry, 10-15 = Normal, 15-18 = Wet.

2021-08-21. Dry conditions. 2021 aerial imagery was reviewed, but not included in analysis to have equal number of wet and dry years. https://datagateway.nrcs.usda.gov/GDGHome_DirectDownLoad.aspx; Weather Station = Sioux City AP, IA

Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition Value*	Month Weight Value	Product of Columns
Jul	1.77	3.22	3.93	1.43	D	1	3	3
Jun	2.36	3.78	4.57	1.31	D	1	2	2
May	2.71	3.76	4.53	2.77	N	2	1	2
							Sum**	7

*For condition value: Dry = 1; Normal = 2; Wet = 3.

**For sum: 6-9 = Dry, 10-15 = Normal, 15-18 = Wet.

2020-08-11. Normal conditions. https://datagateway.nrcs.usda.gov/GDGHome_DirectDownLoad.aspx; Weather Station = Sioux City AP, IA

Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition Value*	Month Weight Value	Product of Columns
Jul	1.77	3.22	3.93	4.15	W	3	3	9
Jun	2.36	3.78	4.57	1.56	D	1	2	2
May	2.71	3.76	4.53	2.56	D	1	1	1
							Sum**	12

*For condition value: Dry = 1; Normal = 2; Wet = 3.

**For sum: 6-9 = Dry, 10-15 = Normal, 15-18 = Wet.

2018-09-11. Wet conditions. https://datagateway.nrcs.usda.gov/GDGHome_DirectDownLoad.aspx; Weather Station = Sioux City AP, IA

Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition Value*	Month Weight Value	Product of Columns
Aug	1.9	3.43	4.18	4.51	W	3	3	9
Jul	1.77	3.22	2.30	1.31	N	2	2	4
Jun	2.36	3.78	4.57	8.65	W	3	1	3
							Sum**	16

*For condition value: Dry = 1; Normal = 2; Wet = 3.

**For sum: 6-9 = Dry, 10-15 = Normal, 15-18 = Wet.

2016-09-11. Normal conditions. https://datagateway.nrcs.usda.gov/GDGHome_DirectDownLoad.aspx; Weather Station = Sioux City AP, IA

Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition Value*	Month Weight Value	Product of Columns
Aug	1.9	3.43	4.18	5.05	W	3	3	9
Jul	1.77	3.22	2.30	2.19	N	2	2	4
Jun	2.36	3.78	4.57	1.38	D	1	1	1
							Sum**	14

*For condition value: Dry = 1; Normal = 2; Wet = 3.

**For sum: 6-9 = Dry, 10-15 = Normal, 15-18 = Wet.

2014-10-07. Normal conditions. https://datagateway.nrcs.usda.gov/GDGHome_DirectDownLoad.aspx; Weather Station = Sioux City AP, IA

Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition Value*	Month Weight Value	Product of Columns
Sep	1.54	2.68	3.27	2.79	N	2	3	6
Aug	1.9	3.43	4.18	10.12	W	3	2	6
Jul	1.77	3.22	2.30	3.61	N	2	1	2
							Sum**	14

*For condition value: Dry = 1; Normal = 2; Wet = 3.

**For sum: 6-9 = Dry, 10-15 = Normal, 15-18 = Wet.

2012-07-14. Normal conditions. https://datagateway.nrcs.usda.gov/GDGHome_DirectDownLoad.aspx; Weather Station = Sioux City AP, IA

Month	3 yrs in 10 less then	Normal	3 yrs in 10 more then	Rain fall	Condition dry, wet normal	Condition Value*	Month Weight Value	Product of Columns
Jun	2.36	3.78	4.57	2.16	D	1	3	3
May	2.71	3.76	4.43	6.20	W	3	2	6
Apr	1.78	2.86	3.45	4.82	W	3	1	3
							Sum**	12

*For condition value: Dry = 1; Normal = 2; Wet = 3.

**For sum: 6-9 = Dry, 10-15 = Normal, 15-18 = Wet.