Wetland Delineation Report

Minnesota Department of Transportation

Twin Ports Interchange - I-35/535/U.S. 53
S.P. No. 6982-322, 6980-60

Duluth, St. Louis County, Minnesota

MNT01 138031 | May 2018

SEH

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PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name: Matt Meyer, Environmental Coordinator/MnDOT District 1
Mailing Address: 1123 Mesaba Avenue, Duluth, MN 55811
Phone: 218-725-2758
E-mail Address: Matthew.M.Meyer@state.mn.us

Authorized Contact (do not complete if same as above):
Mailing Address:
Phone:
E-mail Address:

Agent Name: Allyz Kramer, PWS, CWD | Sr. Biologist – SEH
Mailing Address: 418 W. Superior Street, Suite 200, Duluth, MN 55802
Phone: 218-279-3011
E-mail Address: akramer@sehinc.com

PART TWO: Site Location Information

County: St. Louis **City/Township: Duluth**
Parcel ID and/or Address:
Legal Description (Section, Township, Range): Sect. 33, 34, T50N, R14W; Sect 3, 4, 5 T49N, R14W
Lat/Long (decimal degrees):
Attach a map showing the location of the site in relation to local streets, roads, highways.
Approximate size of site (acres) or if a linear project, length (feet): 108 acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted ***prior to*** this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

See Section 1.0 of attached Wetland Delineation Report

PART FOUR: Aquatic Resource Impact[1] Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	**Aquatic Resource Type** (wetland, lake, tributary etc.)	**Type of Impact** (fill, excavate, drain, or remove vegetation)	**Duration of Impact** Permanent (P) or Temporary (T)[1]	**Size of Impact**[2]	**Overall Size of Aquatic Resource** [3]	**Existing Plant Community Type(s)** in Impact Area[4]	**County, Major Watershed #, and Bank Service Area #** of Impact Area[5]

[1]If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".
[2]Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).
[3]This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".
[4]Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.
[5]Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

Not Applicable

PART FIVE: Applicant Signature

☐ Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: Matthew M Myers Date: 6/6/2018

I hereby authorize Allyz Kramer - SEH to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

[1] **The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.**

Attachment A
Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

☒ **Wetland Type Confirmation**

☒ **Delineation Concurrence**. Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

☐ **Preliminary Jurisdictional Determination**. A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

☐ **Approved Jurisdictional Determination**. An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).
http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx

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May 18, 2018

RE: Twin Ports Interchange - I-35/535/U.S. 53
Duluth, St. Louis County, Minnesota
Wetland Delineation Report
SEH No. MNT01 138031 4.00

Mr. Matt Meyer, CWD | Environmental Coordinator
MN Dept. of Transportation - District 1
1123 Mesaba Ave.
Duluth, MN 55811

Dear Mr. Meyer

Please find enclosed the Wetland Delineation Report for the Twin Ports Interchange project in the City of Duluth, Minnesota. This Report presents the results of the field delineation for wetlands performed on July 28-29th, August 3rd and August 18th, 2016, completed by Kyle Hanson (CWD #1273), and Erin Johnson (CWD-IT). The first of two additional areas were investigated for wetlands on October 14th, 2016 by Erin Johnson, and field checked by Erin Johnson and Kyle Hanson on October 17th, 2016. The second additional area was investigated for wetlands on October 30th, 2017 by Kyle Hanson. Aquatic resources were investigated on July 28th, 2016 (Miller Creek), August 3rd, 2016 (Coffee Creek), and April 6th The field delineation included on-site identification, classification, and boundary determinations of wetland basins following the 1987 U.S. Army Corps of Engineers *Wetlands Delineation Manual* and *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region* (USACE 2012).

Upon your review of this report, we will request a field review of the site to approve the field delineation for wetlands. Additional copies of this report have been forwarded to the MnDOT Wetland Conservation Act Administrator (Sarma Straumanis) and the U.S. Army Corps of Engineers Transportation Project Liaison (Ben Orne) to expedite review. We will work with you and the agency reviewers to schedule a field review as soon as possible this 2018 growing season so that any boundary adjustments can be made immediately and this report can be finalized.

Thank you for the opportunity to provide wetland services to the Minnesota Department of Transportation. Short Elliott Hendrickson Inc. (SEH®) is pleased to provide you with this information for your records and review. If you have any questions, please contact Allyz Kramer directly at 218.279.3011 or via e-mail at akramer@sehinc.com.

Sincerely,

Allyz Kramer, PWS, CWD | Principal
Sr. Biologist | Project Manager

Deric Deuschle, CWD | Associate
Sr. Biologist | QA/QC Manager

c: Sarma Straumanis, CWD, PWS | MnDOT WCA Administrator
Ben Orne | USACE Regulatory Project Manager, Transportation Projects Liaison

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Wetland Delineation Report

Twin Ports Interchange - I-35/535/U.S. 53

Prepared for:
Minnesota Department of Transportation – District 1
1123 Mesaba Ave.
Duluth, MN 55811

Prepared by:
Short Elliott Hendrickson Inc.
418 West Superior Street
Duluth, MN 55802-1512
218.279.3000

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

The field delineation was completed by SEH Biologists, Kyle Hanson and Erin Johnson. The methodology meets the standards and criteria described in the manual, and conforms to the applicable standards and regulations in force at the time the fieldwork was completed. The results reflect conditions present at the time of the delineation.

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

Prepared by: _____ May 18, 2018
Kyle Hanson, Aquatic Biologist — Date
Minnesota Certified Wetland Delineator, No. 1273
Professional Wetland Scientist, No. 2848

Reviewed by: _____ May 18, 2018
Allyz Kramer, CWD, PWS | Sr. Biologist — Date
Minnesota Certified Wetland Delineator, No. 1023
Professional Wetland Scientist, No. 1884

Reviewed by: _____ May 18, 2018
Deric Deuschle, CWD | QA/QC Manager — Date
Minnesota Certified Wetland Delineator, No. 1009

Wetland Delineation Review Checklist for Minnesota

This document is intended to provide those reviewing wetland delineations for regulatory purposes with a checklist of basic components that should be considered when reviewing wetland delineations, and to serve as a useful guide for those conducting delineations and preparing reports. This checklist is for most routine wetland delineations in Minnesota. Other report components and review considerations may be applicable depending on the characteristics of the site being evaluated. Users should consult the 1987 Corps of Engineers Wetland Delineation Manual, applicable regional supplement and Board of Water & Soil Resources guidance documents for more specific information and explanations.

Basic Report Components (check to make sure these are in the report)

- ☒ Site location map
- ☒ National Wetland Inventory (NWI) map
- ☒ Soil survey map (use web soil survey at http://websoilsurvey.nrcs.usda.gov/app/)
- ☒ MN DNR Protected Waters Inventory Map
- ☒ Recent air photo with sampling point locations, site boundary, and wetland boundaries
- ☒ Survey map (optional depending on local requirements)
- ☒ Wetland delineation data forms corresponding to indicated sampling point locations

Report Contents (review report and data forms for these elements)

General

- ☒ Circular 39 wetland types and Eggers & Reed plant community types identified for each wetland
- ☒ Vegetation and landscape position of all adjacent upland areas identified and described
- ☒ Wetland-upland transitions described for each wetland in terms of vegetation, soils, and hydrology
- ☒ Methodology for identifying potential wetland areas described
- ☒ All potential wetlands from hydric soil, NWI, and other mapping sources adequately investigated and described in the report.

Wetland Delineation Data Form Review:

- ☒ “Normal circumstances”, “disturbed” and “problematic” designations properly identified
- ☒ Vegetation classified into appropriate layers (herb, shrub, tree, vine)
- ☒ Scientific name and indicator status identified
- ☒ 50/20 dominance rule applied properly for each vegetation layer
- ☒ Soil pits deep enough to document presence/absence of all potential hydric soil indicators
- ☒ Soil layers properly described in terms of texture, color, and redox features
- ☒ Hydric soil indicators properly applied
- ☒ Hydrology indicators properly applied (see notes below)
- ☒ Delineation flag spacing appropriate (see notes below)

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Wetland Delineation Review Checklist for Minnesota

(continued)

Notes:

Sampling Transects – Typically, sampling transects should be located at each major upland/wetland transition area on the site. This may result in several transects on a single wetland or a single transect for two similar wetlands depending on the characteristics of the site. Delineators should carefully choose transect locations that are representative of the major wetland-upland transitions. More standardized approaches for establishing sampling transects are detailed in the 87 Manual and its regional supplements.

Vegetation Sample Plot Sizes – Recommended sample plot sizes for vegetation are stated in the regional supplements. In general, sizes are 5 ft. radius for herbaceous layer, 15 ft. for shrub layer, and 30 ft. for tree and woody vine layers.

Soil Sample Point Locations – Soil sample points should be indicative of the landscape position of the upland, wetland, or transition area being sample. For example, soil sample pits located in a micro- depression or on a small hill in an otherwise uniform topographic area should not be considered representative.

Delineation Flag Spacing – The spacing of flags to delineate a wetland should be in accordance with the implied precision of the delineation. Wetlands with abrupt topographic and/or vegetative changes allow for more precise delineation and could result in spacing as low as 25 to 50 feet between flags. Wetlands with subtle topographic changes into upland and significant overlap of wetland and upland plant species generally result in wide spacing (50 to 100 feet) between flags. The greater the number of sampling transects documenting the upland-wetland transition, the closer together the flags can be.

Hydrology Indicators – Hydrology indicators are often ephemeral. For example, observation of surface water may only be present during the wet portion of the growing season in normal precipitation years for some wetlands. Once a wetland hydrology indicator is observed, it is an indicator and should be noted on the data form and in the wetland delineation report. For example, if water is observed within 6 inches of the soil surface after a heavy rain, it is an indicator of wetland hydrology even though subsequent observations after normal rainfall events may show a water table at 30 inches below the surface. These subsequent observations do not “cancel out” the first observation of the indicator. If the indicator is observed, then it should be recorded. However, these subsequent observations may help in understanding normal climatic variations that are important in *interpreting* hydrology indicators. Refer to the 87 Manual and its applicable regional supplement for sources and methodologies to interpret hydrology indicators in making wetland determinations.

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Letter of Transmittal
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Wetland Delineation Report

Twin Ports Interchange - I-35/535/U.S. 53

Prepared for Minnesota Department of Transportation – District 1

1 Introduction

The purpose of this study was to investigate the project area, identify areas meeting the technical criteria for wetlands, delineate the jurisdictional extent of the wetland basins, map other aquatic resources, and classify the wetland habitat for the Twin Ports Interchange project, which includes two separate investigation areas located at the junction of Interstate 35 (I-35) and U.S. Highway 53 (Hwy. 53)/Interstate 535 (I-535) and at the northern approach to the Blatnik Bridge of Hwy. 53/I-535, located in Duluth, Minnesota. This field investigation also documented other natural aquatic resources in the project area that may also require regulatory consideration for the project. This field delineation of wetlands and aquatic resources will be the basis on which regulated impacts to these resources will be determined for a future interchange reconstruction and improvement project.

This report describes the methodology and results of the field delineation performed on July 28-29th, August 3rd, August 18th, October 14th, October 17th, 2016; and, October 30, 2017. Aquatic resources were also investigated on July 28th, 2016 (Miller Creek), August 3rd, 2016 (Coffee Creek) and April 6th, 2017 (Buckingham Creek). Figures referred to in the text are included at the end of the report.

1.1 Site Description

The wetland delineation investigation area is located in Sections 33 and 34 in Township 50 North, Range 14 West; and Sections 3, 4, and 5 in Township 49 North, Range 14 West in Duluth, St. Louis County, Minnesota as shown on **Figure 1**. The approximately 108-acre combined area is bounded on the north and west by commercial and industrial development, on the east and south by the Burlington Northern Santa Fe (BNSF) Railroad and the St. Louis Bay. A portion of the project area lies at the intersection of three major transportation routes and extends along the north and southbound lanes of I-35, the westbound Hwy. 53 that traverses uphill through Duluth, and the eastbound I-535 that crosses St. Louis Bay to Superior, Wisconsin. The remaining project area lies within the Hwy. 53 corridor, at the approach to the Blatnik Bridge, and extends outward to include entrance ramps to the Hwy. 53 and exit ramps onto Garfield Avenue.

The wetland delineation investigation area consists of a mostly urbanized, industrialized transportation corridor interspersed with occasional upland and wetland plant communities between the roadway lanes, adjacent to roadside slopes, beneath highway and interstate overpasses, and along the shoreland areas of St. Louis Bay. These habitats are described in more detail in the following sections.

2 Wetland Delineation

2.1 Wetlands Definition

Wetlands are defined in federal Executive Order 11990 as follows:

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

According to U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region* (USACE 2012), one positive indicator (except in certain situations) from each of three elements must be present in order to make a positive wetland determination, which are as follows:

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

2.2 Methodology

2.2.1 Resource Review

Topographic maps, the USDA Web Soil Survey (USDA 2016) for St. Louis County, the St. Louis County hydric soils list, the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map, and the Minnesota Department of Natural Resources (MNDNR) Public Waters Inventory (PWI) map were reviewed prior to visiting the site to locate potential wetland habitats. **Figure 2** is a copy of the NRCS Web Soil Survey map, **Figure 3** is a copy of the NWI map, and **Figure 4** is a copy of the PWI map for the project area. These sources showed multiple wetland area within the project area, which was investigated during the field study. However, knowledge of the area by the field investigators ensured that the full project area was fully evaluated because of its proximity to area creeks and the shoreland zones within St. Louis Bay. Miller Creek and Coffee Creek outlet to the St. Louis Bay; Buckingham Creek outlets to Slip C that is connected with Superior Bay. Miller Creek and Buckingham Creek are listed in the MNDNR's PWI, but Coffee Creek is not listed in the PWI. However, Miller Creek, Buckingham Creek, and Coffee Creek are all Public Waters [M.S. 103G.005, Subd. 15(a)(10)] based on their drainage area and/or that they are designated trout streams (M.R. 6264.0500, Subp. 4).

2.2.2 Field Procedures

The area was investigated on July 28-29th, August 3rd, August 18th, October 14th, October 17th, 2016; and, October 30, 2017 for areas meeting the technical wetland criteria in accordance with the U.S. Army Corps of Engineers *Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region* (USACE 2012).The *Manual* and *Regional Supplement* require that all three wetland parameters (as discussed above) be present in order for an area to be classified as wetland. In addition, aquatic resources were investigated on July 28th, 2016 (Miller Creek), August 3rd, 2016 (Coffee Creek) and April 6th, 2017 (Buckingham Creek).

The delineation procedures in the Corps *Manual* (*i.e.*, the Routine Onsite Determination Method), in combination with wetland indicators and guidance provided in the *Regional Supplement* were applied for this delineation. Where differences in the two documents occur, the *Regional Supplement* takes precedence over the Corps *Manual* for applications in the Northcentral and Northeastern Region (USACE 2012).

Field notes, samples, and photographs were taken at representative locations in each wetland basin. At least one representative transect was completed for each delineated wetland and the respective wetland and upland plots for each wetland were documented on Wetland Determination Data Forms (**Appendix A**). Each data sheet is referenced to a sample location along the identified wetland boundary by the plot ID number. Numbers ending in “W” identify data collected within the wetland boundary. Numbers ending in “U” identify data collected outside the wetland basin. Relevant photographs of the site and representative sample locations are included in **Appendix B**; all other photographs will be retained on file at SEH.

Delineated wetland boundaries were located and marked with pin flags and flagging labeled with “WETLAND BOUNDARY” to allow for field review. The wetland edge is considered the highest extent of the wetland basin; areas above the boundary fail to meet the three required wetland parameters while areas below the edge meet the wetland parameters required by the field delineation methodology. The location of the delineated wetland boundaries were collected with a sub-meter accuracy Global Positioning System (GPS) unit and mapped. The sample points noted identify where data was collected and are recorded on corresponding Wetland Determination Data Forms (see **Appendix A**). For portions of wetland that occurred in roadside median swales between the I-35 north and southbound lanes, these area were delineated using GIS remote sensing technology. Access to the roadside median swales is not safe for pedestrian access by field staff without major traffic control signage and/or lane diversions. The results of the delineation and remote sensing are shown on **Figure 5**. For the purposes of this study and future project, the data collected via GIS remote sensing will be the basis on which impacts, if any, will be determined.

2.2.3 Remote Sensing

Level 1 delineation was completed for two portions of the study area. The area southwest of 27th Avenue West was physically inaccessible because of safety concerns being in the roadway median without proper and approved signage and lighting for working on interstate roadways. For this reason access to the wetland in the median of I-35 was not allowed by MnDOT for the field delineations. An area of the BNSF railyard between I-535 and Garfield Avenue was inaccessible due to safety concerns being between sets of railroad tracks. In addition to safety concerts, field delineators were not granted access to these areas from BNSF. Level 1 delineation in these areas identified multiple wetlands constrained to the bottom of a wet ditches in the median between the lanes of 1-35 and in the BNSF railyard.

The Level 1 delineation follows the procedures set forth in the *Minnesota Local Road Authority Reference Guide to U.S. Army Corps of Engineers (Corps) Clean Water Act Section 404 & Rivers and Harbors Act Section 10 Permits, Version 1.a* (U.S. Army Corps of Engineers and Minnesota Department of Transportation, 2014). Through cooperative agreement, the U.S. Army Corps of Engineers (USACE) – St. Paul District and Minnesota Department of Transportation (MnDOT) Division of State Aid for Local Transportation (SALT), developed this *Reference Guide* purposefully for assisting transportation authorities in preparing and submitting sufficient information for the USACE to make permit decisions when required in the course of maintaining,

upgrading, or replacing roadways (USACE, MnDOT 2014). It is intended that preparation and submittal of wetland and aquatic resources information for transportation projects will also satisfy the requirements of the Minnesota Wetland Conservation Act (WCA) as described in Minnesota Rules, Chapter 8420.

2.3 Hydrophytic/Wetland Vegetation

Wetland plant species nomenclature follows the *National Wetland Plant List* (USACE 2014). Identification was aided when necessary with field guides for the region. Vegetation was sampled in nested circular plots: 5-ft radius for herbaceous species, 15-ft radius for shrubs, and 30-ft radius for trees and vines.

2.4 Hydric/Wetland Soils

Soils were observed for hydric soil characteristics. Soils were examined in cores taken with a Dutch auger. Soil profiles were observed at a depth necessary to confirm hydric soil characteristics. Typical soil profile depths are typically within 18-24 inches below ground surface to allow for: (1) observation of an adequate portion of the soil profile to determine presence/absence of hydric soil characteristics; (2) observation of hydrology including depth to the water table and saturated soils; and, (3) identification of disturbances (*e.g.*, buried horizon, plow line, etc.). Where site conditions preclude observing soil profile depths at the typical 18-24 inches below ground surface or where observed hydric soil indicators are documented above or below 18-24 inches below ground surface, justification is provided. Soil color determinations were made using MUNSELL Soil Color Charts (Gretag-Macbeth 1994). Site soil characteristics were compared to those mapped and described in the Soil Survey for St. Louis County (USDA 2016). Hydric soil characteristics were compared to those identified in the Northcentral and Northeastern Region Supplement (USACE 2012) and the most recent version of the Natural Resources Conservation Service (NRCS) publication *Field Indicators of Hydric Soils in the United States, Version 7.0* (USDA 2010). Hydric Soil Category rating (USDA 2016) was also reviewed for soils in the project area.

2.5 Hydrology

Primary and secondary indicators of hydrology were identified in the field to determine the presence or absence of wetland hydrology and are listed in each wetland description. Subsurface wetland hydrology indicators were examined using the soil cores and/or soil pits as deep as 24 inches to confirm soil saturation in the upper 12 inches of the soil profile.

2.5.1 Wetland Classification

Wetland classification follows the methods described in *Wetlands and Deepwater Habitats of the United States* (Cowardin, et al. 1979) that is used by the USFWS NWI. The Circular 39 classification (Shaw and Fredine 1956) is also provided. Wetland classification is also provided following *Wetland Plants and Plant Communities of Minnesota & Wisconsin* (Eggers and Reed 2011), which is used for classifying wetlands for permitting-related activities under the Minnesota Wetland Conservation Act (WCA) and the USACE *Final St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota* (USACE 2009).

3 Results

The field delineation was conducted under temperature and precipitation conditions that were normal as compared to the historical average for the region according to the Minnesota Climatology Working Group (**Appendix C**). Most of the vegetation was identifiable, including all dominant species.

Eighteen (18) wetlands and three stream resources identified and classified in the project area (**Table 1**, **Figures 5** and **6**). Note that in **Figures 5-1** through **5-6** and **Figures 6-1** through **6-6** the delineation results show that wetlands and one creek appear to overlap with existing pavement. However, in these areas the road sections are elevated and the wetlands and creek are actually underneath the road sections. This is specific to Wetlands 1, 2, 3, 9, 13, 15, and Buckingham Creek. Miller Creek and Coffee Creek are both confined to culverts underneath I-35.

The Wetland Determination Data Forms (**Appendix A**) indicate the dominant species of vegetation and the soil and hydrologic characteristics at representative locations around each basin. **Table 1** is a summary of the size and classification of each wetland basin and aquatic resource.

Table 1 – Wetland and Aquatic Resource Characteristics

Basin ID or Aquatic Resource	Size (acres)[1]	Eggers & Reed Classification	Circular 39 / Cowardin Classification	Surficial Connectivity/ Hydrologic Catchment and Landscape Features
1	1.3667	Fresh (Wet) Meadow	Type 2 / PEM1B	St. Louis Bay via storm water drainage infrastructure.
	0.2588	Shallow Marsh	Type 3 / PEM1C	
2	0.0436	Fresh (Wet) Meadow	Type 2 / PEM1B	St. Louis Bay via storm water drainage infrastructure.
3	0.1391	Fresh (Wet) Meadow	Type 2 / PEM1B	Isolated.
4	0.0144	Shallow Marsh	Type 3 / PEM1C	Miller Creek hydrologic catchment. Wet ditch.
	0.0207	Fresh (Wet) Meadow	Type 2 / PEM1B	
5	0.0624	Fresh (Wet) Meadow	Type 2 / PEM1B	St. Louis Bay via storm water drainage infrastructure.
	0.3502	Hardwood Swamp	Type 7 / PFO1B	
	0.1547	Shallow Marsh	Type 3 / PEM1C	
6	0.2128	Shallow Marsh	Type / PEM1C 3	St. Louis Bay via storm water drainage infrastructure.
7	0.0605	Shallow Marsh	Type 3 / PEM1C	Isolated wet ditch.
8	0.0168	Shallow Marsh	Type 3 / PEM1C	St. Louis Bay via storm water drainage infrastructure.

Table 1 – Wetland and Aquatic Resource Characteristics

Basin ID or Aquatic Resource	Size (acres)[1]	Eggers & Reed Classification	Circular 39 / Cowardin Classification	Surficial Connectivity/ Hydrologic Catchment and Landscape Features
9	0.8100	Hardwood Swamp	Type 7 / PFO1B	St. Louis Bay catchment.
	0.1067	Shrub-Carr	Type 6 / PSS1B	
	1.7205	Fresh (Wet) Meadow	Type 2 / PEM1B	
10	0.8270	Shallow Marsh	Type 3 / PEM1C	St. Louis Bay catchment. Wet ditch.
11	0.0451	Shallow Marsh	Type 3 / PEM1C	Miller Creek catchment. Wet ditch.
12	0.1147	Fresh (Wet) Meadow	Type 2 / PEM1B	Isolated basin.
	1.0395	Hardwood Swamp	Type 7 / PFO1B	
	2.7813	Shallow Marsh	Type 3 / PEM1C	
13	0.0245	Fresh (Wet) Meadow	Type 2 / PEM1B	Isolated wet ditch.
14	0.0228	Fresh (Wet) Meadow	Type 2 / PEM1B	Isolated wet ditch.
15	0.1124	Fresh (Wet) Meadow	Type 2 / PEM1B	Isolated basin.
16	0.0043	Fresh (Wet) Meadow	Type 2 / PEM1B	Isolated basin
17	0.0337	Fresh (Wet) Meadow	Type 2 / PEM1B	St. Louis Bay catchment
18	0.2208	Shrub-Carr	Type 6 / PSS1B	Isolated basin
Ditch A	0.1440	Shallow, Open Water	Type 5 / PUBF	Isolated wet ditch[2]
Ditch B	0.0856	Shallow, Open Water	Type 5 / PUBF	Isolated wet ditch[2]
Ditch C	0.0707	Shallow, Open Water	Type 5 / PUBF	Isolated wet ditch[2]
Miller Creek[3] (Public Waters, Trout Stream)	0.4017	N/A[5]	N/A[5] / R3RB2	St. Louis Bay catchment.
Buckingham Creek[3,4] (Public Waters, Trout Stream)	0.4468	N/A[5]	N/A[5] / R2RB2	St. Louis Bay catchment.
Coffee Creek (Public Waters, Trout Stream)	N/A[6]	N/A[6]	N/A[6] / N/A[6]	St. Louis Bay catchment.
Total Wetland and Aquatic Resource Area	**11.7128 acres**			

Table 1 – Wetland and Aquatic Resource Characteristics

Basin ID or Aquatic Resource	Size (acres)[1]	Eggers & Reed Classification	Circular 39 / Cowardin Classification	Surficial Connectivity/ Hydrologic Catchment and Landscape Features

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

[2]Level 1 Delineation methods were used to map these wetlands. Basins were not able to be field verified to confirm surficial connectivity.

[3] Size represents areas of the streams that are not in underground pipes or culverts.

[4] Size is approximate based on estimated top of bank with observed in the field.

[5] Not applicable.

[6] Not available. Coffee Creek is entirely confined within culverts within the project area.

3.1 Wetland 1 – Fresh (Wet) Meadow/Shallow Marsh (Type 2/3, PEM1B/C)

Wetland 1 is located along the I-35 corridor, in between the raised north and southbound lanes (**Figures 5-2** through **5-4** and **6-2** through **6-4**). It serves as catchment for surrounding stormwater runoff and drains to the St. Louis Bay via storm water drainage infrastructure. It is classified as Fresh (Wet) Meadow/Shallow Marsh (Type 2/3, PEM1B/C). Dominant species observed within the Fresh (Wet) Meadow portion of the wetland complex included bluejoint (*Calamagrostis canadensis* – OBL) and reed canary grass (*Phalaris arundinacea* – FACW) within the herbaceous stratum. In the Shallow Marsh portion, dominant species included narrow-leaf cattail (*Typha angustifolia* – OBL) and path rush (*Juncus tenuis* – FAC) within the herbaceous stratum. Big-tooth aspen (*Populus grandidentata* – FACU) was found occasionally along the wetland-upland boundary.

Soils in the Fresh (Wet) Meadow community consisted of eight (8) inches of 10YR 2/2 fine sandy loam at the ground surface. From 8-20 inches below ground surface, a layer of silty clay (10YR 2/1) containing roots and woody duff material was. Below 20 inches, there was a restrictive layer of stones. The heavy abundance woody duff in the soil profile appeared to have been buried and may be evidence of prior soil disturbance. This could have resulted from past grading activity due to its proximity to I-35 and the nearby BNSF railroad. Saturation was encountered eight (8) inches below the soil surface and free water was encountered 18 inches below the surface. One primary hydrologic indicator was observed at the wetland sample point, A3 – Saturation; and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW and OBL hydrophytic plants were observed. Based on this site likely having disturbed soils, and the predominance of hydrophytes and hydrology, best professional judgement suggests the fresh (wet) meadow areas meet the technical criteria for wetland.

Shallow Marsh soils consisted of 0-12 inches of 10YR 2/1 fine sandy clay. From 12 to 16 inches below the ground surface, soils consisted of 5YR 4/4 clay with redoximorphic features including 20 percent 5YR 5/1 iron depletions and five (5) percent 5YR 5/6 iron concentrations. Below 16

inches, there was a restrictive clay hardpan layer present. This soil profile meets the technical hydric soil indicator TF2 – Red Parent Material. Saturation was encountered at the ground surface and free water was encountered ten (10) inches below the surface. Two primary hydrologic indicators were observed at the wetland sample point, A2 – High Water Table and A3 – Saturation; and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test.

The surrounding upland areas of Wetland 1 were dominated by smooth brome (*Bromus inermis* – UPL), path rush (FAC), common tansy (*Tanacetum vulgare* – FACU) and Canada goldenrod (*Solidago canadensis* – FACU) within the herbaceous stratum. Typical upland soils were composed of a layer of medium sandy loam (10YR 3/3) from 0-4 inches below the ground surface, underlain by a layer of clay (2.5YR 4/4) containing ten (10) percent gravel, (presumably from road fill) from 4-10 inches below ground surface. Below ten (10) inches, a restrictive layer of stones and/or gravel road fill was present. The soils did not meet any hydric soil criteria. No hydrology indicators were present in the upland.

Supporting data sheets for Wetland 1 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.2 Wetland 2 – Fresh (Wet) Meadow (Type 2/PEM1B)

Wetland 2 is located adjacent to Wetland 1, along the I-35 corridor, in between north and southbound lanes (**Figures 5-4** and **6-4**). It collects storm water off of the adjacent lanes of the raised roadways drains to the St. Louis Bay via storm water drainage infrastructure. It is classified as Fresh (Wet) Meadow (Type 2/PEM1B). The dominant species observed was reed canary grass (FACW) within the herbaceous stratum.

Soils consisted of 0-8 (eight) inches of 10YR 2/2 fine sandy loam. From 8+ (eight) inches below ground the surface, soils consisted of 10YR 2/2 fine sandy loam containing five (5) percent redoximorphic concentrations (10YR 2/2). Saturation was encountered at the ground surface and free water was encountered 10 (ten) inches below ground surface. Two primary hydrologic indicators were observed at the wetland sample point, A2 – High Water Table and A3 – Saturation; and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test. Soils in this wetland are presumed to be disturbed because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

The surrounding upland was dominated by smooth brome (*Bromus inermis* – UPL) within the herbaceous stratum. Soils consisted of 16 inches of medium sand (10YR 3/2). The soils did not meet any hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 2 can be found in **Appendix A**, and representative photos can be found in **Appendix B**.

3.3 Wetland 3 – Fresh (Wet) Meadow (Type 2/PEM1B)

Wetland 3 is located under the raised southbound lanes of I-35 (**Figures 5-4** and **6-4**). It is an isolated basin with no inlets/outlets; it primarily serves as catchment for stormwater runoff. It is

classified as Fresh (Wet) Meadow (Type 2/PEM1B). The dominant species observed was reed canary grass within the herbaceous stratum.

Soils consisted of 0-10 inches of 10YR 2/2 fine sandy clay loam. From 10-16 inches below the ground surface, soils consisted of 10YR 4/3 clay containing 20 percent gravel, presumably from road fill. Saturation was encountered at the soil surface which meets the primary hydrologic indicator A3 - Saturation. Two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test. Soils in this wetland are presumed to be disturbed because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils should be considered hydric and therefore this area should be classified as wetland.

The surrounding upland was dominated by Kentucky bluegrass (*Poa pratensis* – FACU) and bluejoint within the herbaceous stratum. Soils consisted of four (4) inches of fine sandy loam (10YR 2/2) underlain by a restrictive layer of compacted soils. The soils did not meet any hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 3 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.4 Wetland 4 – Fresh (Wet) Meadow/Sedge Meadow/Shallow Marsh (Type 2/3, PEM1B/C)

Wetland 4 is located in a drainage ditch adjacent to a paved parking lot to the west of the Interstate 35 southbound lanes. An upland swale separates the wetland from Miller Creek but would convey water toward the creek during storm events (**Figures 5-4** and **6-4**). It is classified as Fresh (Wet) Meadow/Sedge Meadow/Shallow Marsh (Type 2/3, PEM1B/C). The dominant species observed within the Sedge Meadow portion of the wetland complex was lakebank sedge (*Carex lacustris* – OBL) within the herbaceous stratum; in the Shallow Marsh portion, dominant species included both broad and narrow-leaf cattail (*Typha latifolia* – OBL*, Typha angustifolia* – OBL); in the Fresh (Wet) Meadow, dominant species included red top (*Agrostis gigantea* – FACW) and bluejoint within the herbaceous stratum.

Typical soils within Wetland 4 were composed of four (4) inches of 7.5YR 2.5/3 coarse sandy clay underlain by 2.5YR 3/3 red clay containing ten (10) percent redoximorphic concentrations (2.5YR 4/4) and 10 percent small gravel, presumably from road fill. Soils at sample point locations near the paved parking area also contained a surface layer from 0-2 inches below the surface of silt loam (10YR 2/2) containing roots and woody duff material. The abundance of this material within the soil surface layer may be evidence of soil disturbance and that the soil profile had been altered and/or mixed due to past grading activities from the nearby parking lot construction. Soil profiles collected at Wetland 4 fit the description and meet the technical hydric soil indicator F21 – Red Parent Material. Three primary hydrologic indicators were observed at the wetland sample points, A2 – High Water Table, A3 – Saturation, and B4 – Algal Mat of Crust (within the Shallow Marsh portion only); and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test.

The surrounding upland areas of Wetland 4 were dominated by Kentucky bluegrass, smooth brome, Canada goldenrod, and bull thistle (*Cirsium vulgare* – FACU) in the herbaceous stratum. Typical upland soils were composed of 12 inches 5YR 3/2 silty clay, underlain by a restrictive layer of stones and gravel (presumably from road fill). The soils did not meet for hydric soils criteria. No hydrology indicators were present in the upland.

Supporting data sheets for Wetland 4 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.5 Wetland 5 – Fresh (Wet) Meadow/Shallow Marsh/Hardwood Swamp (Type 2/3/7, PEM1B/C, PFO1B)

Wetland 5 is located between BNSF Railway and Interstate 35 northbound lanes in a wet ditch that drains to the St. Louis Bay via storm water drainage infrastructure (**Figures 5-5** and **6-4**). It is classified as Fresh (Wet) Meadow/Shallow Marsh/Hardwood Swamp Complex (Type 2/3/7, PEM1B/C, PFO1B). The dominant species observed within the Fresh (Wet) Meadow portion of the wetland complex was reed canary grass within the herbaceous stratum. The Shallow Marsh portion of the wetland complex was dominated by narrow-leaf cattail within the herbaceous stratum. In the Hardwood Swamp portion, dominant species included balsam poplar (*Populus balsamifera* – FACW) within the tree and shrub strata, pussy willow (*Salix discolor* – FACW) also within the shrub stratum, and reed canary grass within the herbaceous stratum.

Typical soils sampled within Wetland 5 consisted of ten (10) inches of 7.5YR 3/2 sandy clay loam underlain by 5YR 3/2 red sandy clay to 16 inches below the ground surface. Soil saturation was typically encountered within eight inches of the soil surface and two (2) inches of surface water was present within the Shallow Marsh community. Four primary hydrologic indicators were observed at the wetland sample points, A1 – Surface Water (within the Shallow Marsh portion only), A2 – High Water Table, A3 - Saturation, and B4 – Algal Mat of Crust (within the Shallow Marsh portion only); and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test. This wetland is located in an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. A heavy abundance of woody duff material mixed in the layer from 0-10 inches below the surface found within the Shallow Marsh community may be evidence of this disturbance and that the soil profile had been altered and/or mixed due to past grading activity during road and/or rail construction. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of OBL and FACW hydrophytic plants were observed. Based on these wetland indicators and our best professional judgement, we believe the soils should be considered hydric and therefore this area should be classified as wetland.

The surrounding upland areas of Wetland 5 were dominated by smooth brome, late goldenrod (*Solidago gigantea* – FACW), reed canary grass and garden valerian (*Valeriana officinalis* – UPL) within the herbaceous stratum. Balsam poplar was also a dominant species within the shrub stratum in upland areas adjacent to the Hardwood Swamp community. Typical soils were composed of up to 12 inches of 10YR 2/2 sandy clay loam, underlain by a restrictive layer of stones and gravel (presumably from road fill). A second upland soil profile that was observed in Wetland 5, adjacent to the Shallow Marsh community, was composed of 24 inches of 5YR 4/3 red clay containing 15 percent redoximorphic features (7.5YR 6/1) within a depth of 16-24 inches. The soils did not meet for hydric soils criteria. No hydrology indicators were present in the upland.

Supporting data sheets for Wetland 5 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.6 Wetland 6 – Shallow Marsh (Type 3/PEM1C)

Wetland 6 is located in the ditch to the east of the northbound lanes along the I-35 corridor and drains to the St. Louis Bay via storm water drainage infrastructure (**Figures 5-5** and **6-5**). It is classified as Shallow Marsh (Type 3/PEM1C). The dominant species observed were common three-square (*Schoenoplectus pungens* – OBL) and soft rush (*Juncus effuses* – OBL) within the herbaceous stratum.

Soils consisted of 14 inches of 5YR 3/3 red clay containing gravel, roots and woody duff material. Saturation was encountered at the soil surface and free water was observed at ten (10) inches below the surface. Two primary hydrologic indicators were observed, A2 – High Water Table and A3 – Saturation; and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test. This wetland is located in an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. An abundance of woody duff material mixed within the soil profile may be evidence of this disturbance and that the soil profile had been altered and/or mixed due to past grading activity during road and/or rail construction. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of OBL and FACW hydrophytic plants were observed. Based on these wetland indicators and our best professional judgement, we believe the soils should be considered hydric and therefore this area should be classified as wetland.

The surrounding upland was dominated by smooth brome and Canada goldenrod within the herbaceous stratum. Soils consisted of four (4) inches of sandy clay loam (7.5YR 3/3) underlain by a restrictive layer of gravel, presumably from road fill. The soils did not meet for hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 6 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.7 Wetland 7 – Fresh Wet Meadow (Type 2/PEM1B)

Wetland 7 is a narrow ditch along the west side of railroad tracks to the east of I-35 (**Figures 5-4** and **5-5** and **6-4** and **6-5**). This basin appears isolated in the landscape as there is no natural or constructed outlet for this basin. It is classified as Fresh Wet Meadow (Type 2/PEM1B). The dominant species observed were reed canary grass, narrow-leaf cattail, late goldenrod and Bebb's sedge (*Carex bebbii* – OBL) within the herbaceous stratum, and sandbar willow (*Salix interior* – FACW) in the sapling/shrub stratum.

Soils consisted of three (3) inches of 10YR 2/2 silty clay underlain by red clay (5YR 3/4) containing ten (10) percent redoximorphic concentrations (7.5YR 4/6) from 3+ inches below the ground surface. This soil profile meets the technical hydric soil indicator TF2 – Red Parent Material. Saturation was encountered at the soil surface and free water was observed at eight (8) inches below the surface. Two primary hydrologic indicators were observed, A2 – High Water Table and A3 – Saturation; and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test.

The surrounding upland was dominated by Canada goldenrod and smooth brome in the herbaceous stratum. Soils consisted of six (6) inches of sandy clay loam (7.5YR 3/3) containing 20 percent coarse gravel underlain by a restrictive layer of stones and gravel (presumably from road fill) from 6+ inches below the ground surface. The soils did not meet for hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 7 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.8 Wetland 8 – Shallow Marsh (Type 3/PEM1C)

Wetland 8 is a narrow, roadside ditch that is located in the median between north and southbound lanes of I-35 (**Figures 5-5** and **6-5**). This basin drains to the St. Louis Bay via storm water drainage infrastructure. It is classified as Shallow Marsh (Type 3/PEM1C). This wetland was delineated through use of Level 1 remote sensing, with field reconnaissance to verify its location and type. It was not flagged or surveyed using GPS due to its position in the median between the I-35 north and southbound lanes. It is a safety concern to be in roadway medians without proper and approved signage and lighting for working on interstate roadways. For this reason access to the wetlands in the median of I-35 was not allowed by MnDOT for the field delineations. The wetland boundary was therefore determined based on visual observation of topography, plant community, and aerial photography. The boundary provided in this report, as shown on **Figures 5-5** and **6-5**, was then drawn using GIS-remote sensing technology with verification from the field observers that the boundary as depicted is representative of that area of wetland in the field. Wetland and upland sample points were not collected for this wetland. However, the wetland vegetation was observable from a distance; the herbaceous layer was dominated by narrow-leaf cattail. The surrounding upland appeared to have characteristics typical to similar and nearby sampled upland areas of which were dominated by smooth brome and Canada goldenrod and smooth brome within the herbaceous stratum.

3.9 Wetland 9 – Fresh (Wet) Meadow/Shrub-Carr/Hardwood Swamp (Type 1/7/6, PEM1B/PSS1B/PFO1E)

Wetland 9 is located along the northern portion of the St. Louis Bay shoreland and the outlets of Miller Creek and Coffee Creek into the bay (**Figures 5-4** and **6-4**). It is classified as Fresh (Wet) Meadow/Shrub Carr/Hardwood Swamp (Type 2/6/7, PEM1B/PSS1B/PFO1E). The shoreland fringe wetland areas eventually transition to deep marsh (Type 5) and open water habitat (which is essentially the lacustrine zone of St. Louis Bay). Dominant species observed include reed canary grass, bluejoint, and late goldenrod within the herbaceous stratum, with the addition of balsam poplar within the shrub and tree stratum within the Hardwood Swamp portion of the wetland complex.

Typical soils consisted of eight (8) inches of 10YR 2/1 fine sandy loam underlain by 10YR 3/3 fine sand from 3-16+ inches below the surface. Soils were saturated typically at the ground surface and a water table was present within 1-4 inches below the surface. Two primary hydrologic indicators were observed at the wetland sample points, A2 – High Water Table and A3 – Saturation; and one secondary hydrologic indicator was observed D5 – FAC-Neutral test. This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Additionally, this wetland area receives moving sediment at the outlets of Miller Creek and Coffee Creek, which contributes to fluvial sediment deposited at the outlets and nearby shoreland. Hydric soil indicators are difficult to observe due to additions of

sediment along the surface. However primary and secondary indicators of hydrology as well as a dominance of FACW and OBL hydrophytic plants were observed. Although hydric soil indicators were not found, the combination of multiple primary and secondary indicators of hydrology, dominance of FACW and OBL plant species, and evidence of fluvial deposits from the adjacent creek outlets, we believe the soils should be considered hydric and therefore this area should be classified as wetland.

Surrounding uplands areas were dominated by smooth brome, common tansy (*Tanacetum vulgare* – FACU), reed canary grass, bird's-foot-trefoil (*Lotus corniculatus* – FACU) and quack grass (*Elymus repens* – FACU). Typical soils within the upland consisted of eight (8) inches of 7.5YR 3/2 coarse sandy clay underlain by stones and/or compacted gravel road fill. The soils did not meet any hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample points.

Supporting data sheets for Wetland 9 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.10 Wetland 10 – Shallow Marsh (Type 3/PEM1C)

Wetland 10 is located along the northeast side of I-535 in a wet ditch that outlets outside of the project area through a culvert under I-535 and into the St. Louis Bay (**Figures 5-4** and **6-4**). It is classified as Shallow Marsh (Type 3/PEM1C).The dominant species observed was narrow-leaf cattail within the herbaceous stratum.

Ten (10) inches of standing water was observed at the wetland sample point which in turn meets three primary hydrologic indicators, A1 – Surface Water, A2 – High Water Table and A3 – Saturation. Two secondary hydrologic indicators were also observed, D2 – Geomorphic Position and D5 – FAC-Neutral test. In accordance with the 1987 *Manual* Onsite Determination Method, hydric soils are assumed to be present in plant communities where dominant vegetation is OBL or FACW and primary indicators of wetland hydrology are observed. In this wetland, dominant vegetation is OBL, the wetland boundary is distinct, and primary indicators wetland hydrology were observed.

The surrounding upland was dominated by common tansy and smooth brome. Soils consisted of 18+ inches of 10YR 3/2 fine sand. The soils did not meet for hydric soils criteria and no primary or secondary indicators of wetland hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 10 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.11 Wetland 11 – Shallow Marsh (Type 3/PEM1C)

Wetland 11 is located along the northwest side of southbound I-35, south of the interchange in a wet roadside ditch (**Figures 5-4** and **6-4**). An upland swale separates the wetland from Miller Creek but would convey water toward the creek during storm events. It is classified as Shallow Marsh (Type 3/PEM1C). The dominant species observed was narrow-leaf cattail within the herbaceous stratum.

Soils consisted of two (2) inches of 10YR 2/1 silty clay underlain by red clay (5YR 3/4) containing ten (10) percent redoximorphic concentrations (7.5YR 4/6) from 2-16 inches below the ground surface. This soil profile meets the technical hydric soil indicator TF2 – Red Parent Material.

Saturation was encountered at the soil surface and free water was observed at four (4) inches below the surface. Two primary hydrologic indicators were observed, A2 – High Water Table and A3 – Saturation; and two secondary hydrologic indicators were observed, D2 – Geomorphic Position and D5 – FAC-Neutral test.

The surrounding upland was dominated by common tansy and Kentucky bluegrass within the herbaceous stratum, and green ash (*Fraxinus pennsylvanica* – FACW) and white spruce (*Picea glauca* – FACU) within the tree stratum. Soils consisted of eight (8) inches of silty clay (7.5YR 3/2) underlain by a restrictive layer of stones and gravel (presumably from road fill) from 8+ inches below the ground surface. The soils did not meet for hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 11 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.12 Wetland 12 – Fresh (Wet) Meadow/Hardwood Swamp/Shallow Marsh

Wetland 12 is located to the east of the northbound lanes along the Hwy. 53 corridor and the exit ramp of the Blatnik Bridge onto Garfield Avenue (**Figures 5-6** and **6-6**). This is a large wetland complex with three distinct wetland plant communities identified within the investigation area: Fresh (Wet) Meadow, Shallow Marsh and Hardwood Swamp (Type 2, 3, and 7/PEM1B, PEM1C, and PFO1B). The landscape of Wetland 12 is relatively flat, with wetland characteristics observed in shallow concave areas of the landscape within the southern portion of the wetland, and at the toe of slope of the adjacent road shoulder in the northern portion. The wetland extends northwest outside of the study area, however this basin appears isolated in the landscape as there is no natural or constructed outlet found for this basin.

Dominant plant species observed within the Fresh (Wet) Meadow portion of Wetland 12 (sample transect 12-1) included bluejoint and thread rush (*Juncus filiformis* – FACW) within the herbaceous stratum. Dominant plant species observed within the Shallow Marsh portion of Wetland 12 (sample transect 12-4) included common reed (*Phragmites australis* – FACW), narrow-leaf cat-tail, and bluejoint within the herbaceous stratum. Two areas of Hardwood Swamp were identified within the wetland. The first was dominated by large white willow (*Salix alba* – FACW) within the tree stratum, balsam poplar within the tree and sapling/shrub stratum, and bluejoint and late goldenrod within the herbaceous stratum (sample transect 12-2). The second Hardwood Swamp community was dominated by quaking aspen (*Populous tremuloides* – FAC) within the tree stratum, balsam poplar within the tree and sapling/shrub strata, and bluejoint within the herbaceous stratum (sample transect 12-3).

Soils were saturated typically at 8 inches below the ground surface and free water was encountered at 10 inches below the surface in the Fresh (Wet) Meadow, eight inches of standing water was observed within the shallow marsh, and soils within the Hardwood Swamp communities were typically saturated at the ground surface and free water was encountered within 6-10 inches below the surface. The following indicators of wetland hydrology were observed in the Fresh (Wet) Meadow and Hardwood Swamp: A2 – High Water Table, A3 – Saturation, D2 – Geomorphic Position, and D5 – FAC-Neutral Test. Additionally, A1 – Surface Water was observed in the Shallow Marsh portion of the wetland.

Soils in the Fresh (Wet) Meadow were typically composed of 10YR 3/1 coarse sandy loam containing woody duff and debris from 0-6 inches below the surface, 10YR 2/1 medium sandy loam from 6-16 inches below the surface containing 20 percent 10YR 3/3 redoximorphic concentrations, and a restrictive layer of compacted gravel existed at 16 inches below the surface. Soils appeared to be significantly disturbed throughout Wetland 12, most noticeably within the southern portion of the Fresh (Wet) Meadow community. This is presumably due to past disturbance from the nearby highway bridge overpass and railroad construction and activity. Many soil pits contained garbage, metal scraps, glass, gravel, and coal bits; soil layers appeared to be mixed, making it difficult to identify soil color, texture, and observe hydric soil indicators. As a result of these observations, no soil profile descriptions fit technical hydric soil indicator requirements within the Fresh (Wet) Meadow community. However, following the 1987 *Manual* Onsite Determination Method, soils within the Fresh (Wet) Meadow portion of Wetland 12 are inferred to be hydric due to the following conditions: (1) one or more indicators of hydrophytic vegetation were observed; and, (2) at least one primary or two secondary indicators of wetland hydrology were observed. In the Fresh (Wet) Meadow community, although hydric soil indicators were not observed, primary and secondary indicators of wetland hydrology and a dominance of OBL and FACW hydrophytic plant species was observed. Therefore, with inferred hydric soils, all three criteria are met and this area is classified as “wetland”.

Hydric soils in the Shallow Marsh were inferred in this wetland according to the 1987 *Manual* Onsite Determination Method where dominant vegetation is OBL or FACW and primary indicators of wetland hydrology are observed. Soil profiles in the Hardwood Swamp differed between the two sample points. In sample point 12-2w, soils were composed of dark 10YR 2/1 mucky loam from 0-5 inches below the surface, and 10YR 5/2 coarse sandy clay loam containing 25 percent redoximorphic concentrations (10YR 4/6) from 5-14 inches below the surface. A layer of organic material, mainly composed of woody debris (10YR 2/1), was observed from 14-20 inches below the surface, which may be a buried organic layer indicating past soil disturbance and soil mixing. This soil profile description meets the technical hydric soil indicator F3 – Depleted Matrix. In sample point 12-3w, soils were composed of dark 10YR 2/1 loamy coarse sand from 0-8 inches below the ground surface, and 10YR 3/1 loamy medium sand containing 10 percent redoximorphic concentrations (10YR 3/4) from 8-20 inches below the surface. This soil profile description meets the technical hydric soil indicator S5 – Sandy Redox.

The surrounding upland of Wetland 12 was typically dominated by Kentucky bluegrass, common tansy, common red raspberry (*Rubus idaeus* – FAC), Canada (late) goldenrod (*Solidago canadensis* – FACU), Canada thistle (*Cirsium arvense* – FACU), and field horsetail (*Equisetum arvense* – FAC) within the herbaceous stratum. No species were observed in the sapling/shrub stratum at sample points 12-1u, 12-2u, or 12-4 u. Black cherry (*Prunus serotina* – FACU) and American mountain-ash (*Sorbus americana* – FAC) were dominant in the sapling/shrub stratum of sample point 12-3u. Quaking aspen and black cherry were dominant in tree stratum of sample point 12-3u and white willow was dominant in the tree stratum at sample point 12-2u.

Soils were typically composed of dark 10YR 2/1 loamy coarse or medium sand with gravel and were not saturated. No indicators of wetland hydrology or technical hydric soil indicators were observed at the upland sample points.

Supporting data sheets for Wetland 12 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.13 Wetland 13 – Fresh (Wet) Meadow (Type 2/PEM1B)

Wetland 13 is a narrow basin located in a ditch in between and the adjacent BNSF railroad bed and the steep grade roadside shoulder of the Hwy 53 eastbound on-ramp lane coming from Garfield Avenue (**Figures 5-6** and **6-6**). The basin is located beneath the Blatnik Bridge approach within the Hwy. 53 corridor. This wetland lies directly below the stormwater outlet pipes from the overpass and appears to be supported by precipitation/stormwater inputs. The wetland outlets through culverts that run underneath the railroad bed and outside of the project limits. It is classified as Fresh (Wet) Meadow (Type 2/PEM1B). The dominant species observed was reed canary grass and bluejoint within the herbaceous stratum.

Soils consisted of 10YR 2/2 clay loam from 0-3 inches below the ground surface, 7.5YR 4/2 fine sandy clay containing 10 percent redoximorphic concentrations (7.5YR 4/6) from 3-10 inches, and a restrictive layer of cement and compacted gravel at 10 inches below the surface. This soil profile description meets the technical hydric soil indicator F3 – Depleted Matrix. Soils were saturated at 10 inches below the ground surface which meets the primary indicator of wetland hydrology A3 – Saturation. The following secondary indicators of hydrology were also observed: D2 – Geomorphic Position, and D5 – FAC-Neutral Test.

The surrounding upland was dominated by common smooth brome and Kentucky bluegrass within the herbaceous stratum. Soils were composed of 10YR 3/2 sandy clay loam from 0-2 inches below the ground surface, 7.5YR 4/3 fine sandy clay with gravel from 2-10 inches, and a restrictive layer of compacted gravel at 10 inches below the surface. The soils did not meet for hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 13 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.14 Wetland 14 – Fresh (Wet) Meadow (Type 2/PEM1B)

Wetland 14 is located in a shallow roadside ditch, adjacent to the southbound exit ramp of Hwy. 53 onto Garfield Avenue (**Figures 5-6** and **6-6**). This basin appears isolated in the landscape as there is no natural or constructed outlet for this basin. It is classified as Fresh (Wet) Meadow (Type 2/PEM1B). The dominant species observed was reed canary grass, bluejoint, and thread rush within the herbaceous stratum.

Soils consisted of 7.5YR 3/1 loamy coarse sand from 0-4 inches below the ground surface, 7.5YR 3/1 containing 10 percent redoximorphic concentrations (10YR 4/4) loamy coarse sand from 4-16 inches below the surface, and a restrictive layer of compacted gravel, presumably road fill, at 16 inches below the surface. Soils were saturated at 10 inches below the ground surface and free water was encountered at 12 inches below the surface. This soil profile description meets the technical hydric soil indicator S5 – Sandy Redox. The following indicators of wetland hydrology were observed at the wetland sample point: A1 – Surface Water, A2 – High Water Table, A3 – Saturation, D2 – Geomorphic Position, and D5 – FAC-Neutral Test.

The surrounding upland was dominated by common Kentucky bluegrass and reed canary grass within the herbaceous stratum. Soils were composed of 10YR 3/2 coarse sandy loam from 0-6 inches below the ground surface, 10YR 3/2 coarse sandy loam containing 10 percent redoximorphic concentrations (10YR 4/3) from 6-12 inches below the ground surface, and a restrictive layer of compacted gravel at 12 inches below the surface. The soils did not meet for

hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 14 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.15 Wetland 15 – Fresh (Wet) Meadow (Type 2/PEM1B)

Wetland 15 is a shallow basin located underneath the Blatnik Bridge overpass of Hwy. 53 (**Figures 5-6** and **6-6**). This wetland lies directly below the stormwater outlet pipes from the overpass and appears to be supported by precipitation/stormwater inputs. The wetland appears isolated in the landscape as there is no natural or constructed outlet for this basin. It is classified as Fresh (Wet) Meadow (Type 2/PEM1B) and is dominated by thread rush within the herbaceous stratum.

Typical soils were composed of 7.5YR 3/1 medium loamy sand containing 10 percent redoximorphic concentrations (7.5YR 3/3) from 0-12 inches below the ground surface. A restrictive layer of compacted gravel, presumably road fill, was present at 12 inches below the surface. This soil profile description fits the technical hydric soil indicator S5 – Sandy Redox. Soils were saturated at 2 inches below the ground surface and free water was encountered at 10 inches below the surface. Two primary indicators of wetland hydrology, A2 – High Water Table and A3 – Saturation, and two secondary indicators, D2 – Geomorphic Position, and D5 – FAC-Neutral Test were observed.

The surrounding upland was dominated by creeping wild rye (*Elymus repens* – FACU) and annual ragweed (*Ambrosia artemisifolia* – FACU) within the herbaceous stratum. Soils were composed of 10YR 2/2 medium loamy sand from 0-15 inches below the ground surface, underlain but a restrictive layer of compacted gravel at 15 inches below the surface. The soils did not meet for hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 15 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.16 Wetland 16 – Fresh (Wet) Meadow (Type 2/PEM1B)

Wetland 16 is a shallow basin located adjacent to an existing BNSF railroad bed (**Figures 5-6** and **6-6**). The basin appears isolated in the landscape as there is no natural or constructed outlet for this basin. It is classified as Fresh (Wet) Meadow (Type 2/PEM1B) and is dominated by thread rush and bluejoint within the herbaceous stratum.

Soils were typically composed of 10YR 2/2 coarse sandy loam from 0-6 inches below the ground surface, 10YR 3/6 coarse sandy loam from 6-10 inches, and 10YR 2/1 fine sandy loam from 10-14 inches below the surface. A restrictive layer of compacted gravel, presumably road fill, was observed at 14 inches below the surface. Soils horizons appeared to be significantly disturbed for they garbage, metal scraps, glass, and coal bits mixed within the profile making it difficult to identify soil color, texture, and observe hydric soil indicators. As a result, no soil profile descriptions fit the technical hydric soil indicator requirements. However, hydric soils were therefore inferred in accordance with the 1987 *Manual* Onsite Determination Method using the procedure for problematic hydric soils with the following criteria: (1) one or more indicators of hydrophytic vegetation were observed; and, (2) at least one primary or two secondary indicators

of wetland hydrology were observed. In Wetland 16, although hydric soil indicators were not observed, primary and secondary indicators of wetland hydrology and a dominance of OBL and FACW hydrophytic plant species we observed. Soils were saturated typically at the ground surface and free water was encountered at 10 inches below the surface. The following indicators of wetland hydrology were observed: A2 – High Water Table, A3 – Saturation, D2 – Geomorphic Position, and D5 – FAC-Neutral Test.

The surrounding upland was dominated by Kentucky bluegrass and common tansy within the herbaceous stratum. Soils were composed of 10YR 2/2 medium loamy sand from 0-8 inches below the ground surface, underlain but a restrictive layer of compacted gravel existed at 8 inches below the surface. The soils did not meet for hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample point.

Supporting data sheets for Wetland 16 can be found in **Appendix A**. Representative photos can be found in **Appendix B**

3.17 Wetland 17 – Fresh (Wet) Meadow (Type 2/PEM1B)

Wetland 17 is located south of the intersection of South 27th Avenue West and Courtland Street. This wetland boundary is associated with where a culvert outlets to a wetland habitat and a drainage feature flowing toward St. Louis Bay under South 27th Avenue West on the north side of the wetland. Wetland characteristics were found in low areas above the banks of the drainage feature (**Figures 5-5** and **6-5**). The portion of the wetland within the project area is classified as Fresh (Wet) Meadow (Type 2/PEM1B). The dominant species observed in the herbaceous stratum was reed canary grass. There were no species present in the tree or sapling/shrub strata.

Typical soils consisted of eight (8) inches of 10YR 2/2 silty clay loam with 10 percent 10YR 5/6 redoximorphic concentrations and was underlain by N 2.5/ silty clay from eight (8) to 16 plus inches below the surface. This soil profile description fits the technical hydric soil indicator F2 – Loamy Gleyed Matrix and F6 – Redox Dark Surface. Soils were saturated at the ground surface and a water table was present eight (8) inches below the surface. Two primary hydrologic indicators were observed at the wetland sample point, A2 – High Water Table and A3 – Saturation; and two secondary hydrologic indicators were observed, D2 Geomorphic position and D5 – FAC-Neutral test.

Surrounding uplands areas were dominated by quaking aspen in the tree stratum and reed canary grass in the herbaceous stratum. There were no species observed in the sapling/shrub stratum. Typical soils within the upland consisted of four (4) inches of 10YR 2/2 medium sandy clay loam underlain by 7.5YR 3/3 medium sand from four (4) to 14 plus inches below the ground surface. The soils did not meet any hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample points.

Supporting data sheets for Wetland 17 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.18 Wetland 18 – Shrub-Carr (Type 6/PSS1B)

Wetland 18 is located between Wetland 9 and a compost and yard waste storage lot for the Western Lake Superior Sanitary District (WLSSD) (**Figures 5-4** and **6-4**). The portion of the wetland within the project area is classified as Shrub Carr (Type 6/PSS1B), but is part of a larger

open water area on WLSSD property. There were no inlet or outlet structures found and the basin appears isolated from the St. Louis Bay. Dominant species observed include meadow willow (*Salix petiolaris* – FACW) in the sapling/shrub stratum; and reed canary grass and late goldenrod within the herbaceous stratum.

Typical soils consisted of eight (8) inches of 10YR 2/2 very fine sandy clay loam underlain by 7.5YR 4/2 very fine sandy clay loam with five (5) percent 10YR 4/6 redoximorphic concentrations from eight (8) to 16 plus inches below the surface. This soil profile description fits the technical hydric soil indicator F3 – Depleted Matrix. Soils were saturated at the ground surface and a water table was present 14 inches below the surface. One primary hydrologic indicator was observed at the wetland sample point, A3 – Saturation; and two secondary hydrologic indicators were observed, D2 Geomorphic position and D5 – FAC-Neutral test.

Surrounding uplands areas were dominated by balsam fir (*Abies balsamea* – FAC) and white spruce in the tree stratum; balsam poplar in the sapling/shrub stratum; and reed canary grass and common tansy in the herbaceous stratum. Typical soils within the upland consisted of six (6) inches of 10YR 2/2 medium sandy clay loam underlain by 7.5YR 3/3 fine sand from six (6) to 14 plus inches below the ground surface. The soils did not meet any hydric soils criteria. No indicators of primary or secondary hydrology were observed at the upland sample points.

Supporting data sheets for Wetland 18 can be found in **Appendix A**. Representative photos can be found in **Appendix B**.

3.19 Miller Creek – Riverine Aquatic Resource (R3RB2)

Within the west-central portion of the study area, Miller Creek runs below ground level in a series of east-west tunnels and to its outlet at St. Louis Bay/Duluth Harbor (**Figures 4**, **5-4**, and **6-4**). Two portions of the creek are open channels between culvert ends. These areas were investigated in further detail as they contained hydrophytic plants, wetland hydrology, and a defined bed and bank of the creek. Soils were difficult to sample due to rip-rapped banks and consisted of alluvial sand deposits over the rip rap which did not meet any hydric soil indicators. Hydrophytic plants included black willow (*Salix nigra* – OBL) and American elm (*Ulmus Americana* – FACW) within the tree stratum although they were sparse along the creek bank. This area has been entirely affected by urbanization, although the existing conditions are “normal circumstances” today. There are no defined “wetland” habitat along Miller Creek, but there is continuous stream flow within the bed and bank. There is no apparent floodplain present, rather the creek is within the channelized bed and bank; wetland soil indicators are absent. Miller Creek is a public water included in the MNDNR PWI and is classified using Cowardin, et al. (1979) as a riverine feature (R3RB2) based on its characteristics (**Table 1**). It is also a MNDNR designated trout stream (M.R. 6264.0500, Subp. 4). Representative photos of Miller Creek can be found in **Appendix B**.

3.20 Buckingham Creek – Riverine Aquatic Resource (R2RB2)

Buckingham Creek is diverted underground into a culvert near the intersection of West 1st Street and North 12th Avenue West near the northern portion of the study area (**Figures 4**, **5-1**, and **6-1**). The creek enters the project area on the northwest side of I-35, southeast of the intersection of West Michigan Street and Glen Place Drive. The creek opens briefly to a constructed sediment basin and then flows through an open, rip-rap lined channel/swale underneath the raised portion I-35. The swale is approximately 20 feet wide at the top of bank and 830 feet long diverting water

southwest directly under I-35 before exiting the study area in a wooden culvert underneath the BNSF railyard with an eventual outlet to Slip C on the St. Louis Bay/Duluth Harbor (**Figures 4**, **5-1**, and **6-1**). Buckingham Creek is a public water included in the MNDNR PWI and is classified using Cowardin, et al. (1979) as a riverine feature (R2RB2) based on its characteristics (**Table 1**). It is also a MNDNR designated trout stream (M.R. 6264.0500, Subp. 4). Representative photos of Buckingham Creek can be found in **Appendix B.**

3.21 Coffee Creek – Riverine Aquatic Resource

Coffee Creek is entirely within pipe infrastructure under the roadways and urbanized neighborhood. It crosses underground through the study area and outlets to the St. Louis Bay/Duluth Harbor approximately 300 feet northeast of the Miller Creek Outlet (**Figures 4**, **5-4**, and **6-4**). Coffee Creek is diverted through culverts beginning upstream near the intersection of North 23rd Avenue West and West 9th Street to the outlet. It is not listed in MNDNR's PWI, however, it is a MNDNR designated trout stream (M.R. 6264.0500, Subp. 4), and therefore defined as Public Waters [M.S. 103G.005, Subd. 15(a)(10)].

3.22 Ditches A, B, and C – Shallow, Open Water (Type 5/PUBF)

A Level 1 delineation was completed for a portion on the project area within the BNSF railyard due to access and safety concerns for the wetland field delineation team. The Level 1 delineation discovered three (3) shallow, open water wet ditches between sets of tracks within the railyard (**Figures 5-3** and **6-3**). These areas were viewed from a distance by the delineation team in the field, however basins were not able to be verified to confirm surficial connectivity.

3.23 Regulatory Considerations

Wetlands in the project area are regulated by agencies at the local, regional, state, and federal levels including the USACE and the EPA at the federal level, the Minnesota Board of Water and Soil Resources (BWSR) and the Minnesota Pollution Control Agency (MPCA) at the state level, and MnDOT at the local level. MnDOT is responsible for administering the Minnesota Wetland Conservation Act (WCA) of 1991 within its transportation right-of-way. The Minnesota Department of Natural Resources regulates watercourses identified as public waters or public waters wetlands within the project area.

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

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Figures

Figure 1 – Site Location Map
Figure 2 – NRCS Soils
Figure 3 – National Wetlands Inventory
Figure 4 – Public Waters Inventory
Figure 5-1 through 5-6 – Wetland Delineation Results
Figure 6-1 through 6-6 – Wetland Plant Communities

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Project: MNT01 138031
Print Date: 5/18/2018

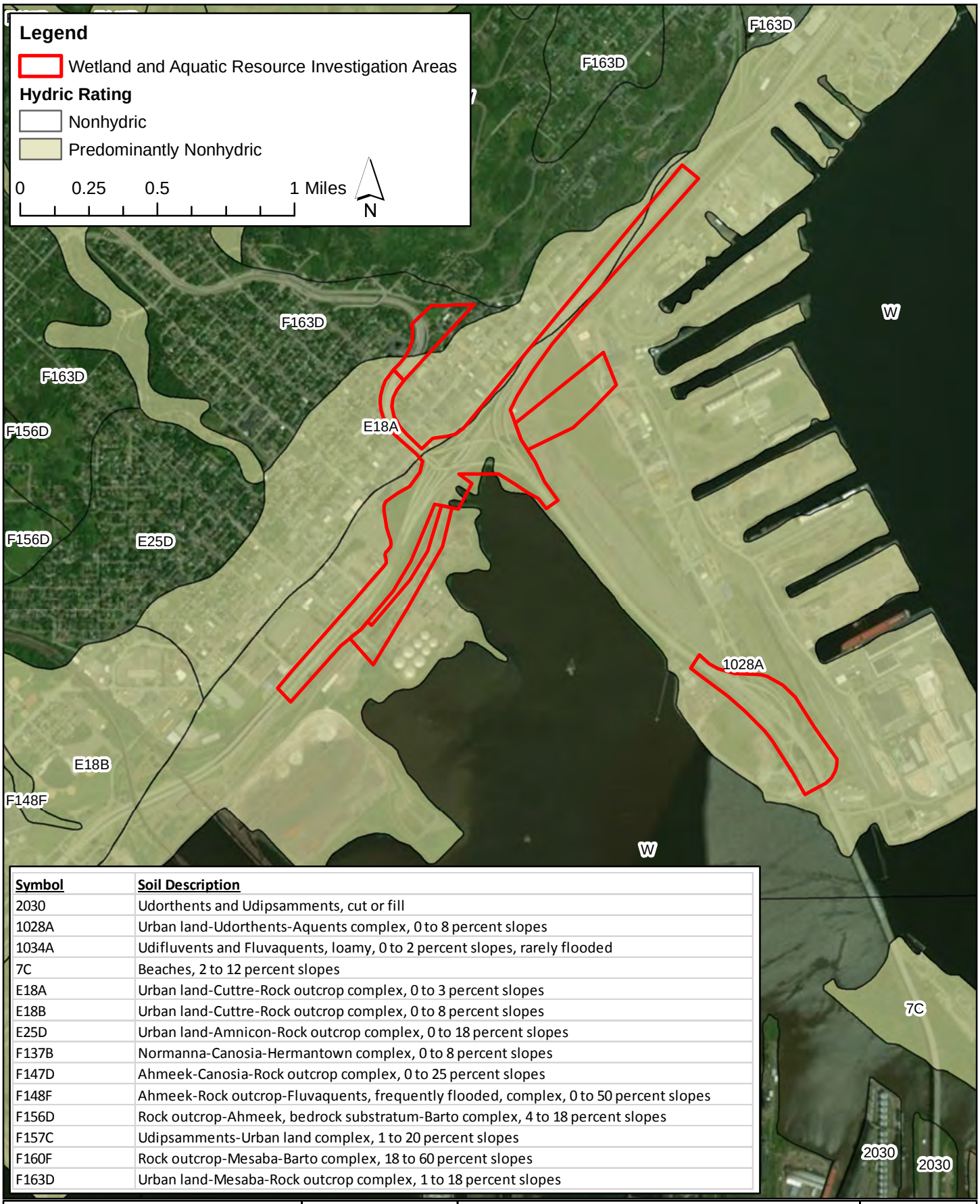
Map by: krhanson
Projection: NAD83 UTM 15N
Source: ESRI, SEH

SITE LOCATION MAP

TWIN PORTS INTERCHANGE
Duluth, St. Louis County, Minnesota

Figure 1

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



Symbol	Soil Description
2030	Udorthents and Udipsamments, cut or fill
1028A	Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes
1034A	Udifluvents and Fluvaquents, loamy, 0 to 2 percent slopes, rarely flooded
7C	Beaches, 2 to 12 percent slopes
E18A	Urban land-Cuttre-Rock outcrop complex, 0 to 3 percent slopes
E18B	Urban land-Cuttre-Rock outcrop complex, 0 to 8 percent slopes
E25D	Urban land-Amnicon-Rock outcrop complex, 0 to 18 percent slopes
F137B	Normanna-Canosia-Hermantown complex, 0 to 8 percent slopes
F147D	Ahmeek-Canosia-Rock outcrop complex, 0 to 25 percent slopes
F148F	Ahmeek-Rock outcrop-Fluvaquents, frequently flooded, complex, 0 to 50 percent slopes
F156D	Rock outcrop-Ahmeek, bedrock substratum-Barto complex, 4 to 18 percent slopes
F157C	Udipsamments-Urban land complex, 1 to 20 percent slopes
F160F	Rock outcrop-Mesaba-Barto complex, 18 to 60 percent slopes
F163D	Urban land-Mesaba-Rock outcrop complex, 1 to 18 percent slopes

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Print Date: 2/6/2018

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Projection: NAD83 UTM 15N
Source: ESRI, NRCS, SEH

NRCS SOILS

TWIN PORTS INTERCHANGE
Duluth, St. Louis County, Minnesota

Figure 2

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NATIONAL WETLANDS INVENTORY

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Figure 3

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Print Date: 5/18/2018

Map by: krhanson
Projection: NAD83 UTM 15N
Source: ESRI, MNDNR, SEH

PUBLIC WATERS INVENTORY

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Figure 4

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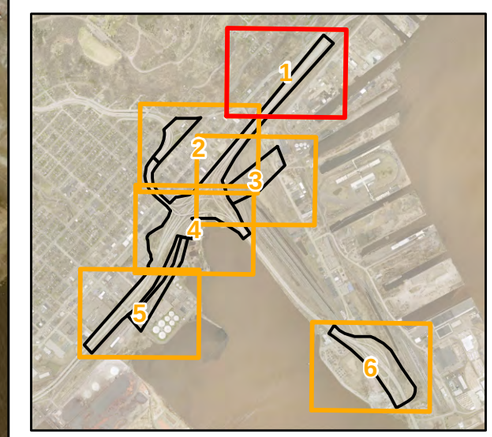
Legend

- Wetland and Aquatic Resource Investigation Areas
- Buckingham Creek Culvert
- Approx. Buckingham Creek Alignment (Open Channel)
- Approx. Buckingham Creek Alignment (Within Box Culvert)
- Wetland Boundary - Level 1 Delineation
- Grit Chambers

Sample Point Locations

- Wetland
- Upland



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Project: MNT01 138031
Print Date: 5/18/2018

Map by: btolcser
Projection: NAD 83, UTM Zone 15N
Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

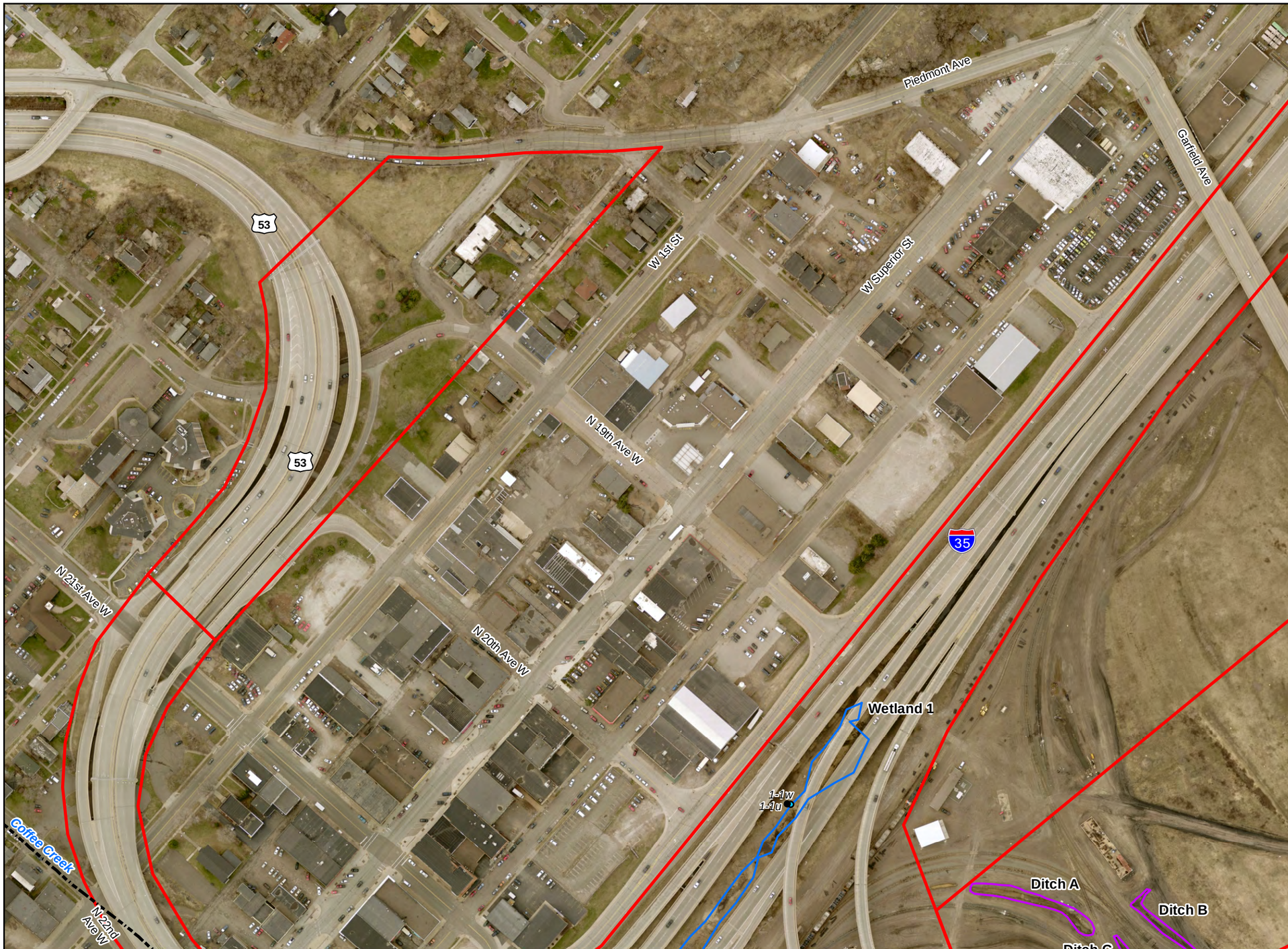
TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Delineation Results

Figure 5-1

Path: S:\KO\M\Mnt01\Common\TwinPortsGIS\original_report\Fig 5 Wetland Delineation Results_mapbookSIP.mxd

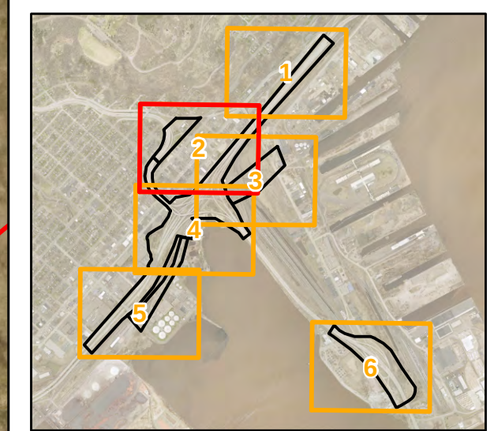


Legend

- Wetland and Aquatic Resource Investigation Areas
- Coffee Creek Alignment (Within Box Culvert)
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

Sample Point Locations

- Wetland
- Upland



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Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

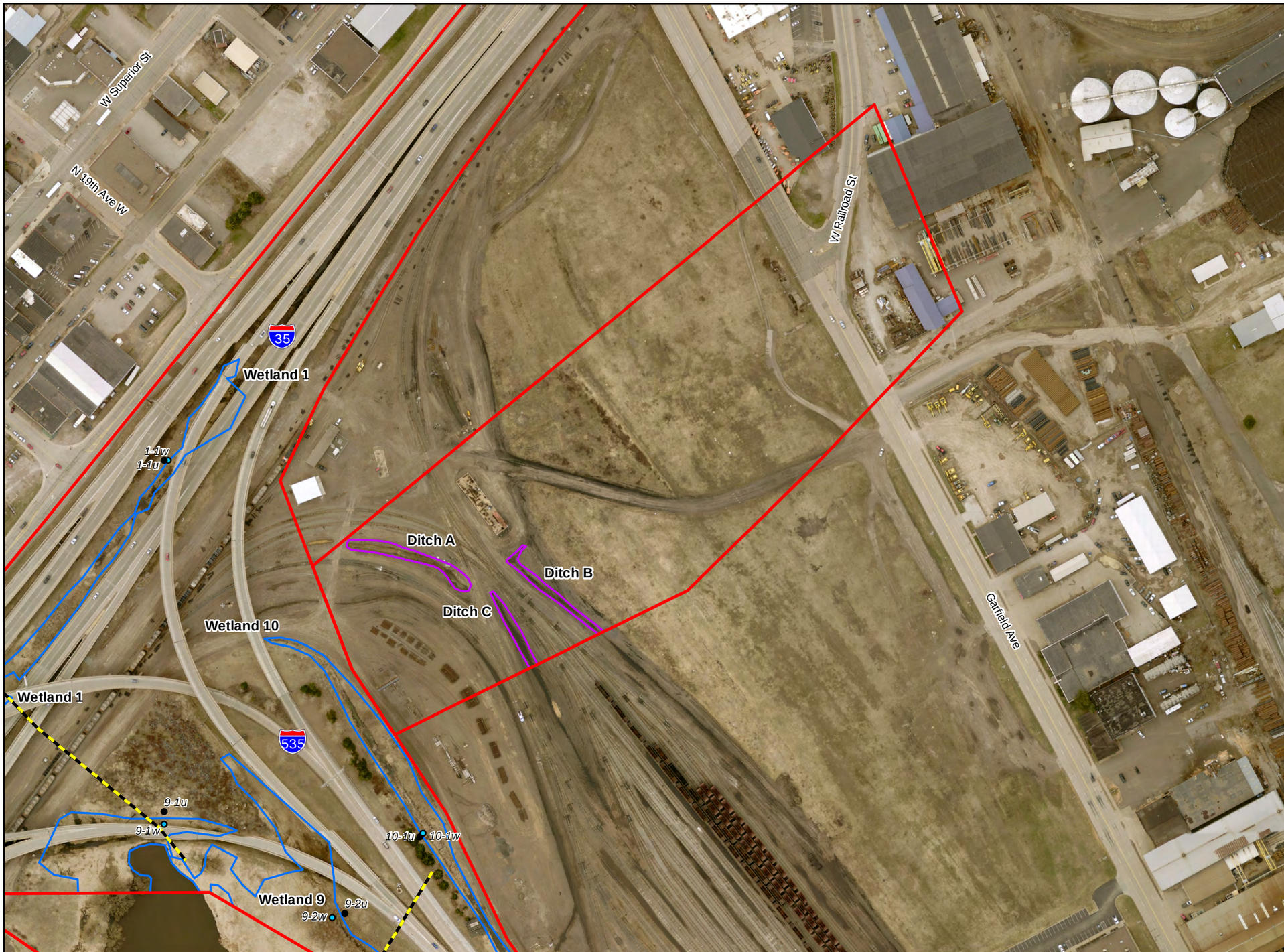
TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Delineation Results

Figure 5-2

Path: S:\KO\M\Mnt01\Common\TwinPortsGIS\original_report\Fig 5 Wetland Delineation Results_mapbookSIP.mxd



Legend

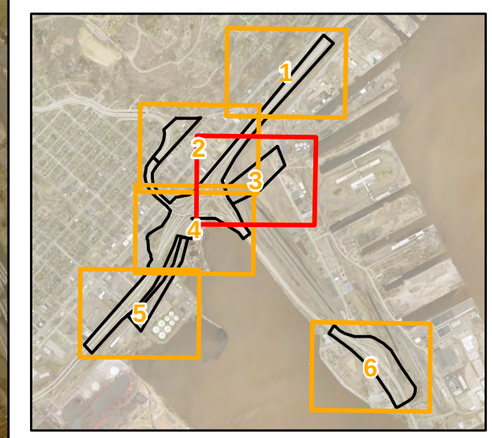
- Wetland and Aquatic Resource Investigation Areas
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure

Sample Point Locations

- Wetland
- Upland



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Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Delineation Results

Figure 5-3

Legend

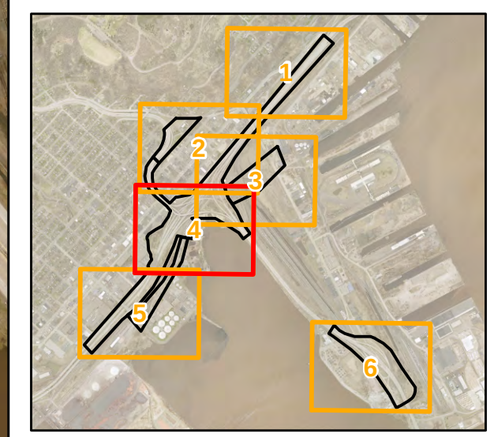
- Wetland and Aquatic Resource Investigation Areas
- Coffee Creek Alignment (Within Box Culvert)
- Miller Creek Top of Bank
- Approx. Miller Creek Alignment (Open Channel)
- Approx. Miller Creek Alignment (Within Box Culvert)
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure
- Upland Drainage Swale

Sample Point Locations

- Wetland
- Upland



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Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

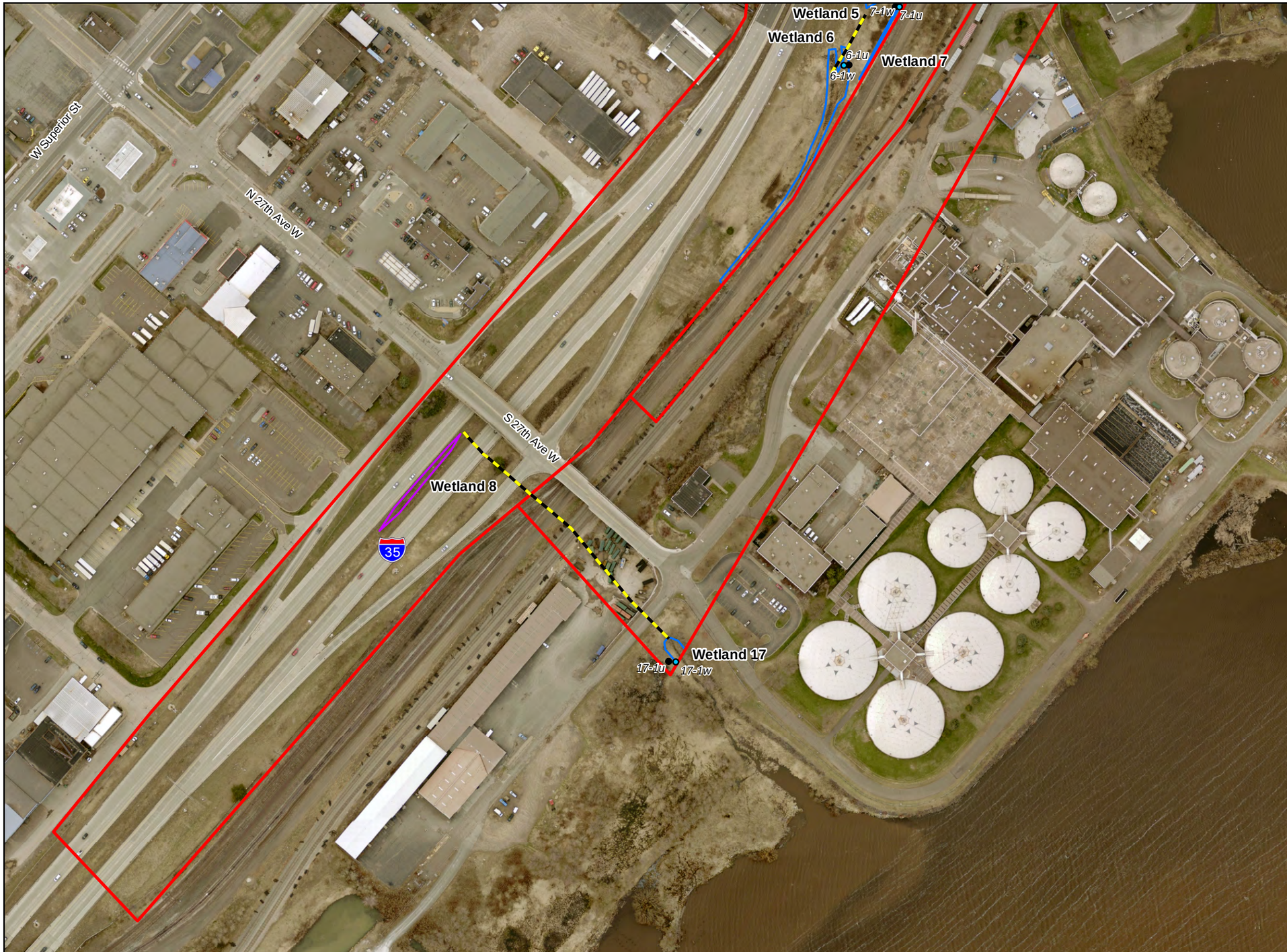
TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Delineation Results

Figure 5-4

Path: S:\KO\M\Mnt01\Common\TwinPorts\GIS\original_report\Fig 5 Wetland Delineation Results_mapbookSIP.mxd



Legend

- Wetland and Aquatic Resource Investigation Areas
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure

Sample Point Locations

- Wetland
- Upland

0 125 250 500 Feet

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Background: St. Louis County 2016

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Delineation Results

Figure 5-5

Legend

- Wetland and Aquatic Resource Investigation Areas
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure

Sample Point Locations

- Wetland
- Upland

0 125 250 500 Feet

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Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Delineation Results

Figure 5-6

Legend

- Wetland and Aquatic Resource Investigation Areas
- Buckingham Creek Culvert
- Approx. Buckingham Creek Alignment (Open Channel)
- Approx. Buckingham Creek Alignment (Within Box Culvert)
- Wetland Boundary - Level 1 Delineation
- Grit Chambers

Sample Point Locations

- Wetland
- Upland

0 125 250 500 Feet

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Projection: NAD 83, UTM Zone 15N
Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

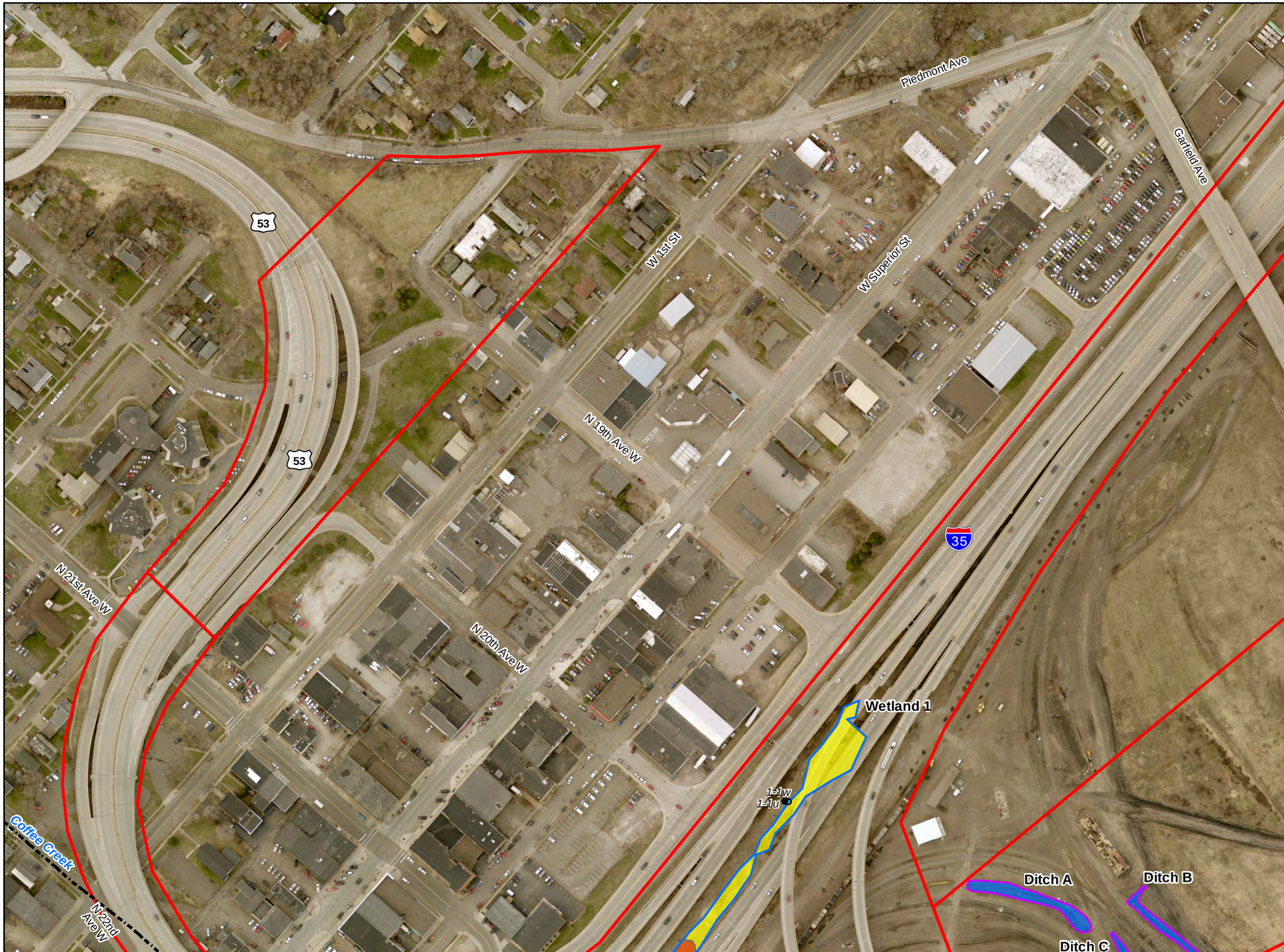
TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Plant Communities

Figure 6-1

Path: S:\KO\M\Mnt01\Common\TwinPortsGIS\original_report\Fig 6 Wetland Plant Communities_mapbookSIP.mxd



Legend

- Wetland and Aquatic Resource Investigation Areas
- Coffee Creek Alignment (Within Box Culvert)
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

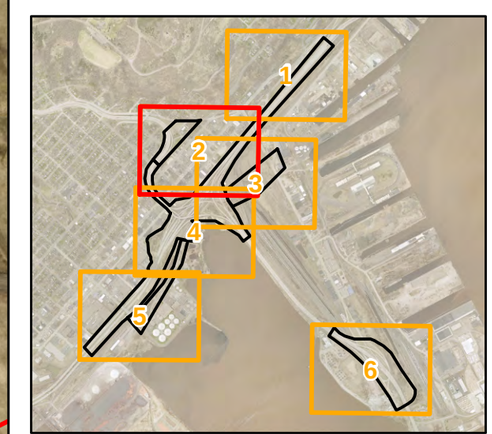
Sample Point Locations

- Wetland
- Upland

Wetland Plant Communities

- Fresh (Wet) Meadow
- Shallow Marsh
- Shallow Open Water

0 125 250 500 Feet



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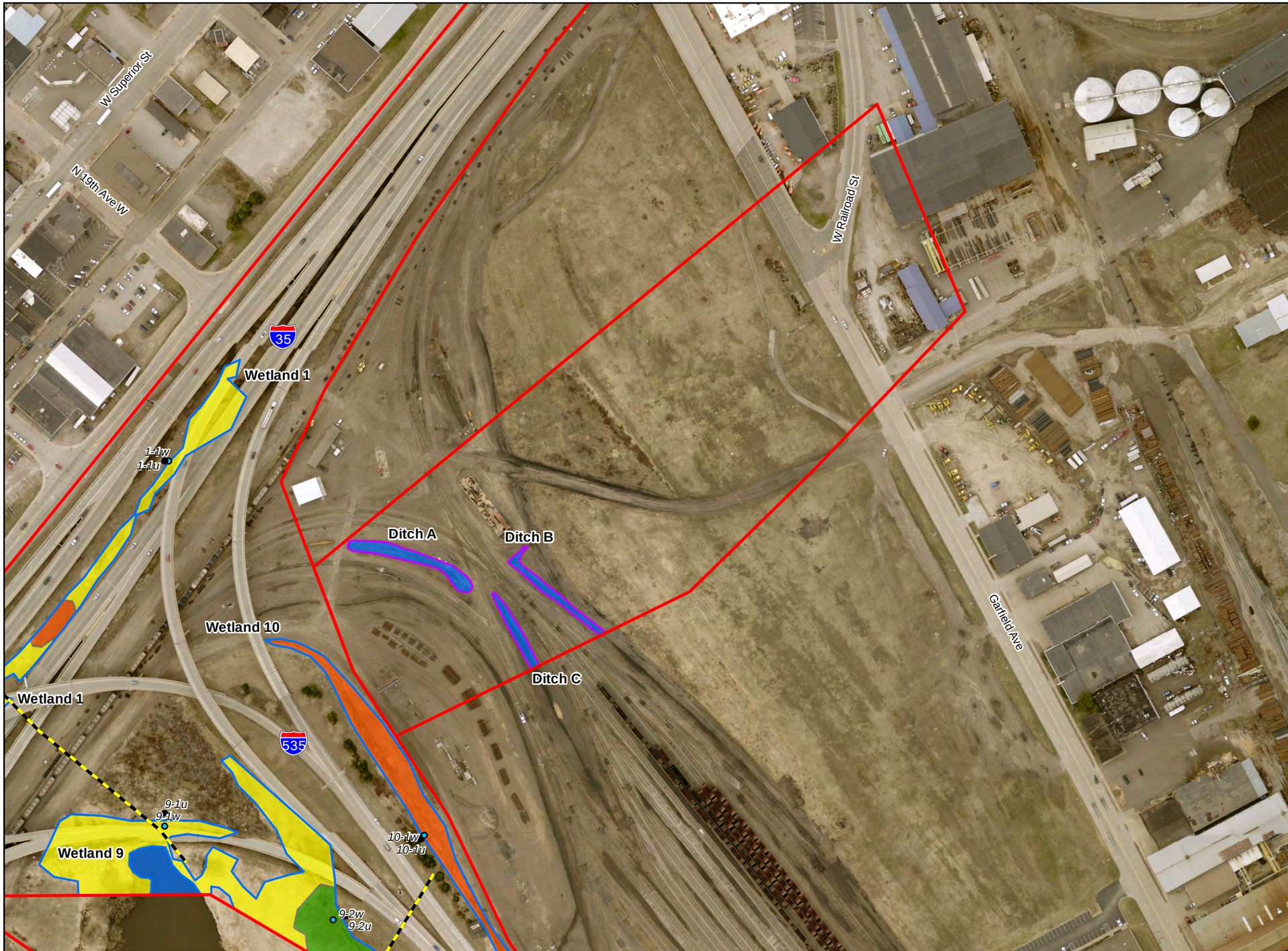
Map by: btolcser
Projection: NAD 83, UTM Zone 15N
Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Plant Communities

Figure 6-2



Legend

- Wetland and Aquatic Resource Investigation Areas
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure

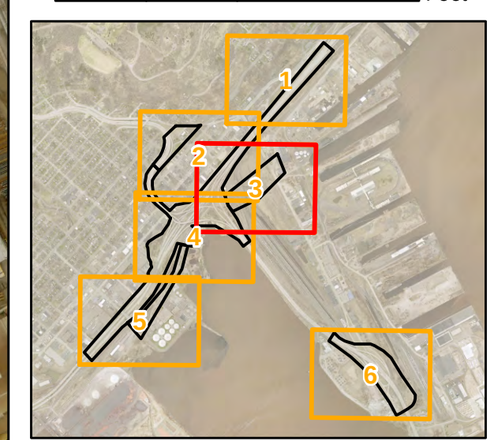
Sample Point Locations

- Wetland
- Upland

Wetland Plant Communities

- Fresh (Wet) Meadow
- Shallow Marsh
- Shallow Open Water
- Hardwood Swamp

0 125 250 500 Feet



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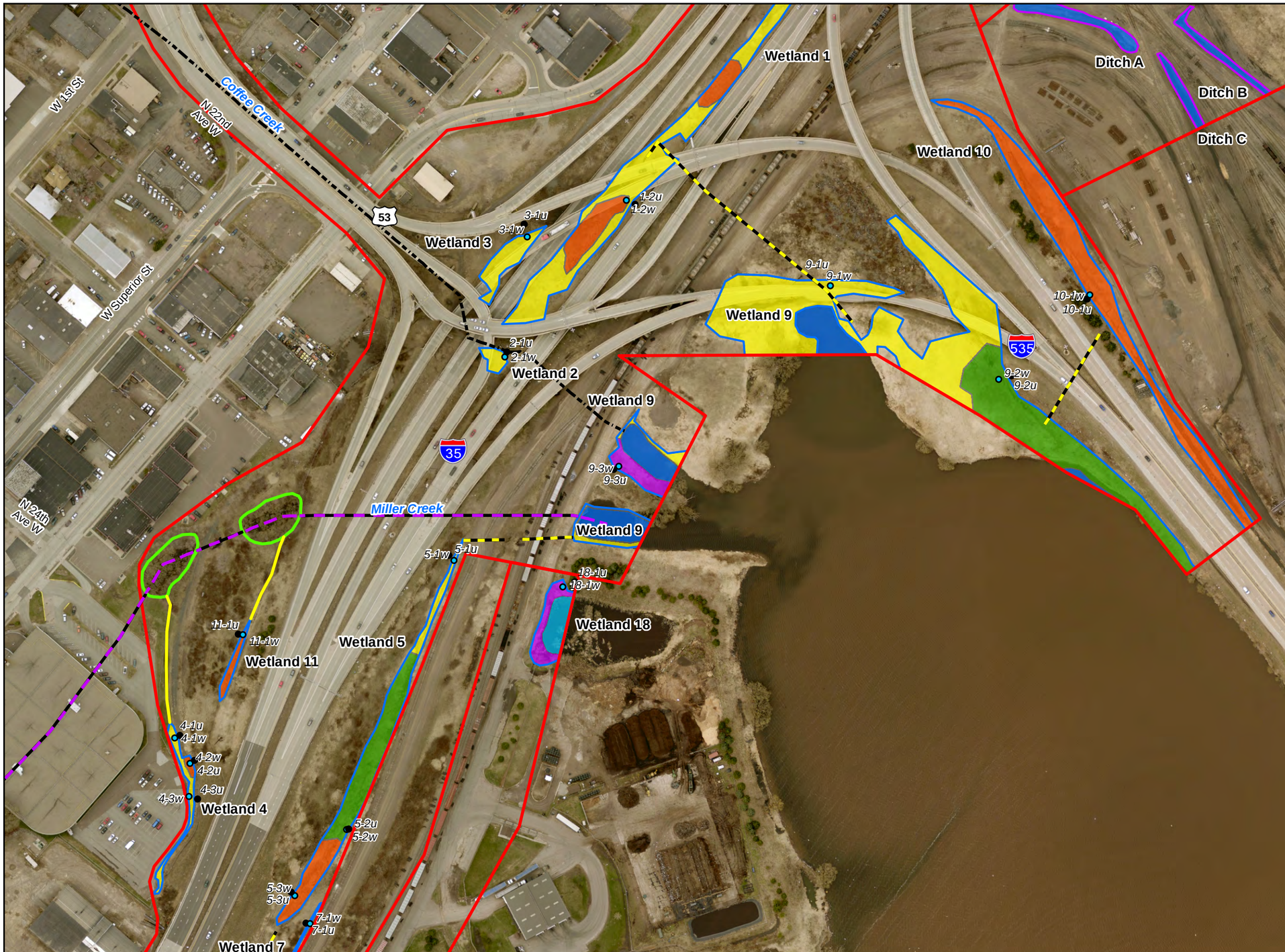
Background: St. Louis County 2016

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Plant Communities

Figure 6-3



Legend

- Wetland and Aquatic Resource Investigation Areas
- Coffee Creek Alignment (Within Box Culvert)
- Miller Creek Top of Bank
- Approx. Miller Creek Alignment (Open Channel)
- Approx. Miller Creek Alignment (Within Box Culvert)
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure
- Upland Drainage Swale

Sample Point Locations

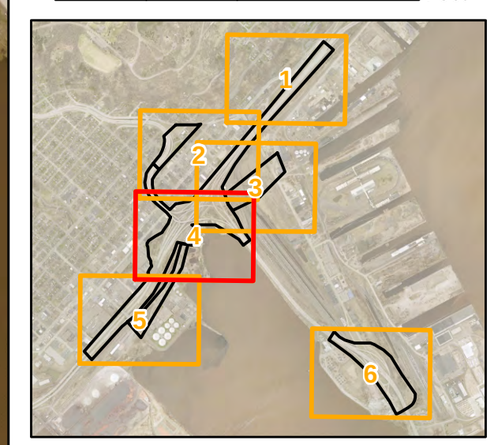
- Wetland
- Upland

Wetland Plant Communities

- Fresh (Wet) Meadow
- Shallow Marsh
- Deep Marsh
- Shallow Open Water
- Shrub-Carr
- Hardwood Swamp

N

0 125 250 500 Feet



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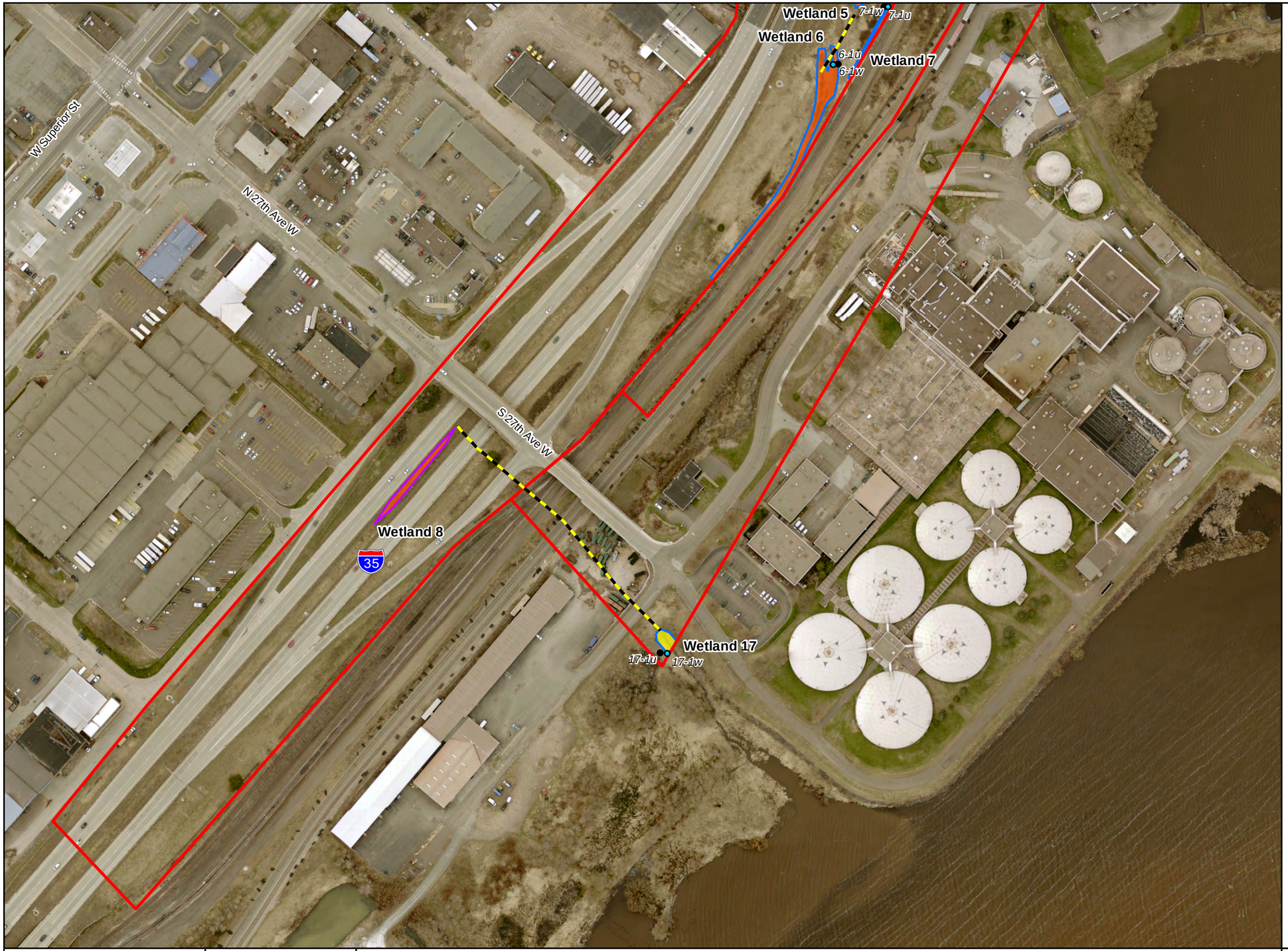
TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Plant Communities

Figure 6-4



Legend

- Wetland and Aquatic Resource Investigation Areas
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure

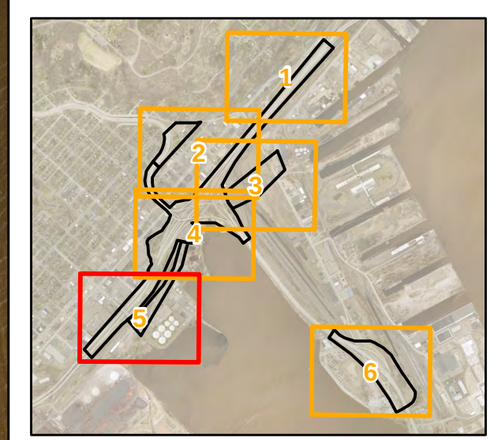
Sample Point Locations

- Wetland
- Upland

Wetland Plant Communities

- Fresh (Wet) Meadow
- Shallow Marsh

0 125 250 500 Feet



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Background: St. Louis County 2016

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Plant Communities

Figure 6-5

Path: S:\KO\M\Mnt01\Common\TwinPortsGIS\original_report\Fig 6 Wetland Plant Communities_mapbookSIP.mxd

Legend

- Wetland and Aquatic Resource Investigation Areas
- Wetland Boundary - Level 2 Delineation
- Wetland Boundary - Level 1 Delineation

City Storm Water Drainage

- Storm Water Drainage Infrastructure

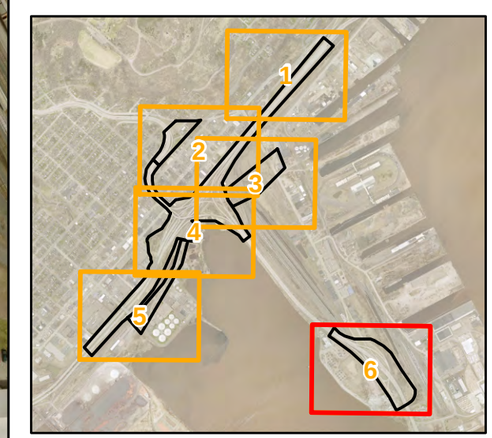
Sample Point Locations

- Wetland
- Upland

Wetland Plant Communities

- Fresh (Wet) Meadow
- Shallow Marsh
- Hardwood Swamp

0 125 250 500 Feet



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Source: MNDNR, MNT01, SEHINC
Background: St. Louis County 2016

TWIN PORTS INTERCHANGE

Duluth, St. Louis County, Minnesota

Wetland Plant Communities

Figure 6-6

Appendix A

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 28, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 1-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): none
Slope (%): 3 Lat.: 46.767184 Long.: -92.12099 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants

Sampling Point: 1-1u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus grandidentata*	-- *Big-Tooth Aspen*	10	Y	FACU
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		10 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Bromus inermis*	-- *Smooth Brome*	30	Y	UPL
2 *Juncus tenuis*	-- *Lesser Poverty Rush*	10	Y	FAC
3 *Tanacetum vulgare*	-- *Common Tansy*	5	N	FACU
4 *Phalaris arundinacea*	-- *Reed Canary Grass*	5	N	FACW
5 *Cirsium vulgare*	-- *Bull Thistle*	5	N	FACU
6 *Achillea millefolium*	-- *Common Yarrow*	5	N	FACU
7 *Solidago canadensis*	-- *Canadian Goldenrod*	5	N	FACU
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		65 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	2	5
Sapling/Shrub Stratum	0	0
Herb Stratum	13	33
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species	30	x 5 =	150
Column totals	75 (A)		310 (B)

Prevalence Index = B/A = 4.13

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 1-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 2/2	100					medium sandy loam	
4-10	2.5YR 4/4	90					clay	10% gravel
10+							stones	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones
Depth (inches): 10+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 28, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 1-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 2 Lat.: 46.767188 Long.: -92.121 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Fresh (Wet) Meadow portion of wetland complex

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 18
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 8

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 1-1w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Calamagrostis canadensis*	-- *Bluejoint*	50	Y	OBL
2 *Phalaris arundinacea*	-- *Reed Canary Grass*	40	Y	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		90	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	50	x 1 =	50	
FACW species	40	x 2 =	80	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	90	(A)	130	(B)

Prevalence Index = B/A = 1.44

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 1-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					fine sandy loam	
8-20	10YR 2/1	100					silty clay	w/roots and woody duff
20+							stones	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones
Depth (inches): 20+

Hydric soil present? Y

Remarks:

The wetland appears to be disturbed due to the construction of Interstate 35 and nearby railroad. A heavy abundance of roots and woody material from 8-20 inches below the surface, as well as the matrix color in this layer being darker than the surface layer (10YR 2/1 vs. 10YR 2/2) may be evidence of this disturbance and that this layer may be a buried horizon which could have resulted from past grading activity. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW and OBL hydrophytic plants were observed. Based on the wetland indicators, and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 28, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 1-2u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none
Slope (%): 0 Lat.: 46.765617 Long.: -92.122626 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Shallow Marsh portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 1-2u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Tanacetum vulgare*	--	*Common Tansy*	20	Y	FACU
2 *Solidago canadensis*	--	*Canadian Goldenrod*	10	Y	FACU
3 *Bromus inermis*	--	*Smooth Brome*	5	N	UPL
4 *Elymus repens*	--	*Creeping Wild Rye*	5	N	FACU
5 *Calamagrostis canadensis*	--	*Bluejoint*	5	N	OBL
6 *Achillea millefolium*	--	*Common Yarrow*	2	N	FACU
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			47	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	9	24
Woody Vine Stratum	0	0

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:

OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	37	x 4 =	148
UPL species	5	x 5 =	25
Column totals	47 (A)		178 (B)

Prevalence Index = B/A = 3.79

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 1-2u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-2	10YR 3/3	100					fine sandy loam	
2+							gravel/cobble	road fill

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: gravel/cobble, road fill
Depth (inches): 2+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 28, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 1-2w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 1 Lat.: 46.765637 Long.: -92.122695 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Shallow Marsh portion of wetland complex

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 1-2w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus grandidentata*	-- *Big-Tooth Aspen*	10	Y	FACU
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		10 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	40	Y	OBL
2 *Juncus tenuis*	-- *Lesser Poverty Rush*	30	Y	FAC
3 *Agrostis gigantea*	-- *Black Bent*	10	N	FACW
4 *Bromus inermis*	-- *Smooth Brome*	5	N	UPL
5 *Cirsium vulgare*	-- *Bull Thistle*	5	N	FACU
6 *Impatiens capensis*	-- *Spotted Touch-Me-Not*	5	N	FACW
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		95 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	2	5
Sapling/Shrub Stratum	0	0
Herb Stratum	19	48
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	40	x 1 =	40
FACW species	15	x 2 =	30
FAC species	30	x 3 =	90
FACU species	15	x 4 =	60
UPL species	5	x 5 =	25
Column totals	105 (A)		245 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 1-2w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	100					fine sandy clay	
12-16	5YR 4/4	75	5YR 5/1	20	D	M	clay	
			5YR 5/6	5	C	M		
16+							hard clay pan	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
X Red Parent Materia (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: hard clay pan
Depth (inches): 16+

Hydric soil present? Y

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 28, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 2-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): convex
Slope (%): 1 Lat.: 46.764801 Long.: -92.123669 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 2-1u

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Bromus inermis*	-- *Smooth Brome*	75	Y	UPL
2 *Tanacetum vulgare*	-- *Common Tansy*	10	N	FACU
3 *Elymus repens*	-- *Creeping Wild Rye*	5	N	FACU
4 *Phalaris arundinacea*	-- *Reed Canary Grass*	2	N	FACW
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		92 = Total Cover		

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	46
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	2	x 2 =	4	
FAC species	0	x 3 =	0	
FACU species	15	x 4 =	60	
UPL species	75	x 5 =	375	
Column totals	92	(A)	439	(B)

Prevalence Index = B/A = 4.77

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 2-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 3/2	100					medium sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 28, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 2-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 2 Lat.: 46.764763 Long.: -92.123694 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Fresh (Wet) Meadow

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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): 10

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 2-1w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)			Absolute % Cover	Dominant Species	Indicator Status
1	*Phalaris arundinacea*	-- *Reed Canary Grass*	90	Y	FACW
2	*Impatiens capensis*	-- *Spotted Touch-Me-Not*	5	N	FACW
3	*Cirsium vulgare*	-- *Bull Thistle*	5	N	FACU
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
11		--			
12		--			
13		--			
14		--			
15		--			
			100 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 2-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					fine sandy loam	
8+	10YR 2/2	95	10YR 2/2	5	C	M	fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 3-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): convex
Slope (%): 1 Lat.: 46.765506 Long.: -92.123543 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Frigid Aquents NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 3-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	--	*Kentucky Blue Grass*	30	Y	FACU
2 *Calamagrostis canadensis*	--	*Bluejoint*	15	Y	OBL
3 *Elymus repens*	--	*Creeping Wild Rye*	10	N	FACU
4 *Hordeum jubatum*	--	*Fox-Tail Barley*	10	N	FAC
5 *Phleum pratense*	--	*Common Timothy*	5	N	FACU
6 *Phalaris arundinacea*	--	*Reed Canary Grass*	5	N	FACW
7 *Tanacetum vulgare*	--	*Common Tansy*	5	N	FACU
8 *Leucanthemum vulgare*	--	*Ox-Eye Daisy*	5	N	UPL
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			85	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17	43
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	15	x 1 =	15
FACW species	5	x 2 =	10
FAC species	10	x 3 =	30
FACU species	50	x 4 =	200
UPL species	5	x 5 =	25
Column totals	85 (A)		280 (B)

Prevalence Index = B/A = 3.29

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 3-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 2/2	100					fine sandy loam	
4+								compacted soils

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: 4+
Depth (inches): compacted soils

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 3-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 1 Lat.: 46.765428 Long.: -92.123508 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Frigid Aquents NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Fresh (Wet) Meadow

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 3-1w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	100	Y	FACW
2 *Impatiens capensis*	-- *Spotted Touch-Me-Not*	5	N	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		105	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	21	53
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	105 (A)		210 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 3-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR 2/2	100					fine sandy clay loam	
10-16+	10YR 4/3	80					clay	20% cobbles

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 4-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.762653 Long.: -92.126388 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Sedge Meadow portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants

Sampling Point: 4-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1	*Poa pratensis*	-- *Kentucky Blue Grass*	70	Y	FACU
2	*Solidago canadensis*	-- *Canadian Goldenrod*	20	N	FACU
3	*Tanacetum vulgare*	-- *Common Tansy*	10	N	FACU
4	*Cirsium vulgare*	-- *Bull Thistle*	10	N	FACU
5	*Equisetum arvense*	-- *Field Horsetail*	10	N	FAC
6	*Hieracium caespitosum*	-- *Yellow Hawkweed*	5	N	UPL
7	*Lathyrus venosus*	-- *Veiny Vetchling*	5	N	FAC
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			130	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	26	65
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	110	x 4 =	440
UPL species	5	x 5 =	25
Column totals	130 (A)		510 (B)

Prevalence Index = B/A = 3.92

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 4-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	7.5YR 3/3	90					clay	10% pebbles
12+							stones and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: 12+
Depth (inches): stones and cobbles

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 4-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.762642 Long.: 46.762642 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Sedge Meadow portion of wetland complex, drainage ditch adjacent to paved parking lot

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 0-8
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0-8

Indicators of wetland hydrology present? Y

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

Perched water table on top of hard clay layer from 8-24"

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 4-1w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Carex lacustris*	-- *Lakebank Sedge*	75	Y	OBL
2 *Salix petiolaris*	-- *Meadow Willow*	15	N	FACW
3 *Solidago canadensis*	-- *Canadian Goldenrod*	10	N	FACU
4 *Hieracium caespitosum*	-- *Yellow Hawkweed*	10	N	UPL
5 *Cornus alba*	-- *Red Osier*	5	N	FACW
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		115	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	23	58
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	75	x 1 =	75
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	10	x 5 =	50
Column totals	115 (A)		205 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 4-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-2	10YR 2/2	50					silt loam	w/roots and woody duff
2-8	5YR 4/3	100					coarse sandy clay	
8-24	5YR 4/3	85	5YR 5/6	15	C	M	clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
X Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby parking lot. An abundance of roots and woody duff material mixed in the layer from 0-2 inches below the surface may be evidence of soil disturbance and that the soil profile has been altered and/or mixed due to past grading activity during construction.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 4-2u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): convex
Slope (%): 20 Lat.: 46.762516 Long.: -92.126269 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Shallow Marsh portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 4-2u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Solidago canadensis*	--	*Canadian Goldenrod*	35	Y	FACU
2 *Cirsium vulgare*	--	*Bull Thistle*	35	Y	FACU
3 *Tanacetum vulgare*	--	*Common Tansy*	15	N	FACU
4 *Lathyrus venosus*	--	*Veiny Vetchling*	10	N	FAC
5 *Bromus inermis*	--	*Smooth Brome*	5	N	UPL
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			100	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

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:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	85	x 4 =	340
UPL species	5	x 5 =	25
Column totals	100 (A)		395 (B)

Prevalence Index = B/A = 3.95

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 4-2u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	5YR 3/2	100					silty clay	
14+							stones and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones and cobbles
Depth (inches): 14+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 4-2w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.762495 Long.: -92.126307 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Shallow Marsh portion of wetland complex, drainage ditch adjacent to paved parking lot

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X 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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 4-2w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha latifolia*	-- *Broad-Leaf Cat-Tail*	50	Y	OBL
2 *Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	30	Y	OBL
3 *Solidago gigantea*	-- *Late Goldenrod*	5	N	FACW
4 *Schoenoplectus tabernaemontani*	-- *Soft-Stem Club-Rush*	5	N	OBL
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		90	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	85	x 1 =	85
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	90 (A)		95 (B)

Prevalence Index = B/A = 1.06

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 4-2w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	7.5YR 2.5/3	100					coarse sandy clay	
4-16+	2.5YR 3/3	80	2.5YR 4/4	10	C	M	clay	10% small gravel

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? ___Y___

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 4-3u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): convex
Slope (%): 20 Lat.: 46.762297 Long.: -92.126248 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 4-3u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Bromus inermis*	-- *Smooth Brome*	60	Y	UPL
2 *Cirsium vulgare*	-- *Bull Thistle*	15	N	FACU
3 *Tanacetum vulgare*	-- *Common Tansy*	15	N	FACU
4 *Verbascum thapsus*	-- *Great Mullein*	5	N	UPL
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		95	= Total Cover	

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	48
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	65	x 5 =	325
Column totals	95 (A)		445 (B)

Prevalence Index = B/A = 4.68

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 4-3u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	5YR 3/2	100					silty clay	
12+							stones and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones and cobbles
Depth (inches): 12+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 4-3w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 1 Lat.: 46.762307 Long.: -92.126314 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Fresh (Wet) Meadow portion of wetland complex, drainage ditch adjacent to paved parking lot

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 4-3w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Agrostis gigantea*	-- *Black Bent*	50	Y	FACW
2 *Calamagrostis canadensis*	-- *Bluejoint*	30	Y	OBL
3 *Solidago gigantea*	-- *Late Goldenrod*	5	N	FACW
4 *Typha latifolia*	-- *Broad-Leaf Cat-Tail*	5	N	OBL
5 *Hordeum jubatum*	-- *Fox-Tail Barley*	2	N	FAC
6 *Rumex crispus*	-- *Curly Dock*	1	N	FAC
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		93	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	47
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	35	x 1 =	35
FACW species	55	x 2 =	110
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	93 (A)		154 (B)

Prevalence Index = B/A = 1.66

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 4-3w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-2	10YR 2/2	75					silt loam	w/roots and woody duff
2-6	5YR 4/4	100					coarse sandy clay	
6-22	5YR 4/4	85	5YR 5/6	15	C	M	clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? ___Y___

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby paved parking lot. An abundance of roots and woody duff material mixed in the layer from 0-2 inches below the surface may be evidence of soil disturbance and that the soil profile has been altered and/or mixed due to past grading activity during construction.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 5-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): none
Slope (%): 50 Lat.: 46.763654 Long.: -92.124158 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 5-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Valeriana officinalis*	--	*Garden valerian*	50	Y	UPL
2 *Tanacetum vulgare*	--	*Common Tansy*	30	Y	FACU
3 *Phalaris arundinacea*	--	*Reed Canary Grass*	15	N	FACW
4 *Cirsium vulgare*	--	*Bull Thistle*	10	N	FACU
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			105	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	21	53
Woody Vine Stratum	0	0

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:

OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	50	x 5 =	250
Column totals	105 (A)		440 (B)

Prevalence Index = B/A = 4.19

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 5-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	10YR 4/3	100					silt loam	
16+							stones and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones and cobbles
Depth (inches): 16+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 5-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.763617 Long.: -92.124139 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Fresh (Wet) Meadow portion of wetland complex, ditch between Interstate 35 and railroad tracks

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 5-1w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	100	Y	FACW
2 *Valeriana officinalis*	-- *Garden valerian*	10	N	UPL
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		110 = Total Cover		

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column totals	110 (A)		250 (B)

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 5-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	7.5YR 3/2	100					coarse sandy clay loar	
14+							stones and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones and cobbles
Depth (inches): 14+

Hydric soil present? Y

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 5-2u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): none
Slope (%): 30 Lat.: 46.762115 Long.: -92.125038 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Hardwood Swamp portion of wetland complex, ditch between Interstate 35 and railroad tracks

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 5-2u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	*Populus balsamifera*	-- *Balsam Poplar*	5	Y	FACW
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			5	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1	*Phalaris arundinacea*	-- *Reed Canary Grass*	80	Y	FACU
2	*Tanacetum vulgare*	-- *Common Tansy*	15	N	FACU
3	*Cirsium vulgare*	-- *Bull Thistle*	10	N	FACU
4	*Centaurea maculosa*	-- *Spotted Knapweed*	5	N	UPL
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
11		--			
12		--			
13		--			
14		--			
15		--			
			110	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	1	3
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	105	x 4 =	420
UPL species	5	x 5 =	25
Column totals	115 (A)		455 (B)

Prevalence Index = B/A = 3.96

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 5-2u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					sandy clay loam	
8-12	7.5YR 3/3	100					sandy clay loam	
12+							stones	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones
Depth (inches): 12+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 5-2w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.762115 Long.: -92.125038 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Hardwood Swamp portion of wetland complex, ditch between Interstate 35 and railroad tracks

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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): 8

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 5-2w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	25	Y	FACW
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		25 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	45	Y	FACW
2 *Salix discolor*	-- *Pussy Willow*	5	N	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		50 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	100	Y	FACW
2 *Rubus idaeus*	-- *Common Red Raspberry*	10	N	FAC
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		110 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	5	13
Sapling/Shrub Stratum	10	25
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	175	x 2 =	350
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	185 (A)		380 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 5-2w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	7.5YR 3/2	100					silty clay	
8-16	5YR 3/2	100					fine sandy clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 5-3u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): none
Slope (%): 35 Lat.: 46.761763 Long.: -92.1255 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Shallow Marsh portion of wetland complex, ditch between Interstate 35 and railroad tracks

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 5-3u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--		5	Y	
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			5	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Bromus inermis*	--	*Smooth Brome*	60	Y	UPL
2 *Solidago gigantea*	--	*Late Goldenrod*	20	Y	FACW
3 *Lotus corniculatus*	--	*Garden Bird's-Foot-Trefoil*	5	N	FACU
4 *Rudbeckia hirta*	--	*Black-Eyed-Susan*	5	N	FACU
5 *Equisetum arvense*	--	*Field Horsetail*	1	N	FAC
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			91	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	1	3
Herb Stratum	18	46
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	1	x 3 =	3
FACU species	10	x 4 =	40
UPL species	60	x 5 =	300
Column totals	91 (A)		383 (B)

Prevalence Index = B/A = 4.21

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 5-3u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-16	5YR 4/3	100					clay	
16-24	5YR 4/3	85	7.5YR 6/1	15	D	M	clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 5-3w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none
Slope (%): 0 Lat.: 46.761745 Long.: -92.125462 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Shallow Marsh portion of wetland complex, ditch between Interstate 35 and railroad tracks

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 5-3w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	90	Y	OBL
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		90	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

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

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 5-3w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-10	10YR 2/2	50					sandy loam	w/roots and woody duff
10-22	2.5YR 4/3	100					clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:

This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. A heavy abundance of roots and woody duff material mixed in the layer from 0-10 inches below the surface may be evidence of this disturbance and that the soil profile has been altered and/or mixed due to past grading activity. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of OBL hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 6-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): none
Slope (%): 30 Lat.: 46.76127 Long.: -92.125755 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? N
Hydric soil present? N
Indicators of wetland hydrology present? N

Is the sampled area within a wetland? N

If yes, optional wetland site ID: ____

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

Sample point collected adjacent to Shallow Marsh, ditch between Interstate 35 and railroad tracks

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants

Sampling Point: 6-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--		5	Y	
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			5	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1	*Bromus inermis*	-- *Smooth Brome*	55	Y	UPL
2	*Solidago canadensis*	-- *Canadian Goldenrod*	20	Y	FACU
3	*Lotus corniculatus*	-- *Garden Bird's-Foot-Trefoil*	5	N	FACU
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			80	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	1	3
Herb Stratum	16	40
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	25	x 4 =	100	
UPL species	55	x 5 =	275	
Column totals	80	(A)	375	(B)

Prevalence Index = B/A = 4.69

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 6-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	7.5YR 3/3	100					sandy clay loam	
4+							gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: gravel and cobbles
Depth (inches): 4+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: July 29, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 6-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.761259 Long.: -92.125784 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Shallow Marsh, ditch between Interstate 35 and railroad tracks, at base of stormwater outlet

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 6-1w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Schoenoplectus pungens*	-- *Three-Square*	70	Y	OBL
2 *Juncus effusus*	-- *Lamp Rush*	20	Y	OBL
3 *Solidago gigantea*	-- *Late Goldenrod*	5	N	FACW
4 *Glyceria striata*	-- *Fowl Manna Grass*	5	N	OBL
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		100	= Total Cover	

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	95	x 1 =	95
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		105 (B)

Prevalence Index = B/A = 1.05

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 6-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	5YR 3/3	90					clay w/gravel	w/roots and woody duff

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:

This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. An abundance of roots and woody duff within the soil profile may be evidence of this disturbance and that the soil profile has been altered and/or mixed due to past grading activity. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 18, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 7-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): none
Slope (%): 15 Lat.: 46.76159 Long.: -92.12537 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (wet) meadow ditch between Interstate 35 and railroad tracks

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 7-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	*Salix interior*	-- *Sandbar Willow*	5	Y	FACW
2		--			
3		--			
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
			5	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1	*Solidago canadensis*	-- *Canadian Goldenrod*	60	Y	FACU
2	*Bromus inermis*	-- *Smooth Brome*	40	Y	UPL
3	*Tanacetum vulgare*	-- *Common Tansy*	20	N	FACU
4	*Cirsium arvense*	-- *Canadian Thistle*	15	N	FACU
5	*Poa pratensis*	-- *Kentucky Blue Grass*	10	N	FACU
6		--			
7		--			
8		--			
9		--			
10		--			
11		--			
12		--			
13		--			
14		--			
15		--			
			145	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	1	3
Herb Stratum	29	73
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	105	x 4 =	420
UPL species	40	x 5 =	200
Column totals	150 (A)		630 (B)

Prevalence Index = B/A = 4.20

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 7-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	7.5YR 3/3	100					sandy clay loam	with 20% coarse gravel
6+							stones and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones and cobble
Depth (inches): 6+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 18, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 7-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.76159 Long.: -92.12534 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil X, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected in Fresh (Wet) Meadow, roadside ditch between Interstate 35 and railroad tracks

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 8
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 7-1w

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Salix interior*	--	*Sandbar Willow*	10	Y	FACW
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			10	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	--	*Reed Canary Grass*	25	Y	FACW
2 *Typha angustifolia*	--	*Narrow-Leaf Cat-Tail*	10	Y	OBL
3 *Solidago gigantea*	--	*Late Goldenrod*	10	Y	FACW
4 *Carex bebbii*	--	*Bebb's Sedge*	10	Y	OBL
5 *Carex tenera*	--	*Quill Sedge*	5	N	FAC
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			60	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	2	5
Herb Stratum	12	30
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	20	x 1 =	20
FACW species	45	x 2 =	90
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	70 (A)		125 (B)

Prevalence Index = B/A = 1.79

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 7-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	10YR 2/2	100					silty clay	
3+	5YR 3/4	90	7.5YR 4/6	10	C	M	clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
X Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 9-1u
Investigator(s): Kyle Hanson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): none
Slope (%): 3 Lat.: 46.765205 Long.: -92.121025 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Water NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow portion of wetland complex.

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants

Sampling Point: 9-1u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)			Absolute % Cover	Dominant Species	Indicator Status
1	*Phalaris arundinacea*	-- *Reed Canary Grass*	80	Y	FACW
2	*Tanacetum vulgare*	-- *Common Tansy*	30	Y	FACU
3	*Solidago canadensis*	-- *Canadian Goldenrod*	5	N	FACU
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
11		--			
12		--			
13		--			
14		--			
15		--			
			115 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	23	58
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column totals	115 (A)		300 (B)

Prevalence Index = B/A = 2.61

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 9-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	7.5YR 3/2	100					coarse sandy clay	
8+							stones	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones
Depth (inches): 8+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 9-1w
Investigator(s): Kyle Hanson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none
Slope (%): 0 Lat.: 46.765136 Long.: -92.121026 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Water NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

St. Louis Bay and Miller Creek outlet shoreland area, sample point collected within Fresh (Wet) Meadow portion of wetland complex

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 9-1w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	100	Y	FACW
2 *Poa palustris*	-- *Fowl Blue Grass*	5	N	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		105 = Total Cover		

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	21	53
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	105 (A)		210 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 9-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-24	10YR 2/1	95					coarse sandy loam	5% gravel

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
_X_ Other (Explain in Remarks)

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

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

Hydric soil present? ___Y___

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 9-2u
Investigator(s): Kyle Hanson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): road shoulder, footslope Local relief (concave, convex, none): none
Slope (%): 25 Lat.: 46.764621 Long.: -92.119553 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Hardwood Swamp portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 9-2u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus tremuloides*	-- *Quaking Aspen*	20	Y	FAC
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		20 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	15	Y	FACW
2 *Populus tremuloides*	-- *Quaking Aspen*	5	Y	FAC
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		20 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Bromus inermis*	-- *Smooth Brome*	30	Y	UPL
2 *Elymus repens*	-- *Creeping Wild Rye*	20	Y	FACU
3 *Tanacetum vulgare*	-- *Common Tansy*	10	N	FACU
4 *Equisetum arvense*	-- *Field Horsetail*	5	N	FAC
5 *Cirsium arvense*	-- *Canadian Thistle*	5	N	FACU
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		70 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	4	10
Herb Stratum	14	35
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 60.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	30	x 3 =	90
FACU species	35	x 4 =	140
UPL species	30	x 5 =	150
Column totals	110 (A)		410 (B)

Prevalence Index = B/A = 3.73

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 9-2u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-18+	10YR 3/2	100					fine sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 9-2w
Investigator(s): Kyle Hanson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): none
Slope (%): 0 Lat.: 46.7646 Long.: -92.119658 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

St. Louis Bay shoreline, sample point collected within Hardwood Swamp portion of wetland complex

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 9-2w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	60	Y	FACW
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		60 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	50	Y	FACW
2 *Salix discolor*	-- *Pussy Willow*	10	N	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		60 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	60	Y	FACW
2 *Calamagrostis canadensis*	-- *Bluejoint*	30	Y	OBL
3 *Cirsium arvense*	-- *Canadian Thistle*	5	N	FACU
4 *Impatiens capensis*	-- *Spotted Touch-Me-Not*	5	N	FACW
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		100 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	12	30
Sapling/Shrub Stratum	12	30
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	30	x 1 =	30
FACW species	185	x 2 =	370
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	220 (A)		420 (B)

Prevalence Index = B/A = 1.91

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 9-2w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	10YR 2/1	100					fine sandy loam	
3-16+	10YR 3/3	100					fine sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
_X_ Other (Explain in Remarks)

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

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

Hydric soil present? ___Y___

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary and secondary indicators of hydrology as well as a dominance of FACW and OBL hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 9-3u
Investigator(s): Kyle Hanson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): none
Slope (%): 2 Lat.: 46.764119 Long.: -92.122814 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Water NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Shrub-Carr portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 9-3u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--	20	Y	
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		20 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Lotus corniculatus*	-- *Garden Bird's-Foot-Trefoil*	80	Y	FACU
2 *Melilotus officinalis*	-- *Yellow Sweet-Clover*	15	N	FACU
3 *Trifolium hybridum*	-- *Alsike Clover*	2	N	FACU
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		97 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	0	0
Herb Stratum	19	49
Woody Vine Stratum	0	0

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:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	97	x 4 =	388
UPL species	0	x 5 =	0
Column totals	97 (A)		388 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 9-3u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 3/3	100					gravel/road fill	
4+							compacted gravel/fill	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel/road fill
Depth (inches): 4+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 9-3w
Investigator(s): Kyle Hanson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): none
Slope (%): 1 Lat.: 46.764134 Long.: -92.122814 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Water NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

St. Louis Bay and Miller Creek outlet shoreland area, sample point collected within Shrub-Carr portion of wetland complex

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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): 10

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 9-3w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--	20	Y	
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		20 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Salix interior*	-- *Sandbar Willow*	90	Y	FACW
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		90 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	30	Y	FACW
2 *Solidago gigantea*	-- *Late Goldenrod*	10	Y	FACW
3 *Rubus idaeus*	-- *Common Red Raspberry*	5	N	FAC
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		45 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	18	45
Herb Stratum	9	23
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 75.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	130	x 2 =	260
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	135 (A)		275 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 9-3w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					fi. sandy clay loam	
8-16	10YR 2/2	80	10YR 3/6	20	C	M	fi. sandy clay loam	
16+							stones	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones
Depth (inches): 16+

Hydric soil present? Y

Remarks:
This wetland is located adjacent to an area of presumed soil disturbance because of its proximity to I-35 and the nearby BNSF railroad. Hydric soil indicators were not observed in the wetland during the field visit, however primary indicators of hydrology as well as a dominance of FACW hydrophytic plants were observed. Based on these other wetland indicators and our best professional judgement, we believe the soils are hydric and that this is a wetland.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 10-1u
Investigator(s): Kyle Hanson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): road shoulder, toeslope Local relief (concave, convex, none): convex
Slope (%): 40 Lat.: 46.765046 Long.: -92.118929 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Shallow Marsh

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 10-1u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Picea glauca*	-- *White Spruce*	15	Y	FACU
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		15 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Tanacetum vulgare*	-- *Common Tansy*	70	Y	FACU
2 *Bromus inermis*	-- *Smooth Brome*	35	Y	UPL
3 *Poa pratensis*	-- *Kentucky Blue Grass*	20	N	FACU
4 *Cirsium arvense*	-- *Canadian Thistle*	5	N	FACU
5 *Calamagrostis canadensis*	-- *Bluejoint*	5	N	OBL
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		135 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	3	8
Sapling/Shrub Stratum	0	0
Herb Stratum	27	68
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	5	x 1 =	5
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	110	x 4 =	440
UPL species	35	x 5 =	175
Column totals	150 (A)		620 (B)

Prevalence Index = B/A = 4.13

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 10-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-18+	10YR 3/2	100					fine sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 3, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 10-1w
Investigator(s): Kyle Hanson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.765069 Long.: -92.118906 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected within Shallow Marsh, ditch between Highway 53 and railroad

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No ___	Depth (inches):	10
Water table present?	Yes	X	No ___	Depth (inches):	+10
Saturation present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 10-1w

Tree Stratum (Plot Size (30))		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Sapling/Shrub Stratum (Plot Size (15))		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size (5))		Absolute % Cover	Dominant Species	Indicator Status
1 *Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	70	Y	OBL
2 *Typha latifolia*	-- *Broad-Leaf Cat-Tail*	15	N	OBL
3 *Solidago gigantea*	-- *Late Goldenrod*	5	N	FACW
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		90 = Total Cover		

Woody Vine Stratum (Plot Size ( ))		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	85	x 1 =	85
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	90 (A)		95 (B)

Prevalence Index = B/A = 1.06

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 10-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
_X_ Other (Explain in Remarks)

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

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

Hydric soil present? ___Y___

Remarks:
In accordance with the 1987 Manual Onsite Determination Method, hydric soils are assumed to be present in plant communities where dominant vegetation is OBL or FACW and primary indicators of wetland hydrology is observed. In this wetland, dominant vegetation is OBL, the wetland boundary is distinct, and primary indicators wetland hydrology is observed.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 18, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 11-1u
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S33, T50N, R14W
Landform (hillslope, terrace, etc.): backslope Local relief (concave, convex, none): convex
Slope (%): 10 Lat.: 46.76321 Long.: -92.1259 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to a Shallow Marsh roadside ditch adjacent to Interstate 35

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 11-1u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Fraxinus pennsylvanica*	-- *Green Ash*	10	Y	FACW
2 *Picea glauca*	-- *White Spruce*	10	Y	FACU
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		20	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Tanacetum vulgare*	-- *Common Tansy*	90	Y	FACU
2 *Poa pratensis*	-- *Kentucky Blue Grass*	30	Y	FACU
3 *Cirsium arvense*	-- *Canadian Thistle*	20	N	FACU
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		140	= Total Cover	

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	0	0
Herb Stratum	28	70
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 25.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	0	x 3 =	0
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column totals	160 (A)		620 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 11-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	7.5YR 3/2	100					silty clay	
8+							stones and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: stones and cobbles
Depth (inches): 8+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: August 18, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 11-1w
Investigator(s): Kyle Hanson, Erin Johnson Section, Township, Range: S4, T49N, R14W
Landform (hillslope, terrace, etc.): roadside ditch Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.76322 Long.: -92.1259 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil X, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected in a roadside ditch adjacent to Interstate 35 and Shallow Marsh

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 4
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 11-1w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum (Plot Size: 5)			Absolute % Cover	Dominant Species	Indicator Status
1	*Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	80	Y	OBL
2	*Phalaris arundinacea*	-- *Reed Canary Grass*	20	N	FACW
3	*Solidago gigantea*	-- *Late Goldenrod*	10	N	FACW
4		--			
5		--			
6		--			
7		--			
8		--			
9		--			
10		--			
11		--			
12		--			
13		--			
14		--			
15		--			
		110	= Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	80	x 1 =	80
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		140 (B)

Prevalence Index = B/A = 1.27

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 11-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-2	10YR 2/1	100					silty clay	
2-16	5YR 3/4	90	7.5YR 4/6	10	C	PL/M	clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? ___Y___

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-1u
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): convex
Slope (%): 2 Lat.: 46.754598 Long.: -92.103995 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point adjacent to Fresh (Wet) Meadow portion of wetland complex, adjacent to service road near highway bridge overpass

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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): 16

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 12-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Cirsium arvense*	--	*Canadian Thistle*	25	Y	FACU
2 *Tanacetum vulgare*	--	*Common Tansy*	20	Y	FACU
3 *Equisetum arvense*	--	*Field Horsetail*	20	Y	FAC
4 *Solidago canadensis*	--	*Canadian Goldenrod*	10	N	FACU
5 *Phalaris arundinacea*	--	*Reed Canary Grass*	5	N	FACW
6 *Sonchus arvensis*	--	*Field Sow-Thistle*	5	N	FACU
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			85	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17	43
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column totals	85 (A)		310 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-20	10YR 2/2	100					coarse sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:
Soils appear to be disturbed in this area presumably from nearby highway bridge overpass and railroad construction/activity. Garbage, metal scraps, and coal bits were present in the soil profile and soil horizons also appear to be mixed.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-1w
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 2 Lat.: 46.754609 Long.: -92.104056 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 12

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

Sample point collected within Fresh (Wet) Meadow portion of wetland complex, adjacent to service road near highway bridge overpass

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 8

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 12-1w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Calamagrostis canadensis*	-- *Bluejoint*	50	Y	OBL
2 *Juncus filiformis*	-- *Thread Rush*	30	Y	FACW
3 *Juncus torreyi*	-- *Torrey's Rush*	10	N	FACW
4 *Phalaris arundinacea*	-- *Reed Canary Grass*	10	N	FACW
5 *Schoenoplectus tabernaemontani*	-- *Soft-Stem Club-Rush*	10	N	OBL
6 *Lycopus uniflorus*	-- *Northern Water-Horehound*	5	N	OBL
7 *Equisetum arvense*	-- *Field Horsetail*	5	N	FAC
8 *Salix interior*	-- *Sandbar Willow*	2	N	FACW
9 *Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	2	N	OBL
10 *Mentha arvensis*	-- *American Wild Mint*	2	N	FACW
11	--			
12	--			
13	--			
14	--			
15	--			
		126	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	25	63
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	67	x 1 =	67	
FACW species	54	x 2 =	108	
FAC species	5	x 3 =	15	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	126	(A)	190	(B)

Prevalence Index = B/A = 1.51

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	10YR 3/1	100					coarse sandy loam	w/woody duff and debris
6-16	10YR 2/1	80	10YR 3/3	20	C	M	medium sandy loam	w/garbage, metal scraps, etc
16+							compact med. gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel
Depth (inches): 16+

Hydric soil present? Y

Remarks:

Soils appear to be disturbed in this area presumably from nearby highway bridge overpass and railroad construction/activity. Garbage, metal scraps, and coal bits were present in the soil profile and soil horizons also appear to be mixed. Hydric soil indicators were not observed at this sample point but according to the 1987 Manual Onsite Determination Method, hydric soils are inferred according to the due to the following: (1) Two primary indicators and two secondary indicators of wetland hydrology present (2) Dominance of OBL and FACW hydrophytic plant species observed.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-2u
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): convex
Slope (%): 3 Lat.: 46.754851 Long.: -92.104093 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Hardwood Swamp portion of wetland complex

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 12-2u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Salix alba*	-- *White Willow*	20	Y	FACW
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		20 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Solidago canadensis*	-- *Canadian Goldenrod*	30	Y	FACU
2 *Tanacetum vulgare*	-- *Common Tansy*	25	Y	FACU
3 *Solidago gigantea*	-- *Late Goldenrod*	10	N	FACW
4 *Cirsium arvense*	-- *Canadian Thistle*	10	N	FACU
5 *Equisetum arvense*	-- *Field Horsetail*	10	N	FAC
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		85 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	0	0
Herb Stratum	17	43
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	10	x 3 =	30
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column totals	105 (A)		350 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-2u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	100					med. sandy clay loam	
12-20	10YR 4/4	100					med. loamy sandy	mixing with upper layer

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:
Soils appear to be disturbed in this area presumably from nearby highway bridge overpass and railroad construction/activity. Mixed layers observed within the soil profile may be due to past disturbance.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-2w
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.754991 Long.: -92.104134 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 12

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

Sample point collected within Hardwood Swamp portion of wetland complex

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 6

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 12-2w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Salix alba*	-- *White Willow*	50	Y	FACW
2 *Populus balsamifera*	-- *Balsam Poplar*	25	Y	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		75 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	10	Y	FACW
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		10 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Calamagrostis canadensis*	-- *Bluejoint*	30	Y	OBL
2 *Solidago gigantea*	-- *Late Goldenrod*	25	Y	FACW
3 *Equisetum arvense*	-- *Field Horsetail*	5	N	FAC
4 *Cornus alba*	-- *Red Osier*	5	N	FACW
5 *Fraxinus nigra*	-- *Black Ash*	5	N	FACW
6 *Juncus filiformis*	-- *Thread Rush*	2	N	FACW
7 *Fragaria virginiana*	-- *Virginia Strawberry*	2	N	FACU
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		74 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	15	38
Sapling/Shrub Stratum	2	5
Herb Stratum	15	37
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	30	x 1 =	30
FACW species	122	x 2 =	244
FAC species	5	x 3 =	15
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column totals	159 (A)		297 (B)

Prevalence Index = B/A = 1.87

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-2w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-5	10YR 2/1	100					mucky loam	w/5% medium sand
5-14	10YR 5/2	75	10YR 4/6	25	C	M	coarse sandy clay loam	
14-20	10YR 2/1	100					buried organic layer	woody debris

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:
Soils appear to be disturbed in this area presumably from nearby highway bridge overpass and railroad construction/activity. A buried organic layer of decomposed wood debris present may indicate past soil disturbance and soil mixing.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-3u
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): road shoulder Local relief (concave, convex, none): convex
Slope (%): 40 Lat.: 46.756028 Long.: -92.105037 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Hardwood Swamp portion of wetland complex, steep grade road shoulder

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 12-3u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Prunus serotina*	-- *Black Cherry*	20	Y	FACU
2 *Populus tremuloides*	-- *Quaking Aspen*	20	Y	FAC
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		40 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Prunus serotina*	-- *Black Cherry*	5	Y	FACU
2 *Sorbus americana*	-- *American Mountain-Ash*	5	Y	FAC
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		10 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	-- *Kentucky Blue Grass*	30	Y	FACU
2 *Achillea millefolium*	-- *Common Yarrow*	10	N	FACU
3 *Tanacetum vulgare*	-- *Common Tansy*	10	N	FACU
4 *Rubus idaeus*	-- *Common Red Raspberry*	5	N	FAC
5 *Equisetum arvense*	-- *Field Horsetail*	5	N	FAC
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		60 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	8	20
Sapling/Shrub Stratum	2	5
Herb Stratum	12	30
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column totals	110 (A)		405 (B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-3u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-2	10YR 2/1	100					loamy sand w/gravel	
2-12	10YR 3/2	100					med. sand w/gravel	
12+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel
Depth (inches): 12+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-3w
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.756028 Long.: -92.104977 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 12

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

Sample point collected within Hardwood Swamp portion of wetland complex, located along the toeslope of adjacent steep grade road shoulder

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 12-3w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus tremuloides*	-- *Quaking Aspen*	40	Y	FAC
2 *Populus balsamifera*	-- *Balsam Poplar*	20	Y	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		60 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	10	Y	FACW
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		10 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Calamagrostis canadensis*	-- *Bluejoint*	90	Y	OBL
2 *Cornus alba*	-- *Red Osier*	10	N	FACW
3 *Fraxinus nigra*	-- *Black Ash*	5	N	FACW
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		105 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	12	30
Sapling/Shrub Stratum	2	5
Herb Stratum	21	53
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 4 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	90	x 1 =	90
FACW species	45	x 2 =	90
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	175 (A)		300 (B)

Prevalence Index = B/A = 1.71

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-3w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/1	100					loamy coarse sand	
8-20	10YR 3/1	90	10YR 3/4	10	C	M	loamy medium sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
X Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-4u
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): road shoulder Local relief (concave, convex, none): convex
Slope (%): 30 Lat.: 46.756715 Long.: -92.105463 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Shallow Marsh portion of wetland complex, steep grade road shoulder

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 12-4u

Tree Stratum	Plot Size (30)			Absolute % Cover	Dominant Species	Indicator Status
1		--				
2		--				
3		--				
4		--				
5		--				
6		--				
7		--				
8		--				
9		--				
10		--				
				0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)			Absolute % Cover	Dominant Species	Indicator Status
1		--				
2		--				
3		--				
4		--				
5		--				
6		--				
7		--				
8		--				
9		--				
10		--				
				0	= Total Cover	

Herb Stratum	Plot Size (5)			Absolute % Cover	Dominant Species	Indicator Status
1	*Tanacetum vulgare*	--	*Common Tansy*	30	Y	FACU
2	*Poa pratensis*	--	*Kentucky Blue Grass*	30	Y	FACU
3	*Rubus idaeus*	--	*Common Red Raspberry*	25	Y	FAC
4		--				
5		--				
6		--				
7		--				
8		--				
9		--				
10		--				
11		--				
12		--				
13		--				
14		--				
15		--				
				85	= Total Cover	

Woody Vine Stratum	Plot Size ( )			Absolute % Cover	Dominant Species	Indicator Status
1		--				
2		--				
3		--				
4		--				
5		--				
				0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17	43
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 3 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column totals	85 (A)		315 (B)

Prevalence Index = B/A = 3.71

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-4u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					med. sand w/gravel	
14+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel
Depth (inches): 14+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 12-4w
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): road shoulder Local relief (concave, convex, none): convex
Slope (%): 40 Lat.: 46.756746 Long.: -92.105433 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	Y		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	Wetland 12

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

Sample point collected within Shallow Marsh portion of wetland complex, located along the toeslope of adjacent steep grade road shoulder

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes X	No ___	Depth (inches):	8
Water table present?	Yes X	No ___	Depth (inches):	+8
Saturation present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	0

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 12-4w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 =	Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 =	Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Phragmites australis*	-- *Common Reed*	25	Y	FACW
2 *Typha angustifolia*	-- *Narrow-Leaf Cat-Tail*	25	Y	OBL
3 *Calamagrostis canadensis*	-- *Bluejoint*	20	Y	OBL
4 *Juncus filiformis*	-- *Thread Rush*	5	N	FACW
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		75 =	Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 =	Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	15	38
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	45	x 1 =	45
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	75 (A)		105 (B)

Prevalence Index = B/A = 1.40

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)
Approximately 20% open water observed at sample point, see **Photo** ____ (**Appendix A**).

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 12-4w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
_X_ Other (Explain in Remarks)

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

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

Hydric soil present? ___Y___

Remarks:
In accordance with the 1987 Manual Onsite Determination Method, hydric soils are inferred to be present in plant communities where dominant vegetation is OBL or FACW and primary indicators of wetland hydrology is observed. In this wetland, inundation with 8" of standing water and FACW and OBL dominant hydrophytic plants were observed.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 13-1u
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): convex
Slope (%): 15 Lat.: 46.756416 Long.: -92.107429 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow, road shoulder adjacent to highway exit ramp

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants

Sampling Point: 13-1u

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	-- *Kentucky Blue Grass*	20	Y	FACU
2 *Phalaris arundinacea*	-- *Reed Canary Grass*	20	Y	FACW
3 *Calamagrostis canadensis*	-- *Bluejoint*	10	N	OBL
4 *Lotus corniculatus*	-- *Garden Bird's-Foot-Trefoil*	10	N	FACU
5 *Cirsium arvense*	-- *Canadian Thistle*	5	N	FACU
6 *Asclepias syriaca*	-- *Common Milkweed*	5	N	UPL
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		70 = Total Cover		

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	14	35
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	10	x 1 =	10
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	5	x 5 =	25
Column totals	70 (A)		215 (B)

Prevalence Index = B/A = 3.07

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 13-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	10YR 3/2	100					coarse sandy loam	
6-12	10YR 3/2	90	10YR 4/3	10	C	M	coarse sandy loam	
12+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel
Depth (inches): 12+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 13-1w
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 1 Lat.: 46.756418 Long.: -92.107487 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 13

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

Sample point collected within Fresh (Wet) Meadow, road ditch adjacent to highway exit ramp

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	___	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 12
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 10

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 13-1w

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	--	*Reed Canary Grass*	30	Y	FACW
2 *Calamagrostis canadensis*	--	*Bluejoint*	25	Y	OBL
3 *Juncus filiformis*	--	*Thread Rush*	25	Y	FACW
4 *Solidago gigantea*	--	*Late Goldenrod*	5	N	FACW
5 *Salix interior*	--	*Sandbar Willow*	5	N	FACW
6 *Solidago canadensis*	--	*Canadian Goldenrod*	5	N	FACU
7 *Poa pratensis*	--	*Kentucky Blue Grass*	5	N	FACU
8 *Lotus corniculatus*	--	*Garden Bird's-Foot-Trefoil*	2	N	FACU
9 *Fragaria virginiana*	--	*Virginia Strawberry*	2	N	FACU
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			104	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	21	52
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	25	x 1 =	25
FACW species	65	x 2 =	130
FAC species	0	x 3 =	0
FACU species	14	x 4 =	56
UPL species	0	x 5 =	0
Column totals	104 (A)		211 (B)

Prevalence Index = B/A = 2.03

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 13-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	7.5YR 3/1	100					loamy coarse sand	
4-16	7.5YR 3/1	90	7.5YR 4/4	10	C	PL/M	loamy coarse sand	
16+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
X Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel
Depth (inches): 16+

Hydric soil present? Y

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 14-1u
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): road shoulder Local relief (concave, convex, none): convex
Slope (%): 35 Lat.: 46.756416 Long.: -92.107429 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation _____, soil _____, or hydrology _____ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow, steep grade road shoulder

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 14-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Bromus inermis*	--	*Smooth Brome*	40	Y	UPL
2 *Poa pratensis*	--	*Kentucky Blue Grass*	30	Y	FACU
3 *Cirsium arvense*	--	*Canadian Thistle*	10	N	FACU
4 *Tanacetum vulgare*	--	*Common Tansy*	5	N	FACU
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			85	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17	43
Woody Vine Stratum	0	0

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:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	45	x 4 =	180
UPL species	40	x 5 =	200
Column totals	85 (A)		380 (B)

Prevalence Index = B/A = 4.47

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 14-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-2	10YR 3/2	100					sandy clay loam	
2-10	7.5YR 4/3	100					fine sandy clay	w/gravel
10+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel road fill
Depth (inches): 10+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 14-1w
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): concave
Slope (%): 5 Lat.: 46.756418 Long.: -92.107487 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 14

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

Sample point collected within Fresh (Wet) Meadow. This basin is a narrow ditch adjacent to steep grade road shoulder, also located at the base of highway bridge deck stormwater drainange pipes, and has ground culvert connection.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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): 10	**Indicators of wetland hydrology present?**	Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 14-1w

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	--	*Reed Canary Grass*	40	Y	FACW
2 *Calamagrostis canadensis*	--	*Bluejoint*	30	Y	OBL
3 *Poa pratensis*	--	*Kentucky Blue Grass*	10	N	FACU
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			80	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	16	40
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	30	x 1 =	30
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	80 (A)		150 (B)

Prevalence Index = B/A = 1.88

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 14-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	10YR 2/2	100					clay loam	
3-10	7.5YR 4/2	90	7.5YR 4/6	10	C	M	fine sandy clay	
10+							cement and gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: cement and compacted gravel road fill
Depth (inches): 10+

Hydric soil present? Y

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 15-1u
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): footslope Local relief (concave, convex, none): none
Slope (%): 10 Lat.: 46.75476 Long.: -92.104772 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow, highway on-ramp road shoulder, underneath bridge overpass

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 15-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Elymus repens*	--	*Creeping Wild Rye*	40	Y	FACU
2 *Ambrosia artemisiifolia*	--	*Annual Ragweed*	25	Y	FACU
3 *Linaria vulgaris*	--	*Butter and Eggs*	10	N	UPL
4 *Tanacetum vulgare*	--	*Common Tansy*	5	N	FACU
5 *Cirsium arvense*	--	*Canadian Thistle*	5	N	FACU
6	--				
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			85	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	17	43
Woody Vine Stratum	0	0

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:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	75	x 4 =	300	
UPL species	10	x 5 =	50	
Column totals	85	(A)	350	(B)

Prevalence Index = B/A = 4.12

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 15-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-15	10YR 2/2	100					medium loamy sand	
15+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel road fill
Depth (inches): 15+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 15-1w
Investigator(s): Erin Johnson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.754727 Long.: -92.104686 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 15

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

Sample point collected within Fresh (Wet) Meadow, shallow depression underneath highway bridge overpass

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
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:

VEGETATION - Use scientific names of plants **Sampling Point:** 15-1w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum (Plot Size: 5)			Absolute % Cover	Dominant Species	Indicator Status
1	*Juncus filiformis*	-- *Thread Rush*	80	Y	FACW
2	*Calamagrostis canadensis*	-- *Bluejoint*	10	N	OBL
3	*Lycopus uniflorus*	-- *Northern Water-Horehound*	5	N	OBL
4	*Elymus repens*	-- *Creeping Wild Rye*	2	N	FACU
5	*Cirsium arvense*	-- *Canadian Thistle*	2	N	FACU
6	*Sonchus arvensis*	-- *Field Sow-Thistle*	2	N	FACU
7		--			
8		--			
9		--			
10		--			
11		--			
12		--			
13		--			
14		--			
15		--			
			101	= Total Cover	

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	20	51
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	15	x 1 =	15
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column totals	101 (A)		199 (B)

Prevalence Index = B/A = 1.97

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 15-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-12	7.5YR 3/1	90	7.5YR 3/3	10	C	PL/M	medium loamy sand	
12+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
X Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel road fill
Depth (inches): 12+

Hydric soil present? Y

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 16-1u
Investigator(s): Erin Johnson, Kyle Hanson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): convex
Slope (%): 2 Lat.: 46.7538 Long.: -92.103163 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Sample point collected adjacent to Fresh (Wet) Meadow, nearby to railroad bed

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)
- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 16-1u

Tree Stratum	Plot Size (30)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
6	--				
7	--				
8	--				
9	--				
10	--				
			0	= Total Cover	

Herb Stratum	Plot Size (5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	--	*Kentucky Blue Grass*	30	Y	FACU
2 *Tanacetum vulgare*	--	*Common Tansy*	20	Y	FACU
3 *Solidago canadensis*	--	*Canadian Goldenrod*	10	N	FACU
4 *Phalaris arundinacea*	--	*Reed Canary Grass*	5	N	FACW
5 *Achillea millefolium*	--	*Common Yarrow*	5	N	FACU
6 *Calamagrostis canadensis*	--	*Bluejoint*	5	N	OBL
7	--				
8	--				
9	--				
10	--				
11	--				
12	--				
13	--				
14	--				
15	--				
			75	= Total Cover	

Woody Vine Stratum	Plot Size ( )		Absolute % Cover	Dominant Species	Indicator Status
1	--				
2	--				
3	--				
4	--				
5	--				
			0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	15	38
Woody Vine Stratum	0	0

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:

OBL species	5	x 1 =	5	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	65	x 4 =	260	
UPL species	0	x 5 =	0	
Column totals	75	(A)	275	(B)

Prevalence Index = B/A = 3.67

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 16-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					medium sandy loam	
8+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel
Depth (inches): 8+

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 14, 2016
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 16-1w
Investigator(s): Erin Johnson, Kyle Hanson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): none Local relief (concave, convex, none): concave
Slope (%): 0 Lat.: 46.753747 Long.: -92.1032 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 16

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

Sample point collected within Fresh (Wet) Meadow, shallow basin adjacent to railroad bed

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 10
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 16-1w

Tree Stratum	Plot Size (30)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15)	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum	Plot Size (5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Calamagrostis canadensis*	-- *Bluejoint*	25	Y	OBL
2 *Juncus filiformis*	-- *Thread Rush*	25	Y	FACW
3 *Carex stipata*	-- *Stalk-Grain Sedge*	10	N	OBL
4 *Phalaris arundinacea*	-- *Reed Canary Grass*	10	N	FACW
5 *Solidago gigantea*	-- *Late Goldenrod*	5	N	FACW
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		75	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	15	38
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	35	x 1 =	35
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	75 (A)		115 (B)

Prevalence Index = B/A = 1.53

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 16-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					coarse sandy loam	w/medium gravel
6-10	10YR 3/6	100					coarse sandy loam	w/garbage, metal scraps, glass, etc.
10-14	10YR 2/1	100					fine sandy loam	
14+							compacted gravel	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
X Other (Explain in Remarks)

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

Restrictive Layer (if observed):
Type: compacted gravel
Depth (inches): 14+

Hydric soil present? Y

Remarks:

Soils appear to be disturbed in this area presumably from nearby highway bridge overpass and railroad construction/activity. Garbage, metal scraps, glass, and coal bits were present in the soil profile and soil horizons also appear to be mixed. Hydric soil indicators were not observed at this sample point but hydric soils are inferred due to the following: (1) Two primary indicators and two secondary indicators of wetland hydrology present (2) Dominance of OBL and FACW hydrophytic plant species observed.

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 30, 2017
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 17-1u
Investigator(s): Kyle Hanson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Concave
Slope (%): 30 Lat.: 46.7579 Long.: -92.1273 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 17-1u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus tremuloides*	-- *Quaking Aspen*	10	Y	FAC
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		10 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0 = Total Cover		

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	80	Y	FACW
2 *Tanacetum vulgare*	-- *Common Tansy*	20	N	FACU
3 *Cirsium arvense*	-- *Canadian Thistle*	10	N	FACU
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		110 = Total Cover		

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	2	5
Sapling/Shrub Stratum	0	0
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column totals	120 (A)		310 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 17-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 2/2	100					Medium sandy clay loam	
4-14+	7.5YR 3/3	100					Medium sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 30, 2017
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 17-1w
Investigator(s): Kyle Hanson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
Slope (%): 2 Lat.: 46.7579 Long.: -92.1272 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 17

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

Sample point collected within a fresh (wet) meadow adjacent to a drainage feature that flows to the St. Louis River.

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 8
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 17-1w

Tree Stratum (Plot Size (30))		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum (Plot Size (15))		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Herb Stratum (Plot Size (5))		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	100	Y	FACW
2 *Solidago gigantea*	-- *Late Goldenrod*	5	N	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		105	= Total Cover	

Woody Vine Stratum (Plot Size ( ))		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	21	53
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	105 (A)		210 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 17-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	90	10YR 5/6	10	C	M	Silty clay loam	
8-16+	N 2.5/	100					Silty clay	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
X Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 30, 2017
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 18-1u
Investigator(s): Kyle Hanson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): None
Slope (%): 2 Lat.: 46.7635 Long.: -92.1231 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

HYDROLOGY

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)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

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:

VEGETATION - Use scientific names of plants **Sampling Point:** 18-1u

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1 *Abies balsamea*	-- *Balsam Fir*	30	Y	FAC
2 *Picea glauca*	-- *White Spruce*	10	Y	FACU
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		40	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Populus balsamifera*	-- *Balsam Poplar*	10	Y	FACW
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		10	= Total Cover	

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	70	Y	FACW
2 *Tanacetum vulgare*	-- *Common Tansy*	25	Y	FACU
3 *Cirsium arvense*	-- *Canadian Thistle*	5	N	FACU
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		100	= Total Cover	

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	8	20
Sapling/Shrub Stratum	2	5
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across all Strata: 5 (B)
Percent of Dominant Species that are OBL, FACW, or FAC: 60.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column totals	150 (A)		410 (B)

Prevalence Index = B/A = 2.73

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 18-1u

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					Medium sandy clay loam	
6-14+	7.5YR 3/3	100					Fine sand	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? N

Remarks:

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Twin Ports Interchange City/County: Duluth/St. Louis Sampling Date: October 30, 2017
Applicant/Owner: Minnesota Department of Transportation State: MN Sampling Point: 18-1w
Investigator(s): Kyle Hanson Section, Township, Range: S3, T49N, R14W
Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave
Slope (%): 2 Lat.: 46.7635 Long.: -92.1232 Datum: NAD 83, UTM 15N
Soil Map Unit Name: Urban land-Udorthents-Aquents complex, 0 to 8 percent slopes NWI Classification: none
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	Wetland 18

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

Sample point collected within a shrub carr adjacent to a deep marsh.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	___	No	X	Depth (inches): 14
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants **Sampling Point:** 18-1w

Tree Stratum (Plot Size: 30)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		0	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 15)		Absolute % Cover	Dominant Species	Indicator Status
1 *Salix petiolaris*	-- *Meadow Willow*	60	Y	FACW
2 *Populus balsamifera*	-- *Balsam Poplar*	5	N	FACW
3	--			
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
		65	= Total Cover	

Herb Stratum (Plot Size: 5)		Absolute % Cover	Dominant Species	Indicator Status
1 *Phalaris arundinacea*	-- *Reed Canary Grass*	70	Y	FACW
2 *Solidago gigantea*	-- *Late Goldenrod*	20	Y	FACW
3 *Calamagrostis canadensis*	-- *Bluejoint*	10	N	OBL
4	--			
5	--			
6	--			
7	--			
8	--			
9	--			
10	--			
11	--			
12	--			
13	--			
14	--			
15	--			
		100	= Total Cover	

Woody Vine Stratum (Plot Size:)		Absolute % Cover	Dominant Species	Indicator Status
1	--			
2	--			
3	--			
4	--			
5	--			
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	13	33
Herb Stratum	20	50
Woody Vine Stratum	0	0

Dominance Test Worksheet

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	10	x 1 =	10
FACW species	155	x 2 =	310
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	165 (A)		320 (B)

Prevalence Index = B/A = 1.94

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Note: This data sheet has been adapted to use the 2016 National Wetland Plant List:
Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)

SOIL **Sampling Point:** 18-1w

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

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					Very fine sandy clay loam	
8-16+	7.5YR 4/2	95	10YR 4/6	5	C	PL/M	Very fine sandy clay loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (TF2)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

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

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

Hydric soil present? Y

Remarks:

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Appendix B

Site Photographs

Photo 1 **Wetland 1 – Fresh (Wet) Meadow** portion of wetland complex, photo taken July 28th, 2016

Photo 2 **Wetland 1 – Fresh (Wet) Meadow** transitioning to **Shallow Marsh**, photo taken July 28th, 2016

Photo 3 **Wetland 1 – Shallow Marsh**, photo taken July 28th, 2016

Photo 4 **Wetland 2 – Fresh (Wet) Meadow**, photo taken July 28th, 2016

Photo 5 **Wetland 3 – Fresh (Wet) Meadow**, photo taken July 28th, 2016

Photo 6 **Wetland 4 – Sedge Meadow**, photo taken July 29th, 2016

Photo 7 **Wetland 4 – Shallow Marsh**, photo taken July 29th, 2016

Photo 8 **Wetland 4 – Fresh (Wet) Meadow**, photo taken July 29th, 2016

Photo 9 **Wetland 5 – Fresh (Wet) Meadow**, photo taken July 29th, 2016

Photo 10 **Wetland 5 – Hardwood Swamp**, photo taken July 29th, 2016

Photo 11 **Wetland 5 – Shallow Marsh**, photo taken July 29th, 2016

Photo 12 **Wetland 6 – Shallow Marsh**, photo taken July 29th, 2016

Photo 13 **Wetland 7 – Fresh (Wet) Meadow**, narrow ditch along BNSF railway, photo taken August 18th, 2016

Photo 14 **Wetland 8 – Shallow Marsh**, located in median in between north and southbound lanes of U.S. Interstate 35, photo taken August 3rd, 2016

Photo 15 **Wetland 9 – Fresh (Wet) Meadow** portion of wetland complex, bordering open water of St. Louis Bay at the outlet of Miller Creek, photo taken August 3rd, 2016

Photo 16 **Wetland 9 – Hardwood Swamp** portion of wetland complex. A portion of this wetland borders the shoreline of the St. Louis Bay. Photo taken August 3rd, 2016

Photo 17 **Wetland 9 – Shrub-Carr** portion of wetland complex, bordering open water of St. Louis Bay at the outlet of Miller Creek, photo taken August 3rd, 2016

Photo 18 **Wetland 10 – Shallow Marsh**, photo taken August 3rd, 2016

Photo 19 **Wetland 11 – Shallow Marsh**, photo taken August 18th, 2016

Photo 20 **Miller Creek** – exposed above ground area between culvert tunnels, photo taken July 28th, 2016

Photo 21 **Miller Creek** – exposed above ground area between culvert tunnels, photo taken July 28th, 2016

Photo 22 **Wetland 12 – Fresh (Wet) Meadow**, adjacent to service road underneath U.S. Highway 53, Blatnik Bridge overpass, photo taken October 14th, 2016

Photo 23 **Wetland 12 – Fresh (Wet) Meadow**, photo taken October 19th, 2016

Photo 24 **Wetland 12** – High water table present (water table at 8" below the ground surface) in **Fresh (Wet) Meadow** community, photo taken October 17, 2016

Photo 25 **Wetland 12 – Hardwood Swamp**, plant community dominated by white willow within the tree stratum, photo taken October 14th, 2016

Photo 26 **Wetland 12 – Hardwood Swamp**, plant community dominated by quaking aspen within the tree stratum, photo taken October 14th, 2016

Photo 27 **Wetland 12 – Shallow Marsh**, inundated with 8” standing water, photo taken October 14th, 2016

Photo 28 **Wetland 13 – Fresh (Wet) Meadow**, narrow basin in between steep grade roadside slope and railroad bed, photo taken October 14th,

Photo 29 **Wetland 14 – Fresh (Wet) Meadow**, shallow roadside ditch, photo taken October 14th, 2016

Photo 30 **Wetland 15 – Fresh (Wet) Meadow**, shallow depression, underneath Blatnik bridge overpass, photo taken October 14th, 2016

Photo 31 **Wetland 16 – Fresh (Wet) Meadow**, shallow basin adjacent to railroad bed, photo taken October 17th, 2016

Photo 32 **Wetland 18 – Fresh (Wet) Meadow**, surrounding drainage feature that outlets to the St. Louis Bay. Photo taken October 24th, 2017

Photo 33 **Wetland 17 – Shrub-Carr**, transitions to deep marsh outside of the study area. Photo taken October 24th, 2017.

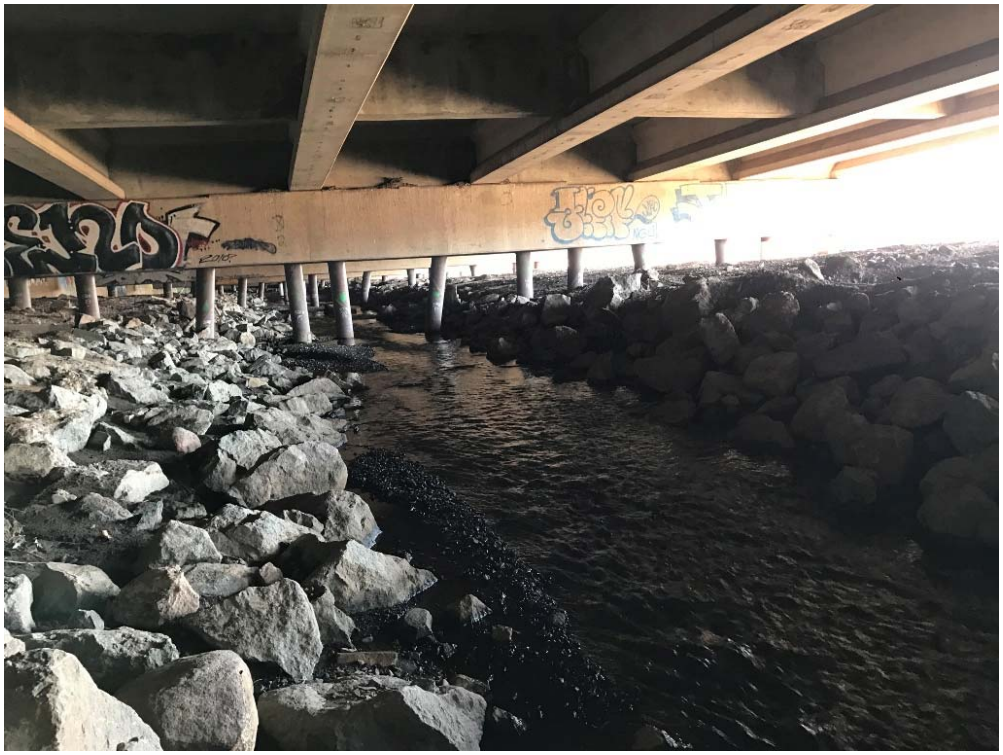

Photo 34 **Buckingham Creek**, under TH 35. Photo taken April 6th, 2017.

Photo 35 Buckingham Creek, culvert inlet under rail yard, outlet is located at the St. Louis Bay. Photo taken April 6th, 2017.

Appendix C

Climate Summary Data

Location: Duluth, MN

Field Visit: 7/28/2016 - 7/29/2016

Score using the 1981-2010 normal period

(values are in inches)	first prior month: **June 2016**	second prior month: **May 2016**	third prior month: **April 2016**
estimated precipitation total for this location:	4.46	1.87	2.4
there is a 30% chance this location will have less than: *	2.9	2.45	1.46
there is a 30% chance this location will have more than: *	5.04	3.76	2.94
type of month: dry (***1***), normal (***2***), wet (***3***)	normal	dry	normal
monthly score	3 * **2** = 6	2 * **1** = 2	1 * **2** = 2

multi-month score:	**10 (Normal)**

6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

Location: Duluth, MN
Field Visit: 8/3/2016

Score using the 1981-2010 normal period

(values are in inches)	first prior month: **July 2016**	second prior month: **June 2016**	third prior month: **May 2016**
estimated precipitation total for this location:	4.39	4.46	1.87
there is a 30% chance this location will have less than: *	2.55	2.9	2.45
there is a 30% chance this location will have more than: *	4.61	5.04	3.76
type of month: dry (***1***), normal (***2***), wet (***3***)	normal	normal	dry
monthly score	3 * **2** = 6	2 * **2** = 2	1 * **1** = 2

multi-month score:	**10 (Normal)**

6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

Location: Duluth, MN

Field Visit: 10/14/2016 and 10/17/2016

Score using the 1981-2010 normal period

(values are in inches)	first prior month: **September 2016**	second prior month: **August 2016**	third prior month: **July 2016**
estimated precipitation total for this location:	3.52	4.96	4.39
there is a 30% chance this location will have less than: *	3.01	2.6	2.55
there is a 30% chance this location will have more than: *	4.83	4.38	4.61
type of month: dry (***1***), normal (***2***), wet (***3***)	normal	wet	normal
monthly score	3 * **2** = 6	2 * **3** = 6	1 * **2** = 2

multi-month score:	**14 (Normal)**

6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

Location: Duluth, MN
Field Visit: 10/30/2017

Score using the 1981-2010 normal period

(values are in inches)	first prior month: **October 2017**	second prior month: **September 2017**	third prior month: **August 2017**
estimated precipitation total for this location:	3.4	3.55	7.23
there is a 30% chance this location will have less than: *	1.84	3.01	2.6
there is a 30% chance this location will have more than: *	3.43	4.83	4.38
type of month: dry (***1***), normal (***2***), wet (***3***)	normal	normal	wet
monthly score	3 * 2 = 6	2 * **2** = 4	1 * **3** = 3

multi-month score:	**13 (Normal)**

6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

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Sustainable buildings, sound infrastructure, safe transportation systems, clean water, renewable energy and a balanced environment. Building a Better World for All of Us communicates a companywide commitment to act in the best interests of our clients and the world around us.

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