Wetland Delineation Report

CSAH 2 Reconstruction

Redwood County, Minnesota

Prepared for:

Redwood County
1820 East Bridge Street
P.O. Box 6
Redwood Falls, MN 56283

Prepared by:

Kimley-Horn and Associates, Inc.
767 North Eustis Street
Saint Paul, MN 55114

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Kimley»Horn

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Executive Summary

Wetland scientists Aaron Stolte (CMWP) and Kestra Peterson with Kimley-Horn and Associates, Inc. conducted a wetland investigation and field delineation for Redwood County, County State Aid Highway (CSAH) 2 from CSAH 11 to 305th Street in Redwood County, Minnesota. The wetland investigation and delineation occurred on July 21, 2021 and included 150 feet off the existing centerline between the two adjacent driveways north and south of Wabasha Creek, and 100 feet off the existing centerline along the

rest of the corridor, approximately 3.5 miles of roadway. The study area and approximate existing right of way are shown on Figure 3. Redwood County is proposing road rehabilitation of CSAH 2.

In total, six wetlands, two tributaries, and two erosional features were delineated. Many of the wetlands had no defined backslope and opened to agricultural fields. Based on the field evaluation and review of available background information, the following findings/conclusions/recommendations are made:

- Summary tables of the delineated aquatic resources can be found at the end of this report, **Table 1** and **Table 2**
- The US Army Corps of Engineers (USACE) should review the delineation to determine whether the identified wetlands are jurisdictional (i.e. Water of the United States)
- If construction activities are proposed within any of the identified aquatic resources, approvals/permits from the USACE, MnDNR, and or Local Government Unit may be required. Coordination with these agencies should be conducted prior to construction.
- Best Management Practices (BMPs) for erosion and sediment control should be implemented during and after construction to protect the quality of the wetlands and aquatic resources. The BMPs should be outlined in a NPDES Stormwater Pollution Prevention Plan (SWPPP).

1 Site Location

The project area is located along County State Aid Highway (CSAH) 2 from CSAH 11 to 305th Street in Redwood County, Minnesota (**Figure 1**). The project length is approximately 3.5 miles.

2 Project Description

Redwood County is proposing road rehabilitation of CSAH 2.

3 Purpose of the Delineation

The purpose of this delineation was to identify the extent of wetlands and other aquatic resources along the roadway right of way. The information will be used to facilitate project design and determine if wetland impacts are avoidable and/or if minimization of impacts can result from design modifications.

4 Site Description

The study area consisted of approximately 150 feet off the existing centerline between the two adjacent driveways north and south of Wabasha Creek, and 100 feet off the existing centerline along the rest of CSAH 2 from CSAH 11 to 305th Street. Land use in the vicinity of the project is mainly agricultural and rural residential. Cover types within the study area generally consisted of unmanicured vegetated roadside ditches, wooded ravines, wetlands, and cropland.

5 Preliminary Investigation

Prior to field reconnaissance, potential wetland areas within the project study areas were identified through a desktop review of National Wetlands Inventory (NWI), aerial photography (2016), DNR Public Waters Inventory (PWI), LiDAR, and the soil survey for Redwood County.

NWI mapping, available from the US Fish and Wildlife Service, depicted numerous wetland areas within the project study area. The Minnesota Department of Natural Resources (DNR) Public Waters Inventory (PWI) shapefiles (2020) were reviewed and two DNR Public Watercourses were identified: Wabasha Creek and one unnamed creek. Maps showing NWI and PWI are shown in **Appendix A**.

According to the Natural Resources Conservation Service's (NRCS) *Web Soil Survey*, multiple soil mapping units within the project study areas were considered hydric, predominantly hydric, predominantly non-hydric, or non-hydric. Maps and information obtained from the NRCS online web survey are included in **Appendix B**.

The project area is located in:

- Sections 15, 16, 21, 22, 27, 28, 33, and 34 of Township 112N, Range 34W

This is depicted on the Morgan, MN and Morton, MN 7.5 minute topographical maps (USGS) (see **Figure 2**).

Precipitation data for the project study area were obtained from an online data retrieval system. The online system is maintained by the Climatology Working Group at the University of Minnesota (available at http://climateapps.dnr.state.mn.us/gridded_data/precip/wetland/wetland.asp). This information was used to determine the current hydrologic conditions for the project area and if those conditions are typical

for this time of year. Precipitation levels for the three months (April, May, June) leading up to the field review were compared to historical data. The data show that April and June had drier than normal precipitation levels and May had normal precipitation levels. Evaluation of antecedent precipitation from 30-day rolling totals resulted in a multi-month score of 9 (dry), which means that the prior period has had drier than normal precipitation levels. Precipitation was not noted during the delineation. This information is included in **Appendix C**.

6 Field Investigation

A routine level 2 (onsite) wetland delineation, as outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE, 1987) along with the Great Plains regional supplement (USACE, 2010) was performed for the project study areas.

During the onsite delineation, vegetation, soils, and current hydrologic characteristics were evaluated at each wetland area identified within the project study areas. Wetland boundaries were surveyed with a Trimble GPS where one or more of the three criteria were no longer present. The sample point locations and wetland boundaries are shown in **Figure 3**.

In addition to wetlands that were investigated and delineated, non-wetland aquatic features were delineated. Non-wetland aquatic features are defined based on the observation of the following characteristics:

- Flow
    - Perennial: contains water at all times of the year except during extreme drought
    - Intermittent: contains water occasionally or seasonally
    - Ephemeral: contains water only during and immediately after periods of rainfall or snowmelt
- Ordinary High Water Mark (OHWM): The limit line on the shore established by the fluctuation of the water surface. It is shown by such things as a clear line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, the presence of litter and debris, or other features influenced by the surrounding area
- Bank Shape
    - Undercut: banks that overhang the stream channel
    - Steep: bank slope of approximately greater than 30 degrees
    - Gradual: bank slope of approximately 30 degrees or less

Delineation protocol was reviewed with Redwood County prior to the field investigation. A transect was completed for most of the delineated wetlands. The exceptions occur where similar conditions (vegetation, hydrology, and other characteristics) were present in nearby wetlands. If these circumstances were present, then representative data sheets were used for multiple wetlands and the delineated boundary was based on the abrupt change in topography and vegetation.

The field data sheets are included in **Appendix D.** Site photos can be found in **Appendix E.**

7 Wetland, Tributary, and Upland Characteristics

The field delineation identified six wetlands, two tributaries, and two erosional features within the project study area. Each of these areas is described in **Table 1**, wetlands, **or Table 2**, tributaries.

Wetland plant community types identified in **Table 1** were based on the dominant vegetation and hydrologic characteristics within the study areas and may not represent the wetland plant communities outside the study area. Wetland plant communities are identified in **Table 1** below. Due to this being a linear corridor, wetland boundaries generally were determined based on a change in topography and/or

vegetation transition. Additional details concerning dominant vegetation, soil profiles, and hydrology are provided in the field data sheets in **Appendix D**.

Table 1: Wetland Characteristics

Wetland ID	Figure Number(s)	Wetland Plant Community	C-39 Type	Size (acres)[1]	Representative Sample Points		Photo No.	NOTES
					Wetland	Upland		
1	3-2	1 / Seasonally Flooded Basin	1	0.06 ac	SP-5	SP-6	6, 10	Wetland fringe along Wabasha Creek located west of CSAH 2. Collects runoff from the surrounding area and conveys north into Wabasha Creek.
2	3-3	2 / Fresh (Wet) Meadow	2	0.49 ac	SP-8	SP-9	16	Wetland basin located west of CSAH 2. Conveys west offsite.
3a	3-3	2 / Fresh (Wet) Meadow	2	0.26 ac	SP-8	SP-9	17-18	Wetland basin located east of CSAH 2. Collects runoff from the surrounding area and conveys east into Wetland 3b and offsite, and south via culvert into Wetland 4a.
3b	3-3	3 / Shallow Marsh	3	0.26 ac	SP-12	SP-13	17	Wetland basin located east of CSAH 2. Collects runoff from Wetland 3a and conveys east offsite.
4a	3-3	1 / Seasonally Flooded Basin	1	0.08 ac	SP-10	SP-11	19	Wetland located east of CSAH 2 in a roadside ditch with a clearly defined backslope. It appears to collect runoff from Wetland 3a via a culvert and potentially conveys south into Wetland 4b.
4b	3-3	3 / Shallow Marsh	3	0.33 ac	SP-12	SP-13	26	Wetland basin located east of CSAH 2. Collects runoff from Wetland 4a and the surrounding area and conveys east offsite.
5a	3-3 to 3-4	1 / Seasonally Flooded Basin	1	0.87 ac	SP-14	SP-15	20	Wetland basin located west of CSAH 2. Collects runoff from the surrounding area and conveys west into Wetland 5b and offsite.
5b	3-3 to 3-4	3 / Shallow Marsh	3	0.14 ac	SP-12	SP-13	-	Wetland basin located west of CSAH 2. Collects runoff from Wetland 5a and conveys west offsite.
6a	3-4	1 / Seasonally Flooded Basin	1	0.03 ac	SP-14	SP-15	21	Wetland basin located east of CSAH 2. Collects runoff from the surrounding area and conveys east offside and south into Wetland 6b.

[1] Size of the wetland within the study area, some wetlands extend beyond the study area; all wetland sizes rounded to nearest hundredth acre.

Wetland ID	Figure Number(s)	Wetland Plant Community	C-39 Type	Size (acres)[1]	Representative Sample Points		Photo No.	NOTES
					Wetland	Upland		
6b	3-4	3 / Shallow Marsh	3	0.22 ac	SP-12	SP-13	-	Wetland basin located east of CSAH 2. Collects runoff from Wetland 6a, Wetland 6c, and the surrounding area and conveys east offsite.
6c	3-4	1 / Seasonally Flooded Basin	1	0.09 ac	SP-14	SP-15	-	Wetland basin located east of CSAH 2. Collects runoff from the surrounding area and conveys east offsite and north into Wetland 6b.

Table 2: Tributary[2] Characteristics

Tributary ID	Figure Number(s)	Wetland Plant Community	C-39 Type	Size (linear feet)[3]	Photo No.	NOTES
Wabasha Creek	3-2	N/A	N/A	0.26 ac (~189 ln ft)	7, 11, 12	Wabasha Creek is a perennial stream located east and west of CSAH 2. Collects roadway drainage and runoff from Erosional Feature 1 and conveys east offsite.
Perennial Stream 1	3-4 to 3-5	N/A	N/A	0.12 ac (~136 ln ft)	22-23	Perennial stream located east and west of CSAH 2. Collects roadway drainage and conveys east offsite.

Table 3: Non-Aquatic Resource Characteristics

Tributary ID	Figure Number(s)	Wetland Plant Community	C-39 Type	Size (linear feet)[4]	Photo No.	NOTES
Erosional Feature 1	3-2	N/A	N/A	142 ln ft	-	Erosional feature located west of CSAH 2. Collects roadway drainage and conveys south into Wabasha Creek.
Erosional Feature 2	3-2 to 3-3	N/A	N/A	292 ln ft	8, 13-15	Erosional feature located west of CSAH 2. Collects roadway drainage and conveys west offsite.

[2] A tributary, according to USACE definition, is a water that contributes flow, either directly or through another water, to a traditionally navigable water or interstate water (including wetlands) and that is characterized by the presence of the physical indicators of a bed and bank and an ordinary high water mark.
[3] Size of the tributary within the study area, some tributaries extend beyond the study area
[4] Size of the erosional feature within the study area, some erosional features may extend beyond the study area

8 Regulatory Requirements

A summary of the permit requirements that may pertain to the project is provided below. Any activity planned within areas identified as wetland must be coordinated with and approved by the appropriate agencies prior to commencement of such activities.

Agencies in Minnesota that regulate activities that affect lakes, rivers, streams, and wetlands include:

- US Army Corps of Engineers (USACE)
  - Section 404 of the Clean Water Act
  - Section 10 of the Rivers and Harbors Act
- Minnesota Department of Natural Resources (DNR)
  - Public Waters Work Permit Program
- Local Governmental Units (LGUs)
  - Wetland Conservation Act (WCA)

The LGU for this project is the Redwood County Soil and Water Conservation District for all wetlands identified within the study area. The WCA applies to nearly all aquatic resources not regulated by the DNR.

The regularity authority of the USACE covers Waters of the United States, including those that are regulated by the DNR or subject to WCA. Generally, the USACE reviewed delineations to determine whether wetlands are jurisdictional (i.e., Waters of the United States).

In Minnesota, a joint application process has been developed for projects with anticipated wetland impacts. Applications are coordinated between the USACE, DNR, and LGU.

9 Report Preparation

The procedures followed for this wetland delineation are in accordance with the *Corps of Engineers Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)*.

This report describes site conditions for a specific date in time and is generally valid for a period of five years from the date of the final field investigation and delineation, which was July 21, 2021.

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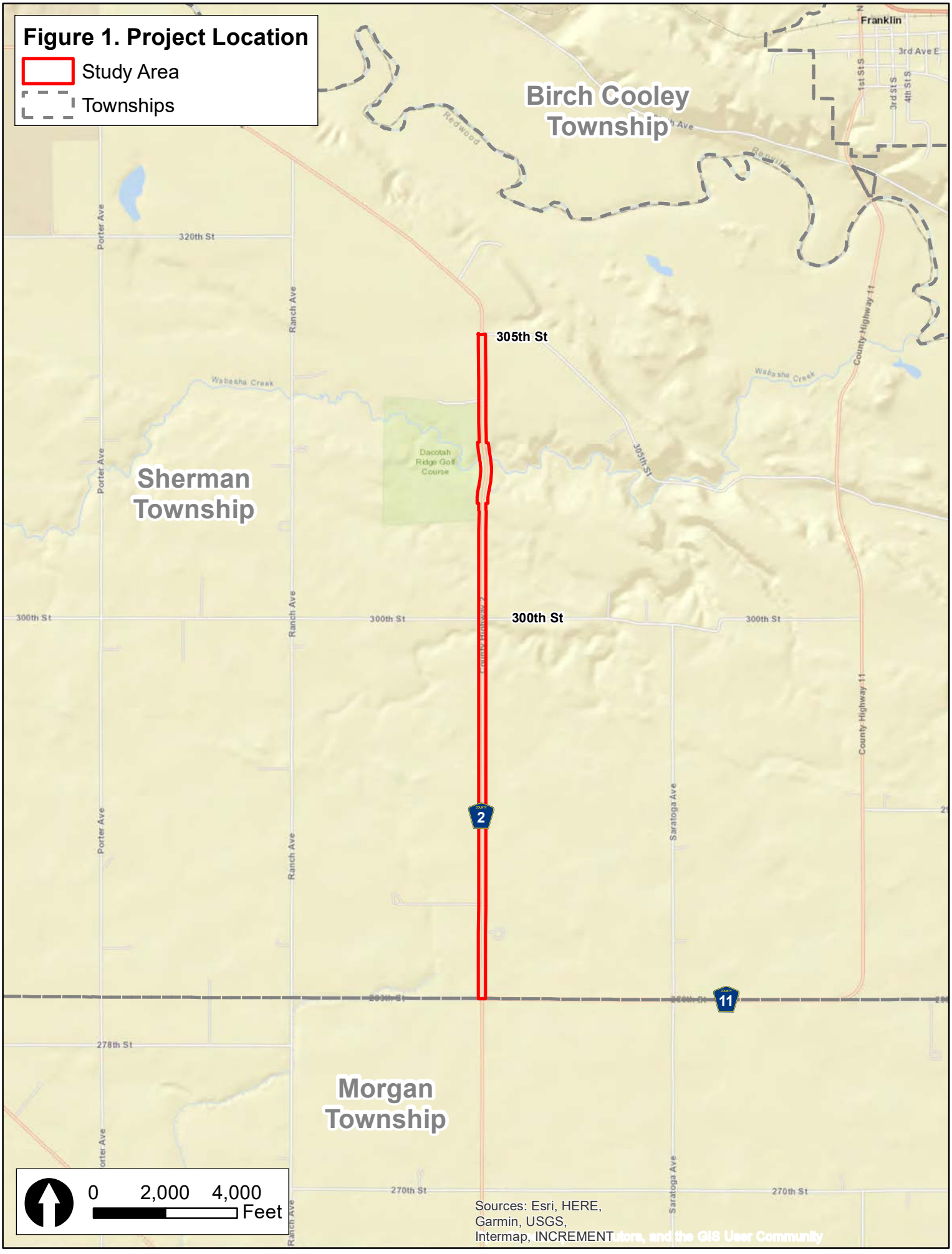


Figure 1. Project Location
Study Area
Townships
Birch Cooley Township
Sherman Township
Morgan Township
Franklin
3rd Ave E
1st St S
3rd St S
4th St S
Redwood
Porter Ave
320th St
Ranch Ave
305th St
Wabasha Creek
County Highway 11
Dacotah Ridge Golf Course
300th St
County Highway 2
Saratoga Ave
278th St
270th St
2
11
0
2,000
4,000
Feet
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT

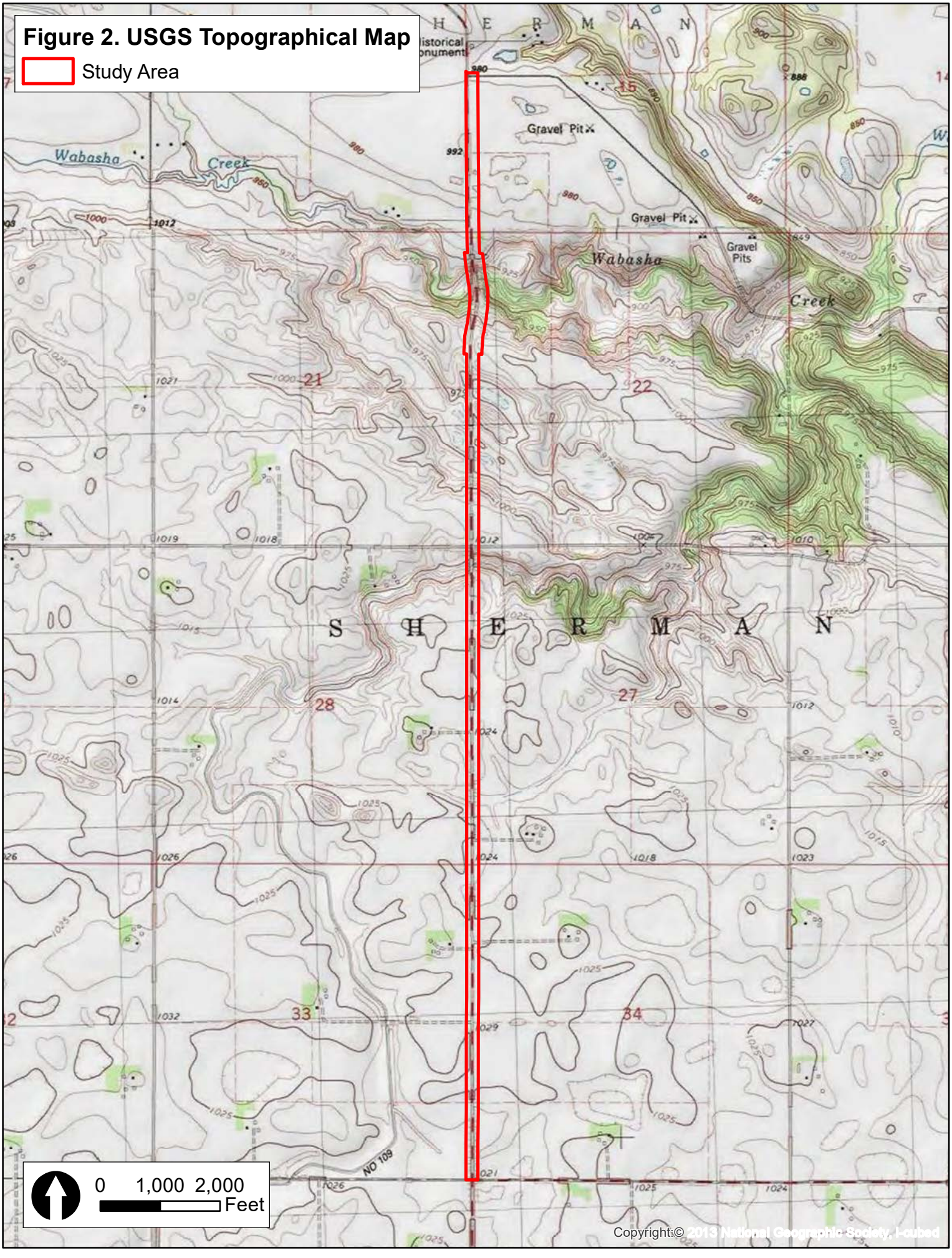


Figure 2. USGS Topographical Map
Study Area
Wabasha Creek
Gravel Pit
Gravel Pit
Gravel Pits
Wabasha Creek
S H E R M A N
21
22
28
27
33
34
NO 109
0 1,000 2,000
Feet
Copyright © 2013 National Geographic Society, i-cubed

Figure 3-1. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

SP-1
SP-2
1
2
3
4

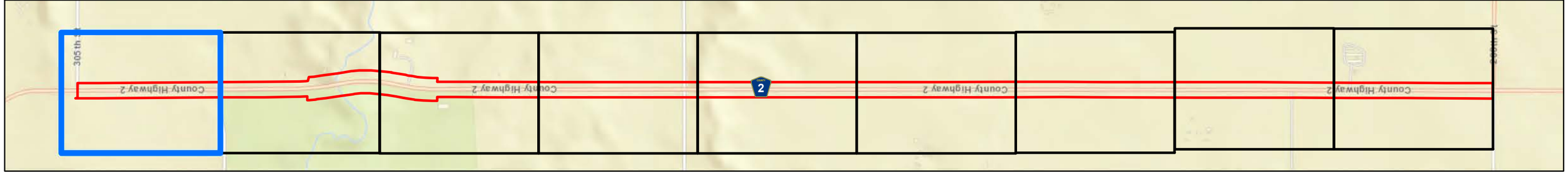


Figure 3-2. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

SP-2
SP-3
SP-4
SP-5
SP-6
SP-7
4
6
7
8, 13
9
10
11
12
14
15
Wabasha Creek
0.26 ac
Wetland 1
Type 1
0.06 ac
Erosional Feature 1
142 ln ft
Erosional Feature 2
292 ln ft

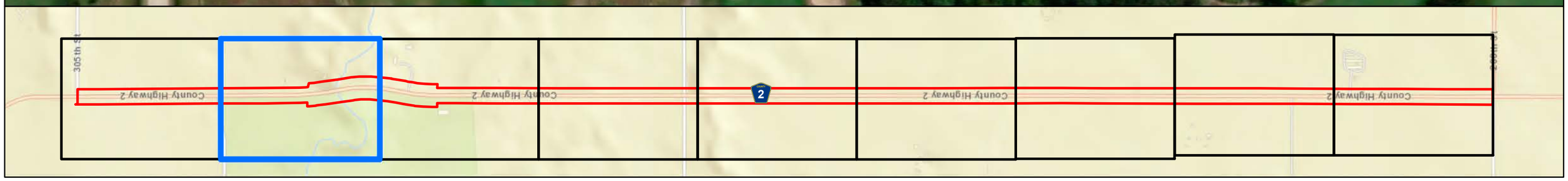


Figure 3-3. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

Erosional Feature 2
292 ln ft

Wetland 3a
Type 2
0.26 ac

Wetland 3b
Type 3
0.26 ac

Wetland 4a (ditch)
Type 1
0.08 ac

Wetland 4b
Type 3
0.33 ac

Wetland 2
Type 2
0.49 ac

Wetland 5a
Type 1
0.87 ac

Wetland 5b
Type 3
0.14 ac

8, 13
14
15
SP-3
5
16
17-18
19
SP-8
SP-9
SP-10
SP-11
SP-12
SP-13
26
SP-15
20
SP-14

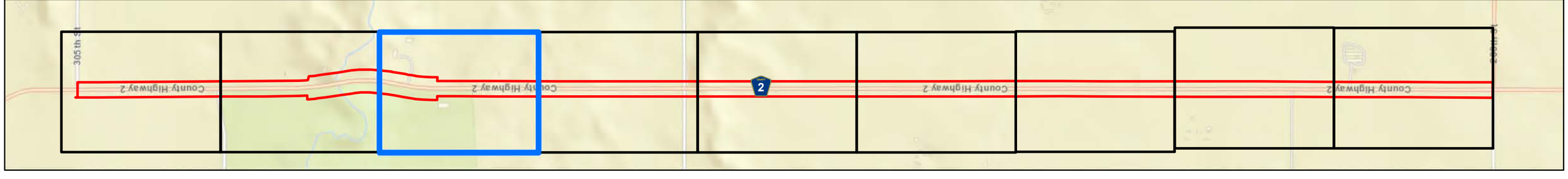


Figure 3-4. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

Wetland 4b
Type 3
0.33 ac

Wetland 6a
Type 1
0.03 ac

Wetland 6b
Type 3
0.22 ac

Wetland 6c
Type 1
0.09 ac

SP-15

21

20

SP-14

Wetland 5a
Type 1
0.87 ac

SP-16

23

22

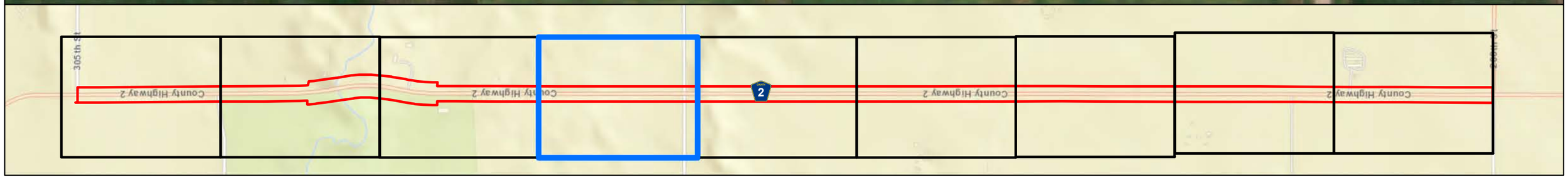


Figure 3-5. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

SP-16

23

22

Perennial Stream 1
0.12 ac

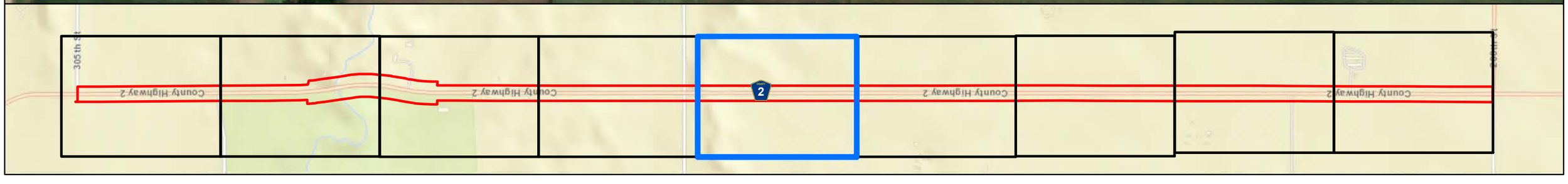


Figure 3-6. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

24

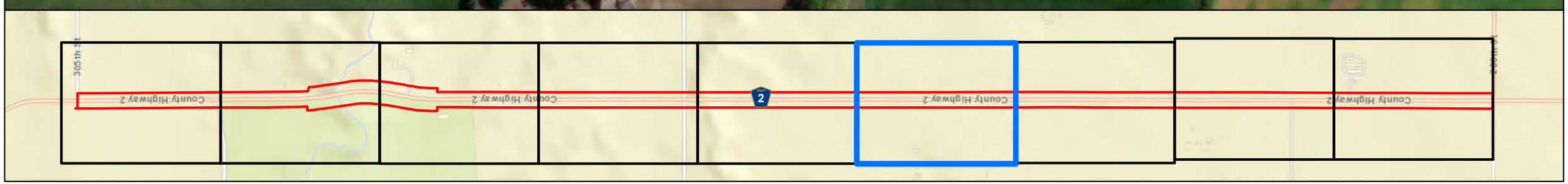


Figure 3-7. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

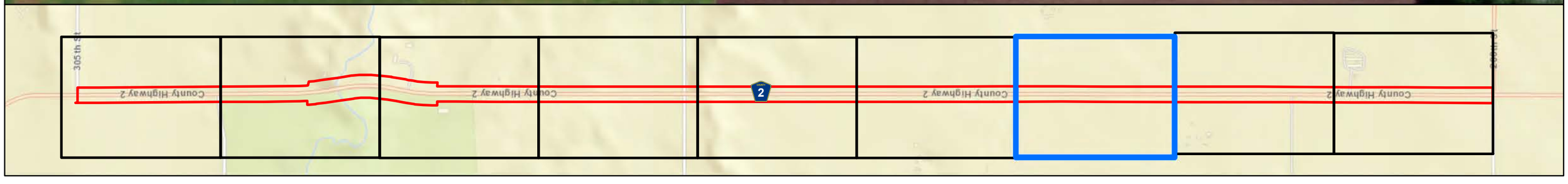


Figure 3-8. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet

25

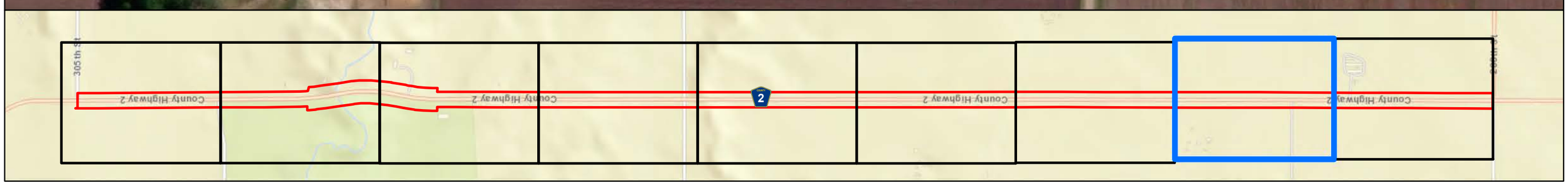


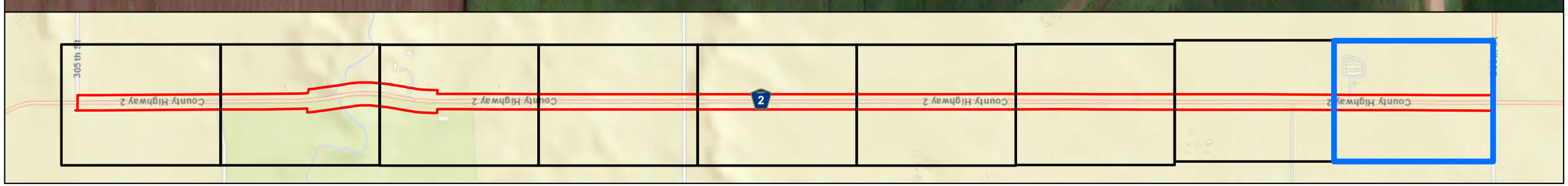
Figure 3-9. Delineated Resources

- Study Area
- Culverts and Head Walls
- Sample Point
- Photos
- Level 2 Delineated Streams
- Level 2 Delinated Wetland Boundary

Level 2 Delineated Wetlands

- Type 1 Seasonally Flooded Basin
- Type 2 Fresh (Wet) Meadow
- Type 3 - Shallow Marsh

0 75 150 Feet



Appendix A: National Wetlands Inventory, National Hydrography Dataset, DNR Public Waters Inventory, and LiDAR

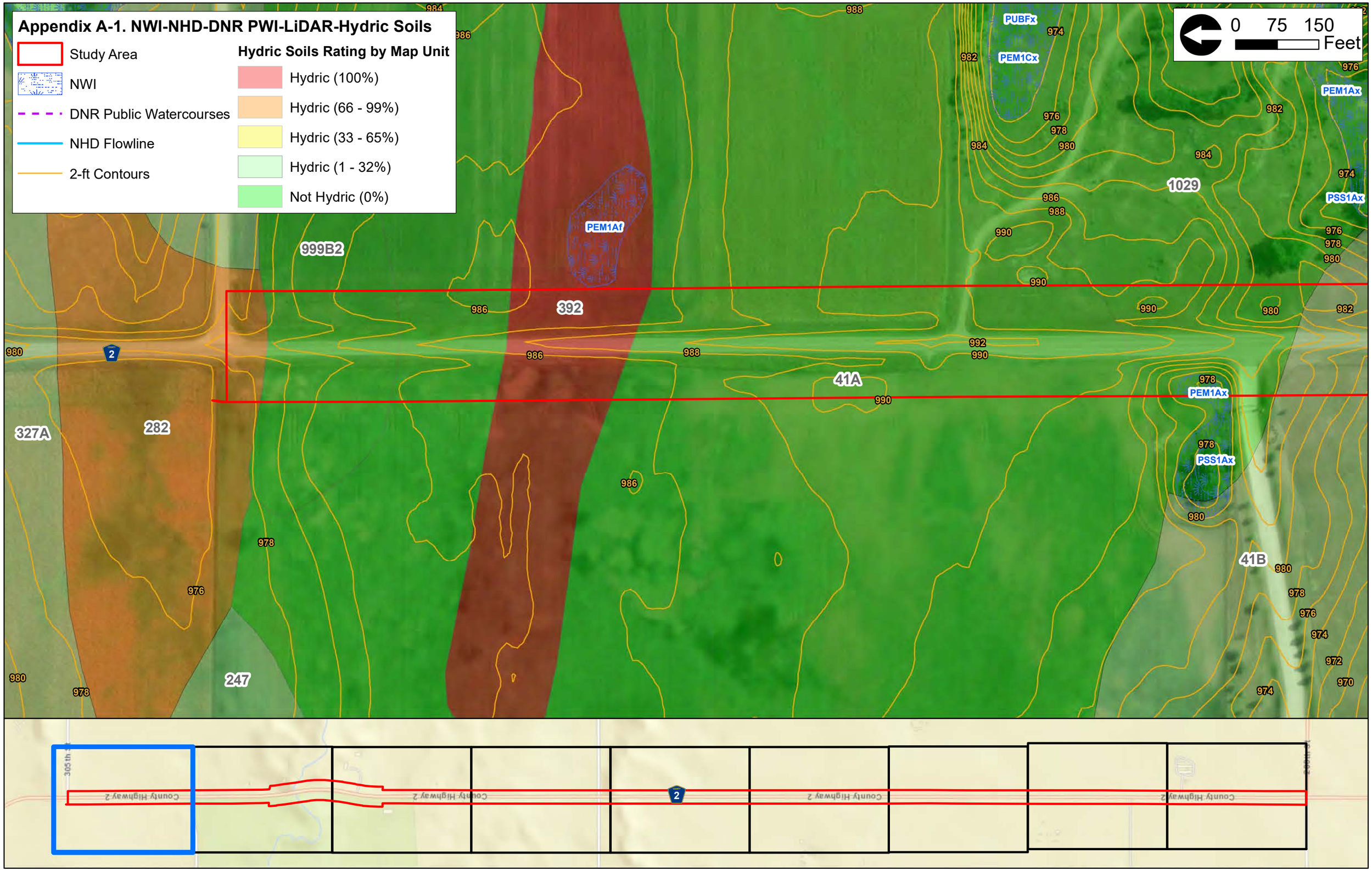
Appendix A-1. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

- Study Area
- NWI
- DNR Public Watercourses
- NHD Flowline
- 2-ft Contours

Hydric Soils Rating by Map Unit

- Hydric (100%)
- Hydric (66 - 99%)
- Hydric (33 - 65%)
- Hydric (1 - 32%)
- Not Hydric (0%)

0 75 150 Feet



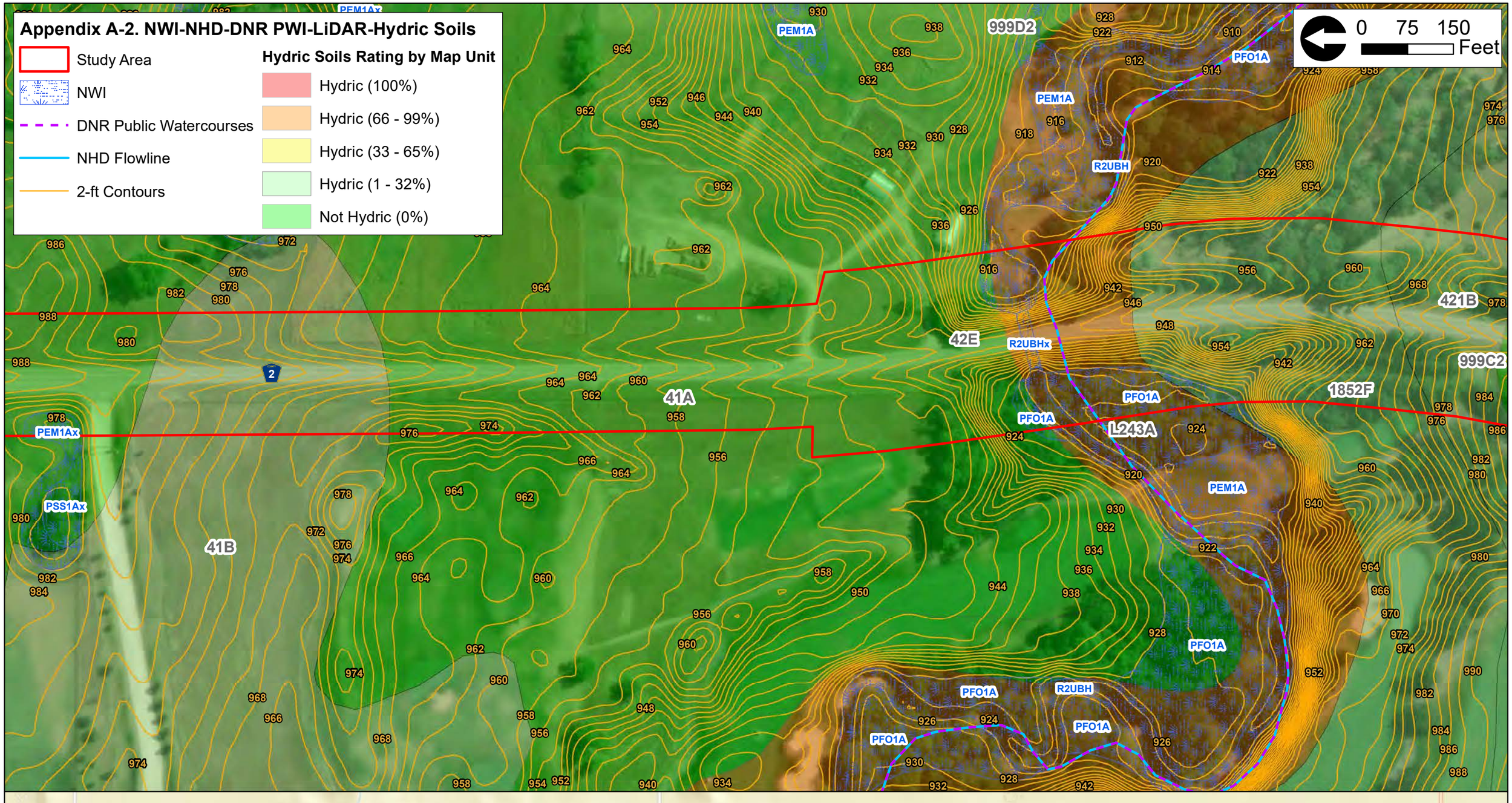
Appendix A-2. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

- Study Area
- NWI
- DNR Public Watercourses
- NHD Flowline
- 2-ft Contours

Hydric Soils Rating by Map Unit

- Hydric (100%)
- Hydric (66 - 99%)
- Hydric (33 - 65%)
- Hydric (1 - 32%)
- Not Hydric (0%)

0 75 150 Feet



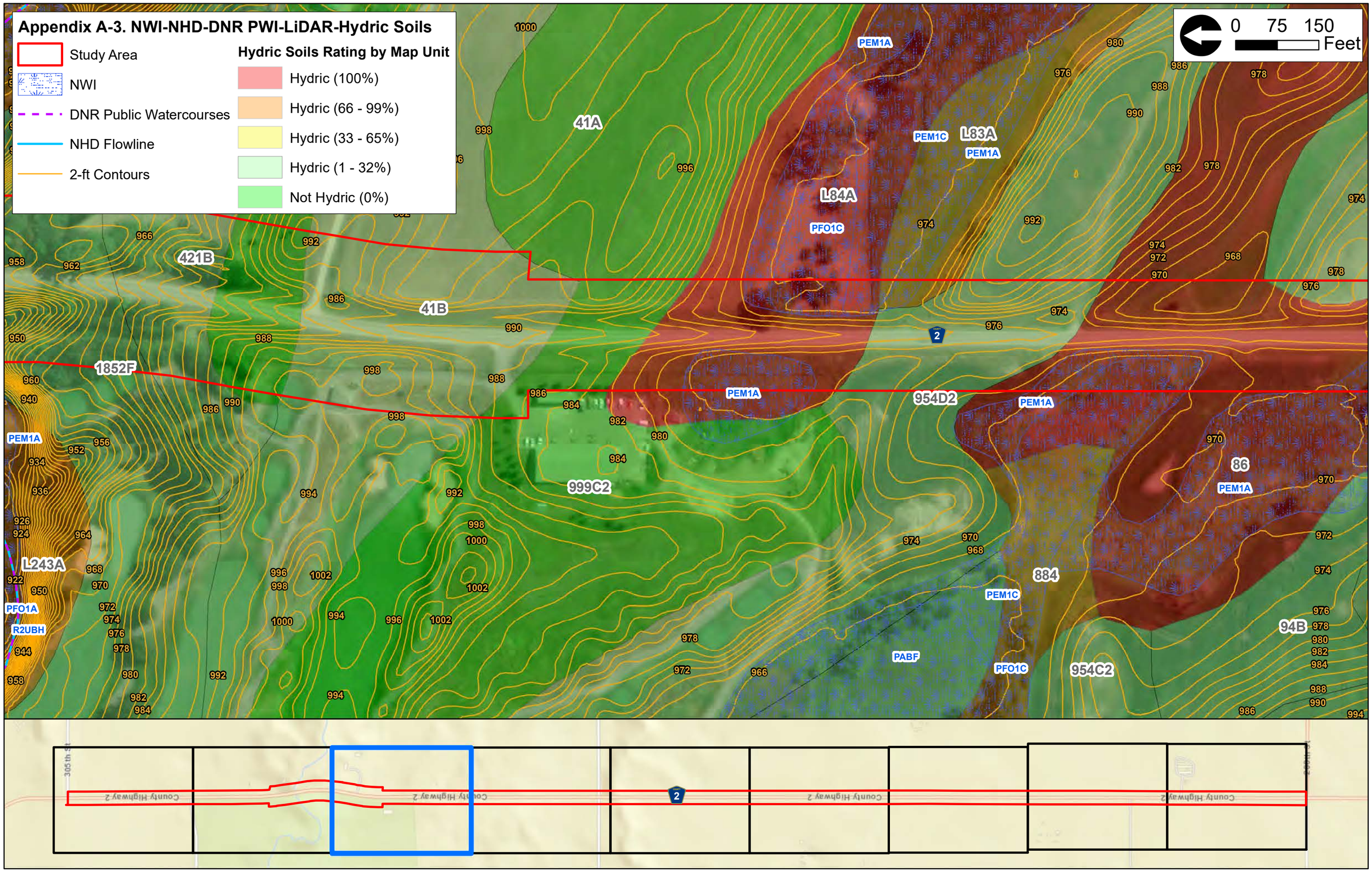
Appendix A-3. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

- Study Area
- NWI
- DNR Public Watercourses
- NHD Flowline
- 2-ft Contours

Hydric Soils Rating by Map Unit

- Hydric (100%)
- Hydric (66 - 99%)
- Hydric (33 - 65%)
- Hydric (1 - 32%)
- Not Hydric (0%)

0 75 150 Feet



Appendix A-4. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

Study Area

NWI

DNR Public Watercourses

NHD Flowline

2-ft Contours

Hydric Soils Rating by Map Unit

Hydric (100%)

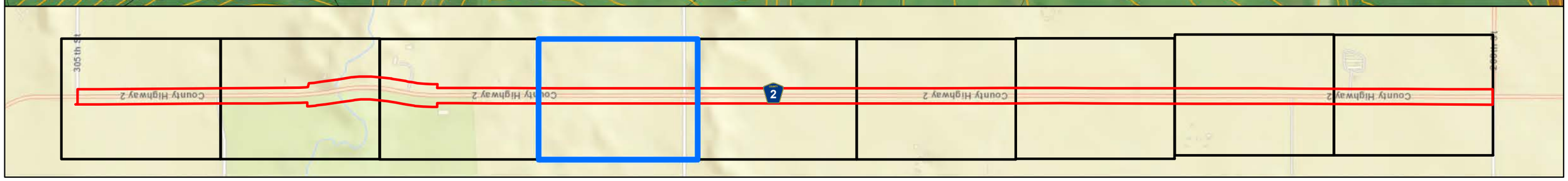
Hydric (66 - 99%)

Hydric (33 - 65%)

Hydric (1 - 32%)

Not Hydric (0%)

0 75 150 Feet



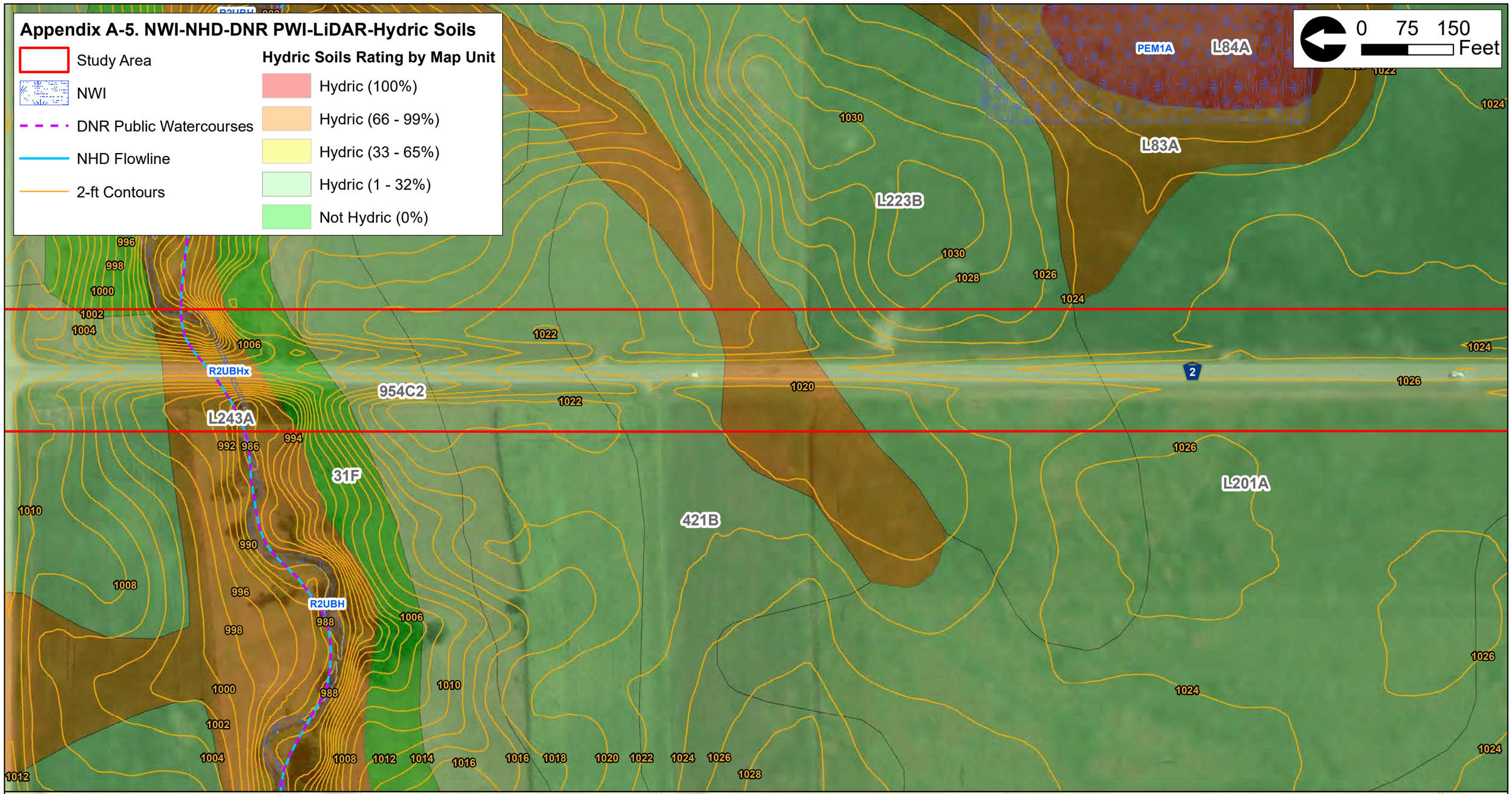
Appendix A-5. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

- Study Area
- NWI
- DNR Public Watercourses
- NHD Flowline
- 2-ft Contours

Hydric Soils Rating by Map Unit

- Hydric (100%)
- Hydric (66 - 99%)
- Hydric (33 - 65%)
- Hydric (1 - 32%)
- Not Hydric (0%)

0 75 150 Feet



Appendix A-6. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

Study Area
NWI
DNR Public Watercourses
NHD Flowline
2-ft Contours

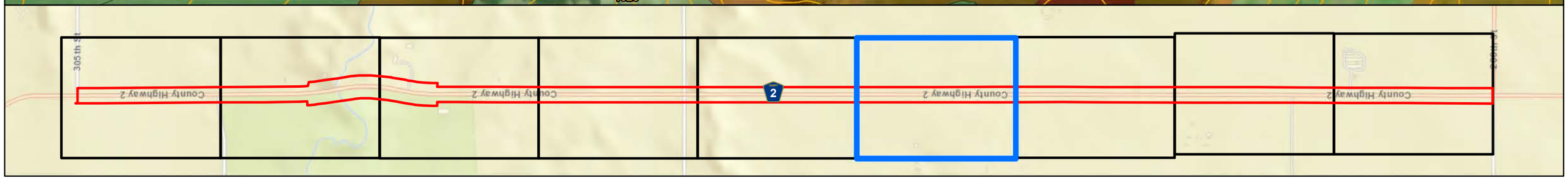
Hydric Soils Rating by Map Unit

Hydric (100%)
Hydric (66 - 99%)
Hydric (33 - 65%)
Hydric (1 - 32%)
Not Hydric (0%)

0 75 150 Feet

L201A
L84A
421B
L83A
L223B

1026 1022 1018 1016 1024 1020 1014



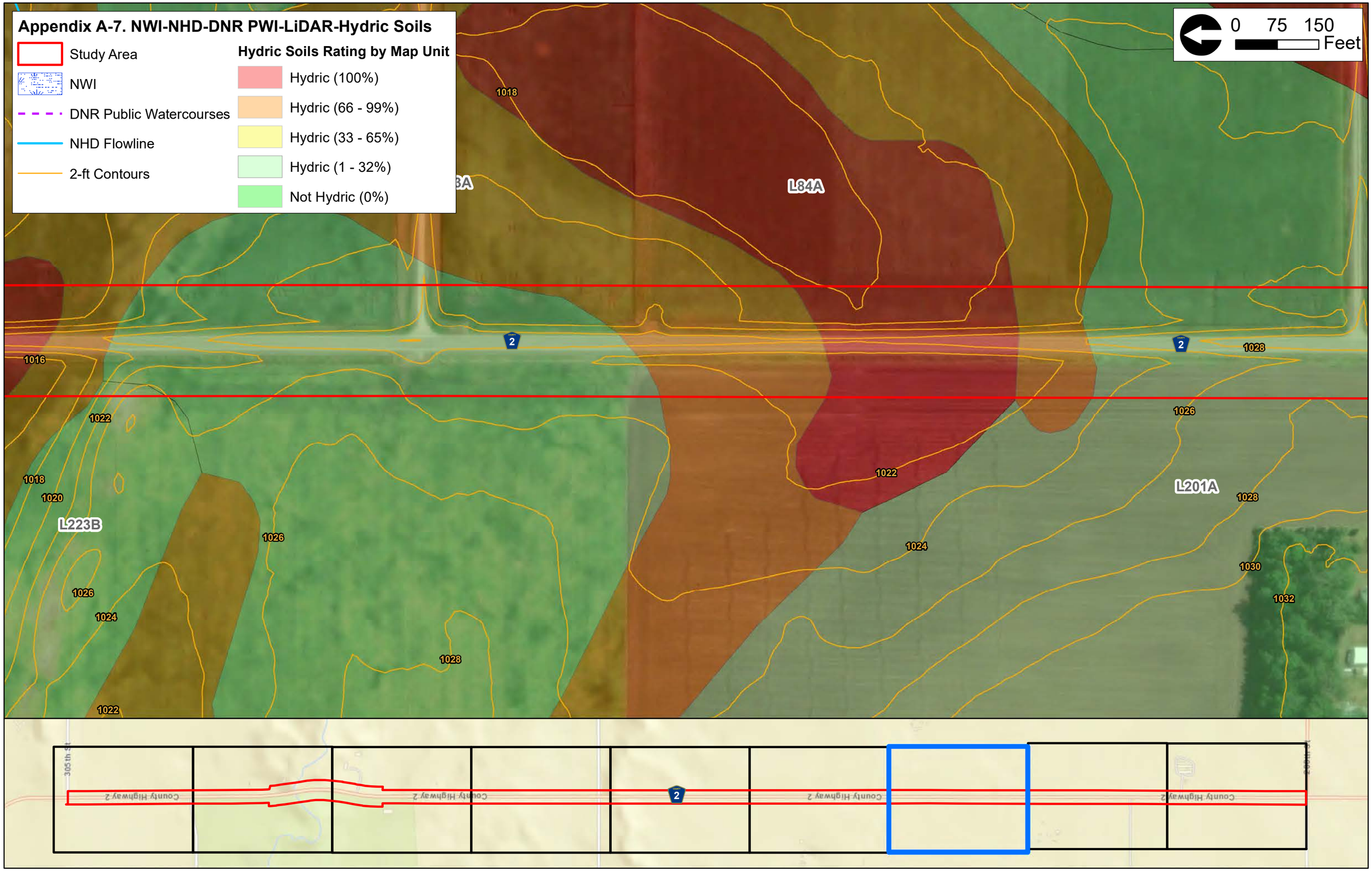
Appendix A-7. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

- Study Area
- NWI
- DNR Public Watercourses
- NHD Flowline
- 2-ft Contours

Hydric Soils Rating by Map Unit

- Hydric (100%)
- Hydric (66 - 99%)
- Hydric (33 - 65%)
- Hydric (1 - 32%)
- Not Hydric (0%)

0 75 150 Feet



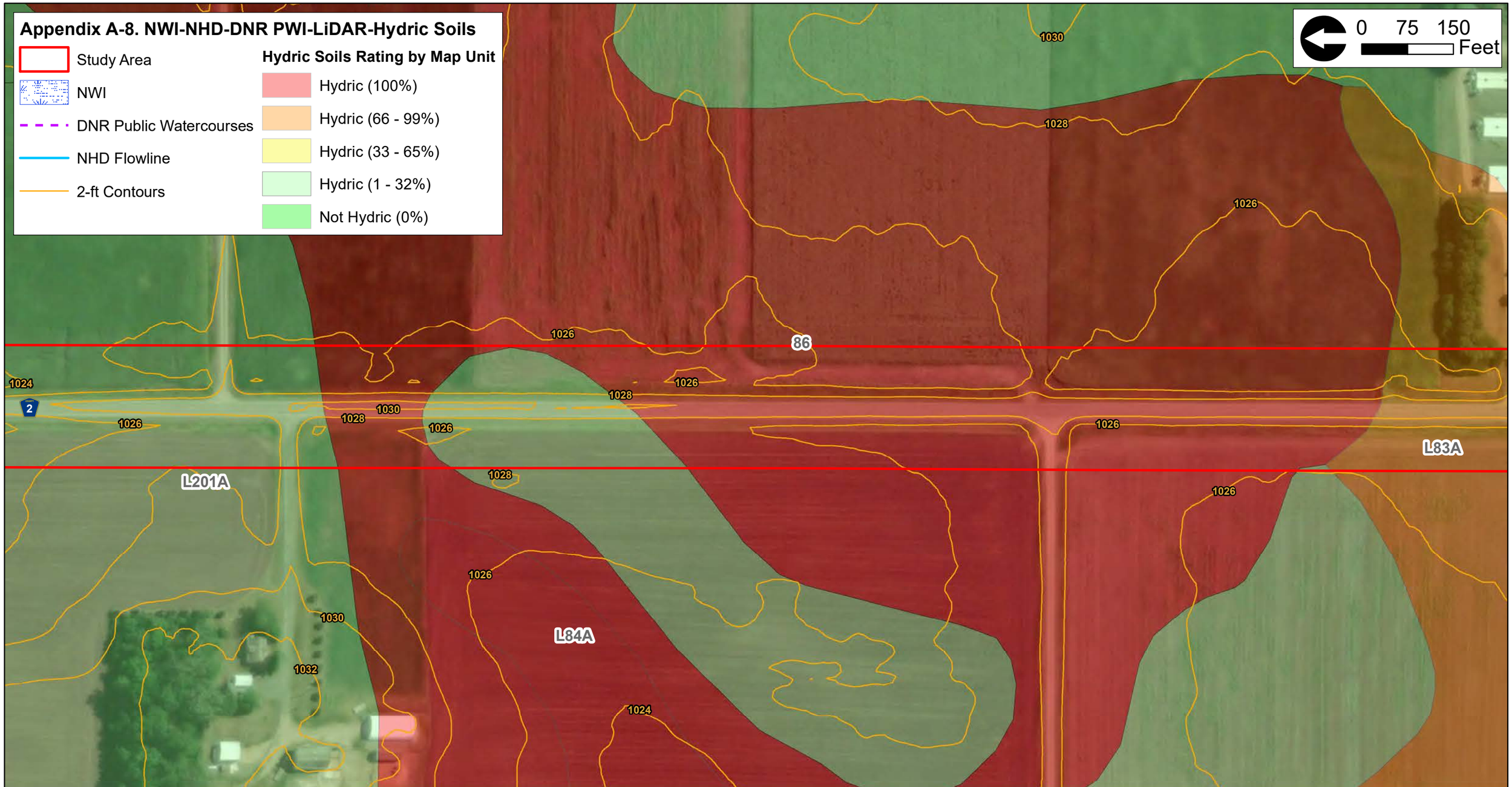
Appendix A-8. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

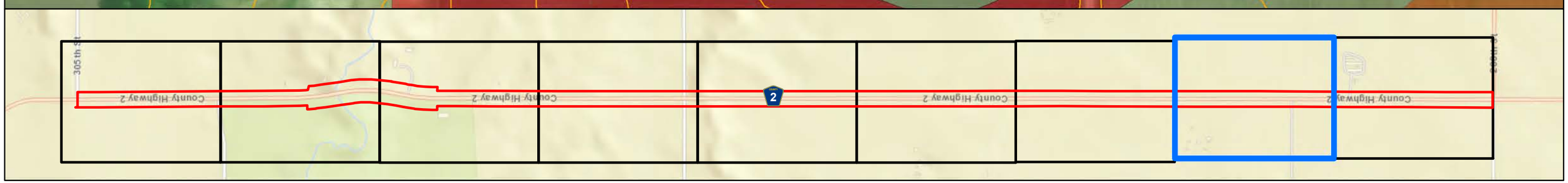
- Study Area
- NWI
- DNR Public Watercourses
- NHD Flowline
- 2-ft Contours

Hydric Soils Rating by Map Unit

- Hydric (100%)
- Hydric (66 - 99%)
- Hydric (33 - 65%)
- Hydric (1 - 32%)
- Not Hydric (0%)

0 75 150 Feet





Appendix A-9. NWI-NHD-DNR PWI-LiDAR-Hydric Soils

Study Area

NWI

DNR Public Watercourses

NHD Flowline

2-ft Contours

Hydric Soils Rating by Map Unit

Hydric (100%)

Hydric (66 - 99%)

Hydric (33 - 65%)

Hydric (1 - 32%)

Not Hydric (0%)

0 75 150 Feet

1024 1022 1020 1018 1016

PEM1Af

1028 1026 1026 1026 1026

1018 1020 1018 1016 1020 1018 1018 1018 1018

2

L83A

86

L163A

1016 1016 1016 1014 1018 1016

305th St

County Highway 2 County Highway 2 2 County Highway 2 County Highway 2

Appendix B: Hydric Soils Information

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
31E	Belview loam, 16 to 30 percent slopes	0.0	0.0%
31F	Belview loam, 22 to 40 percent slopes	0.5	0.5%
41A	Estherville sandy loam, 0 to 2 percent slopes	9.6	10.8%
41B	Estherville sandy loam, 2 to 6 percent slopes	4.7	5.3%
42E	Hawick loamy sand, 20 to 40 percent slopes	0.8	0.9%
86	Canisteo clay loam, 0 to 2 percent slopes	11.8	13.2%
282	Hanska fine sandy loam	0.3	0.4%
392	Biscay clay loam, 0 to 2 percent slopes	1.1	1.2%
421B	Amiret loam, 2 to 6 percent slopes	5.8	6.5%
954C2	Storden-Ves complex, 6 to 10 percent slopes, moderately eroded	0.7	0.8%
954D2	Storden-Ves complex, 10 to 16 percent slopes, moderately eroded	3.0	3.4%
999B2	Ves-Estherville-Storden complex, 3 to 6 percent slopes, eroded	1.1	1.2%
999C2	Storden-Estherville-Ves loams, 6 to 12 percent slopes, eroded	1.9	2.2%
1029	Pits, gravel	1.4	1.6%
1852F	Terril-Swanlake loams, 25 to 70 percent slopes	2.9	3.2%
L83A	Webster clay loam, 0 to 2 percent slopes	9.1	10.2%
L84A	Glencoe clay loam, 0 to 1 percent slopes	6.2	7.0%
L163A	Okoboji silty clay loam, 0 to 1 percent slopes	2.3	2.6%
L201A	Normania loam, 1 to 3 percent slopes	18.2	20.5%
L223B	Amiret-Swanlake loams, 2 to 6 percent slopes	5.3	5.9%
L243A	Havelock-Zumbro complex, 0 to 3 percent slopes, frequently flooded	2.3	2.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Totals for Area of Interest		**89.0**	**100.0%**

Appendix C: Precipitation Information

Minnesota State Climatology Office

State Climatology Office - DNR Division of Ecological and Water Resources

Precipitation Worksheet Using Gridded Database

Precipitation data for target wetland location:

county: **Redwood** township number: **112N**
township name: **Sherman (south)** range number: **34W**
nearest community: **Franklin** section number: **16**

Aerial photograph or site visit date:
Wednesday, July 21, 2021

Score using 1981-2010 normal period

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **June 2021**	second prior month: **May 2021**	third prior month: **April 2021**
estimated precipitation total for this location:	**1.39**	**2.25**	**1.43**
there is a 30% chance this location will have less than:	3.23	2.05	1.93
there is a 30% chance this location will have more than:	4.93	4.17	3.60
type of month: dry normal wet	**dry**	**normal**	**dry**
monthly score	**3 * 1 = 3**	**2 * 2 = 4**	**1 * 1 = 1**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**8 (dry)**		

Other Resources:

- retrieve daily precipitation data
- view radar-based precipitation estimates
- view weekly precipitation maps
- *Evaluating Antecedent Precipitation Conditions* (BWSR)

Appendix D: Data Sheets

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-1

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S15 T112 R34W

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

Slope (%): 1 | Lat: 44.505131 | Long: -94.925977 | Datum: WGS 1984

Soil Map Unit Name: Biscay clay loam, 0 to 2 percent slopes | NWI Classification: none

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

Are vegetation X, soil X, or hydrology ____ significantly disturbed? Are "normal circumstances" present? No

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

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y
Hydric soil present?	N
Indicators of wetland hydrology present?	N

Is the sampled area within a wetland? N

f yes, optional wetland site ID: ____

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Mapped hydric soil unit adjacent to NWI feature.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5')			
1 *Setaria pumila*	20	Y	FAC
2 *Ambrosia artemisiifolia*	5	N	FACU
3 *Chenopodium album*	3	N	FACU
4 *Asclepias syriaca*	3	N	FACU
5			
6			
7			
8			
9			
10			
	31	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	11	x 4 =	44
UPL species	0	x 5 =	0
Column totals	31 (A)		104 (B)

Prevalence Index = B/A = 3.35

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

Agriculture field.

SOIL

Sampling Point: SP-1

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

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

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	___	No	X	Depth (inches): ___
Agriculture field. (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:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-2

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S16 T112 R34W

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

Slope (%): 0 | Lat: 44.502231 | Long: -94.926436 | Datum: WGS 1984

Soil Map Unit Name Pits, gravel | NWI Classification: PEM1Ax

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N
Hydric soil present?	Y
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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Within mapped NWI feature.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5')			
1 *Elymus repens*	50	Y	FACU
2 *Persicaria pensylvanica*	25	Y	FACW
3 *Rumex crispus*	10	N	FAC
4 *Oxalis dillenii*	8	N	FACU
5 *Chenopodium album*	5	N	FACU
6 *Potentilla norvegica*	5	N	FAC
7 *Cirsium arvense*	2	N	FACU
8 *Taraxacum officinale*	2	N	FACU
9 *Cyperus esculentus*	2	N	FACW
10 *Comandra umbellata*	2	N	FACU
	111	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	27	x 2 =	54
FAC species	15	x 3 =	45
FACU species	69	x 4 =	276
UPL species	0	x 5 =	0
Column totals	111 (A)		375 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: SP-2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 2/1	98	10YR 3/3	2	C	M		

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-3

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

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

Slope (%): 10 | Lat: 44.496756 | Long: -94.92605 | Datum: WGS 1984

Soil Map Unit Name Terril-Swanlake loams, 25 to 70 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Bottom ephemeral stream where banks widen.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1 *Ulmus americana*	20	Y	FACW
2			
3			
4			
5			
	20	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1 *Ribes cynosbati*	15	Y	FAC
2 *Quercus bicolor*	15	Y	FACW
3 *Zanthoxylum americanum*	10	Y	FACU
4 *Rhamnus cathartica*	5	N	FAC
5			
	45	= Total Cover	

Herb stratum (Plot size: 5')			
1 *Campanula rapunculoides*	10	Y	UPL
2 *Parthenocissus quinquefolia*	5	Y	FACU
3 *Hackelia virginiana*	2	N	FACU
4			
5			
6			
7			
8			
9			
10			
	17	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: 6 (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	35	x 2 =	70	
FAC species	20	x 3 =	60	
FACU species	17	x 4 =	68	
UPL species	10	x 5 =	50	
Column totals	82	(A)	248	(B)

Prevalence Index = B/A = 3.02

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: SP-3

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-24	10YR 2/2	100					sandy loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-4

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

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

Slope (%): 2 | Lat: 44.497094 | Long: -94.926299 | Datum: WGS 1984

Soil Map Unit Name Terril-Swanlake loams, 25 to 70 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Toeslope at edge of roadslope.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1 *Tilia americana*	15	Y	FACU
2 *Ulmus americana*	5	Y	FACW
3			
4			
5			
	20	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5')			
1 *Rudbeckia laciniata*	15	Y	FACW
2 *Hackelia virginiana*	10	Y	FACU
3 *Glechoma hederacea*	10	Y	FACU
4 *Parthenocissus quinquefolia*	5	N	FACU
5			
6			
7			
8			
9			
10			
	40	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: 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	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column totals	60 (A)		200 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: SP-4

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 5/2	100					sand	
4-18	10YR 3/2	100					loamy sand	
18-24	10YR 2/1	95	10YR 3/6	5	C	M	loamy sand	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-5

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S21 T112 R34W

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

Slope (%): 2 | Lat: 44.497792 | Long: -94.926196 | Datum: WGS 1984

Soil Map Unit Name: Havelock-Zumbro complex, 0 to 3 percent slopes, frequently flooded | NWI Classification: PFO1A

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

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

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

SUMMARY OF FINDINGS

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

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Plane above banks of perrenial stream, fringe area.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15')			
1 *Fraxinus pennsylvanica*	5	Y	FACW
2			
3			
4			
5			
	5	= Total Cover	
Herb stratum (Plot size: 5')			
1 *Phalaris arundinacea*	70	Y	FACW
2 *Urtica dioica*	15	N	FACW
3 *Rudbeckia laciniata*	15	N	FACW
4 *Hackelia virginiana*	5	N	FACU
5			
6			
7			
8			
9			
10			
	105	= Total Cover	
Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column totals	110 (A)		230 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: SP-5

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 3/2	100					sand	
4-9	10YR 4/2	100					loamy sand	
9-16	10YR 2/1	100					loamy sand	
16-36	10YR 3/1	95	10YR 3/6	5	C	M	silty loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: Core sand

Depth (inches): 36 inches

Hydric soil present? Y

Remarks:

Sand content starts at saturation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	34
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	30

Indicators of wetland hydrology present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-6

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S21 T112 R34W

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

Slope (%): 5 | Lat: 44.497589 | Long: -94.926185 | Datum: WGS 1984

Soil Map Unit Name: Havelock-Zumbro complex, 0 to 3 percent slopes, frequently flooded | NWI Classification: PFO1A

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N
Hydric soil present?	N
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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Upslope 2ft SP-5.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15')			
1 *Lonicera morrowii*	25	Y	FACU
2			
3			
4			
5			
	25	= Total Cover	
Herb stratum (Plot size: 5')			
1 *Solidago gigantea*	15	Y	FACW
2 *Parthenocissus quinquefolia*	10	Y	FACU
3 *Phalaris arundinacea*	10	Y	FACW
4 *Hackelia virginiana*	5	N	FACU
5 *Rudbeckia laciniata*	5	N	FACW
6			
7			
8			
9			
10			
	45	= Total Cover	
Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: 4 (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	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column totals	70 (A)		220 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: SP-6

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-14	10YR 2/1	100					sandy loam	
14-18	10YR 4/3	100					loamy sand	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-7

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

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

Slope (%): 1 | Lat: 44.497828 | Long: -94.925356 | Datum: WGS 1984

Soil Map Unit Name: Havelock-Zumbro complex, 0 to 3 percent slopes, frequently flooded | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N
Hydric soil present?	N
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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Flat area approximately 4ft upslope stream.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
		= Total Cover	

Herb stratum (Plot size: 5')			
1 *Trifolium pratense*	50	Y	FACU
2 *Bromus inermis*	15	Y	FACU
3 *Agrostis gigantea*	15	Y	FACW
4 *Ambrosia artemisiifolia*	10	N	FACU
5 *Melilotus alba*	10	N	UPL
6 *Phleum pratense*	10	N	FACU
7 *Potentilla norvegica*	5	N	FAC
8			
9			
10			
	115	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	5	x 3 =	15
FACU species	85	x 4 =	340
UPL species	10	x 5 =	50
Column totals	115 (A)		435 (B)

Prevalence Index = B/A = 3.78

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** SP-7

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

No soil pit due to lack of hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-8

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

Landform (hillslope, terrace, etc.): roadside ditch | Local relief (concave, convex, none): concave

Slope (%): 1 | Lat: 44.493089 | Long: -94.926047 | Datum: WGS 1984

Soil Map Unit Name Glencoe clay loam, 0 to 1 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

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

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Ditch area, upslope wetland complex.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15')			
1 *Sambucus racemosa*	5	Y	FACU
2			
3			
4			
5			
	5	= Total Cover	
Herb stratum (Plot size: 5')			
1 *Bromus inermis*	50	Y	FACU
2 *Asclepias syriaca*	20	Y	FACU
3 *Persicaria hydropiperoides*	20	Y	OBL
4 *Cirsium arvense*	5	N	FACU
5 *Phalaris arundinacea*	5	N	FACW
6			
7			
8			
9			
10			
	100	= Total Cover	
Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 25.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	20	x 1 =	20	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	80	x 4 =	320	
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*
- ____ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ____ Problematic hydrophytic vegetation* (explain)

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

Hydrophytic vegetation present? N

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

SOIL

Sampling Point: SP-8

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					sandy loam	
6-12	10YR 2/2	95	10YR 3/3	5			sandy loam	faint redox
12-18	10YR 3/2	95	7.5YR 5/8	5			loamy sand	gravel

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-9

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

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

Slope (%): | Lat: 44.493041 | Long: -94.926004 | Datum: WGS 1984

Soil Map Unit Name Glencoe clay loam, 0 to 1 percent slopes | NWI Classification: none

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

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

Are vegetation , soil , or hydrology naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	Y
Hydric soil present?	Y
Indicators of wetland hydrology present?	Y

Is the sampled area within a wetland? Y

f yes, optional wetland site ID:

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Footslope/depression downslope approximately 1ft SP-8.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5')			
1 *Phalaris arundinacea*	70	Y	FACW
2 *Persicaria hydropiperoides*	20	Y	OBL
3 *Scirpus atrovirens*	10	N	OBL
4			
5			
6			
7			
8			
9			
10			
	100	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	30	x 1 =	30
FACW species	70	x 2 =	140
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	100 (A)		170 (B)

Prevalence Index = B/A = 1.70

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: SP-9

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-12	10YR 2/1	77	10YR 3/6	3	C	M	loamy sand	
			10YR 4/3	20	D	M		

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-10

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

Landform (hillslope, terrace, etc.): roadside ditch | Local relief (concave, convex, none): concave

Slope (%): 0 | Lat: 44.492199 | Long: -94.926047 | Datum: WGS 1984

Soil Map Unit Name: Storden-Ves complex, 10 to 16 percent slopes, moderately eroded | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

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

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Roadside ditch alonside highway.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb stratum (Plot size: 5')			
1 *Phalaris arundinacea*	60	Y	FACW
2 *Persicaria hydropiperoides*	20	N	OBL
3 *Carex vulpinoidea*	20	N	FACW
4 *Asclepias incarnata*	5	N	OBL
5			
6			
7			
8			
9			
10			
	105	= Total Cover	
Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	25	x 1 =	25
FACW species	80	x 2 =	160
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	105 (A)		185 (B)

Prevalence Index = B/A = 1.76

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: SP-10

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-3	10YR 2/1	100					sandy loam	
3-6	10YR 2/1	75	10YR 5/1	20	C	M	sandy loam	
			10YR 4/6	5	C	M	sandy loam	
6-10	10YR 5/1	95	10YR 4/6	5	D	M	sandy loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-11

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

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

Slope (%): 25 | Lat: 44.49115 | Long: -94.925958 | Datum: WGS 1984

Soil Map Unit Name Glencoe clay loam, 0 to 1 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Backslope near roadside ditch

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5')			
1 *Bromus inermis*	40	Y	FACU
2 *Toxicodendron radicans*	20	Y	FAC
3 *Asclepias syriaca*	10	N	FACU
4 *Amorpha nana*	10	N	FACU
5 *Solidago rigida*	5	N	FACU
6			
7			
8			
9			
10			
	85	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column totals	85 (A)		320 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** SP-11

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

No soil pit, little hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-12

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

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

Slope (%): 5 | Lat: 44.491148 | Long: -94.925957 | Datum: WGS 1984

Soil Map Unit Name Glencoe clay loam, 0 to 1 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

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

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Footslope of agriculture field.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb stratum (Plot size: 5')			
1 *Carex alopecoidea*	60	Y	FACW
2 *Phalaris arundinacea*	40	Y	FACW
3 *Scirpus atrovirens*	10	N	OBL
4			
5			
6			
7			
8			
9			
10			
	110	= Total Cover	
Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	10	x 1 =	10
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	110 (A)		210 (B)

Prevalence Index = B/A = 1.91

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: SP-12

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-20	10YR 2/1	100					clay loam	
20-30	10YR 3/1	100					clay loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

Assume hydric soil due to presence of hydrophytic vegetation and hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes		No	X	Depth (inches):	
Water table present?	Yes	X	No		Depth (inches):	22
Saturation present? (includes capillary fringe)	Yes	X	No		Depth (inches):	22

Indicators of wetland hydrology present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-13

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S22 T112 R34W

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

Slope (%): 10 | Lat: 44.491177 | Long: -94.925916 | Datum: WGS 1984

Soil Map Unit Name Glencoe clay loam, 0 to 1 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N
Hydric soil present?	Y
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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Hillslope on edge of agriculture field, 3ft upslope SP-12.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	

Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	

Herb stratum (Plot size: 5')			
1 *Bromus inermis*	30	Y	FACU
2 *Cyperus esculentus*	20	Y	FACW
3 *Phalaris arundinacea*	15	Y	FACW
4 *Trifolium pratense*	15	Y	FACU
5 *Oxalis corniculata*	10	N	FACU
6 *Ambrosia artemisiifolia*	5	N	FACU
7 *Tridens flavus*	5	N	UPL
8 *Taraxacum officinale*	5	N	FACU
9			
10			
	105	= Total Cover	

Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: 4 (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	35	x 2 =	70
FAC species	0	x 3 =	0
FACU species	65	x 4 =	260
UPL species	5	x 5 =	25
Column totals	105 (A)		355 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** SP-13

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 2/1	100					loam	
4-10	10YR 2/1	98	10YR 3/3	2	C	M	loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	___	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:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-14

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S21 T112 R34W

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

Slope (%): 1 | Lat: 44.490239 | Long: -94.926298 | Datum: WGS 1984

Soil Map Unit Name: Canisteo clay loam, 0 to 2 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

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

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

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Depression along roadside.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb stratum (Plot size: 5')			
1 *Agrostis gigantea*	50	Y	FACW
2 *Spartina pectinata*	15	N	FACW
3 *Trifolium repens*	15	N	FACU
4 *Equisetum arvense*	5	N	FAC
5 *Artemisia ludoviciana*	5	N	UPL
6 *Salix petiolaris*	5	N	OBL
7	2	N	
8			
9			
10			
	97	= Total Cover	
Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	5	x 1 =	5
FACW species	65	x 2 =	130
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	5	x 5 =	25
Column totals	95 (A)		235 (B)

Prevalence Index = B/A = 2.47

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: SP-14

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR 2/1	100					loam	
4-10	10YR 5/2	85	10YR 3/6	15	D	M	sandy clay loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? Y

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-15

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S21 T112 R34W

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

Slope (%): 2 | Lat: 44.490284 | Long: -94.92629 | Datum: WGS 1984

Soil Map Unit Name: Canisteo clay loam, 0 to 2 percent slopes | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y
Hydric soil present?	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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Bottom of ditch along roadside.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1			
2			
3			
4			
5			
	0	= Total Cover	
Sapling/Shrub stratum (Plot size: 15')			
1			
2			
3			
4			
5			
	0	= Total Cover	
Herb stratum (Plot size: 5')			
1 *Bromus inermis*	25	Y	FACU
2 *Equisetum arvense*	20	Y	FAC
3 *Agrostis gigantea*	20	Y	FACW
4 *Solidago gigantea*	15	N	FACW
5 *Solidago canadensis*	15	N	FACU
6 *Melilotus alba*	10	N	UPL
7 *Apocynum androsaemifolium*	10	N	UPL
8 *Asclepias syriaca*	5	N	FACU
9			
10			
	120	= Total Cover	
Woody vine stratum (Plot size: 30')			
1			
2			
	0	= Total Cover	

Dominance Test Worksheet

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

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

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

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	20	x 3 =	60
FACU species	45	x 4 =	180
UPL species	20	x 5 =	100
Column totals	120 (A)		410 (B)

Prevalence Index = B/A = 3.42

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: SP-15

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-6	10YR 2/2	100					sandy clay loam	
6-12	10YR 5/3	90	10YR 5/8	5			sandy clay loam	
			10YR 6/2	5				

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site: CSAH2 | City/County: Morton/Redwood | Sampling Date: 7/21/2021

Applicant/Owner: Redwood County | State: Minnesota | Sampling Point: SP-16

Investigator(s): A. Stolte, M. Humphrey | Section, Township, Range: S27 T112 R34W

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

Slope (%): 5 | Lat: 44.484552 | Long: -94.925968 | Datum: WGS 1984

Soil Map Unit Name: Havelock-Zumbro complex, 0 to 3 percent slopes, frequently flooded | NWI Classification: none

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

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

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

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y
Hydric soil present?	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.)

Based on NRCS methodology for determining antecedent precipitation conditions, the three months prior to the field visit were drier than normal. Footslope approximately 4ft upslope stream.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species	Indicator Staus
1 *Salix alba*	30	Y	FACW
2			
3			
4			
5			
	30 = Total Cover		
Sapling/Shrub stratum (Plot size: 15')			
1 *Lonicera morrowii*	5	Y	FACU
2			
3			
4			
5			
	5 = Total Cover		
Herb stratum (Plot size: 5')			
1 *Phalaris arundinacea*	60	Y	FACW
2 *Glechoma hederacea*	25	Y	FACU
3 *Bromus inermis*	15	N	FACU
4 *Ribes cynosbati*	5	N	FAC
5			
6			
7			
8			
9			
10			
	105 = Total Cover		
Woody vine stratum (Plot size: 30')			
1			
2			
	0 = Total Cover		

Dominance Test Worksheet

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

Total Number of Dominant Species Across all Strata: 4 (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	90	x 2 =	180
FAC species	5	x 3 =	15
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column totals	140 (A)		375 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: SP-16

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-8	10YR 2/2	100					loamy sand	
8-20	10YR 2/2	85	10YR 3/2	15			loamy sand	
20-24	10YR 3/2	100					sand	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric soil present? N

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? N

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

Remarks:

Appendix E: Photo Log

Photo 1: Upland looking south at northern end of study area

Photo 3: Upland ditch facing south

Photo 5: Upland looking south

Photo 2: Upland near SP-1 looking east

Photo 4: Upland ditch facing north

Photo 6: Wetland 1 near SP-5 looking west

Photo 7: Wabasha Creek looking east

Photo 9: Upland point near SP-4 looking west

Photo 11: Wabasha Creek looking east

Photo 8: Upland point near SP-3 looking southwest

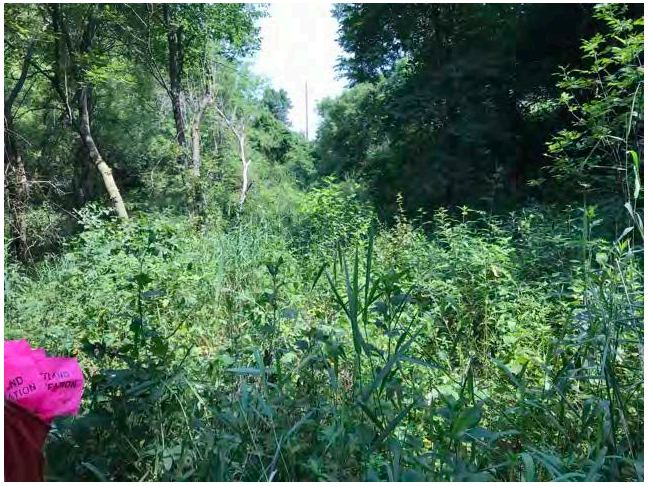


Photo 10: Wetland 1 near SP-6 looking north

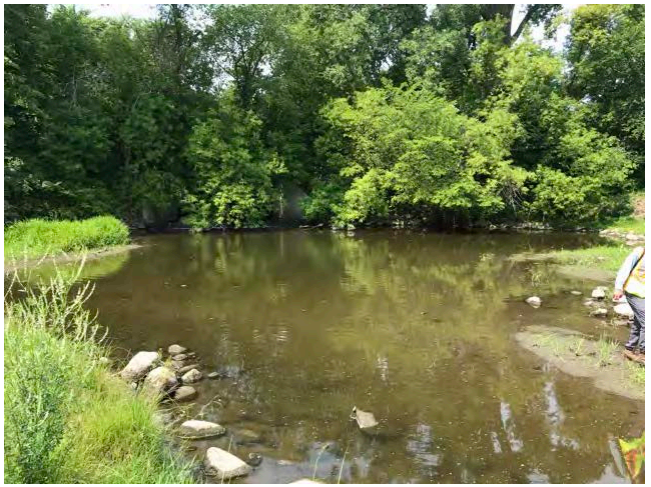


Photo 12: Wabasha Creek looking west

Photo 13: Erosional Feature 2 near SP-3

Photo 15: Culvert that feeds Erosional Feature 2

Photo 17: Wetland 3a and Wetland 3b looking east

Photo 14: Erosional Feature 2, 8 ft wide

Photo 16: Wetland 2 looking north

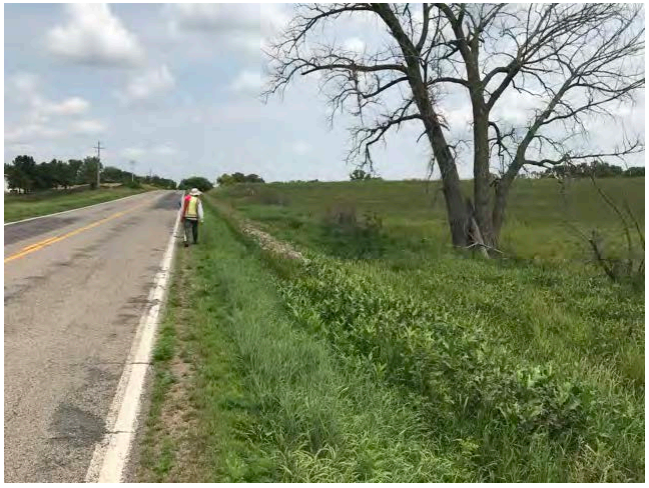


Photo 18: Wetland 3a looking north

Photo 19: Wetland 4a looking south

Photo 21: Wetland 6a looking south

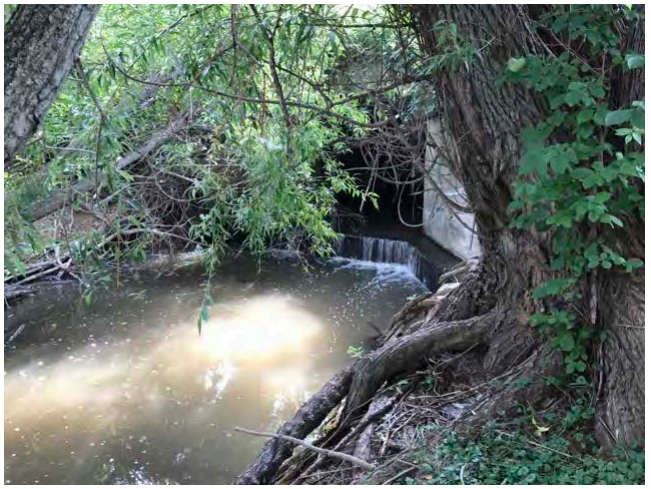


Photo 23: Perennial Stream 1 looking southwest

Photo 20: Wetland 5a looking south

Photo 22: Perennial Stream 1 looking west

Photo 24: Agricultural upland field near southern end of study area

Photo 25: Upland soybean field located near southern end of study area

Photo 266: Wetland 4b near SP-12 looking south