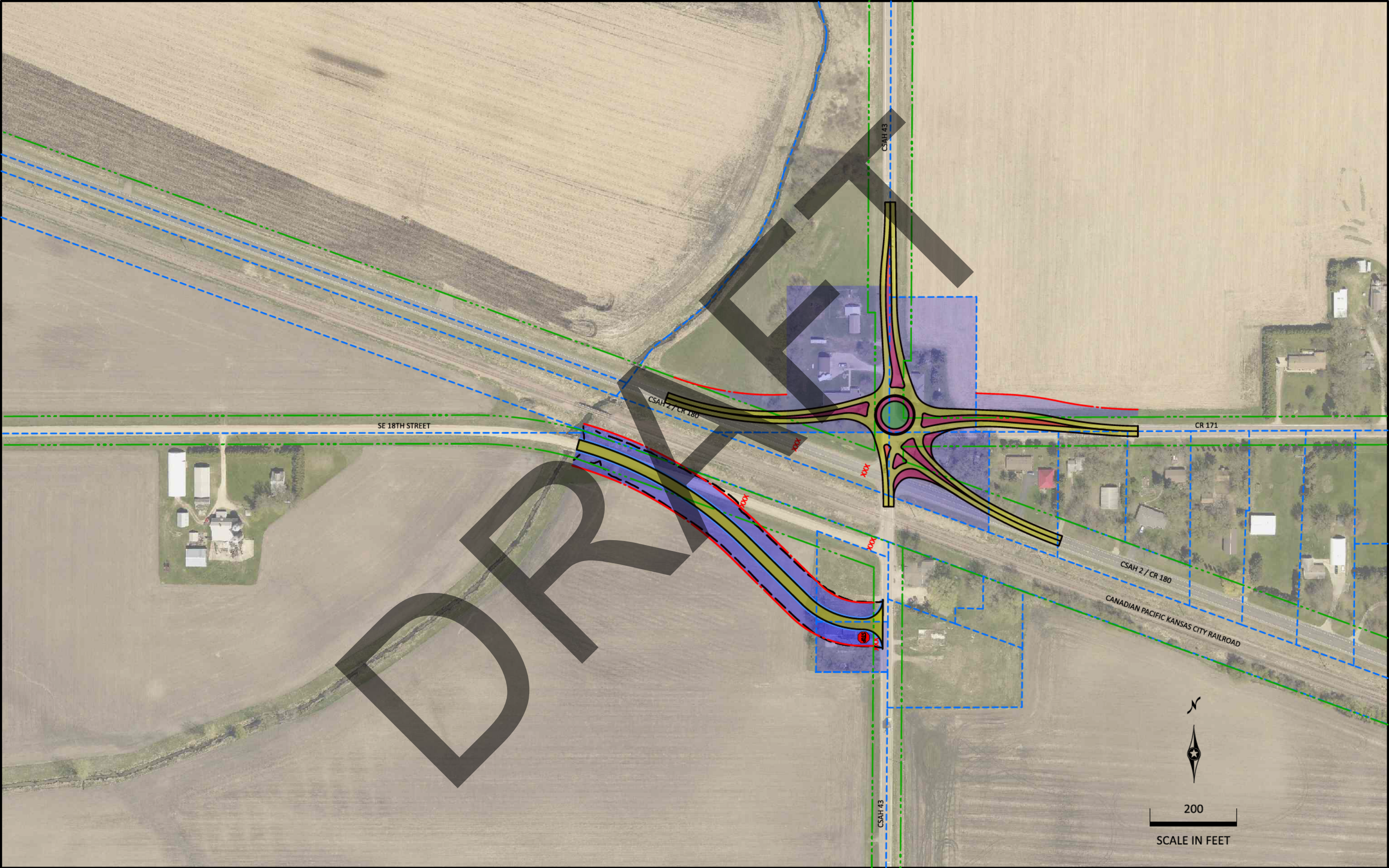


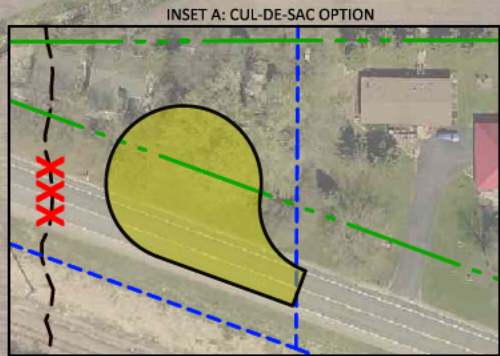
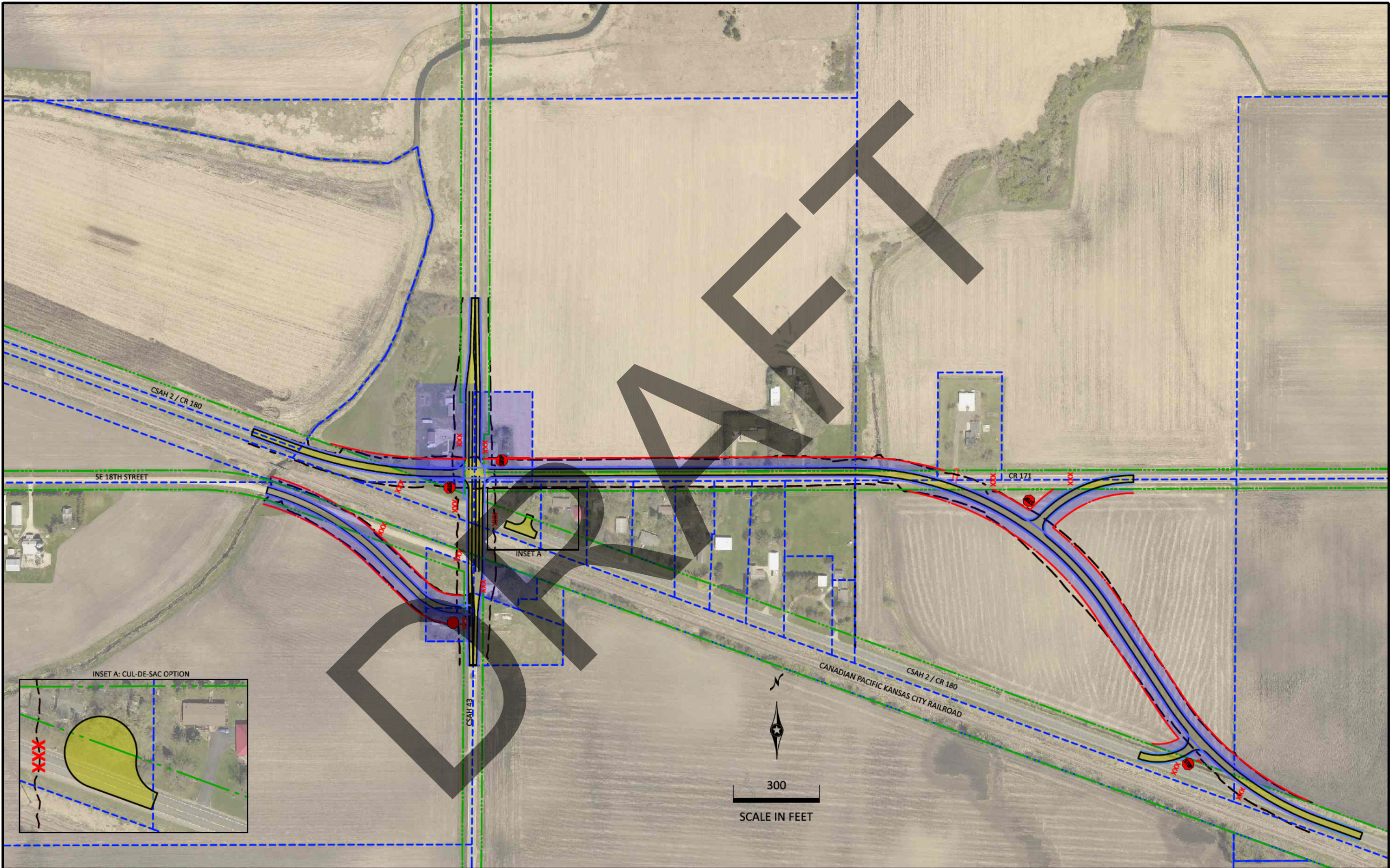
APPENDIX H

Alternative Exhibits

DRAFT

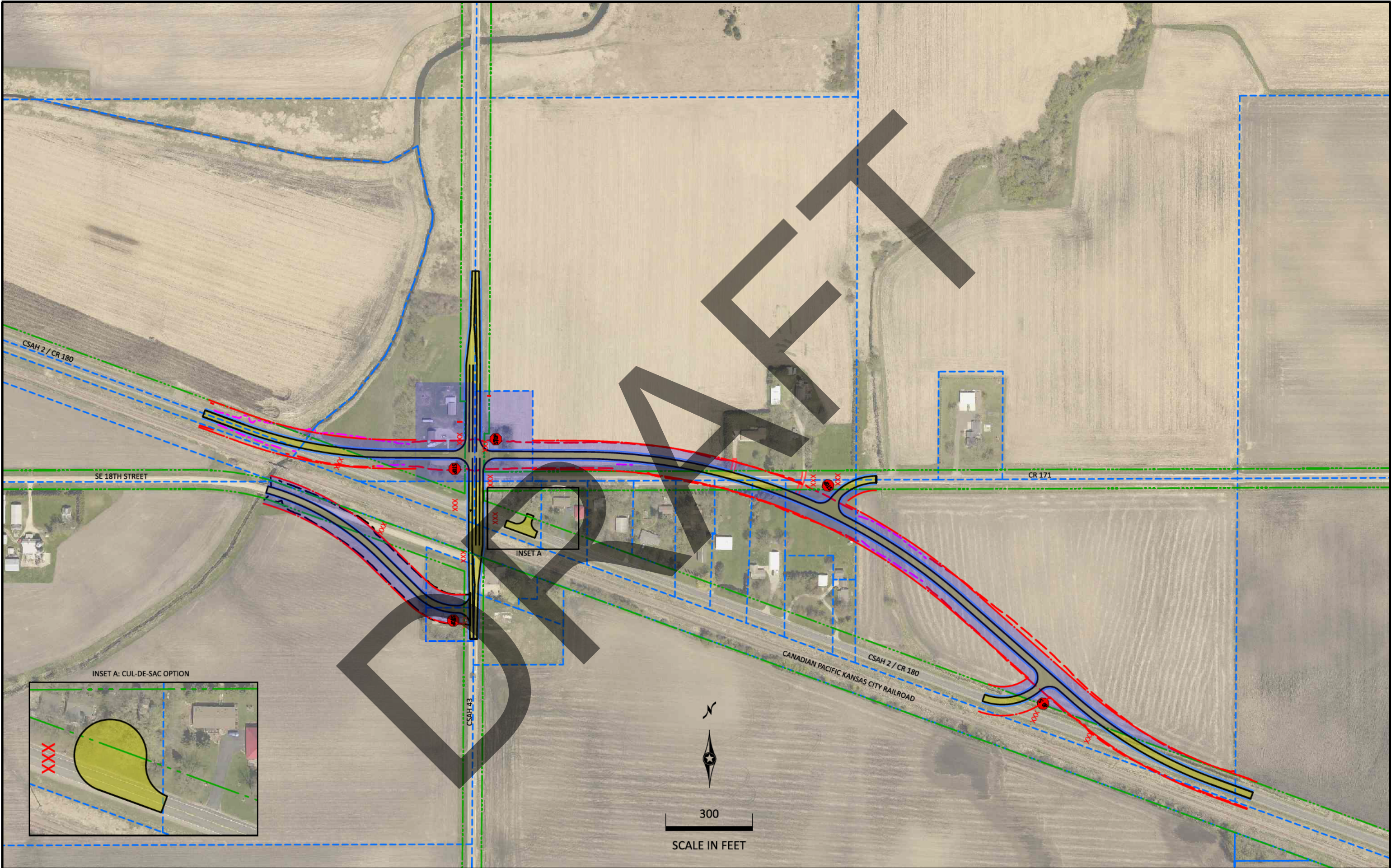
PLOT NAME: Conceptual Layout1 Exhibit
PATH & FILENAME: MN\Steele County\10073 Havana\ICE Report\Conceptual Layout1 Exhibit.dgn
PLOTTED/REVISED: 1-NOV-2024





PLOTTED/REVISED: 4-NOV-2024

PLOT NAME: Conceptual Layout3 Exhibit
PATH & FILENAME: MN\Steele County\10073 Havana\ICE Report\Conceptual Layout3 Exhibit.dgn

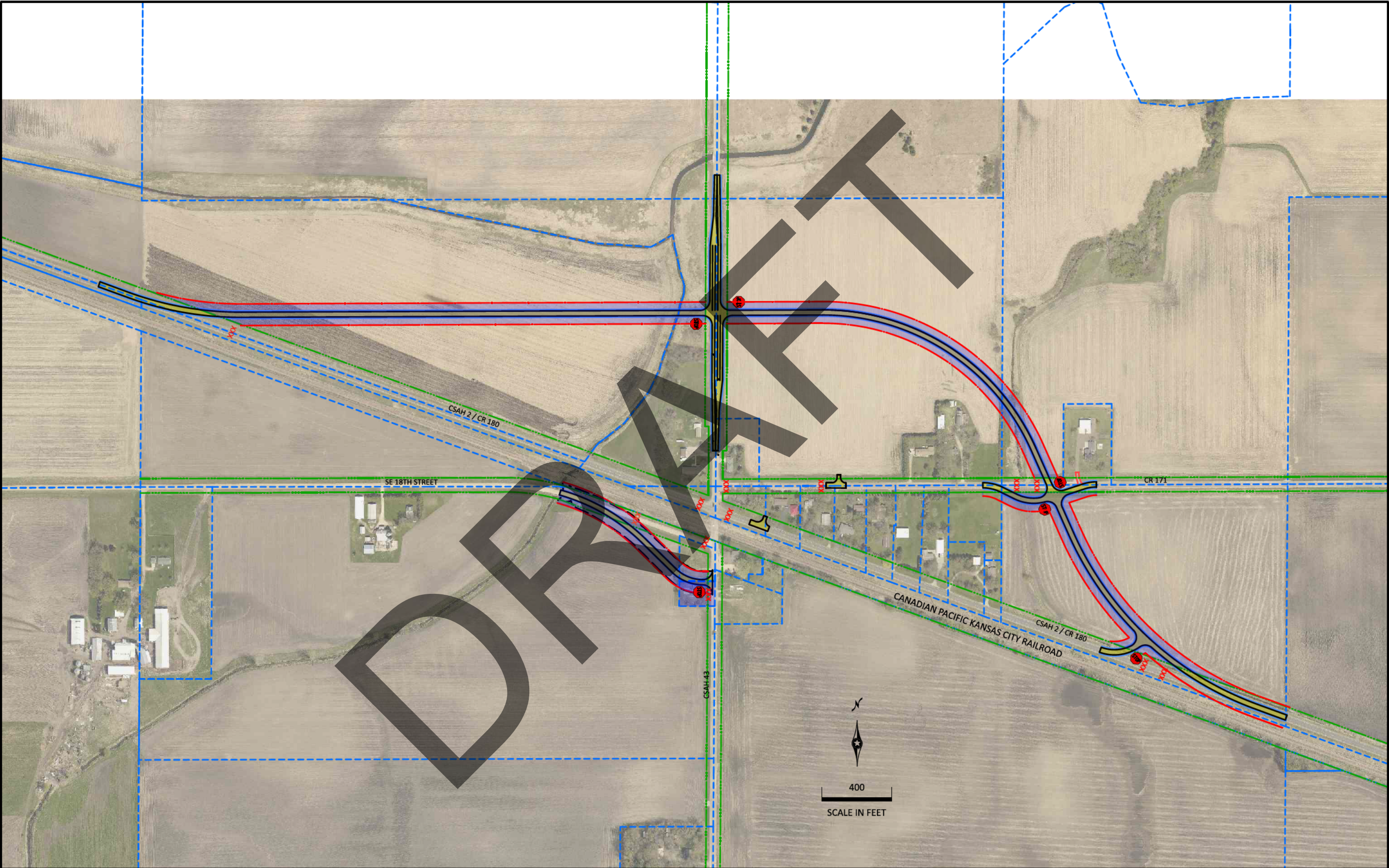


ALTERNATIVE 3 LAYOUT
CSAH 2/CR 180, CSAH 43 & CR 171 INTERSECTION IMPROVEMENTS
STEELE COUNTY, MN
2025
S.A.P. XXX-XXX-XXX

SCALE: AS SHOWN	DRAWN BY: BGC
WHKS PROJECT NO: 10073	CHECKED BY: BWT

PLOTTED/REVISED: 4-NOV-2024

PLOT NAME: Conceptual Layout4 Exhibit
PATH & FILENAME: MN\Steele County\10073 Havana\ICE Report\Conceptual Layout4 Exhibit.dgn



ALTERNATIVE 4 LAYOUT
CSAH 2/CR 180, CSAH 43 & CR 171 INTERSECTION IMPROVEMENTS
STEELE COUNTY, MN
2025
S.A.P. XXX-XXX-XXX

SCALE: AS SHOWN	DRAWN BY: BGC
WHKS PROJECT NO: 10073	CHECKED BY: BWT

Appendix G: Wetland Delineation Report

DRAFT

CSAH2/CR180 INTERSECTION

WETLAND DELINEATION

Havana, Minnesota



Minnesota Wetland Professional In-Training #5452

12/13/2024

whks

engineers + planners + land surveyors

Table of Contents

Part I – Introduction	1
Purpose and Scope.....	1
Methodology	1
Disclaimer	1
Part II – General Site Information.....	2
Location	2
General Site Description and Topography.....	2
Soils	2
NWI and PWI Inventory.....	3
Antecedent Precipitation	3
Off-Site Hydrology Assessment.....	4
Part III – Summary of Findings	7
Overview	7
Weather Conditions.....	7
Field Findings.....	7
Transect 1	8
Transect 2	14
Transect 3	20
Transect 4	26
Transect 5	32
Conclusion	36
Part IV – Interpretation of Policy	37
Federal Regulations.....	37
State Regulations.....	37
Appendix A - Figures	
Appendix B - Wetland Determination Data Forms	
Appendix C - Photo Log of Site Conditions	
Appendix D - Antecedent Precipitation Data	
Appendix E - Off-Site Hydrology Assessment	

Part I – Introduction

Purpose and Scope

WHKS & Co. was retained by Steele County to conduct a wetland delineation for the reconstruction of the County State Aid Highway (CSAH) 43 and CSAH 2/County Road (CR) 180 intersection. The purpose of this delineation is to identify existing wetlands within the site boundary so that impacts to wetlands can be minimized and mitigated.

This report and the attached exhibits and data forms constitute the wetland delineation report for the project referenced above. This delineation report is intended to provide the required documentation for wetland boundary and jurisdictional determinations in accordance with Section 404 of the Clean Water Act (CWA). All referenced figures can be found in Appendix A.

Methodology

This wetland delineation was completed in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0). The delineation was a routine (Level 3) investigation as described in the 1987 manual. Level 3 delineations are a combination of on-site and off-site methods. The on-site portion of the investigation was used to identify soil, vegetation, and hydrology criteria pertinent to wetland functions encountered at the site. All soils, vegetation, and hydrology criteria collected at each data point were compiled to determine the presence of wetlands within the project area.

Site visits were conducted on October 17 and 18, 2024. A total of ten sample points (plots) were analyzed. Sample points were selected based on the location of wetland signatures identified during an off-site hydrology assessment as well as topographic location, vegetation, and hydrology characteristics visually identified in the field.

At each sampling plot, a handheld soil probe was used to examine the underlying soils. Soils were described according to their physical properties such as texture, color, and saturation. Munsell Soil Color Charts were used to determine soil matrix, mottle, and gley colors. Indicators of hydrology such as drift lines, drainage patterns, sediment deposits, and inundation were noted to determine if the suspected area satisfied the criteria for hydrology. Dominant plants within each of the four strata (i.e., tree, shrub/sapling, woody vine, and herbaceous) were identified to species in accordance with methods outlined in the 2010 Midwest Regional Supplement to the USACE Wetland Delineation Manual. The indicator status of each dominant species was obtained from the National Wetland Plant List for the Midwest Region. If all three wetland criteria were observed (i.e., hydric soils, hydrology, and dominant hydrophytic vegetation), the area was determined to be within a wetland. Routine wetland determination data forms were filled out for each sample point and are included in Appendix B. Photographs were taken throughout the project area and are included in Appendix C. Sample point locations were recorded using Global Positioning System (GPS) equipment and were flagged on site.

Disclaimer

The contents of this report are a professional opinion based on conditions of the project area during the stated period. Therefore, the conclusions and recommendations presented are dependent on conditions of the project area during the site visits. The methodology used for this analysis is consistent with accepted wetland evaluation methodologies that are contained in the referenced manual. No inferences regarding the applicability of State or local zoning or building code regulations are made in this wetland delineation report. This delineation does not constitute a jurisdictional determination. A jurisdictional

determination can only be made by request through a project area reconnaissance by regulatory representatives.

Part II – General Site Information

Location

The project site is in Steele County, Minnesota, at the unincorporated community of Havana, about 4 miles east of Owatonna, at the intersection of CSAH 43 and CSAH 2/CR180. The project area includes about 136 acres of land located in Sections 17, 18, 19 and 20 of Township 107N, Range 19W. Figure 2.1 provides a general site location map.

General Site Description and Topography

The project area is a mix of residential and agricultural land. A parcel map is provided in Figure 2.2. The site is centered around the existing intersection of CSAH 43 and CSAH 2/CR 180. County Ditch #1 flows west to east just north of the project site. Two tributary drainageways flow south to north through the project site and join with County Ditch #1 north of the project limits.

Topographic information for the project area was obtained and reviewed to determine gradients, topographic site features, and general hydrologic regimes. Topographic data were obtained from existing U.S. Geological Survey (USGS) 1:24,000 topographic maps (Figure 2.3) and one-foot contours created Light Detection and Ranging (LiDAR) data collected between 2007 and 2008 (Figure 2.4). Elevations within the investigation limits range from 1,205 feet MSL (Mean Sea Level) to 1,238 feet MSL. The lowest elevations are in the western tributary, and the highest elevations are in eastern portion of the site in the farmed field in Parcel 07-020-4100.

Soils

Soil survey information for this site was obtained and reviewed from the Soil Survey Geographic database (SSURGO) for Steele County, Minnesota which is issued by the Natural Resources Conservation Service (NRCS). These data were used prior to the site visit to determine soil mapping units and hydric soil classifications throughout the project site. Eleven mapped soil units are present on site. These soils consist of loams, clay loams, silt loams and alluvial land. All soils within the site are listed as hydric soils. About 50% of the site is mapped as 10% hydric or less, and the other 50% of the soils are mapped as 90% hydric or greater. Soil descriptions and hydric soil ratings are provided in Figure 2.5 and Table 2.1.

Table 2.1: Mapped Soil Units

Map Unit	Mapped Soil Name	Hydric Soil Rating	Area (Acres)
Af	Alluvial land, frequently flooded	95	17.4
Bc	Biscay clay loam, 0 to 2 percent slopes	100	23.5
L78A	Canisteo clay loam, 0 to 2 percent slopes	100	5.4
Cf	Canisteo clay loam, depressional, 0 to 1 percent slopes	100	7.5
CIB	Clarion loam, 2 to 6 percent slopes	5	22.4
DkA	Dakota loam, 0 to 2 percent slopes	10	1.4

Map Unit	Mapped Soil Name	Hydric Soil Rating	Area (Acres)
Du	Dundas silt loam, 0 to 2 percent slopes	90	5.7
Gc	Glencoe clay loam, 0 to 1 percent slopes	100	8.5
NcA	Nicollet clay loam, 1 to 3 percent slopes	10	12.5
NcB	Nicollet clay loam, 2 to 4 percent slopes	10	31.6
Wt	Webster clay loam, 0 to 2 percent slopes	95	0.0
Total Area:			136.0

NWI and PWI Inventory

A review of the National Wetland Inventory (NWI) shows mapped wetlands within the north central and eastern portions of the site. A review of the Minnesota Public Waters Inventory (PWI) shows no mapped public waters on site. County Ditch #1, north of the project area, is part of the Steele County Ditch System and is managed by the Drainage Authority. A map showing the NWI and PWI information and the mapped county ditch is provided in Figure 2.6.

Antecedent Precipitation

Prior to conducting the field investigation, antecedent precipitation conditions were evaluated to assess the current hydrologic conditions at the project site. Conditions were evaluated using the procedures outlined in Technical Resource - Wetland Rapid Assessment Procedure (TR-WRAP) 00-1 from the USACE and Chapter 19 of the Engineering Field Handbook from the NRCS.

Precipitation data were obtained from the National Weather Service and compared to the Climate Analysis for Wetlands Table (WETS) for the nearest station. The WETS table (published by the NRCS) gives a month-by-month summary and probability analysis of temperature and precipitation. Data collected from local monitoring stations were compared to the period-of-record statistics to determine whether the monthly precipitation was in one of three general categories: 1) in the lowest 30th percentile of the period-of-record distribution; 2) greater than the 30th percentile but less than the 70th percentile of the period-of-record distribution; or 3) in the highest 30th percentile of the period-of-record distribution. Months with total precipitation between the 30th and 70th percentile of historic monthly totals are considered "normal" precipitation months. Months above the 70th percentile are considered abnormally wet, and months below the 30th percentile are considered abnormally dry.

The results of the analysis indicate that the hydrologic conditions at the site for the three-month period prior to the investigation were drier than normal. The output tables from this analysis can be found in Appendix D.

Off-Site Hydrology Assessment

Given that most of the site was cropped during the time of the field investigation, an off-site hydrology assessment was also completed. Aerial imagery taken between 1938 and 2024 was compiled and reviewed for wetland characteristics such as crop stress, standing water, and drowned-out crops. For each image collected, precipitation data were analyzed to determine the hydrologic conditions of the site in the three-month period prior to the date the photos were taken. If wetland characteristics were present in a large percentage of the photos taken during normal periods of precipitation, that area was concluded to be wetland.

The project site was divided into five areas for the review, as shown in Figure 2.7. Findings from the off-site hydrology assessment are provided in Table 2.2 and reviewed imagery is provided in Appendix E.

Table 2.2: Off-Site Hydrology Assessment

Image Date	Image Source	Climate Condition	Image Interpretation				
			Area 1	Area 2	Area 3	Area 4	Area 5
02/24/2024	Google Earth	Dry	NSS	NV	NV	NSS	NSS
3/27/2022 – 4/3/2022	Steele County	Normal	NSS	NV	NV	NSS	NC
10/12/2020	Google Earth	Normal	SS	NV	NV	NSS	NC
4/25/2019-5/7/2019	Steele County	Wet	SS	NC	NV	NSS	SS
05/31/2017	Google Earth	Wet	NV	CS	NV	NSS	NC
4/3/2016 – 4/19/2016	Steele County	Normal	CS	NV	NV	NSS	SS
11/12/2015	Google Earth	Normal	CS	NV	NV	NSS	NC
04/22/2015	Google Earth	Normal	SS	NSS	NV	SS	NC
4/29/2013 – 5/07/2013	Steele County	Wet	SS	NV	SS	SS	SS
08/28/2012	Google Earth	Dry	NC	NV	NV	NV	NC
06/23/2010	FSA	Dry	AP, CS	NV	NV	CS	NC
06/02/2009	Google Earth	Dry	SS, DO	CS	NV	NV	NC
05/21/2008	FSA	Normal	NC	NV	NV	CS	NC
05/31/2003	FSA	Normal	CS	NV	NV	NV	NC
04/16/1991	USGS	Normal	SS	NSS	NV	SS	SS
04/06/1959	USDA	Normal	NV	NV	NV	SS	SS
04/30/1938	USDA	Wet	NV	NV	SS	SS	SS
			Area 1	Area 2	Area 3	Area 4	Area 5
Number of Normal Climate Condition			9	9	9	9	9
Number with Wet Signatures			7	0	0	4	9
Percent with Wet Signatures			78%	0%	0%	44%	100%

KEY		
WS – Wetland Signature	SS – Soil Wetness Signature	CS – Crop Stress
NC – Not Cropped	AP – Altered Pattern	NV – Normal Vegetative Cover
DO – Drowned Out	SW – Standing Water	NSS – No Soil Wetness Signature

The percentages calculated in Table 2.2 are transferred into Table 2.4. Table 2.4 includes additional information regarding site soils, mapped wetlands, and field observations. Using Table 2.3, it can be determined whether the areas identified contain wetlands.

Table 2.3: Decision Matrix

Hydric Soils Present?	Identified on NWI or Other Wetland Map?	Percent with Wet Signatures from Exhibit 1?	Field Verification Required?	Wetland?
Yes	Yes	>50%	No	Yes
Yes	Yes	30-50%	No	Yes
Yes	Yes	<30%	Yes	Yes, if other hydrology indicators present
Yes	No	>50%	No	Yes
Yes	No	30-50%	Yes	Yes, if other hydrology indicators present
Yes	No	<30%	No	No
No	Yes	>50%	No	Yes
No	Yes	30-50%	No	Yes
No	Yes	<30%	No	No
No	No	>50%	Yes	Yes, if other hydrology indicators present
No	No	30-50%	Yes	Yes, if other hydrology indicators present
No	No	<30%	No	No

The off-site hydrology assessment concluded that Areas 1,4, and 5 contain wetlands. Areas 2 and 3 did not meet the necessary criteria to be considered wetland.

Wetland 1, located in assessment area 1 along the eastern bank of the western tributary, is characterized by its location along the drainageway and its grass and forb dominant vegetation. Wetland 1 is defined as a fresh (wet) meadow wetland by Eggers & Reed, a riverine wetland by the Hydrogeomorphic approach (HGM) for its location within a floodplain, and as PEM1A by Cowardin as it appears to derive its hydrology from temporary flooding during rain events but is likely dry much of the growing season.

Wetland 5, located in assessment area 4, is characterized by its location in a depressional area of a cropped field. Based on surrounding vegetation and topography, it is likely that Wetland 5 would be dominated by grasses and forbs were in not in agricultural production. Based on this assumption, Wetland 5 is defined as a fresh (wet) meadow wetland by Eggers & Reed, a depressional wetland Hydrogeomorphic approach (HGM), and as PEM1A by Cowardin as it appears to derive its hydrology from temporary flooding during rain events but is likely dry much of the growing season.

Wetland 7, located in assessment area 5 in a formerly grassed drainageway, is characterized by its location in a depressional area of a cropped field. Based on historic imagery, the wetland has typically supported grasses and forbs. Wetland 7 is defined as a fresh (wet) meadow wetland by Eggers & Reed, a depressional wetland by the Hydrogeomorphic approach (HGM), and as PEM1A by Cowardin as it appears to derive its hydrology from temporary flooding during rain events but is likely dry much of the growing season.

Table 2.4: Decision Table

Area	Hydric Soils Present?	Identified on NWI or Other Wetland Map?	Percent with Wet Signatures from Table 3.1	Other Hydrology Indicators Present?	Wetland?
1	Yes	Yes	78%	NA	Yes
2	Yes	No	0%	NA	No
3	Yes	No	0%	NA	No
4	Yes	No	44%	Yes	Yes
5	Yes	No	100%	NA	Yes

Part III – Summary of Findings

Overview

This section presents the summary of findings for the wetland delineation at the project site. The sample plot numbering system corresponds to the order in which the samples were taken. Figures 8 and 9 show the sample plot locations and delineated wetland boundaries.

Weather Conditions

Thursday, October 17, 2024: Partly Cloudy, 50-66 °F, 20-25 mph winds

Friday, October 18, 2024: Partly Cloudy, 55-72 °F, 15-20 mph winds

Field Findings

Ten locations were sampled within the investigation limits. Soil was sampled up to a depth of thirty-six inches at all sampled locations. The sample point was determined to be within a wetland if all three wetland criteria were observed (see Table 3.1). Much of the site is in agricultural production and was harvested at the time of the field investigation.

Table 3.1: Summary of Findings

Sample Point	Hydrophytic Vegetation	Hydric Soils	Hydrology	Wetland
1A	✓	✓	✓	Yes
1B	✓			No
2A	✓			No
2B	✓	✓	✓	Yes
3A	✓			No
3B	✓	✓	✓	Yes
4A	✓	✓	✓	Yes
4B				No
5A	✓	✓	✓	Yes
5B	✓			No

Transect 1

Transect 1 is near the northeastern corner of the site, east of CSAH 43. The location was chosen for its position in a low-lying area adjacent to a tributary of Maple Creek and due to the presence of hydrophytic vegetation. Sample points 1A and 1B were collected along this transect.

Wetland 3 was identified at Transect 1. Wetland 3 is characterized by grass and forb dominant vegetation and its location within the floodplain of County Ditch #1. Wetland 1 is defined as a fresh (wet) meadow wetland by Eggers & Reed, a riverine wetland by the Hydrogeomorphic approach (HGM), and as PEM1A by Cowardin as it appears to derive its hydrology from temporary flooding during rain events but is likely dry much of the growing season.

Sample Point 1A

Location: Depressional area in floodplain

Soil Map Unit: Nicollet clay loam

Mapped NWI: Yes

Dominant Species: *Phalaris arundinacea* (reed canary grass) and *Solidago gigantea* (giant goldenrod)

Hydric Soil Indicators: Redox dark surface (F6)

Hydrology Indicators: Geomorphic position (D2) and the FAC-neutral test (D5) which evaluates whether there are more dominant plant species that are obligate and facultative-wetland than plant species that are upland and facultative-upland.

Conclusion: Wetland

Sample Point 1B

Location: Hillslope

Soil Map Unit: Nicollet clay loam

Mapped NWI: No

Dominant Species: Reed canary grass, giant goldenrod and *Dactylis glomerata* (orchard grass)

Hydric Soil Indicators: Thick dark surface (A12)

Hydrology Indicators: FAC-neutral test (D5)

Conclusion: Upland



Photo 1.1 – Bridge 74519 on CSAH 43 over County Ditch #1



Photo 1.2 – County Ditch #1 looking northeast



Photo 1.3 – CSAH 43 drainage ditch south of County Ditch #1



Photo 1.4 – Point 1A looking southeast



Photo 1.5 – Sampled soils at Point 1A, 1 of 2



Photo 1.6 - Sampled soils at Point 1A, 2 of 2



Photo 1.7 – Redox concentrations in sampled soils at Point 1A



Photo 1.8 – Vegetation at point 1B



Photo 1.9 - Sampled soils at Point 1B, 1 of 2



Photo 1.10 - Sampled soils at Point 1B, 1 of 2

Transect 2

Transect 2 is near the northwestern corner of the site, west of CSAH 43. The location was chosen for investigation due to the presence of cattails in the roadside drainage ditch. Sample points 2A and 2B were collected along this transect.

Wetland 2 was identified at Transect 2. Wetland 2 is characterized by its location within the depressional roadside drainage ditch. Wetland 2 largely supports grass and forb dominant vegetation, though cattails are present at the northern tip of the wetland. Wetland 2 is defined as a fresh (wet) meadow wetland by Eggers & Reed, a depressional wetland by the Hydrogeomorphic approach (HGM), and as PEM1A by Cowardin as it appears to derive its hydrology from temporary flooding during rain events but is likely dry much of the growing season.

Sample Point 2A

Location: Hillslope

Soil Map Unit: Nicollet clay loam

Mapped NWI: No

Dominant Species: Giant goldenrod, orchard grass and reed canary grass

Hydric Soil Indicators: None

Hydrology Indicators: FAC-neutral test (D5)

Conclusion: Upland

Sample Point 2B

Location: Drainageway

Soil Map Unit: Nicollet clay loam

Mapped NWI: No

Dominant Species: *Typha angustifolia* (narrow-leaved cattail) and giant goldenrod

Hydric Soil Indicators: Loamy gleyed matrix (F2)

Hydrology Indicators: Surface water (A1), geomorphic position (D2), and FAC-neutral test (D5)

Conclusion: Wetland



Photo 2.1 – Field driveway south of Bridge 74519, looking northeast



Photo 2.2 – Field south of County Ditch #1, west of CSAH 43



Photo 2.3 – Drainage ditch west of CSAH 43, looking southeast



Photo 2.4 – Drainage ditch west of CSAH 43, looking northeast. Point 2A.



Photo 2.5 – Sampled soils at Point 2A, 1 of 2



Photo 2.6 - Sampled soils at Point 2A, 2 of 2



Photo 2.7 – Vegetation at Point 2B, looking east



Photo 2.8 – Vegetation at Point 2B, looking east



Photo 2.9 - Sampled soils at Point 2B, 1 of 2



Photo 2.10 - Sampled soils at Point 2B, 1 of 2

Transect 3

Transect 3 is near the northwestern corner of the site, west of CSAH 43. The location was chosen for investigation due to the presence of hydrophytic vegetation in a floodplain and a depressional roadside drainageway. Sample points 3A and 3B were collected along this transect.

Wetland 2 was identified along Transect 3. The meadow situated between the western tributary and CSAH 43 was investigated at Sample Point 3A due to the presence of hydrophytic vegetation and being mapped NWI. However, sampled soils in the meadow did not meet the requirements of hydric soils.

Sample Point 3A

Location: Floodplain

Soil Map Unit: Webster clay loam

Mapped NWI: Yes

Dominant Species: *Fraxinus pennsylvanica* (green ash), *Cornus sericea* (red-osier dogwood), and reed canary grass

Hydric Soil Indicators: None

Hydrology Indicators: FAC-neutral test (D5)

Conclusion: Upland

Sample Point 3B

Location: Drainageway

Soil Map Unit: Webster clay loam

Mapped NWI: Yes

Dominant Species: *Poa pratensis* (Kentucky bluegrass) and reed canary grass

Hydric Soil Indicators: Thick dark surface (A12)

Hydrology Indicators: Surface water (A1), geomorphic position (D2), and FAC-neutral test (D5)

Conclusion: Wetland



Photo 3.1 – Upland area looking east towards CSAH 43



Photo 3.2 – Bank of western tributary bordering upland, looking south



Photo 3.3 – Point 3A, looking southeast



Photo 3.4 – Point 3A, looking northwest



Photo 3.5 – Sampled soils at Point 3A, 1 of 2



Photo 3.6 – Sampled soils at Point 3A, 2 of 2



Photo 3.7 – Location of Point 3B



Photo 3.8 – Sampled soils at Point 3B, 1 of 2



Photo 3.9 – Sampled soils at Point 3B, 2 of 2

Transect 4

Transect 4 is near the eastern side of the site, adjacent to a tributary of Maple Creek. The location was chosen for investigation due to the presence of hydrophytic vegetation in an uncropped area within an active agricultural field. Sample points 4A and 4B were collected along this transect.

Wetland 6 was identified along Transect 4, within the depressional drainageway. Wetland 6 is defined as a fresh (wet) meadow wetland by Eggers & Reed, a depressional wetland by the Hydrogeomorphic approach (HGM), and as PEM1A by Cowardin as it appears to derive its hydrology from temporary flooding during rain events but is likely dry much of the growing season.

Sample Point 4A

Location: Floodplain

Soil Map Unit: Glencoe clay loam

Mapped NWI: Yes

Dominant Species: *Salix amygdaloides* (peach-leaved willow), *Salix discolor* (pussy willow), *Sambucus canadensis* (common elderberry), and reed canary grass.

Hydric Soil Indicators: Thick dark surface (A12) and redox dark surface (F6)

Hydrology Indicators: geomorphic position (D2), and FAC-neutral test (D5)

Conclusion: Wetland

Sample Point 4B

Location: Crest of hillslope

Soil Map Unit: Webster clay loam

Mapped NWI: Yes

Dominant Species: *Populus alba* (white poplar), reed canary grass, *Cirsium discolor* (field thistle)

Hydric Soil Indicators: None

Hydrology Indicators: None

Conclusion: Upland



Photo 4.1 – Wetland 7, north of CSAH 71, looking northwest



Photo 4.2 – Wetland 7, north of CSAH 71, looking northeast



Photo 4.3 – Point 4A, looking southwest



Photo 4.4 – Point 4A, looking west



Photo 4.5 – Sampled soils at Point 4A, 1 of 2



Photo 4.6 - Sampled soils at Point 4A, 2 of 2



Photo 4.7 – Point 4B, looking northwest



Photo 4.8 – Point 4B, looking southwest



Photo 4.9 – Sampled soils at Point 4B

DRAFT

Transect 5

Transect 5 is near the center of the site, along the roadside drainageway east of CSAH 2/CR 180. The location was chosen for investigation due to the presence of cattails in the drainageway. Sample points 5A and 5B were collected along this transect.

Wetland 4 was identified along Transect 5 in the roadside drainage ditch. Wetland 4 is characterized by its location within the depressional roadside drainage ditch. Wetland 4 largely supports grass and forb dominant vegetation, though cattails are present in the area adjacent to Wetland 5. Wetland 4 is defined as a fresh (wet) meadow wetland by Eggers & Reed, a depressional wetland by the Hydrogeomorphic approach (HGM), and as PEM1A by Cowardin as it appears to derive its hydrology from temporary flooding during rain events but is likely dry much of the growing season.

Sample Point 5A

Location: Drainageway

Soil Map Unit: Nicollet clay loam

Mapped NWI: No

Dominant Species: *Carex vulpinoidea* (fox sedge)

Hydric Soil Indicators: Depleted below dark surface (A11) and loamy gleyed matrix (F2)

Hydrology Indicators: Drainage patterns (B10), geomorphic position (D2), and FAC-neutral test (D5)

Conclusion: Wetland

Sample Point 5B

Location: Hillslope

Soil Map Unit: Biscay clay loam

Mapped NWI: No

Dominant Species: Green ash and reed canary grass

Hydric Soil Indicators: None

Hydrology Indicators: FAC-neutral test (D5)

Conclusion: Upland



Photo 5.1 – Point 5A, looking north



Photo 5.2 – Point 5A, looking south



Photo 5.3 – Sampled soils at Point 5A

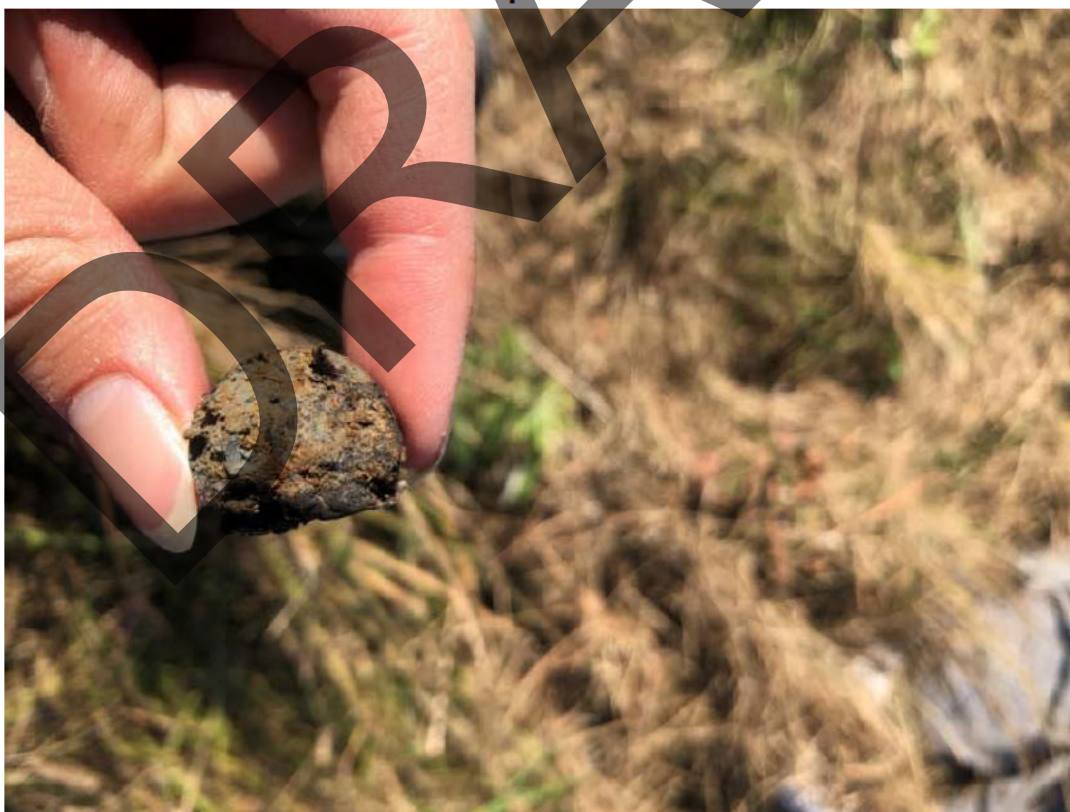


Photo 5.4 – Redox concentrations and depleted matrix in Point 5A sampled soils



Photo 5.5 – Sampled soils at Point 5B

Conclusion

Based on the observations of the on-site and off-site wetland investigation, seven individual wetland areas were delineated within the investigation limits. These wetland boundaries were drawn using 1-foot LiDAR contours, survey data, and aerial imagery and reflect the findings from the off-site hydrology assessment and the observations made on site.

The wetlands delineated within the investigation limits are summarized in Table 3.2.

Table 3.2: Delineated Wetlands

Wetland ID	Eggers & Reed	HGM Approach	Cowardin	Circular 39	Area (Acres)
Wetland 1	Fresh (wet) Meadow	Riverine	PEM1A	Type 1	2.00
Wetland 2	Fresh (wet) Meadow	Depressional	PEM1A	Type 1	0.22
Wetland 3	Fresh (wet) Meadow	Riverine	PEM1A	Type 1	0.14
Wetland 4	Fresh (wet) Meadow	Depressional	PEM1A	Type 1	0.34
Wetland 5	Fresh (wet) Meadow	Depressional	PEM1A	Type 1	0.41
Wetland 6	Fresh (wet) Meadow	Depressional	PEM1A	Type 1	1.29
Wetland 7	Fresh (wet) Meadow	Depressional	PEM1Af	Type 1	1.61
Combined Wetland Area:					6.01

Part IV – Interpretation of Policy

This section is intended to provide an interpretation of the results obtained from the wetland delineation described in the previous sections of this report. This section is only an interpretation based on observations made in the field. As stated in Part I, a jurisdictional determination can only be made by request through a project area reconnaissance by the appropriate regulatory representative. Table 4 provides a summary of the anticipated regulatory status of each delineated wetland.

Federal Regulations

Based on the findings of this delineation, it is our opinion that Wetlands 7 and 8 will not be regulated under Section 404 of the Clean Water Act (CWA) as these wetlands are not connected to any navigable waters or other waters of the US Waters of the U.S. (WOTUS). It is our opinion that Wetlands 1,2,3,4,5 and 6 will be regulated under Section 404 of the Clean Water Act (CWA).

State Regulations

Based on the findings of this delineation, it is our opinion that Wetlands 2 and 4, located in the roadway ditches, will not be regulated under the Minnesota Wetland Conservation Act (WCA). Poor site drainage has likely resulted in the presence of isolated wetland characteristics. Therefore, these wetlands are considered incidental and may not be subject to regulation under WCA. Incidental wetlands are defined by Minnesota Administrative Rule 8420.0105, subp. 2 (d) as: "...wetland areas that the landowner can demonstrate, to the satisfaction of the local government unit, were created in nonwetland areas solely by actions, the purpose of which was not to create the wetland." It is our opinion that Wetlands 1,3,5,6, and 7 will be regulated under the Minnesota Wetland Conservation Act (WCA).

County Ditch #1, located north of the project area, is part of the County Drainage System is managed by the County Drainage Authority.

Table 4: Anticipated Regulations

Aquatic Resource ID	Area (Acres)	Likely CWA Regulated	Likely WCA Regulated
Wetland 1	2.00	Yes	Yes
Wetland 2	0.22	Yes	No
Wetland 3	0.14	Yes	Yes
Wetland 4	0.34	Yes	No
Wetland 5	0.41	Yes	Yes
Wetland 6	1.29	No	Yes
Wetland 7	1.61	No	Yes

Jurisdictional determinations can only be made by the appropriate regulatory agencies. It is recommended that a copy of this delineation report be submitted to the U.S. Army Corps of Engineers, WCA Local Government Unit (LGU), and MN DNR as part of any permit application that may potentially impact the identified water resources. Impacts to the identified aquatic resources may require compensatory mitigation.

DRAFT

Figure 1 - Project Location
Steele County, Minnesota

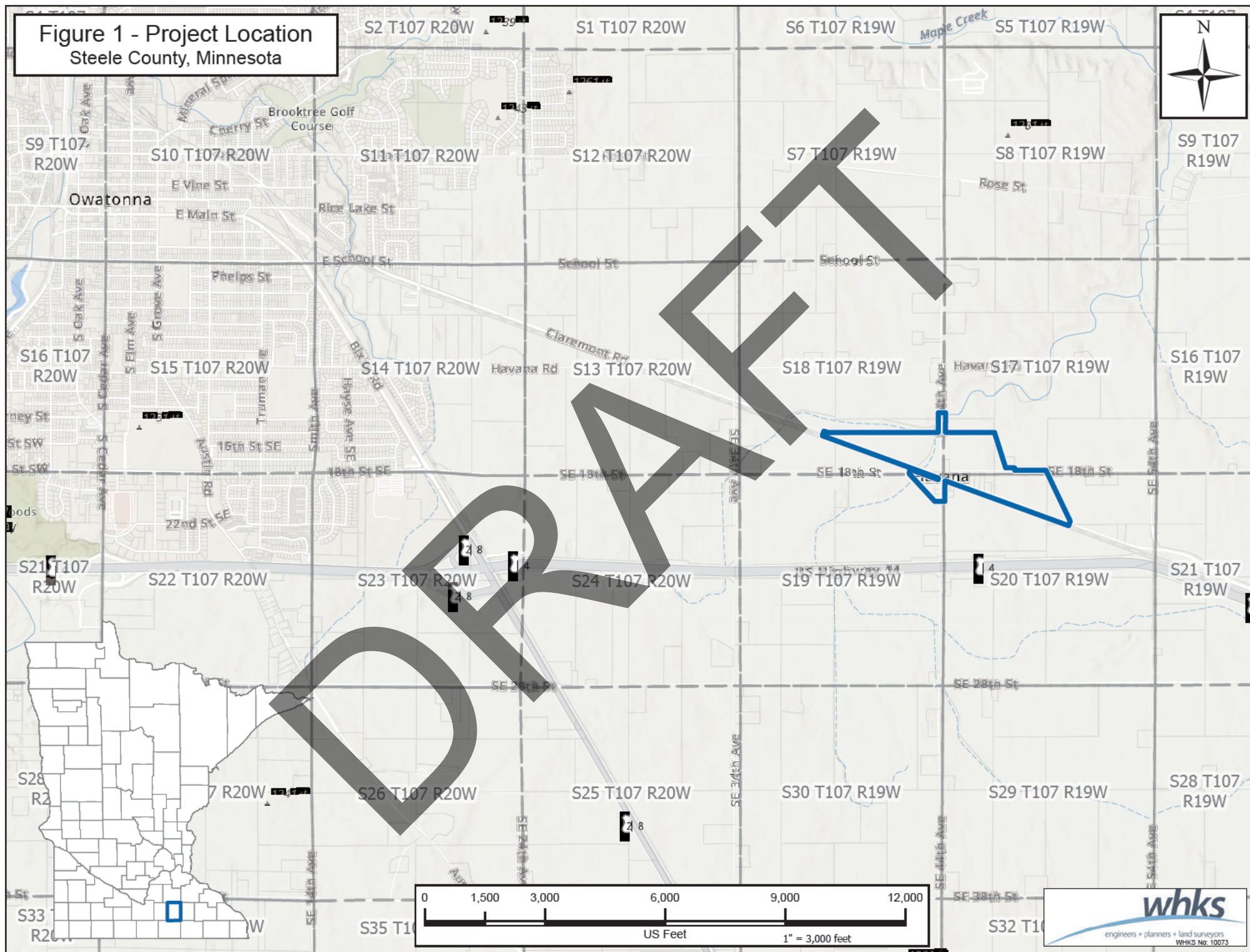
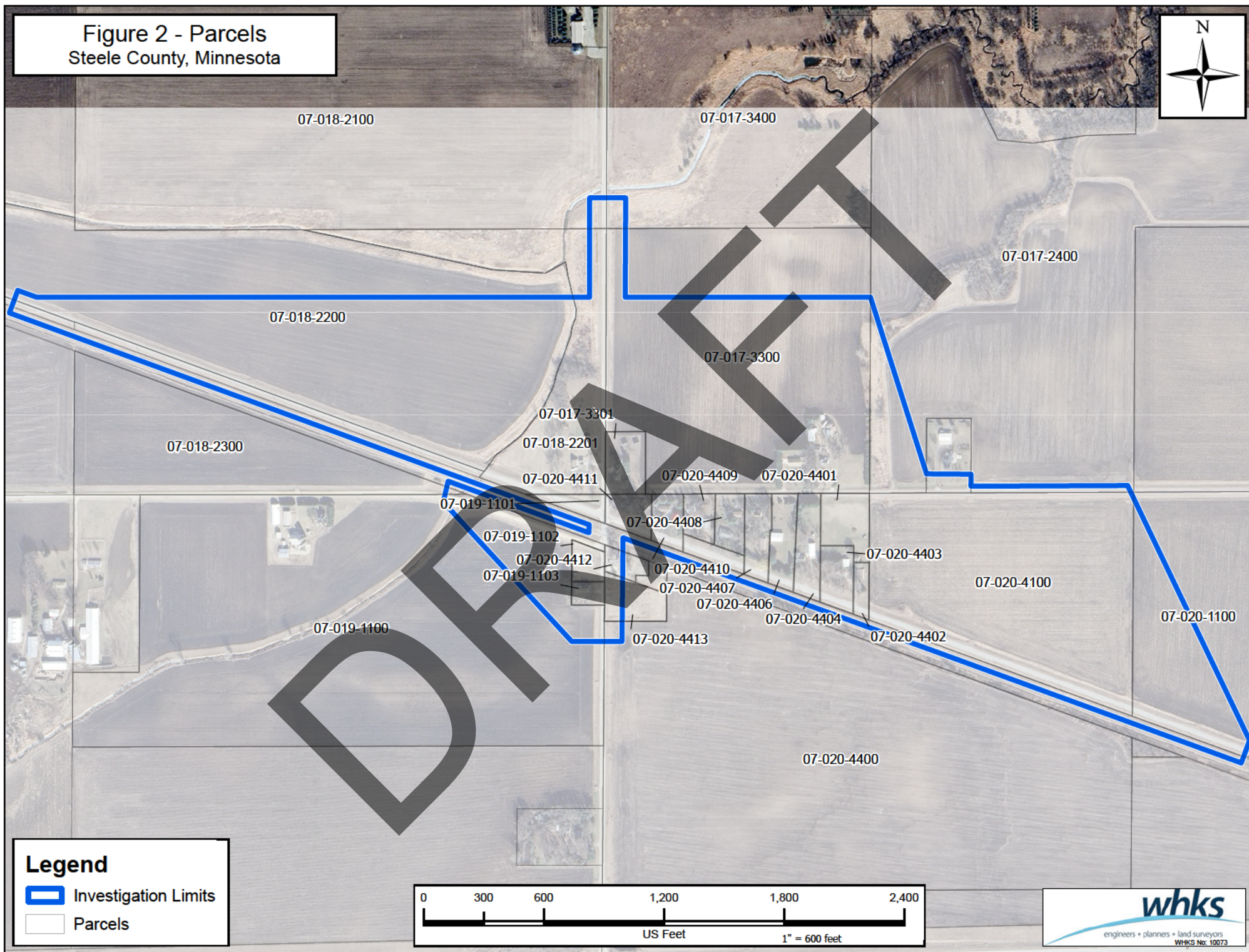


Figure 2 - Parcels
Steele County, Minnesota



Legend

-  Investigation Limits
-  Parcels

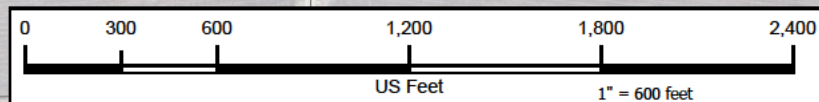


Figure 3 - Topography (USGS 7.5 minute Topo)
Steele County, Minnesota

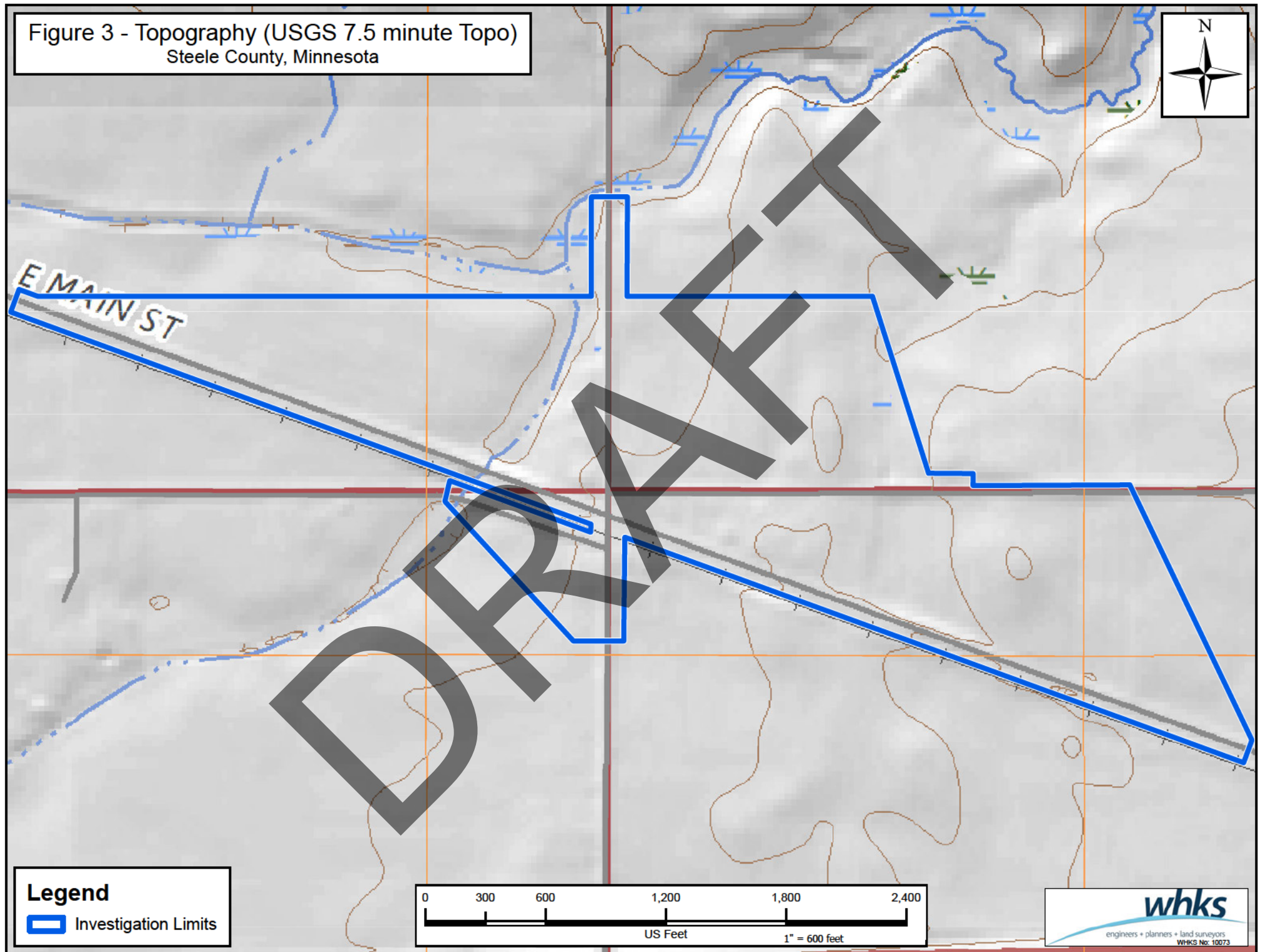


Figure 4 - Topography (2008 LiDAR)
Steele County, Minnesota

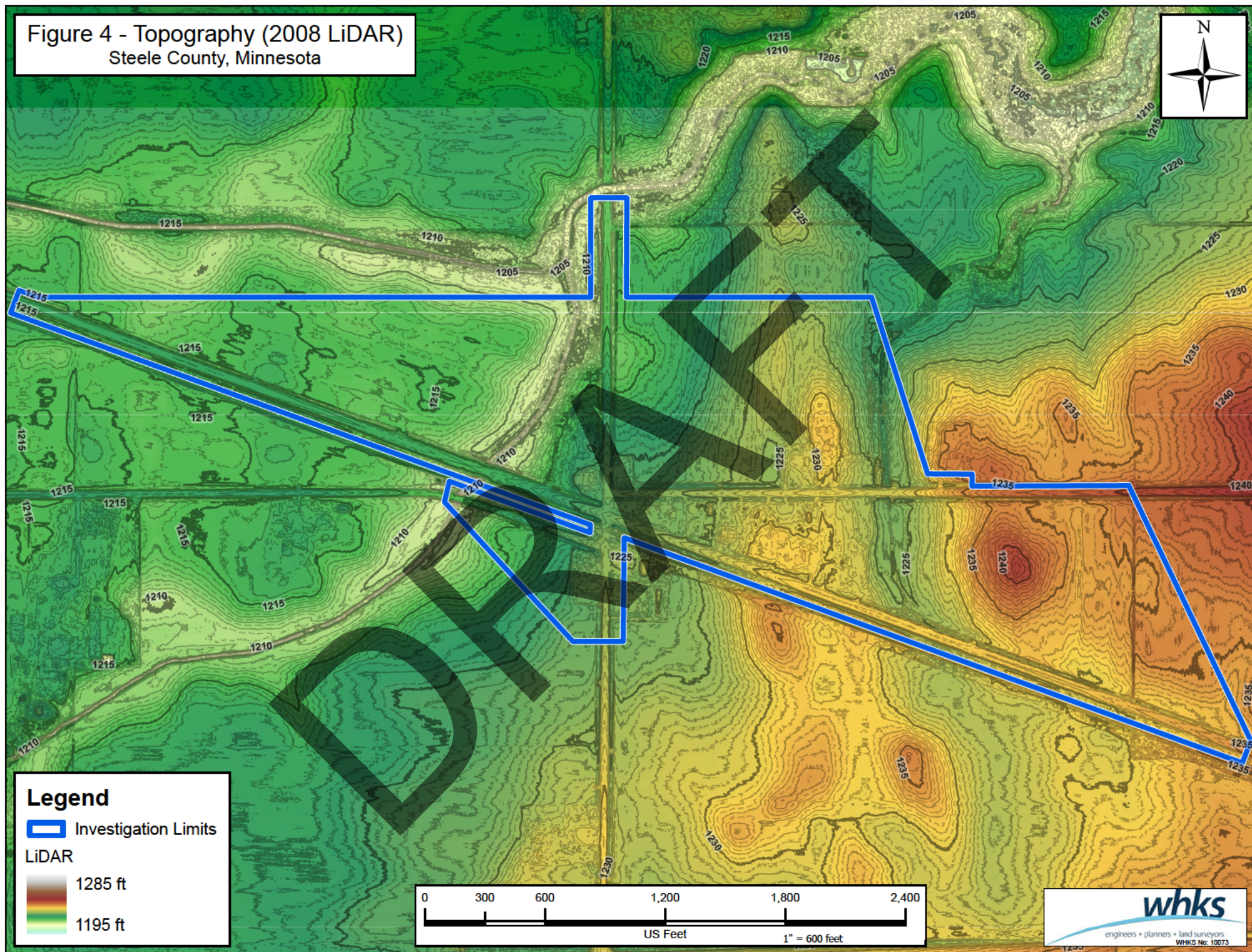


Figure 5 - Mapped Soils
Steele County, Minnesota

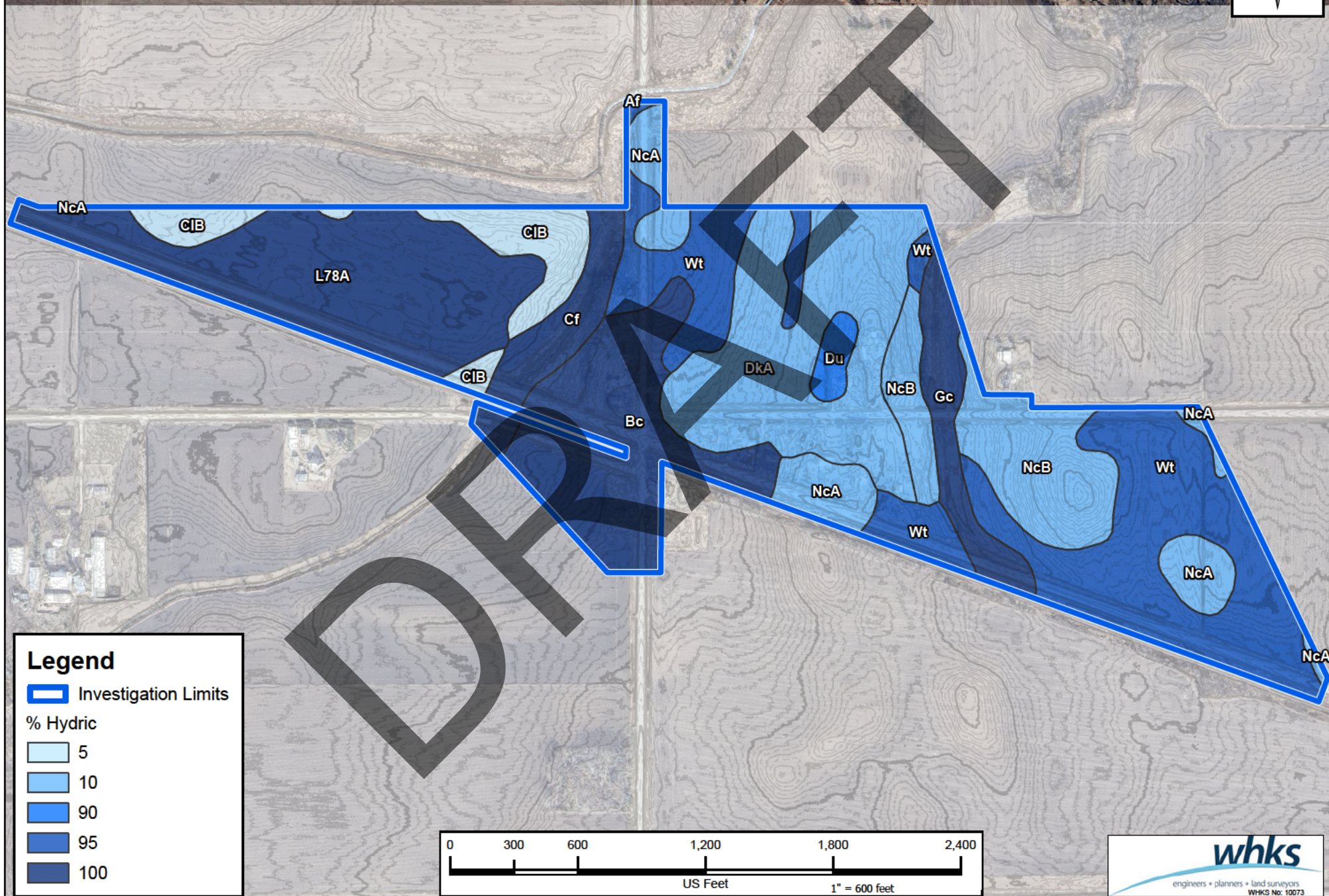


Figure 6 - Mapped Water Features
Steele County, Minnesota

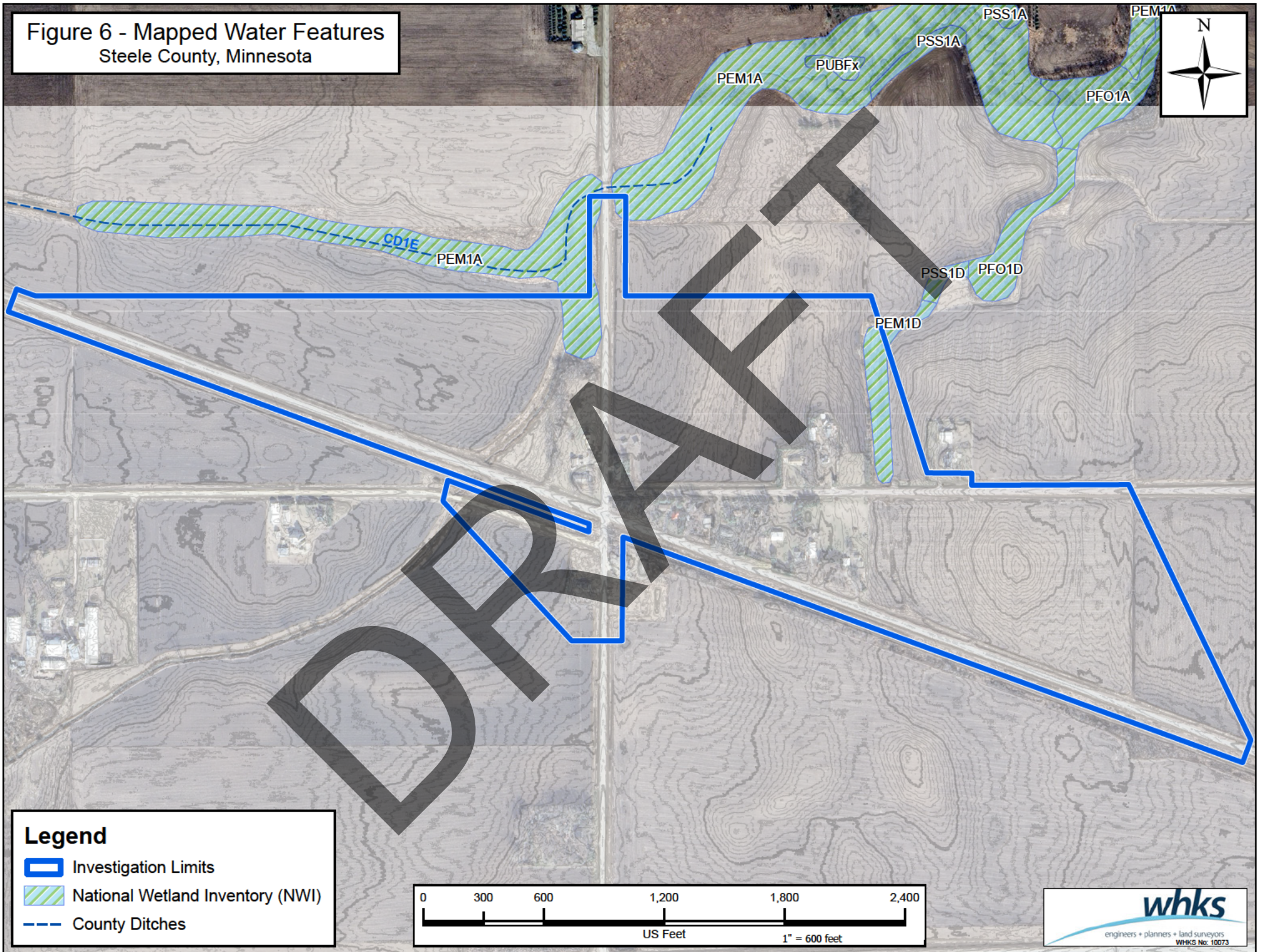


Figure 7 - Offsite Hydrology Assessment Summary
Steele County, Minnesota

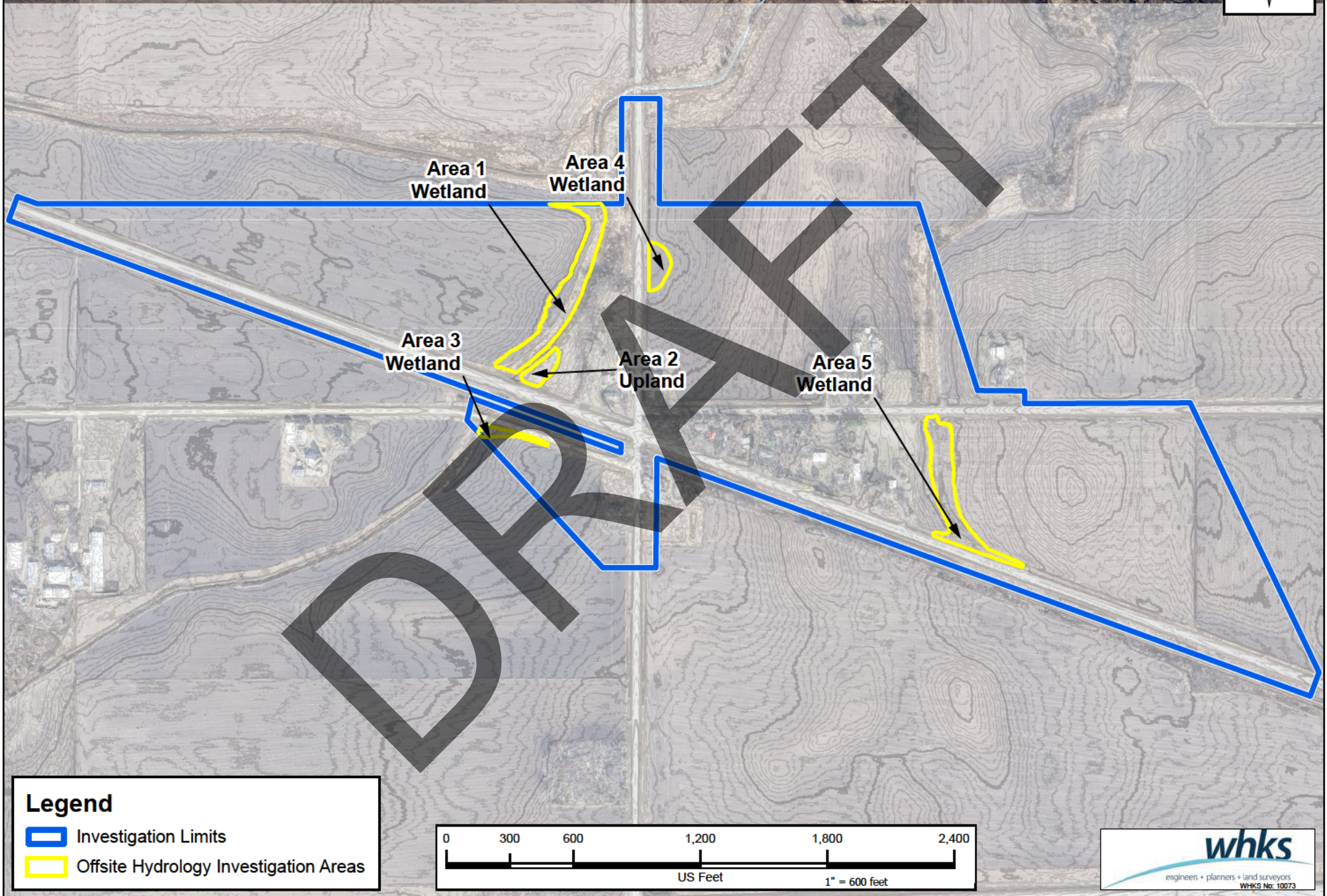


Figure 8 - Sample Points
Steele County, Minnesota

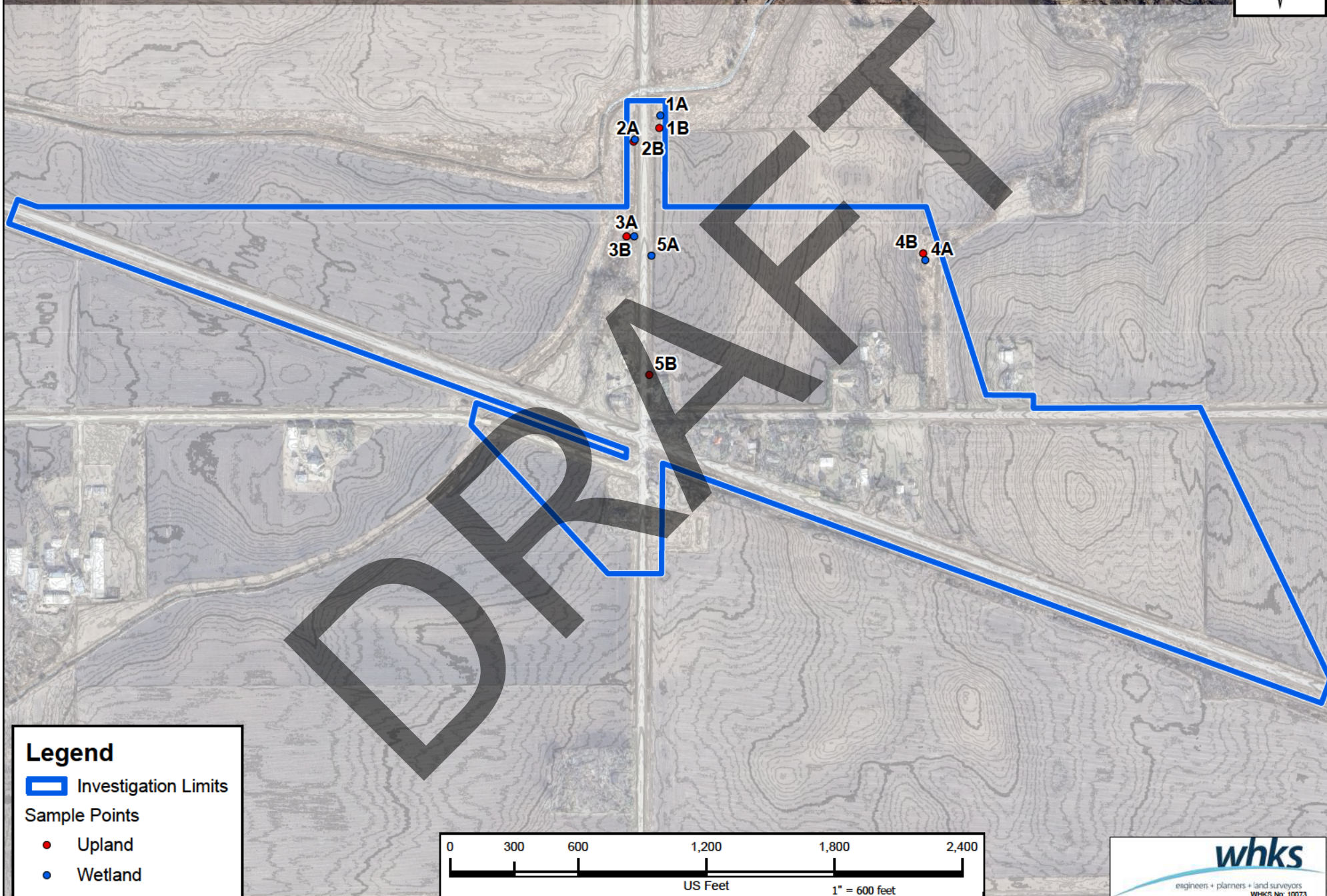


Figure 9 - Delineated Wetlands
Steele County, Minnesota

