EXHIBIT H

Inwood Ave North

Lake Elmo, Minnesota

Wetland Delineation Report

Prepared for
Hans Hagen Homes

by
Kjolhaug Environmental Services Company, Inc.
(KES Project No. 2014-032)

July 3, 2014

WETLAND DELINEATION SUMMARY

- The Inwood Ave N site was inspected on June 17, 2014 for the presence and extent of wetland.

- The NWI map showed 3 wetlands within site boundaries.

- The soil survey showed Barronett silt loam as the hydric soils present within site boundaries.

- The DNR Protected Waters map showed a DNR Protected Waterway within the southwest corner of the site boundaries.

- Two Type 1 (PEMAf) farmed, seasonally flooded wetland, and one Type 1 (PEMA) fresh meadow wetland were delineated within site boundaries.

Inwood Avenue North

Lake Elmo, Minnesota

Wetland Delineation Report

I. INTRODUCTION

The Inwood Avenue North site was examined on June 17, 2014 for the presence and extent of wetland. The 154-acre site was located in Section 33, Township 29N, Range 21W, City of Lake Elmo, Washington County, Minnesota. Generally the site was located east of the terminus of Inwood Avenue North and south of 10th Street N (**Figure 1**). Site limits were comprised of Washington County PID 3302921110001, 3302921110002, 3302921120001 and 3302921120003.

The site consists primarily of cropland. For the 2014 growing season the site was planted with corn (**Figure 2**). Two wetlands were located in the north area of the cropland. Along the eastern 300 feet of the property exists a woodland of various planted conifer and deciduous species. A wetland was located in the northeast corner of the site within the woodland. An abandoned farmstead site is located within the northwest corner of the site. In the southwest corner of the site is a DNR Protected Waterway (Unamed).

Generally topography was higher on the north half of the site. The site topo sloped gradually downhill toward the west and south.

Adjacent to the eastern boundary of the site is a single family residential development. On the western boundary is the Oak Marsh Golf Course. To the south is commercial industrial facility. North of the site north of 10th Street North is additional cropland.

II. METHODS

Wetlands were identified using Routine Determination methodology described in the *Corps of Engineers Wetlands Delineation Manual* (Waterways Experiment Station, 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central-Northeast Region (Version 2.0) as required by Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act.

Wetland boundaries were identified as the upper-most extent of wetlands, which met criteria for hydric soils, hydrophytic vegetation, and wetland hydrology. Wetland-upland boundaries were marked with pin flags and were located by E.G. Rudd.

Soils, vegetation, and hydrology were documented at representative locations along the wetland-upland boundary. Plant species dominance was estimated based on the percent aerial or basal coverage visually estimated within a 30-foot radius for trees and vines, 15-foot radius for the

shrub layer, and a 5-foot radius for the herbaceous layer within the community type being sampled.

Soils were characterized to a minimum depth of 18-20 inches (unless otherwise noted) utilizing Munsell Soil Color Charts and standard soil texturing methodology. Hydric soil indicators used in reporting are from the NTCHS Field Indicators of Hydric Soils in the United States (USDA Natural Resources Conservation Service Version 7, 2010) which are commonly found in the Midwest.

Plants were identified using standard regional plant keys. Taxonomy and indicator status of plant species was taken from the 2012 National Wetland Plant List (Lichvar, R.W. and Kartesz, J.T. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (https://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC.).

A review of available Farm Service (FSA) Agency photographs followed the protocol outlined in the document - Atypical Procedure: Offsite Hydrology Determination by Using Rainfall Data with Farm Service Agency Imagery, Adapted from NRCS-Minnesota Guidance (August, 1994).

III. RESULTS

Review of Soils, NWI, and DNR Information

The ***National Wetland Inventory Map (NWI)*** (Lake Elmo Quadrangle, U.S. Fish & Wildlife Service 1991) showed 3 wetlands within site boundaries (**Figure 3**).

The ***Soil Survey of Washington County, Minnesota*** (http://soils.usda.gov/survey/geography/ssurgo/) showed the following soil types within or near site boundaries (**Figure 4**). For information regarding soil series present on site, refer to **Table 1.** below.

The ***DNR Protected Waters Map, Washinton County*** (http://deli.dnr.state.mn.us/) showed a DNR Protected Waterway within site boundaries (**Figure 5**).

Table 1. Soil Series Information

SMU	Map Unit Name	Acres in AOI	Percentage of AOI	Hydric Percent of Map Unit	Hyric Category
49	Antigo silt loam, 0 to 2 percent slopes	0.8	0.55%	1	Predominantly Nonhydric
49B	Antigo silt loam, 2 to 6 percent slopes	26.8	17.74%	1	Predominantly Nonhydric
120	Brill silt loam	6.8	4.53%	5	Predominantly Nonhydric
153B	Santiago silt loam, 2 to 6 percent slopes	41.5	27.49%	0	Nonhydric
153C	Santiago silt loam, 6 to 15 percent slopes	11.0	7.26%	0	Nonhydric
264	Freeon silt loam, 1 to 4 percent slopes	55.4	36.71%	2	Predominantly Nonhydric
266	Freer silt loam	2.5	1.68%	5	Predominantly Nonhydric
342B	Kingsley sandy loam, 2 to 6 percent slopes	4.5	2.99%	3	Predominantly Nonhydric
342C	Kingsley sandy loam, 6 to 12 percent slopes	0.2	0.11%	0	Nonhydric
1847	Barronett silt loam, sandy substratum	1.4	0.95%	90	Predominantly Hydric

Wetland Determinations and Delineations

Potential wetlands were evaluated in greater detail during field observations on June 17, 2014. Two wetlands were identified on the subject site (**Figure 2**). Corresponding data forms are included in **Appendix A**. The following description of the wetlands and adjacent upland reflects conditions observed at the time of the field visit. At that date, herbaceous vegetation and crops were actively growing and climatic/hydrologic conditions were assumed to be normal based on available precipitation data (**Appendix B**). A survey of the wetland boundaries is included as **Appendix C**.

Wetland 1 was a Type 1 (PEMAf) farmed, seasonally flooded wetland dominated by witch grass with lesser amounts of velvetleaf and smartweed. The majority of the wetland had shallow standing water with a saturated fringe.

Adjacent upland was cropped with healthy corn and had lamb's quarter in between the rows.

The delineated boundary followed a change in vegetation composition, cropping patterns and landscape position was supported by signatures on aerial photos. Wetland 1 corresponded to a PEM1Af wetland on the NWI map, but mapped in a non-hydric soil (Freeon) on the soil survey.

Wetland 2 was a Type 1 (PEMA) fresh meadow wetland dominated by a green ash saplings and inundated with reed canary grass, Kentucky bluegrass, red-osier dogwood and giant goldenrod.

Adjacent upland at the sample location were cropped with corn and had giant goldenrod, thistle and horsetail between the rows near the wetland boundary.

The delineated boundary followed a flat and gradual change in vegetation composition. Wetland 2 corresponded to a mapped PEM1A wetland on the NWI-map. However it was mapped in a non-hydric soil (Freeon) on the soil survey.

Wetland 3 was a Type 1 (PEMAf) farmed, seasonally flooded wetland dominated by witch grass with lesser amounts of smartweed. The majority of the wetland had shallow standing water with a saturated fringe.

Adjacent upland was cropped with healthy corn and had lamb's quarter in between the rows.

The delineated boundary followed a change in vegetation composition, cropping patterns and landscape position was supported by signatures on aerial photos. Wetland 3 corresponded to a PEM1Af wetland on the NWI map, but mapped in a non-hydric soil (Freeon) on the soil survey.

FSA Photography Review

FSA photos from the years 1979 through 2000, 2003, 2006, 2008, 2009, and 2010 were available for review. Each year was assessed for wet/normal/dry climatic conditions using the online Minnesota Climatology Working Group, Wetland Delineation Precipitation Data Retrieval from a Gridded Database using a date of July 1 for the year assessed. Using this tool, only the years 1983,1989, 1992, 1995, 1996, 1997, 2000, 2006 and 2008 were calculated have normal precipitation during the 3 months preceding the assumed photo date. Areas showing wetland signatures in normal precipitation years were included in the FSA review.

Wetland 1 and 3, as well as three (3) additional areas exhibiting potential wetland signatures were reviewed (**Figure 6**) and results of the review are included in **Table 1** below. Area A is within the delineated boundary of Wetland 3 and Area B is within the delineated boundary of Wetland 1. None of the reviewed areas are located within hydric soils.

Table 1. FSA Review Inwood Avenue North

Normal Precipitation Year	Area A	Area B	Area C	Area D	Area E
1983	C	SW	C	AP	AP
1989	DO	DO	C	AP	AP
1992	DO	DO	C	AP	AP
1995	SW	DO	C	AP	AP
1996	C	CS	C	AP	AP
1997	CS	DO	C	AP	AP
2000	CS	CS	C	AP	AP
2006	C	DO	C	AP	AP
2008	C	DO	C	AP	AP
Number of Significant Signatures	5	9	0	0	0
Percent Signatures in Normal Years	56%	100%	0%	0%	0%
Determination	Wetland	Wetland	Upland	Upland	Upland

Note:
Area D is a vegetative swale with steep sloped sides.
Area E is a hilltop covered in trees.

According to protocol, areas exhibiting wetland signatures in 50% or more of normal climatic years meet wetland hydrology criteria, and areas with wetland signatures in 30% to 50% of normal climatic years must be field investigated. Based on FSA aerial photo review for this site, only Areas A and B meet wetland hydrology criteria. Area A is encompassed within the delineated boundary of Wetland 3 and Area B is encompassed within the delineated boundary of Wetland 1.

Other Areas

A DNR Protected Waterway is located within the southwest corner of the site. This waterways is an unnamed creek that flows to Wilmes Lake. The banks of the waterway are steep sloped and lacked wetland fringe.

No other areas with wetland vegetation or hydrology were observed on the site. No other areas were shown with hydric soil on the soil survey map, or as wetland on the NWI map.

V. CERTIFICATION OF DELINEATION

The procedures utilized in the described delineation are based on the COE 1987 Wetland Delineation Manual as required by Section 404 of the Clean Water Act and the Minnesota Wetland Conservation Act. Both the delineation and report were conducted in compliance with regulatory standards in place at the time the work was completed.

All site boundaries indicated on figures within this report are approximate and do not constitute an official survey product.

Delineation Completed by: Melissa Lauterbach-Barrett, Soil Scientist
Certified Wetland Delineator No. 1085
Professional Soil Scientist No. 45067

Report reviewed by: _____ Date: July 3, 2013

Mark Kjolhaug, Professional Wetland Scientist No. 000845

Inwood Avenue North

Wetland Delineation Report

Figures:

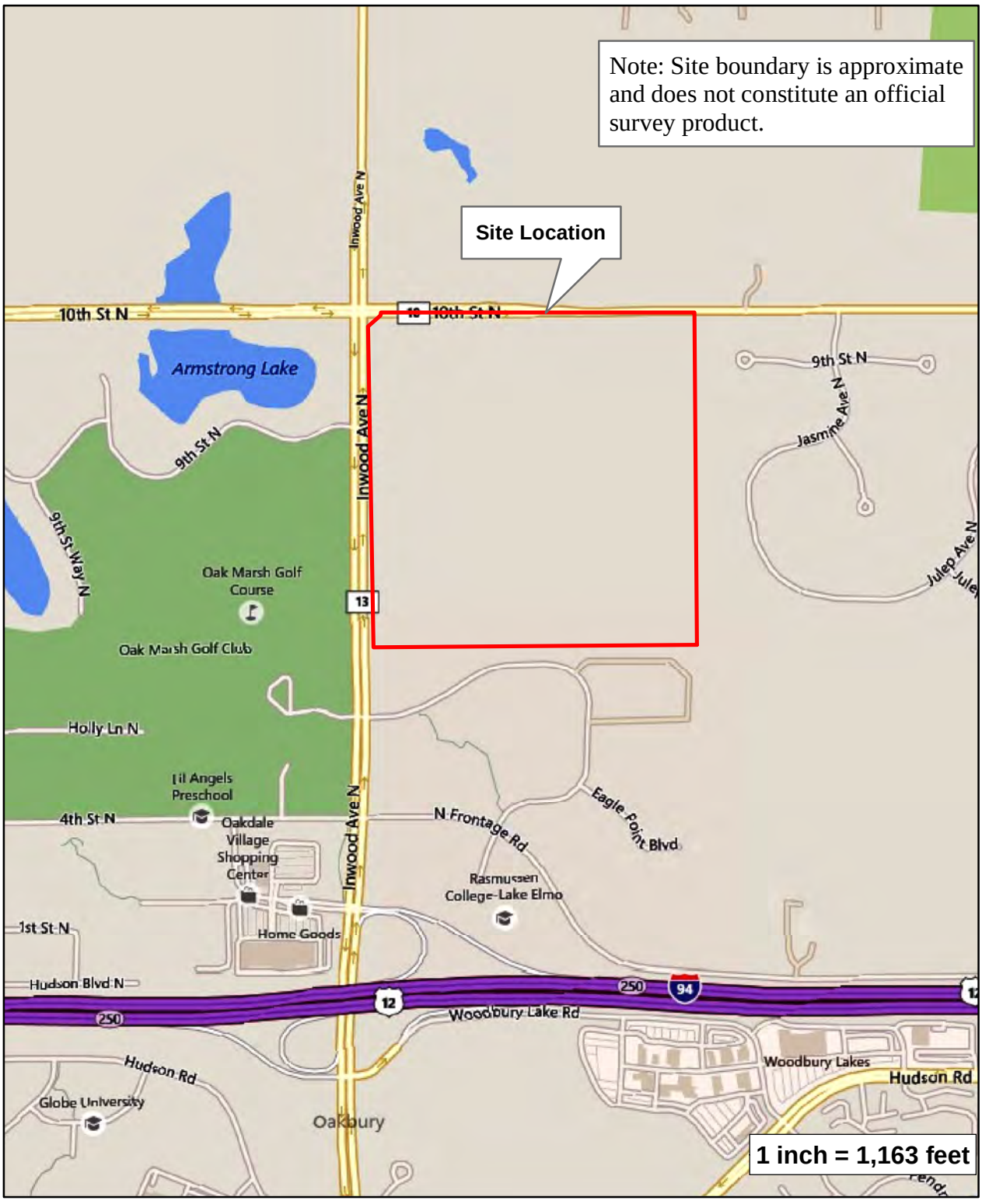

Figure 1 - Site Location Map (Bing Maps)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

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N

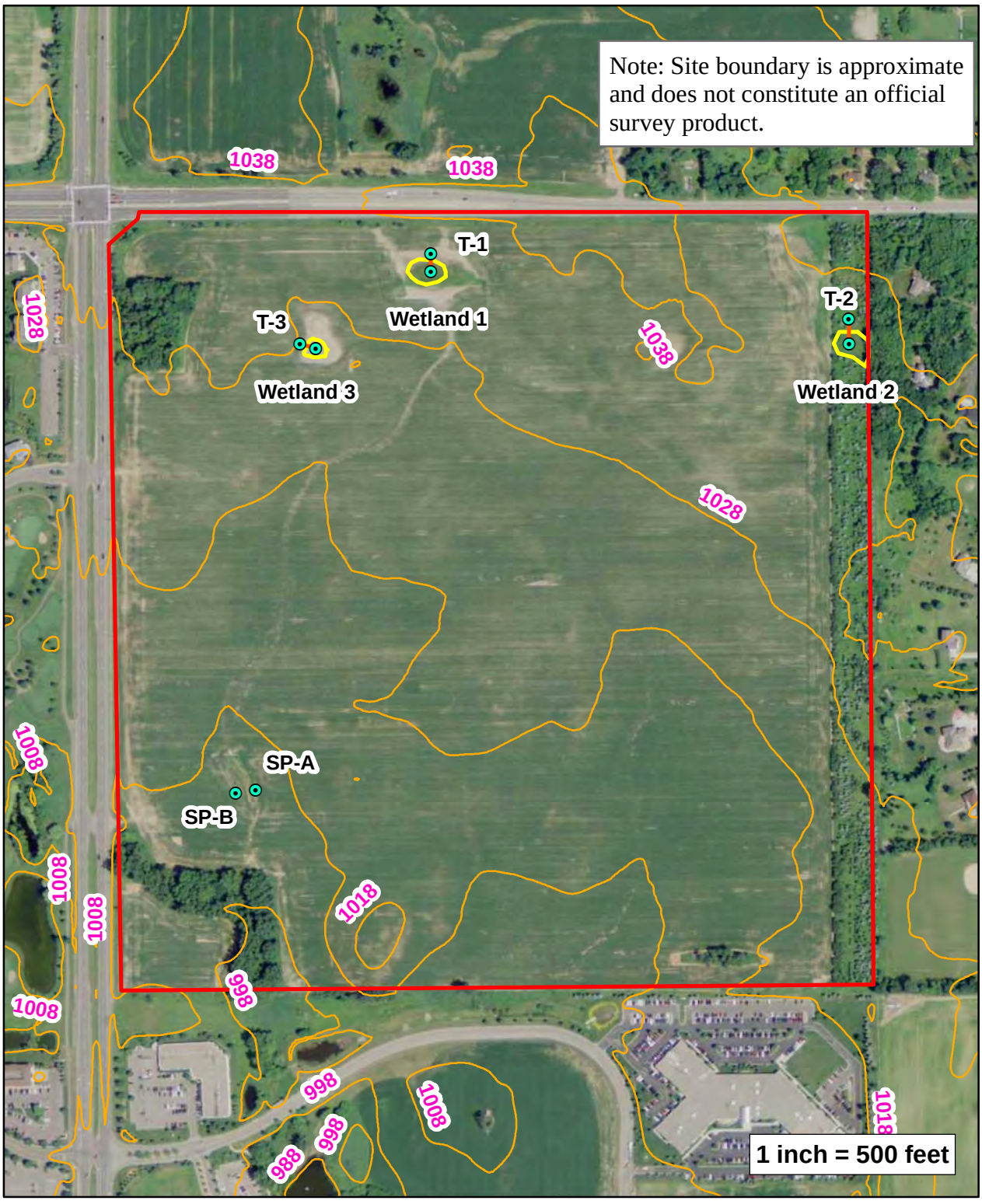

Figure 2 - Property Boundary Map (2013 FSA Photograph)

Sample Points
Transects
10ft Lidar Contours
Wetland boundary

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Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

N

Figure 3 - NWI Map (2013 MN DNR)

Legend

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

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N

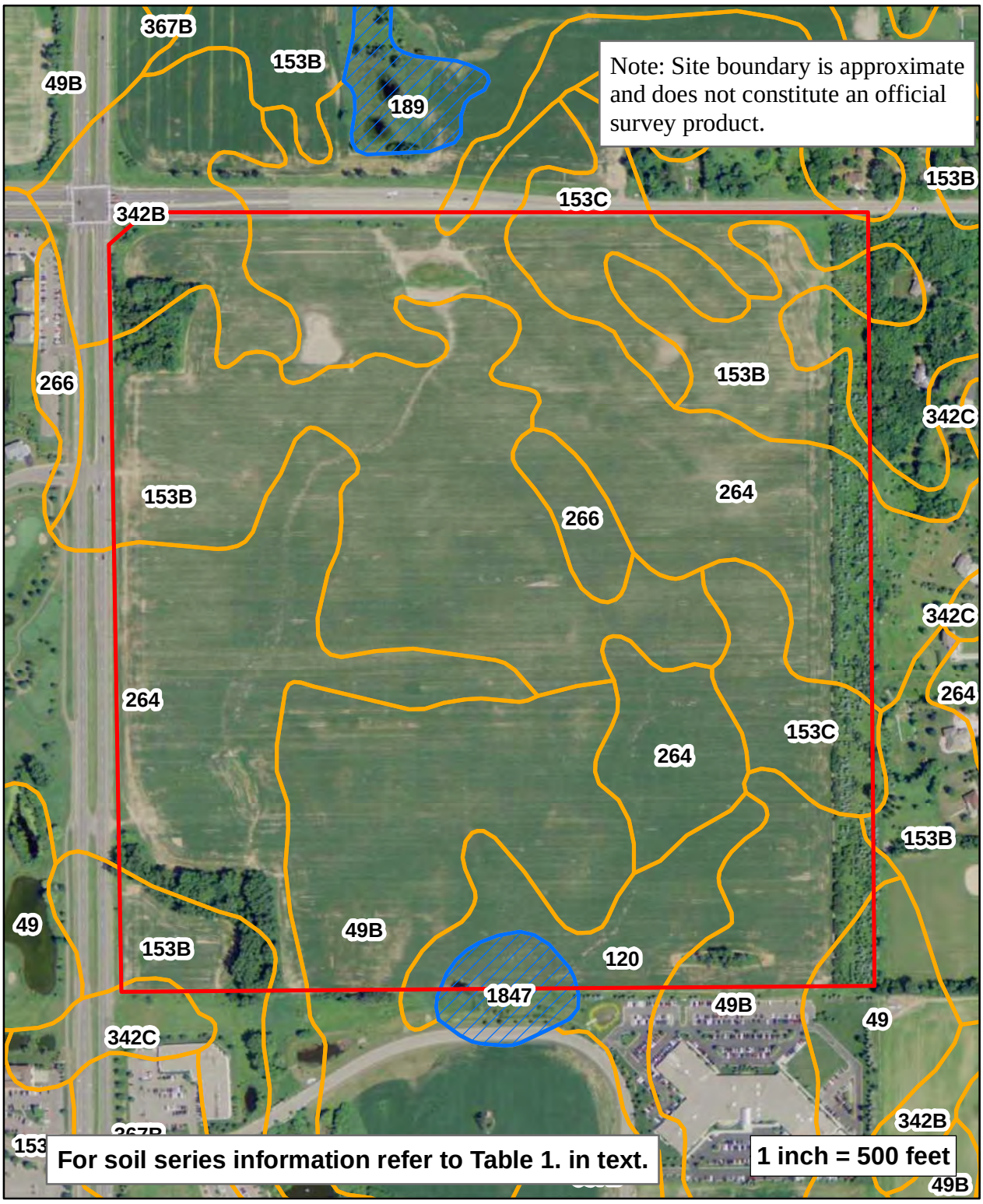

Figure 4 - Soil Survey Map

Non-Hydric Soils

Hydric Soils

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Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

N

Figure 5 - DNR Protected Waters Map

Protected Watercourse

Protected Waters

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Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

N

Figure 6 - FSA Review Areas (2013 FSA Photograph)

FSA Review Areas

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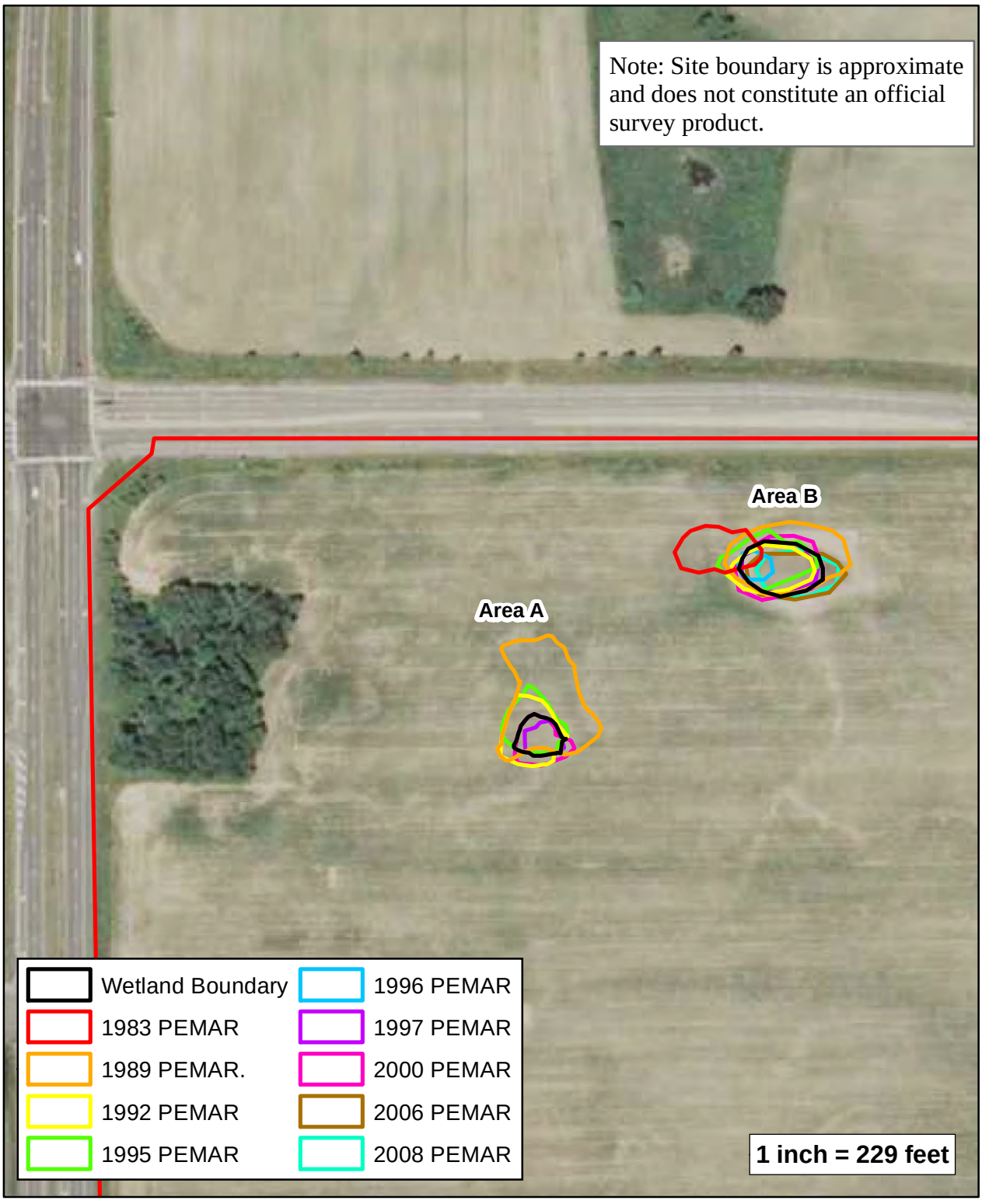
Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

N



FSA Aerial Wetland Signatures - (2013 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

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Inwood Ave North

Wetland Delineation Report

Appendix A: Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 6/17/14
Applicant/Owner: Hans Hagen | State: MN | Sampling Point: 1-1U
Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None
Slope (%): 2 to 3 | Lat.: | Long.: | Datum:
Soil Map Unit Name: Freeon silt loam | NWI Classification: PEM1Af
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation X, soil , or hydrology significantly disturbed? Are "normal
Are vegetation , soil , or hydrology naturally problematic? circumstances" present? No
(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.)

Climatic conditions wetter than normal based on 30-day rolling precipitation average. Cropping considered not normal circumstances, hence vegetation is disturbed.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)
- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

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

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

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 1-1U

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

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

Herb Stratum (Plot Size (5))	Absolute % Cover	Dominant Species	Indicator Status
1 *Panicum virgatum*	30	Y	FAC
2 *Chenopodium album*	15	Y	FACU
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	45 = Total Cover		

Woody Vine Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	9	23
Woody Vine Stratum	0	0

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	45 (A)		150 (B)

Prevalence Index = B/A = 3.33

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** 1-1U

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 3/2	100					L	
6-24	10YR 4/3	100					L	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 6/17/14
Applicant/Owner: Hans Hagen | State: MN | Sampling Point: 1-1W
Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave
Slope (%): 1 to 2 | Lat.: | Long.: | Datum:
Soil Map Unit Name: Freeon silt loam | NWI Classification: PEM1Af
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation X, soil , or hydrology significantly disturbed? Are "normal
Are vegetation , soil , or hydrology naturally problematic? circumstances" present? No
(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: Wetland 1

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

Climatic conditions wetter than normal based on 30-day rolling precipitation average. Cropping considered not normal circumstances, hence vegetation is disturbed.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)
- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

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

Field Observations:
Surface water present? Yes No X Depth (inches):
Water table present? Yes X No Depth (inches): 4
Saturation present? Yes X No Depth (inches): 6
(includes capillary fringe)

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 1-1W

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

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

Herb Stratum (Plot Size (5))	Absolute % Cover	Dominant Species	Indicator Status
1 *Panicum capillare*	65	Y	FAC
2 *Populus deltoides*	5	N	FAC
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	70 = Total Cover		

Woody Vine Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	14	35
Woody Vine Stratum	0	0

Dominance Test Worksheet
Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 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	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	70 (A)		210 (B)

Prevalence Index = B/A = 3.00

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** 1-1W

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/2	100					L	
12-24	10YR 4/2	10	10YR 4/6	10	C	M	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? ___Y___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 6/17/14

Applicant/Owner: Hans Hagen | State: MN | Sampling Point: 2-1U

Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21

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

Slope (%): 1 to 3 | Lat.: | Long.: | Datum:

Soil Map Unit Name: Freeon silt loam | NWI Classification: PEM1A

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

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

Are vegetation , soil , or hydrology naturally problematic? circumstances" present? No

(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

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

Climatic conditions wetter than normal based on 30-day rolling precipitation average. Cropping considered not normal circumstances, hence vegetation is disturbed.

HYDROLOGY

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface water present?	Yes	No X	Depth (inches):	
Water table present?	Yes	No X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes	No X	Depth (inches):	14

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 2-1U

Tree Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1 *Picea pungens*	15	Y	FACU
2 *Populus tremuloides*	5	Y	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	20 = Total Cover		

Sapling/Shrub Stratum (Plot Size (15))	Absolute % Cover	Dominant Species	Indicator Status
1 *Fraxinus pennsylvanica*	15	Y	FACW
2 *Cornus alba*	10	Y	FACW
3			
4			
5			
6			
7			
8			
9			
10			
	25 = Total Cover		

Herb Stratum (Plot Size (5))	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	90	Y	FACU
2 *Solidago canadensis*	50	Y	FACU
3 *Phalaris arundinacea*	10	N	FACW
4 *Trifolium pratense*	5	N	FACU
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	155 = Total Cover		

Woody Vine Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1 *Vitis riparia*	5	Y	FAC
2			
3			
4			
5			
	5 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	5	13
Herb Stratum	31	78
Woody Vine Stratum	1	3

Dominance Test Worksheet

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: 57.14% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	10	x 3 =	30
FACU species	160	x 4 =	640
UPL species	0	x 5 =	0
Column totals	205 (A)		740 (B)

Prevalence Index = B/A = 3.61

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? Y

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

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

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18	10YR 3/2	100					SiL	
18-24	10YR 4/4	100					SiL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? ___N___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 6/17/14
Applicant/Owner: Hans Hagen | State: MN | Sampling Point: 2-1W
Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): None
Slope (%): 0 to 1 | Lat.: | Long.: | Datum:
Soil Map Unit Name: Freeon silt loam | NWI Classification: PEM1A
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

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

Is the sampled area within a wetland? Y
If yes, optional wetland site ID: Wetland 2

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

Climatic conditions wetter than normal based on 30-day rolling precipitation average.

HYDROLOGY

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

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 2-1W

Tree Stratum (Plot Size: 30)	Absolute % Cover	Dominant Species	Indicator Status
1 *Fraxinus pennsylvanica*	20	Y	FACW
2			
3			
4			
5			
6			
7			
8			
9			
10			
	20 = Total Cover		

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

Herb Stratum (Plot Size: 5)	Absolute % Cover	Dominant Species	Indicator Status
1 *Poa pratensis*	45	Y	FACU
2 *Phalaris arundinacea*	40	Y	FACW
3 *Solidago gigantea*	30	Y	FACW
4 *Equisetum pratense*	5	N	FACW
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	120 = Total Cover		

Woody Vine Stratum (Plot Size: 30)	Absolute % Cover	Dominant Species	Indicator Status
1 *Parthenocissus vitacea*	5	Y	FACU
2			
3			
4			
5			
	5 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	4	10
Sapling/Shrub Stratum	3	8
Herb Stratum	24	60
Woody Vine Stratum	1	3

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across all Strata: 6 (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	110	x 2 =	220
FAC species	0	x 3 =	0
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column totals	160 (A)		420 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? Y

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

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

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6	10YR 3/2	100					L	
6-18	10YR 4/2	80	10YR 4/6	10	C	M	CL	
			10YR 4/1	10	D	M		

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? ___Y___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 7/2/14
Applicant/Owner: Hans Hagen | State: MN | Sampling Point: 3-1U
Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None
Slope (%): 1 to 2 | Lat.: | Long.: | Datum:
Soil Map Unit Name: Freeon silt loam | NWI Classification: PEM1Af
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation X, soil , or hydrology significantly disturbed? Are "normal
Are vegetation , soil , or hydrology naturally problematic? circumstances" present? No
(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.)

Climatic conditions wetter than normal based on 30-day rolling precipitation average. Cropping considered not normal circumstances, hence vegetation is disturbed.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)
- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

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

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

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 3-1U

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

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

Herb Stratum (Plot Size (5))	Absolute % Cover	Dominant Species	Indicator Status
1 *Chenopodium album*	15	Y	FACU
2 *Panicum capillare*	5	Y	FAC
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	20 = Total Cover		

Woody Vine Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	4	10
Woody Vine Stratum	0	0

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

Prevalence Index Worksheet
Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	20 (A)		75 (B)

Prevalence Index = B/A = 3.75

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? N

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

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

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-17	10YR 3/2	100					SiL	
17-24	10YR 4/4	100					SiL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? N

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 7/2/14
Applicant/Owner: Hans Hagen | State: MN | Sampling Point: 3-1W
Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): Concave
Slope (%): 1 to 3 | Lat.: | Long.: | Datum:
Soil Map Unit Name: Freeon silt loam | NWI Classification: PEM1Af
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation X, soil , or hydrology significantly disturbed? Are "normal
Are vegetation , soil , or hydrology naturally problematic? circumstances" present? No
(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: Wetland 3

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

Climatic conditions wetter than normal based on 30-day rolling precipitation average. Cropping considered not normal circumstances, hence vegetation is disturbed.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)
- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

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

Field Observations:
Surface water present? Yes No X Depth (inches):
Water table present? Yes X No Depth (inches): 12
Saturation present? Yes X No Depth (inches): Surface
(includes capillary fringe)

Indicators of wetland hydrology present? Y

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: 3-1W

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

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

Herb Stratum (Plot Size (5))	Absolute % Cover	Dominant Species	Indicator Status
1 *Panicum capillare*	60	Y	FAC
2 *Populus deltoides*	5	N	FAC
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	65 = Total Cover		

Woody Vine Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

50/20 Thresholds

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

Dominance Test Worksheet
Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across all Strata: 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	65	x 3 =	195
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	65 (A)		195 (B)

Prevalence Index = B/A = 3.00

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? Y

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

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

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-12	10YR 3/1	100					SiL	
12-20	10YR 4/2	95	10YR 4/6	5	C	PL	SiL	
20-24	10YR 4/2	75	10YR 4/6	25	C	M	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? ___Y___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 6/17/14
Applicant/Owner: Hans Hagen | State: MN | Sampling Point: SP-A
Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21
Landform (hillslope, terrace, etc.): Basin | Local relief (concave, convex, none): Concave
Slope (%): 0 to 1 | Lat.: | Long.: | Datum:
Soil Map Unit Name: Freeon silt loam | NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation X, soil , or hydrology significantly disturbed? Are "normal
Are vegetation , soil , or hydrology naturally problematic? circumstances" present? No
(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.)

Climatic conditions wetter than normal based on 30-day rolling precipitation average. Cropping considered not normal circumstances, hence vegetation is disturbed.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)
- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

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

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

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: SP-A

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

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

Herb Stratum (Plot Size (5))	Absolute % Cover	Dominant Species	Indicator Status
1 *Panicum virgatum*	50	Y	FAC
2 *Arctium minus*	35	Y	FACU
3 *Urtica dioica*	20	N	FAC
4 *Chenopodium album*	10	N	FACU
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	115 = Total Cover		

Woody Vine Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

50/20 Thresholds

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

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

Prevalence Index Worksheet

Total % Cover of:			
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column totals	115 (A)		390 (B)

Prevalence Index = B/A = 3.39

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** SP-A

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/2	100					L	
12-24	10YR 4/4	90	10YR 3/1	10	D	PL	SL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? ___N___

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Inwood Ave N | City/County: Lake Elmo | Sampling Date: 6/17/14
Applicant/Owner: Hans Hagen | State: MN | Sampling Point: SP-B
Investigator(s): M Lauterbach-Barrett, A Krinke | Section, Township, Range: S33 T29 R21
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex
Slope (%): 2 to 3 | Lat.: | Long.: | Datum:
Soil Map Unit Name: Freeon silt loam | NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? No (If no, explain in remarks)
Are vegetation X, soil , or hydrology significantly disturbed? Are "normal
Are vegetation , soil , or hydrology naturally problematic? circumstances" present? No
(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.)

Climatic conditions wetter than normal based on 30-day rolling precipitation average. Cropping considered not normal circumstances, hence vegetation is disturbed.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)
- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

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

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

Indicators of wetland hydrology present? N

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: SP-B

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

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

Herb Stratum (Plot Size (5))	Absolute % Cover	Dominant Species	Indicator Status
1 *Chenopodium album*	10	Y	FACU
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	10 = Total Cover		

Woody Vine Stratum (Plot Size (30))	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

50/20 Thresholds

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

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

Prevalence Index Worksheet
Total % Cover of:

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

Prevalence Index = B/A = 4.00

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic vegetation present? N

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

SOIL **Sampling Point:** SP-B

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

Depth	Matrix		Redox Features				Texture	Remarks
(Inches)	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 3/2	100					L	
12-24	10YR 4/4	90	10YR 3/1	10	D	PL	SL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils:

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

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

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

Hydric soil present? ___N___

Remarks:

Inwood Ave North

Wetland Delineation Report

Appendix B: Precipitation Data

Inwood Ave, Lake Elmo: Precipitation Summary
Source: Minnesota Climatology Working Group

Monthly Totals: 2014

Target: T29 R21 S33, Lat: 44.95597 Lon: 92.93401

mon	year	cc	tttN	rrW	ss	nnnn	ooooooo	pre
Jan	2014	82	29N	21W	32	SWCD		1.31
Feb	2014	82	29N	21W	32	SWCD		1.10
Mar	2014	82	29N	21W	32	SWCD		.90
Apr	2014	82	29N	21W	32	SWCD		7.80
May	2014	82	29N	21W	32	SWCD		4.78

April/May/June Daily Records

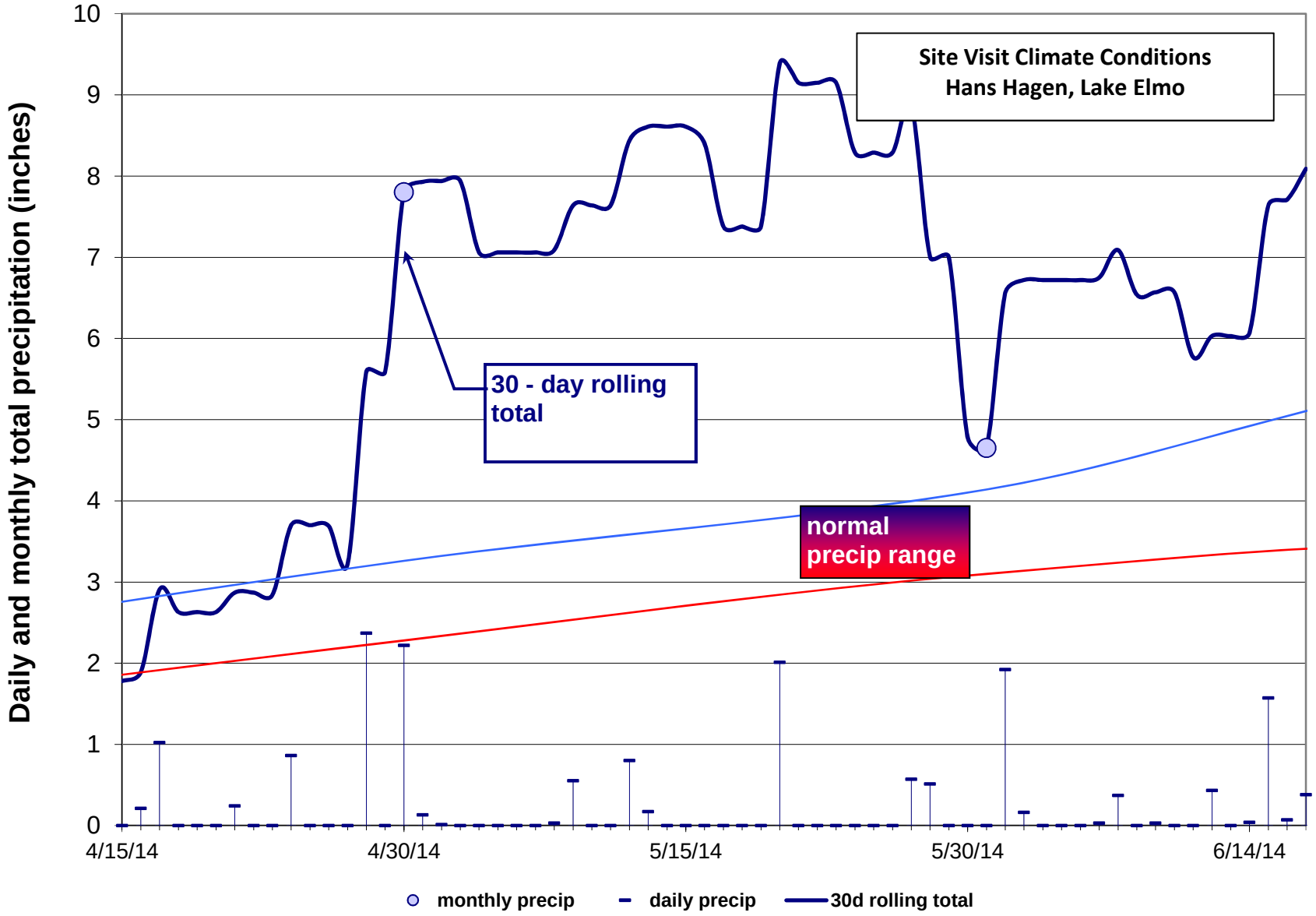
Date	Precip.
Apr 1, 2014	T
Apr 2, 2014	0
Apr 3, 2014	T
Apr 4, 2014	.88
Apr 5, 2014	0
Apr 6, 2014	0
Apr 7, 2014	0
Apr 8, 2014	0
Apr 9, 2014	0
Apr 10, 2014	0
Apr 11, 2014	0
Apr 12, 2014	-
Apr 13, 2014	-
Apr 14, 2014	-
Apr 15, 2014	-
Apr 16, 2014	.21
Apr 17, 2014	1.02
Apr 18, 2014	0
Apr 19, 2014	-
Apr 20, 2014	-
Apr 21, 2014	.24
Apr 22, 2014	0
Apr 23, 2014	-
Apr 24, 2014	.86
Apr 25, 2014	0
Apr 26, 2014	-
Apr 27, 2014	-
Apr 28, 2014	2.37
Apr 29, 2014	-
Apr 30, 2014	2.22

Date	Precip.
May 1, 2014	.13
May 2, 2014	.01
May 3, 2014	-
May 4, 2014	-
May 5, 2014	T
May 6, 2014	0
May 7, 2014	0
May 8, 2014	.03
May 9, 2014	.55
May 10, 2014	-
May 11, 2014	-
May 12, 2014	.80
May 13, 2014	.17
May 14, 2014	0
May 15, 2014	0
May 16, 2014	0
May 17, 2014	0
May 18, 2014	0
May 19, 2014	0
May 20, 2014	2.01
May 21, 2014	0
May 22, 2014	0
May 23, 2014	0
May 24, 2014	0
May 25, 2014	0
May 26, 2014	0
May 27, 2014	.57
May 28, 2014	.51
May 29, 2014	0
May 30, 2014	0
May 31, 2014	-

Date	Precip.	
Jun 1, 2014	1.92	
Jun 2, 2014	.16	
Jun 3, 2014	0	
Jun 4, 2014	0	
Jun 5, 2014	0	
Jun 6, 2014	.03	
Jun 7, 2014	.37	
Jun 8, 2014	0	
Jun 9, 2014	.03	
Jun 10, 2014	0	
Jun 11, 2014	0	
Jun 12, 2014	.43	
Jun 13, 2014	0	
Jun 14, 2014	.04	
Jun 15, 2014	1.57	
Jun 16, 2014	.07	
Jun 17, 2014	.38	Site Visit

1981-2010 Summary Statistics

	Jan	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*	*WARM*	*ANN*	*WAT*
30%	0.56	0.55	1.43	2.28	3.10	3.44	2.47	3.29	2.55	1.74	1.14	0.72	18.88	30.90	29.16
70%	1.34	1.05	2.22	3.26	4.14	5.61	4.73	5.21	4.31	3.55	2.42	1.62	21.59	35.13	35.44
mean	0.99	0.85	1.92	2.80	3.79	4.58	4.00	4.43	3.54	2.90	1.94	1.30	20.34	33.04	32.84


Site Visit Climate Conditions
Hans Hagen, Lake Elmo
Daily and monthly total precipitation (inches)
10
9
8
7
6
5
4
3
2
1
0
4/15/14
4/30/14
5/15/14
5/30/14
6/14/14
30 - day rolling total
normal precip range
monthly precip
daily precip
30d rolling total

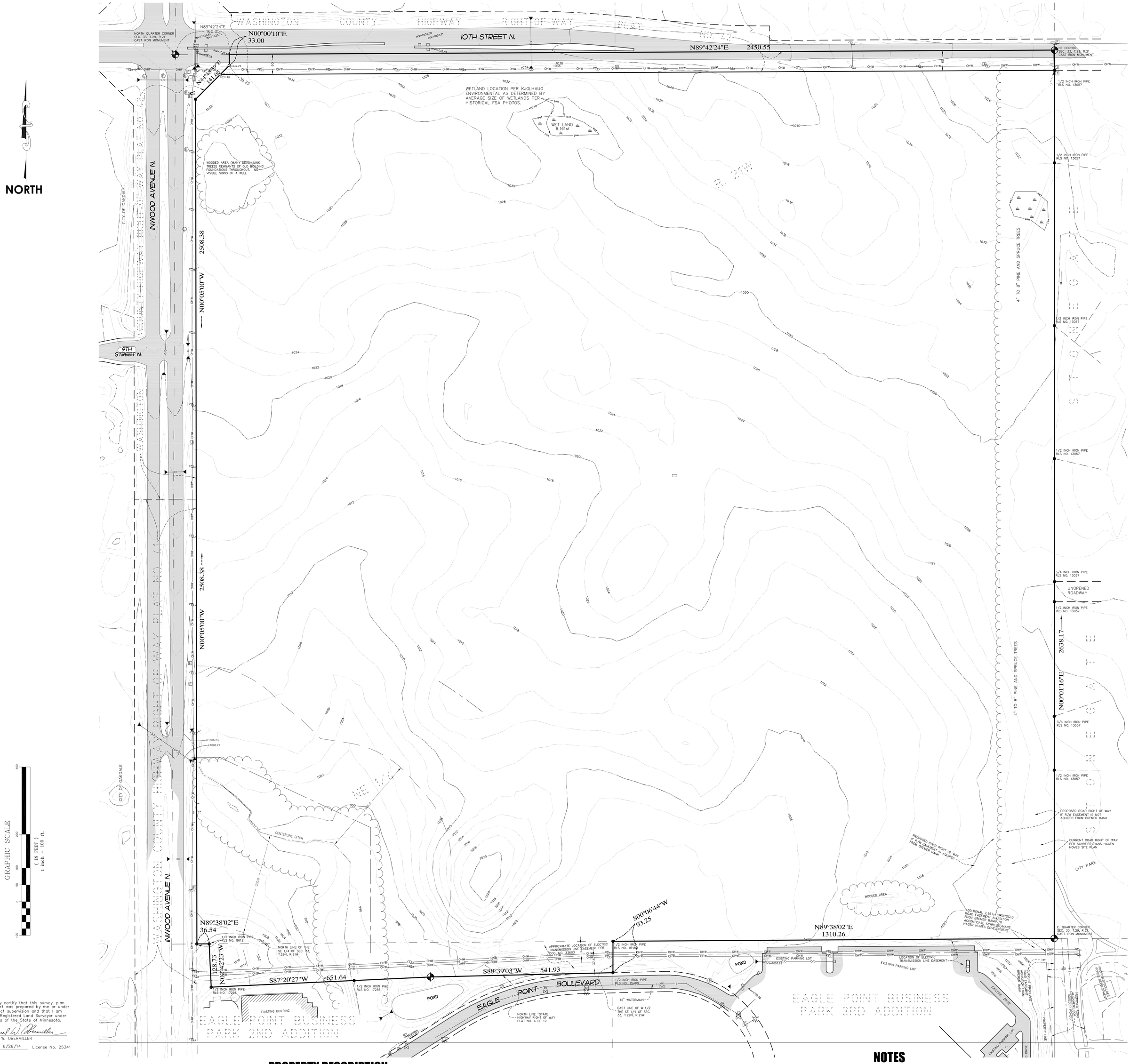
Inwood Ave North

Wetland Delineation Report

Appendix C: Wetland Boundary Survey

CONCEPTUAL LAYOUT

~for~ HANS HAGEN HOMES, INC.



I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly Registered Land Surveyor under the laws of the State of Minnesota.

DANIEL W. OBERMILLER

Date: 6/26/14 License No. 25341

PROPERTY DESCRIPTION:

The West Half of the Southeast Quarter of Section 33, Township 29 North, Range 21 West, lying north of the north right of way line as shown on State Highway Right-of-way Plat No. 4 of 12, State Project 8282 (94=392) 902, Washington County, Minnesota.
(Abstract)
AND
The Northeast Quarter of Section 33, Township 29, Range 21, less and except:
Parcel No. 4 of Washington County Highway Right-of-way Plat No. 41; and
Parcel No. 3 of Washington County Highway Right-of-way Plat No. 42, Washington County, Minnesota.
(Torrens)

DRAWN BY: DWO	JOB NO: 13777PP	DATE: 6/4/14	
CHECK BY: DWO	SCANNED ☐		
1	6/5/14	ADD COLLAGE ARCH DESIGN	DWO
2	6/20/14	REVISE COLLAGE ARCH DESIGN	DWO
3	6/26/14	GREEN SAC RE-DESIGN	DWO
4	7/03/14	NEW LAYOUT STREET C	DWO
NO.	DATE	DESCRIPTION	BY

S:\rud\CAD\13proj\13777\13777-2.dwg 7/3/2014 11:02:16 AM CDT

NOTES

- Field survey was completed by E.G. Rud and Sons, Inc. on 4/10/14.
- Bearings shown are on the Washington County Coordinate System.
- Curb shots are taken at the top and back of curb.
- This survey was prepared without the benefit of title work. Additional easements, restrictions and/or encumbrances may exist other than those shown hereon. Survey subject to revision upon receipt of a current title commitment or an attorney's title opinion.
- Parcel ID Nos. 33-029-21-11-0001, 33-029-21-11-0002, 33-029-21-12-0001, 33-029-21-12-0003, 33-029-21-42-0002.
- Total parcel area = 157.18 acres.
- BENCHMARK: MNDOT Station: NYGAARD MNDT. Elevation = 1010.83 (NGVD 29)

E. G. RUD & SONS, INC.
EST. 1977
Professional Land Surveyors
6776 Lake Drive NE, Suite 110
Lino Lakes, MN 55014
Tel. (651) 361-8200 Fax (651) 361-8701
www.egrud.com

13777 PP

Inwood Ave North

Wetland Delineation Report

Appendix D: FSA Review Photographs

Appendix D: FSA Photo Review - (1983 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

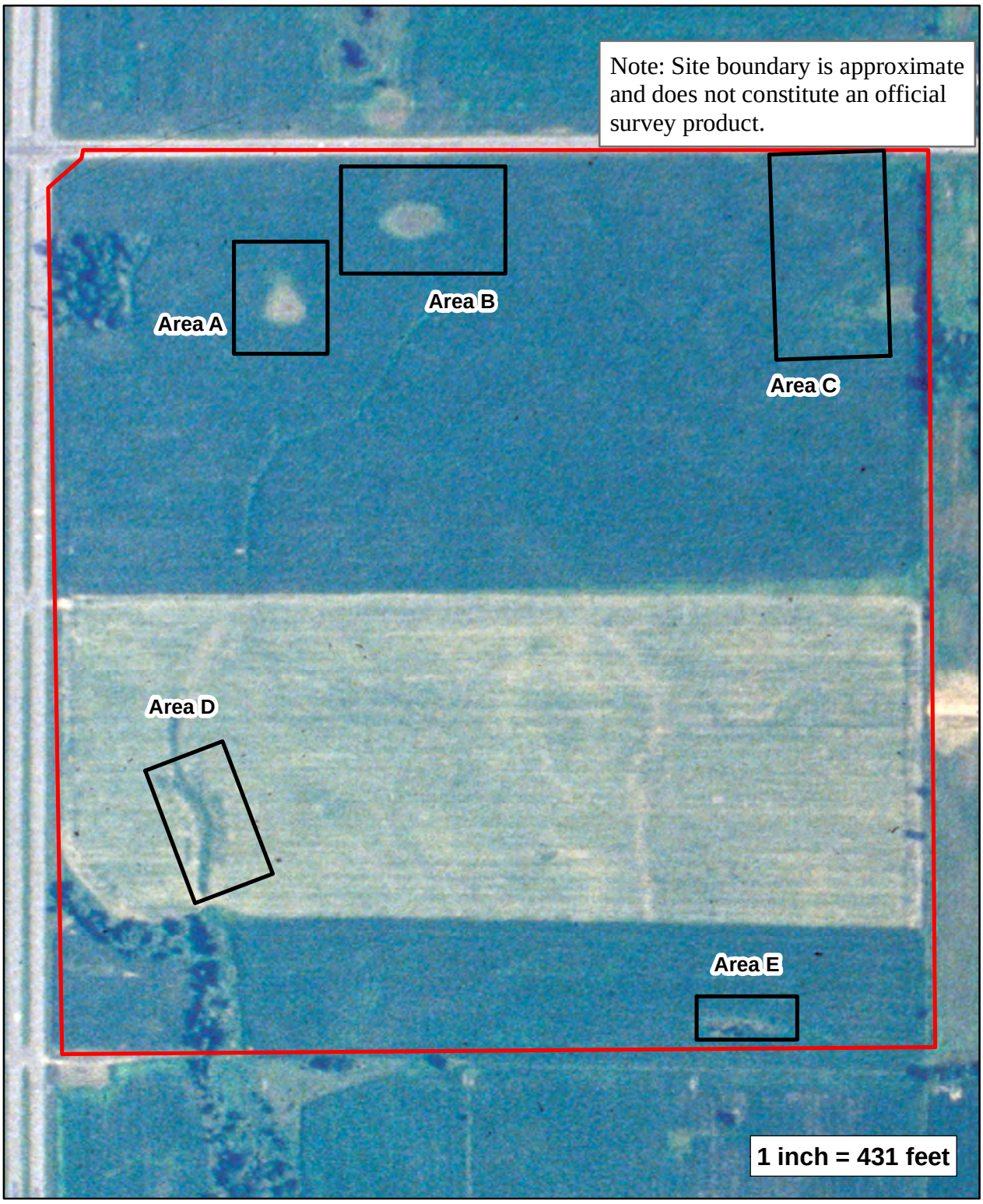
N

Appendix D: FSA Photo Review - (1989 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

N



Appendix D: FSA Photo Review - (1992 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

N

Appendix D: FSA Photo Review - (1995 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

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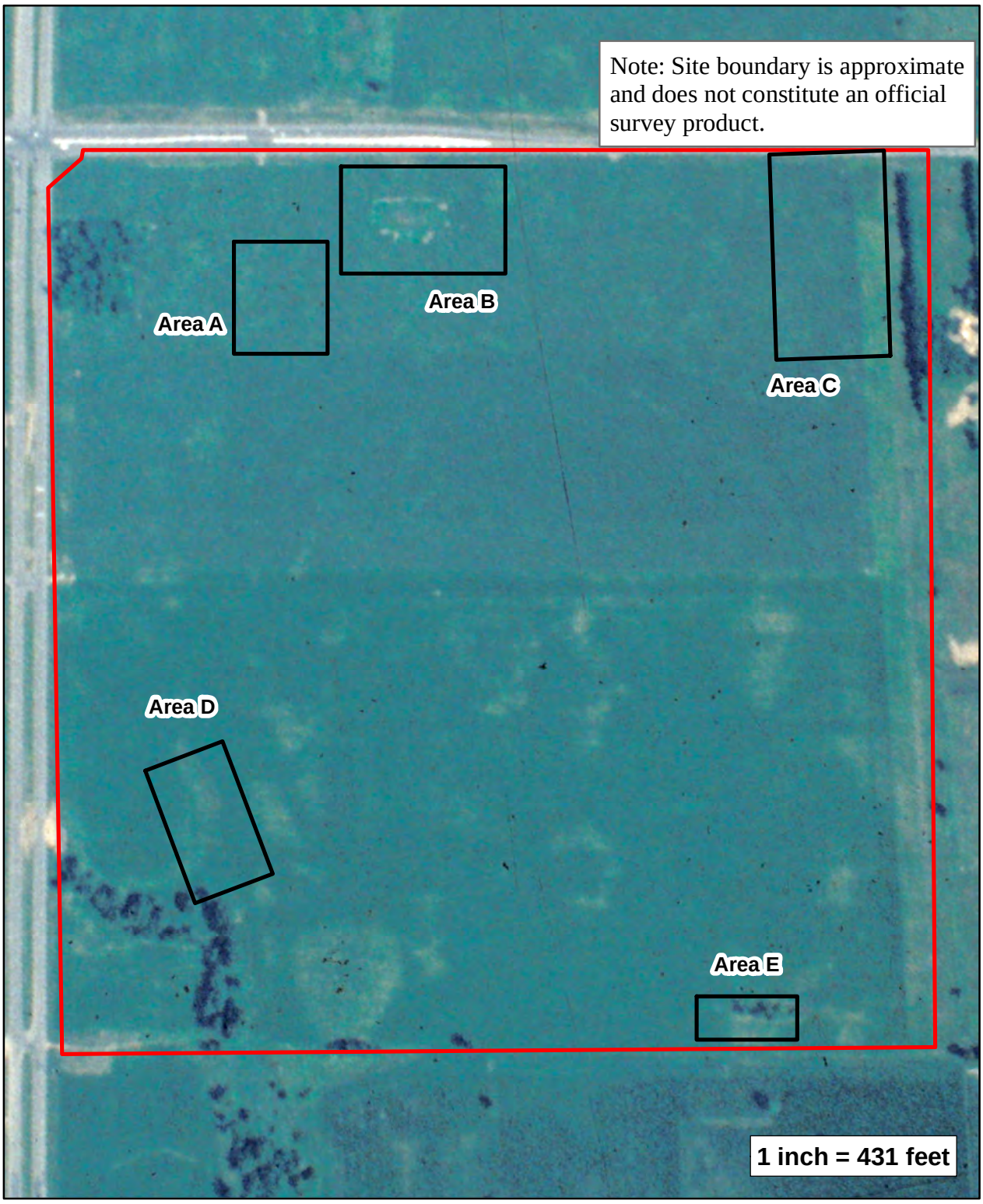
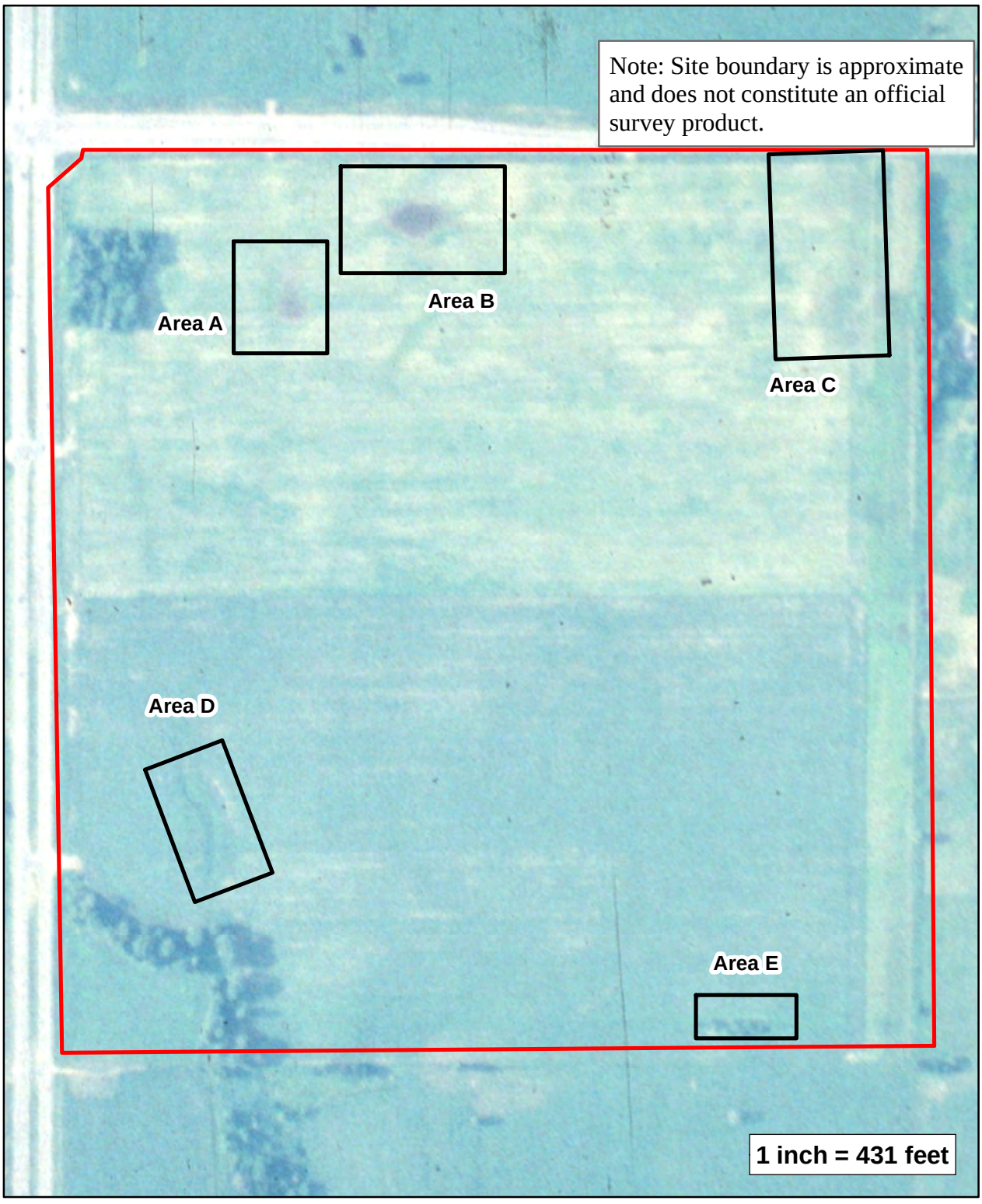


Appendix D: FSA Photo Review - (1996 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

N



Appendix D: FSA Photo Review - (1997 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

N

Appendix D: FSA Photo Review - (2000 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

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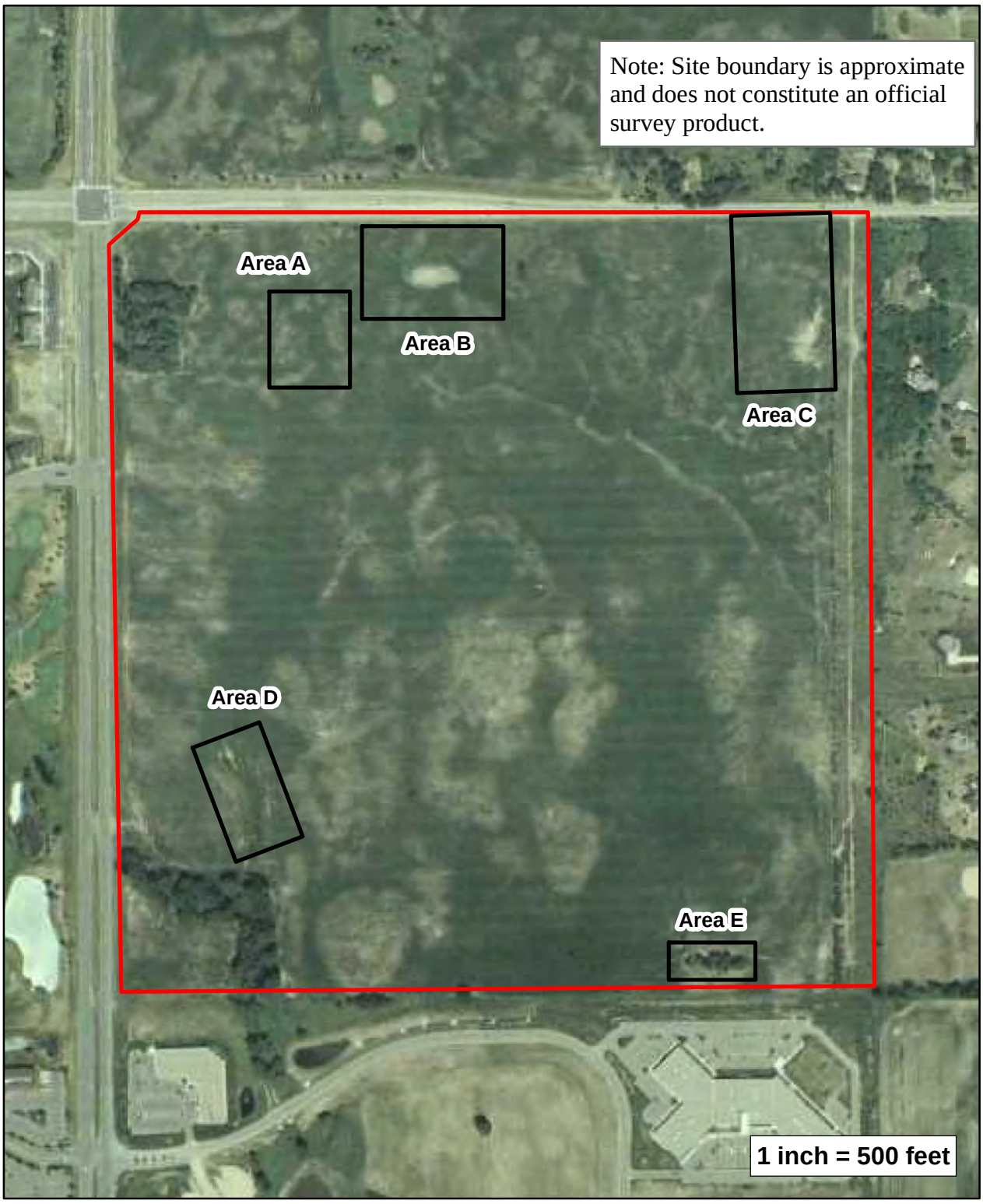
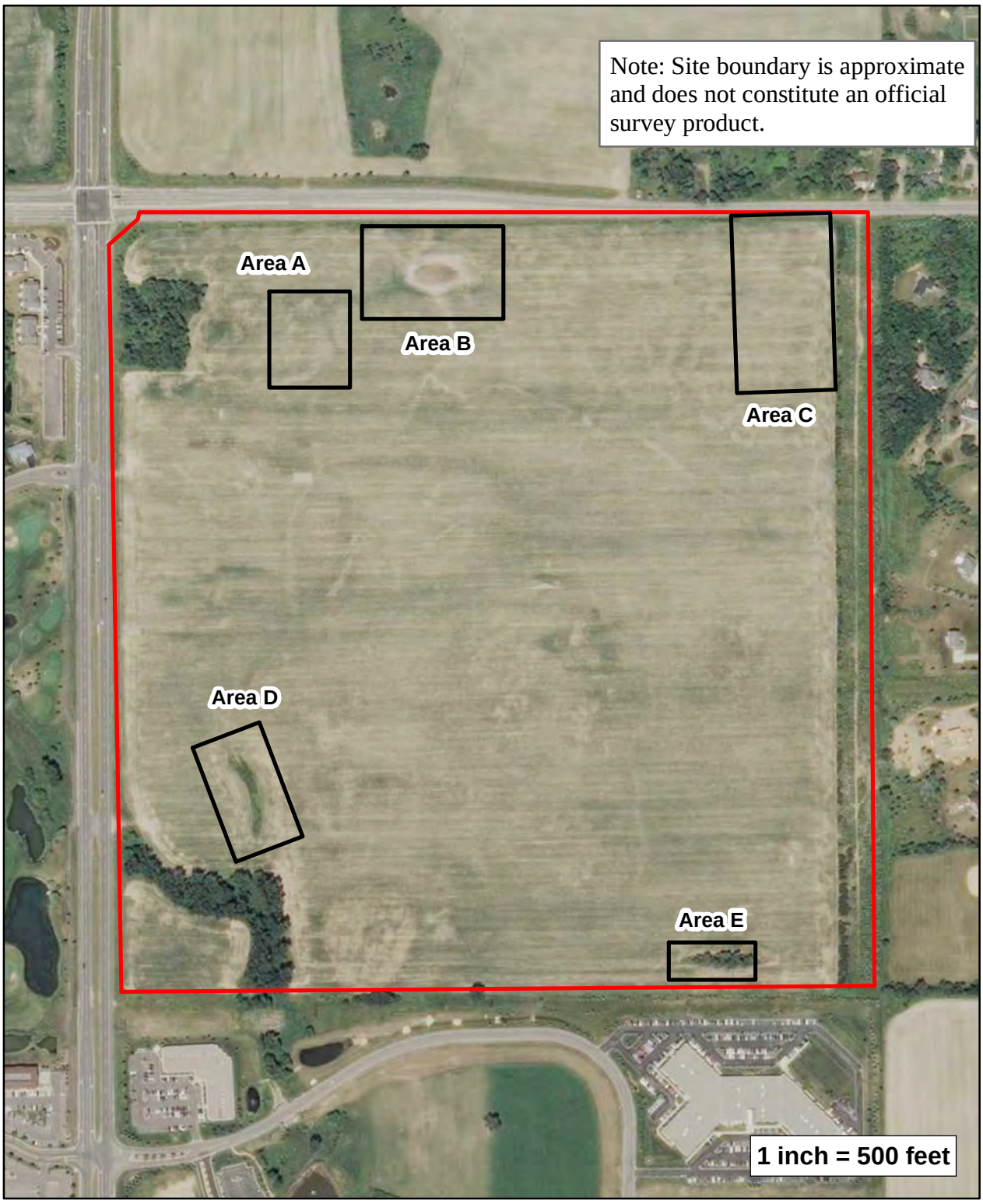


Appendix D: FSA Photo Review - (2006 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

N



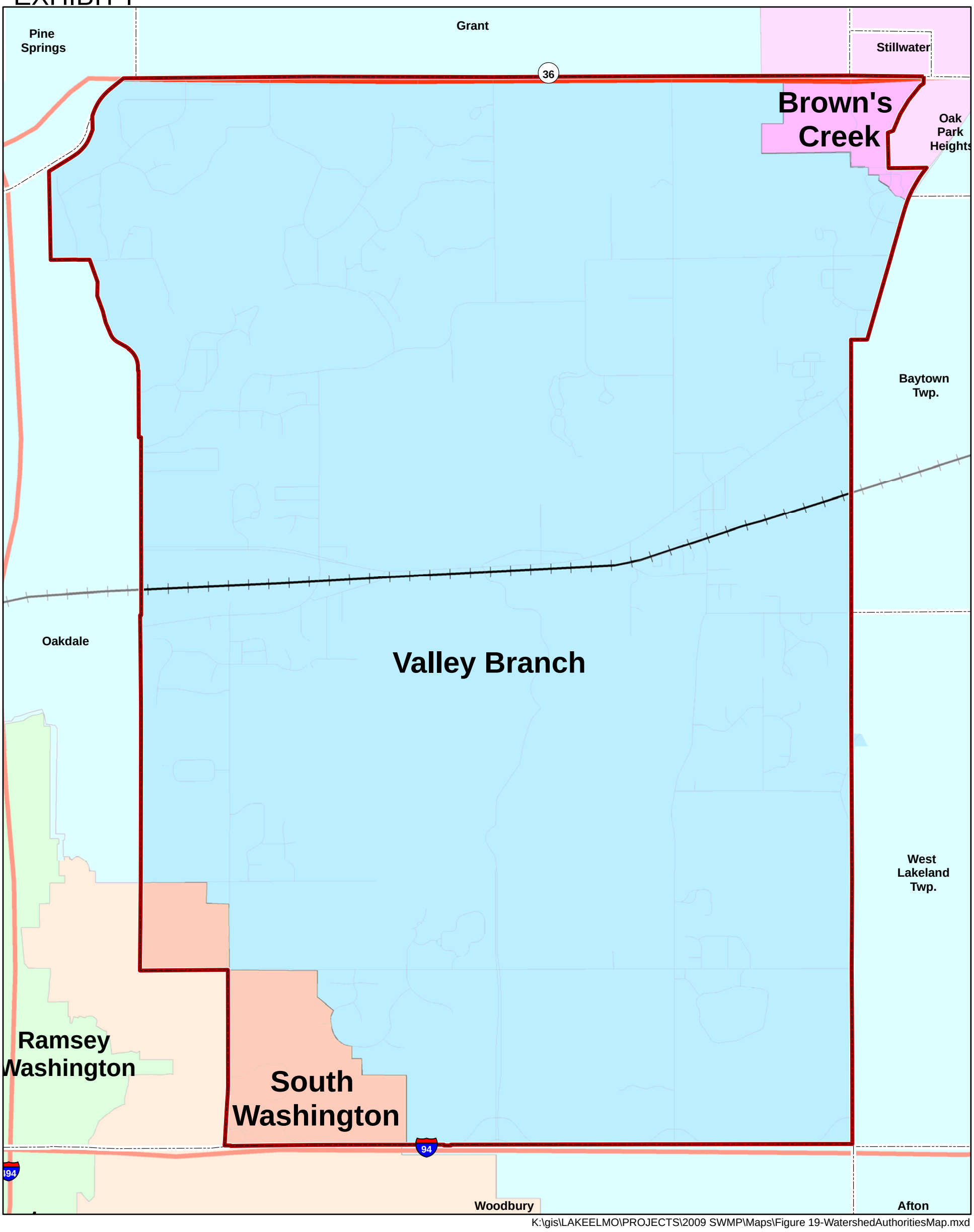
Appendix D: FSA Photo Review - (2008 FSA Photograph)

Inwood Ave N (KES No. 2014-032)
Lake Elmo, Minnesota

KJOLHAUG ENVIRONMENTAL SERVICES COMPANY

N

EXHIBIT I



K:\gis\LAKEELMO\PROJECTS\2009 SWMP\Maps\Figure 19-WatershedAuthoritiesMap.mxd

FIGURE 19: WATERSHED AUTHORITY

Surface Water Management Plan

2030 Comprehensive Plan
City of Lake Elmo, Minnesota

CITY OF LAKE ELMO

Map date: January 2009
Prepared by:

TKDA
ENGINEERS • ARCHITECTS • PLANNERS

N
W E
S

0 0.25 0.5 1
Miles

LIMITATION OF LIABILITY
This document is not a legally recorded map or survey and is not intended to be used as one. This map is a compilation of records and information from various state, county, and city offices, and other sources.

Legend

- City Boundary
- Brown's Creek
- Ramsey Washington
- South Washington
- Valley Branch

Sources: VBWD, Metropolitan Council, TKDA