SETTJE
Agri-Services & Engineering, Inc.

15460 NW 48th St. | Raymond, NE 68428
P 402. 783. 2100 | Settje.com

April 24, 2025

Oscar Zavala
Environmental Protection Engineer
401/Mines Unit, Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency
2520 West Iles Avenue
Springfield, IL 62707

Reference:

NPDES Permit Application for Renewal Addendum
Greenville Livestock, Inc.
NPDES Number: ILA010061

Dear Oscar,

Please find the enclosed application for NPDES coverage for the above-referenced facility. Per your letter received on February 24th, 2025, we have addressed all items.

Please contact us with any questions.

Thank you,

Nick Maaske

SETTJE
Agri-Services & Engineering, Inc.

15460 NW 48th St. | Raymond, NE 68428
P 402. 783. 2100 | Settje.com

December 4, 2024

Oyetunde (Stephen) Tinuoye
Environmental Protection Engineer
401/Mines Unit, Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency
1021 North Grand Ave E
Springfield, IL 62707

Reference:

Application for NPDES Permit Renewal
Greenville Livestock, Inc.
NPDES Number: ILA010061

Dear Oyetunde,

Please find the enclosed application for NPDES coverage for the above-referenced facility. This application was originally sent to your department on October 2nd, 2023. I've made updates to the NMP portion of the application in reference to your October 4th, 2024, letter.

Thank you,

Nick Maaske

SETTJE
Agri-Services & Engineering, Inc.

A 15460 NW 48th St.
Raymond, NE 68428

P 402.783.2100
F 402.783.2104

October 2, 2023

Illinois EPA
1021 N. Grand Avenue East
Springfield, IL 62794-9276

Reference: Application for NPDES Permit Renewal
Greenville Livestock, Inc.
NPDES Number: ILA010061

To Whom It May Concern,

Please find enclosed the application for NPDES coverage for a livestock waste containment facility. The enclosed information is provided to request an expansion at the existing referenced facility. The facility plans to add a building with 2 deep pit storage structures. This proposed building lies within the existing facility footprint as shown on the attached plans. No additional livestock will be housed on this facility the new building will provide additional space for the permitted head count. Please contact me if you have any questions regarding this application. On behalf of our firm and Greenville Livestock, Inc., we thank you for your consideration.

Sincerely,

Steve Westerbuhr, P.E.

cc: Greenville Livestock, Inc.

PERMIT APPLICATION
TABLE OF CONTENTS

1. REQUIRED FORMS

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

Form 1 NPDES

U.S. Environmental Protection Agency
Application for NPDES Permit to Discharge Wastewater

GENERAL INFORMATION

SECTION 1. ACTIVITIES REQUIRING AN NPDES PERMIT (40 CFR 122.21(f) and (f)(1))

Activities Requiring an NPDES Permit

1.1 Applicants *Not Required* to Submit Form 1

1.1.1	Is the facility a new or existing **publicly owned treatment works**? If yes, STOP. Do NOT complete Form 1. Complete Form 2A. ☑ No	1.1.2	Is the facility a new or existing **treatment works treating domestic sewage**? If yes, STOP. Do NOT complete Form 1. Complete Form 2S. ☑ No

1.2 Applicants *Required* to Submit Form 1

1.2.1	Is the facility a **concentrated animal feeding operation** or a **concentrated aquatic animal production facility?** ☑ Yes ➔ Complete Form 1 ***and*** Form 2B. ☐ No	1.2.2	Is the facility an **existing** manufacturing, commercial, mining, or silvicultural **facility** that **is currently discharging process wastewater**? ☐ Yes ➔ Complete Form 1 ***and*** Form 2C. ☑ No
1.2.3	Is the facility a **new** manufacturing, commercial, mining, or silvicultural **facility** that has **not yet commenced to discharge**? ☐ Yes ➔ Complete Form 1 ***and*** Form 2D. ☑ No	1.2.4	Is the facility a **new or existing** manufacturing, commercial, mining, or silvicultural **facility** that **discharges only nonprocess wastewater**? ☐ Yes ➔ Complete Form 1 ***and*** Form 2E. ☑ No
1.2.5	Is the facility a **new or existing facility** whose discharge is composed entirely of **stormwater associated with industrial activity** or whose discharge is composed of **both stormwater and non-stormwater**? ☐ Yes ➔ Complete Form 1 ***and*** Form 2F unless exempted by 40 CFR 122.26(b)(14)(x) or (b)(15). ☑ No		

SECTION 2. NAME, MAILING ADDRESS, AND LOCATION (40 CFR 122.21(f)(2))

Name, Mailing Address, and Location

2.1 Facility Name

Greenville Livestock, Inc.

2.2 EPA Identification Number

2.3 Facility Contact

Name (first and last)	Title	Phone number
Danny Hugo	President	(618) 532-3095

Email address

2.4 Facility Mailing Address

Street or P.O. box
25815 Hugo Rd

City or town	State	ZIP code
Centralia	Illinois	62801

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

Name, Mailing Address, and Location Continued

2.5 **Facility Location**

Street, route number, or other specific identifier
25815 Hugo Rd

County name	County code (if known)	
Clinton		

City or town	State	ZIP code
Centralia	Illinois	62801

SECTION 3. SIC AND NAICS CODES (40 CFR 122.21(f)(3))

SIC and NAICS Codes

3.1

SIC Code(s)	**Description** (optional)
0211	Beef Cattle Feedlot

3.2

NAICS Code(s)	**Description** (optional)
11211	Beef Cattle Ranching and Farming, including Feedlots

SECTION 4. OPERATOR INFORMATION (40 CFR 122.21(f)(4))

Operator Information

4.1 **Name of Operator**

Danny Hugo

4.2 Is the name you listed in Item 4.1 also the owner?

☑ Yes ☐ No

4.3 **Operator Status**

☐ Public—federal ☐ Public—state ☐ Other public (specify)_____

☑ Private ☐ Other (specify) _____

4.4 **Phone Number of Operator**

(618) 532-3095

Operator Information Continued

4.5 **Operator Address**

Street or P.O. Box
25815 Hugo Rd

City or town	State	ZIP code
Centralia	Illinois	62801

Email address of operator

SECTION 5. INDIAN LAND (40 CFR 122.21(f)(5))

Indian Land

5.1 Is the facility located on Indian Land?

☐ Yes ☑ No

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

SECTION 6. EXISTING ENVIRONMENTAL PERMITS (40 CFR 122.21(f)(6))

Existing Environmental Permits

6.1 **Existing Environmental Permits** (check all that apply and print or type the corresponding permit number for each)

☑ NPDES (discharges to surface water) ILA01 0061	☐ RCRA (hazardous wastes)	☐ UIC (underground injection of fluids)
☐ PSD (air emissions)	☐ Nonattainment program (CAA)	☐ NESHAPs (CAA)
☐ Ocean dumping (MPRSA)	☐ Dredge or fill (CWA Section 404)	☐ Other (specify) ILDNR DS2010005

SECTION 7. MAP (40 CFR 122.21(f)(7))

Map

7.1 Have you attached a topographic map containing all required information to this application? (See instructions for specific requirements.)

☐ Yes ☐ No ☑ CAFO—Not Applicable (See requirements in Form 2B.)

SECTION 8. NATURE OF BUSINESS (40 CFR 122.21(f)(8))

Nature of Business

8.1 Describe the nature of your business.

primarily engaged in raising cattle or feeding cattle for fattening

SECTION 9. COOLING WATER INTAKE STRUCTURES (40 CFR 122.21(f)(9))

Cooling Water Intake Structures

9.1 Does your facility use cooling water?

☐ Yes ☑ No ➔ SKIP to Item 10.1.

9.2 Identify the source of cooling water. (Note that facilities that use a cooling water intake structure as described at 40 CFR 125, Subparts I and J may have additional application requirements at 40 CFR 122.21(r). Consult with your NPDES permitting authority to determine what specific information needs to be submitted and when.)

SECTION 10. VARIANCE REQUESTS (40 CFR 122.21(f)(10))

Variance Requests

10.1 Do you intend to request or renew one or more of the variances authorized at 40 CFR 122.21(m)? (Check all that apply. Consult with your NPDES permitting authority to determine what information needs to be submitted and when.)

- ☐ Fundamentally different factors (CWA Section 301(n))
- ☐ Water quality related effluent limitations (CWA Section 302(b)(2))
- ☐ Non-conventional pollutants (CWA Section 301(c) and (g))
- ☐ Thermal discharges (CWA Section 316(a))
- ☑ Not applicable

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

SECTION 11. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

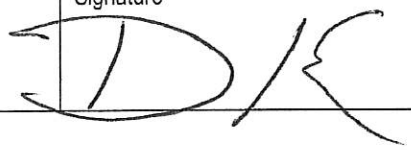
Checklist and Certification Statement

11.1 In Column 1 below, mark the sections of Form 1 that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to provide attachments.

Column 1	Column 2
☑ Section 1: Activities Requiring an NPDES Permit	☐ w/ attachments
☑ Section 2: Name, Mailing Address, and Location	☐ w/ attachments
☑ Section 3: SIC Codes	☐ w/ attachments
☑ Section 4: Operator Information	☐ w/ attachments
☑ Section 5: Indian Land	☐ w/ attachments
☑ Section 6: Existing Environmental Permits	☐ w/ attachments
☑ Section 7: Map	☐ w/ topographic map ☐ w/ additional attachments
☑ Section 8: Nature of Business	☐ w/ attachments
☑ Section 9: Cooling Water Intake Structures	☐ w/ attachments
☑ Section 10: Variance Requests	☐ w/ attachments
☑ Section 11: Checklist and Certification Statement	☐ w/ attachments

11.2 **Certification Statement**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name (print or type first and last name)	Official title
Danny Hugo	President
Signature	**Date signed**
	8/15/23

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

Form 2B NPDES

U.S. Environmental Protection Agency
Application for NPDES Permit to Discharge Wastewater

CONCENTRATED ANIMAL FEEDING OPERATIONS and CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITIES

SECTION 1. GENERAL INFORMATION (40 CFR 122.21(I)(1))

General Information

1.1 Indicate the facility/business type. (Check only one response.)

☑ CAFO ➔ Complete Sections 1 through 6 and Section 8.

☐ CAAP ➔ Complete Sections 1, 7, and 8.

1.2 Indicate the operational status of the facility. (Check one.)

☑ Existing facility ☐ Proposed facility

SECTION 2. CAFO OWNER/OPERATOR CONTACT INFORMATION (40 CFR 122.21(f)(2) and (4) and 122.21(i)(1)(i))

CAFO Owner/Operator Contact Information

2.1 **Owner/Operator Contact**

Name (first and last)	Title
Danny Hugo	President
Phone number	**Email address**
(618) 532-3095	

2.2 **Owner/Operator Mailing Address**

Street or P.O. box		
25815 Hugo Rd		
City or town	**State**	**Zip code**
Centralia	Illinois	62801

SECTION 3. CAFO LOCATION AND CONTACT INFORMATION (40 CFR 122.21(i)(1)(ii and iii))

CAFO Location and Contact Information

3.1 **CAFO Location and Contact**

Name		
Greenville Livestock, Inc.		
Address (street, route number, or other specific identifier)		**County**
25815 Hugo Rd		Clinton
City or town	**State**	**Zip code**
Centralia	Illinois	62801
Facility contact name	**Phone number**	**Email address**
Danny Hugo	(618) 532-3095	

3.2 **Latitude/Longitude of Entrance to Production Area** (see instructions)

Latitude	Longitude
38° 32′ 40″ N	89° 12′ 57″ W

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

CAFO Location and Contact Information Continued

3.3 **Integrator Name and Address**

Name		
Danny Hugo		
Street address		
25815 Hugo Rd		
City or town	**State**	**Zip code**
Centralia	Illinois	62801

SECTION 4. CAFO TOPOGRAPHIC MAP (40 CFR 122.21(i)(1)(iv))

CAFO Topographic Map

4.1 Have you attached a topographic map containing all required information to this application? (See instructions for specific requirements.)

☑ Yes ➔ SKIP to Section 5. ☐ No

SECTION 5. CAFO CHARACTERISTICS (40 CFR 122.21(i)(1)(v ix))

CAFO Characteristics

5.1 Provide information on the type and number of animals in the table below.

Animal Type	Number in Open Confinement	Number Housed Under Roof	Animal Type	Number in Open Confinement	Number Housed Under Roof
☐ Mature dairy cows			☐ Sheep or lambs		
☐ Dairy heifers			☐ Chickens (broilers)		
☐ Veal calves			☐ Chickens (layers)		
☑ Cattle (not dairy or veal calves)	3100	100	☐ Ducks		
☐ Swine (55 lbs. or more)			☐ Other (specify)		
☐ Swine (under 55 lbs.)			☐ Other (specify)		
☐ Horses			☐ Other (specify)		
☐ Turkeys			**Total Animals**	3100	100

5.2 Indicate the type of containment and storage, total number of days, and total capacity for manure, litter, and process wastewater storage in the table below.

Type of Containment and Storage	Total Number of Days	Total Capacity (specify gallons or tons)	Type of Containment and Storage	Total Number of Days	Total Capacity (specify gallons or tons)
☐ Anaerobic lagoon			☐ Belowground storage tanks		
☐ Evaporation			☐ Roofed storage shed		
☐ Aboveground storage tanks			☐ Concrete pad		
☑ Storage pond	365	17,739,762	☐ Impervious soil pad		
☐ Underfloor pit			☐ Other (specify)		

5.3 Indicate the total number of acres drained and collected in the containment and storage structure(s) reported under Item 5.2.

40.8 acres

CAFO Characteristics Continued

Manure, Litter, and/or Process Wastewater Production and Use

5.4 How many tons of manure or litter and gallons of process wastewater are generated annually at the CAFO?

Manure	16,620 tons
Litter	tons
Process wastewater	10,043,036 gallons

5.5 Is manure, litter, and/or process wastewater generated at the CAFO land applied?

☑ Yes ☐ No ➔ SKIP to Item 5.8.

5.6 How many acres of land under the control of the applicant are available for applying the CAFO's manure, litter, or process wastewater?

3486.9 acres

5.7 Check all land application best management practices that are being implemented.

☐ Buffers ☐ Infiltration field
☑ Setbacks ☐ Grass filter
☑ Conservation tillage ☐ Terrace
☐ Constructed wetlands ☐ Other (specify)

5.8 Is manure, litter, and/or process wastewater transferred to any other persons?

☑ Yes ☐ No ➔ SKIP to Item 5.10.

5.9 How many tons of manure or litter and gallons of process wastewater, produced by the CAFO, are transferred annually to other people?

Manure	14,000 tons
Litter	tons
Process wastewater	gallons

5.10 Describe alternative use(s) of manure, litter, or process wastewater, if any.

SECTION 6. CAFO NUTRIENT MANAGEMENT PLANS (40 CFR 122.21(i)(1)(x))

CAFO Nutrient Management Plans

6.1 Has the applicant attached a nutrient management plan that satisfies the requirements at 40 CFR 122.42(e) and, if applicable, the requirements at 40 CFR 412.4(c)? **Note:** A permit application is not complete until a nutrient management plan is submitted to the NPDES permitting authority.

☑ Yes ➔ SKIP to Item 6.3. ☐ No

6.2 Explain why a nutrient management plan is not attached to the application.

6.3 Is a nutrient management plan being implemented at the CAFO?

☑ Yes ☐ No

6.4 What was the date of the last review or revision of the nutrient management plan? Date 06/20/2019

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

SECTION 7. CAAP FACILITY CHARACTERISTICS (40 CFR 122.21(i)(2))

CAAP Facility Characteristics

7.1 Is the CAAP facility located on land?

☐ Yes ☐ No ➔ SKIP to Item 7.3.

7.2 Provide the maximum daily and maximum average monthly discharge at CAAP by outfall.

Outfall Number	Discharge	
	Maximum Daily Discharge	Maximum Average Monthly Discharge
	gpd	gpd
	gpd	gpd
	gpd	gpd

7.3 Indicate the type and number of discharge structures at the CAAP. Provide a brief description of each structure. Also note the name of the receiving water and the source of the intake water for each structure.

Structure Type	Number of Each	Description	Receiving Water Name	Source of Intake Water
Ponds				
Raceways				
Net pens				Not applicable
Submerged cages				Not applicable
Similar structures (specify) _____				

7.4 List the cold-water and/or warm-water aquatic species raised/produced in the table below. For each species listed, indicate the total yearly and maximum harvestable weight (in pounds).

Cold Water Species			Warm Water Species		
Species	Harvestable Weight		Species	Harvestable Weight	
	Total Yearly	Maximum		Total Yearly	Maximum
	lbs.	lbs.		lbs.	lbs.
	lbs.	lbs.		lbs.	lbs.
	lbs.	lbs.		lbs.	lbs.
	lbs.	lbs.		lbs.	lbs.

7.5 Indicate the calendar month of maximum feeding and the total mass of food fed (in pounds) during that month.

Month of Maximum Feeding	Total Mass of Food Fed
	lbs.

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004

SECTION 8. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

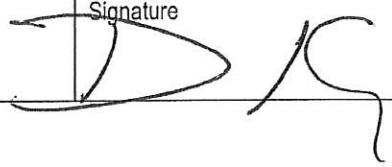
Checklist and Certification Statement

8.1 In Column 1, below, mark the sections of Form 2B that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to provide attachments.

Column 1	Column 2
☑ Section 1: General Information	☐ w/ attachments
☑ Section 2: CAFO Owner/Operator Contact Information	☐ w/ attachments
☑ Section 3: CAFO Location and Contact Information	☐ w/ attachments
☑ Section 4: CAFO Topographic Map	☑ w/ topographic map ☑ w/ additional attachments
☑ Section 5: CAFO Characteristics	☐ w/ attachments
☑ Section 6: CAFO Nutrient Management Plans	☑ w/ nutrient management plan ☑ w/ attachments
☐ Section 7: CAAP Facility Characteristics	☐ w/ attachments
☑ Section 8: Checklist and Certification Statement	☐ w/ attachments

8.2 **Certification Statement**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name (print or type first and last name)	Official title
Danny Hugo	President
Signature	Date signed
	8/15/23

2. PLANS, CROSS SECTIONS, AND CALCULATIONS

GREENVILLE LIVESTOCK, INC.

NE1/4 OF SEC. 8, T-1-N, R-1-W
CLINTON COUNTY

Prepared By:
Settje Agri-Services and Engineering, Inc.
15460 NW 48th Street
Raymond, Nebraska 68428

10/3/2023

_____ Date:_____

Steve K. Westerbuhr

License Number: 062060732
My license renewal date is November 30, 2023

N

1 VICINITY MAP

0' 1500' 600'

Date Printed: 07/25/2023

Rev.	Date

Vicinity Map

Greenville Livestock Inc.
NE¼ Sec. 8, T-1-N, R-1-W, 3rd Prin. Meridian
Clinton County, Illinois

15460 NW 48th St.
Raymond, NE 68428
Office: (402) 783-2100
Fax: (402) 783-2104
Web Site: www.settje.com

SETTJE
Agri-Services & Engineering, Inc.

0

CLEAN WATER DIVERSION
LIVESTOCK PEN
PIVOT PATH
BASIN 1F
6" SDR 26 PVC PIPE (PIPE F)
WITH 12" PVC RISER
8" SDR 26 PVC IRRIGATION
DISTRIBUTION PIPE (1560')
SHOP
PRAIRIE CREEK
FLOATING PUMP LOCATION
OFFICE
DRIVEWAY LAT.38°32'49"
LON.89°13'15"
HOLDING POND #1
BARN
COMMODITY BUILDING
6" SDR 21 PVC
PIPE (PIPE C)
SPLASH PAD 4
6" SDR 26 PVC PIPE (PIPE A)
WITH 12" PVC RISER
BASIN 1A
SPLASH PAD 1
SPLASH PAD 2
FLOATING PUMP
TO FLUSH TANK
SPLASH PAD 3
CONCRETE
FEED STORAGE PAD
LIVESTOCK PENS
7.5 HP 3" HOULE PUMP
BARN
BASIN 1C
BASIN 1G
CLEAN WATER DIVERSION
6" HDPE PIPE
PRAIRIE CREEK
12" SDR 26 PVC
CONNECTING PIPE
7.5 HP 3" HOULE PUMP
10' DIAM. FLUSH TANK
BASIN 1D
24" CONCRETE PIPE
LIVESTOCK PENS
RECYCLE FLUSH STYLE
CALF BARN
CLEAN WATER DIVERSION
PIPE OUTLET 498.4
LIVESTOCK PENS
ROOF/WINDBREAK FOR SMALL PENS
2-24" HDPE PIPES (PIPE G)
LIVESTOCK PENS
FLUSH WATER SETTLING POND 1
24" PVC RISER
8" CONNECTING PIPE
FLUSH WATER SETTLING POND 2
24" PVC RISER
PUMP OUT ACESS
SHOP
PIPE INLET 500.0
PROPOSED DEEP PIT
CATTLE BARN
152' X 254'
PUMP OUT ACESS
6" OVERFLOW PIPE BACK
TO HOLDING POND 1 EL. 499.4
12" SDR 26 PVC PIPE (PIPE B)
T WITH 24" PVC RISER
BASIN 1B
FLUSH WATER
TRANSFER PUMP
24" FLUME PIPE TO
TRANSFER PUMP
PROPOSED
UTILITY SHED
LIVESTOCK PENS
LIVESTOCK PENS
CLEAN WATER DITCH
6" SDR 26 PVC PIPE (PIPE E)
WITH 12" PVC RISER
LIVESTOCK PEN
BASIN 1E

N

1 TOPOGRAPHY PLAN

0' 300' 600'

Date Printed: 07/25/2023

Rev.	Date

Topography Plan

Greenville Livestock Inc.
NE¼ Sec. 8, T-1-N, R-1-W, 3rd Prin. Meridian
Clinton County, Illinois

15460 NW 48th St.
Raymond, NE 68428
Office: (402) 783-2100
Fax: (402) 783-2104
Web Site: www.settje.com

SETTJE
Agri-Services & Engineering, Inc.

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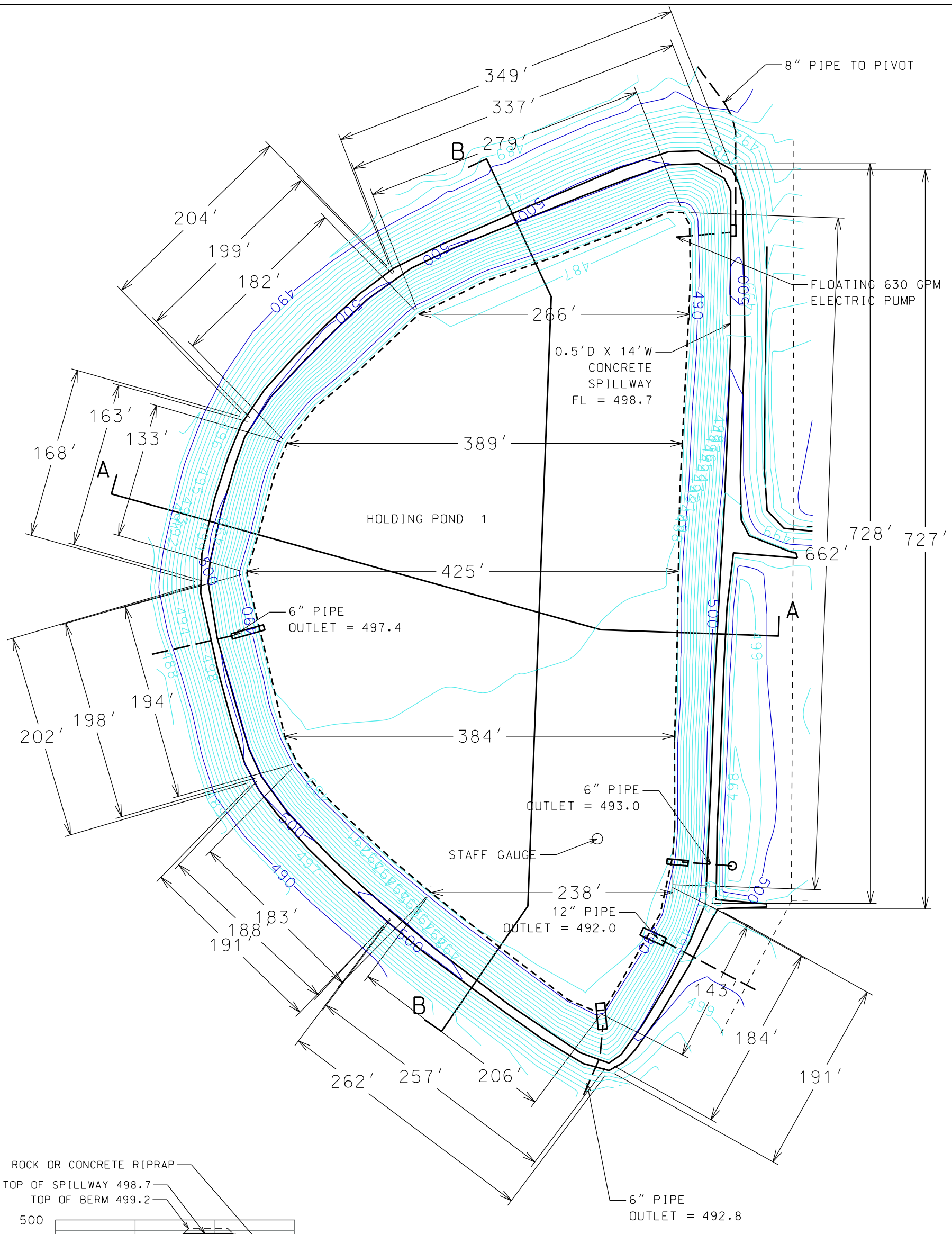
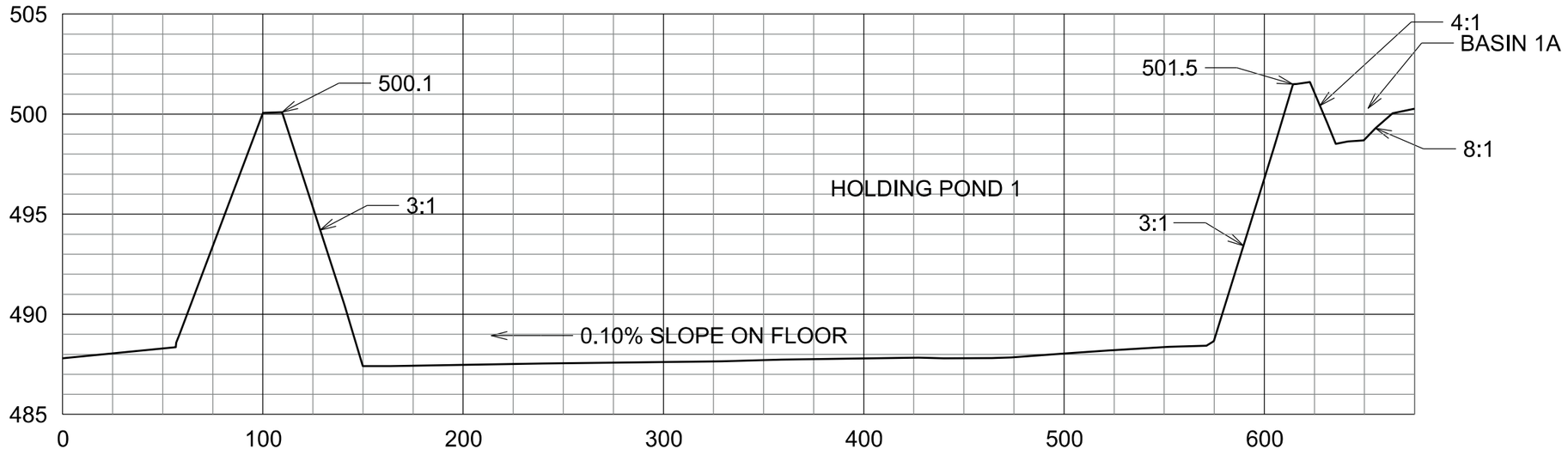
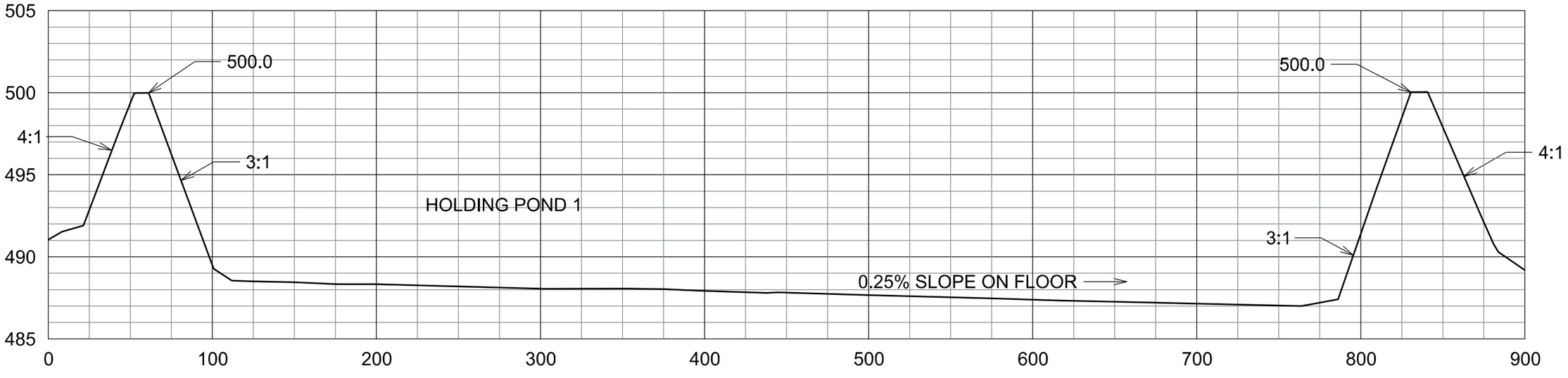


2		SETTJE Agri-Services & Engineering, Inc. 15460 NW 48th St. Raymond, NE 68428 Office: (402) 783-2100 Fax: (402) 783-2104 Web Site: www.settje.com	**GREENVILLE LIVESTOCK INC.** NE¼ Sec. 8, T-1-N, R-1-W, 3rd Prin. Meridian Clinton County, Illinois	Holding Pond 1 Plan	Date Printed: 07/25/2023 Rev. / Date



SECTION A-A



SECTION B-B

Date Printed: 07/25/2023

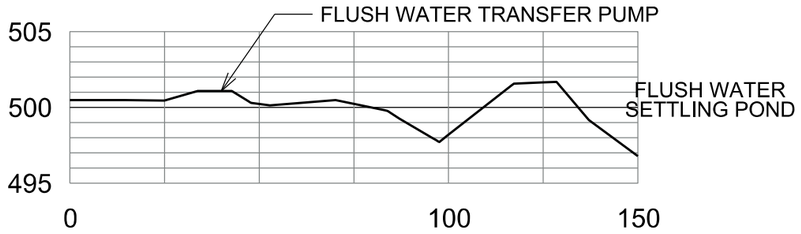
Rev.	Date

Pond 1 Cross-Sections

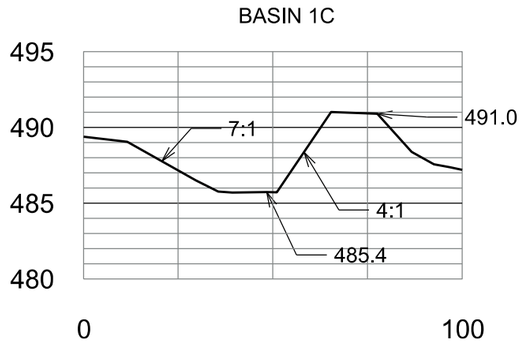
GREENVILLE LIVESTOCK INC.
NE¼ Sec. 8, T-1-N, R-1-W, 3rd Prin. Meridian
Clinton County, Illinois

15460 NW 48th St.
Raymond, NE 68428
Office: (402) 783-2100
Fax: (402) 783-2104
Web Site: www.setije.com

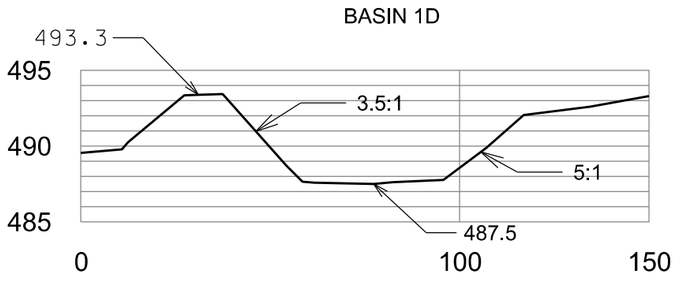
SETJE
Agri-Services & Engineering, Inc.



CROSS SECTION C-C



CROSS SECTION E-E



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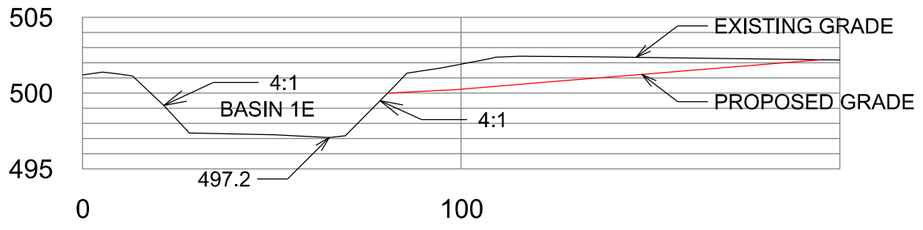

CROSS SECTION G-G

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Basin Cross-Sections

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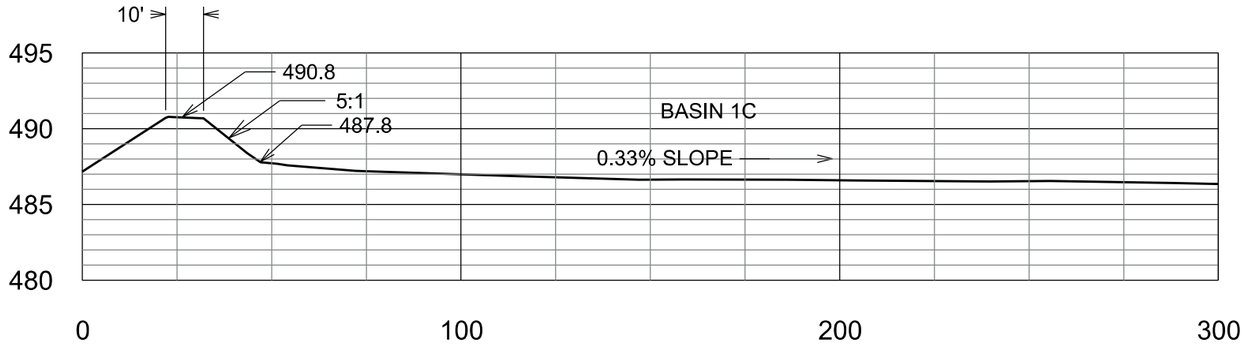

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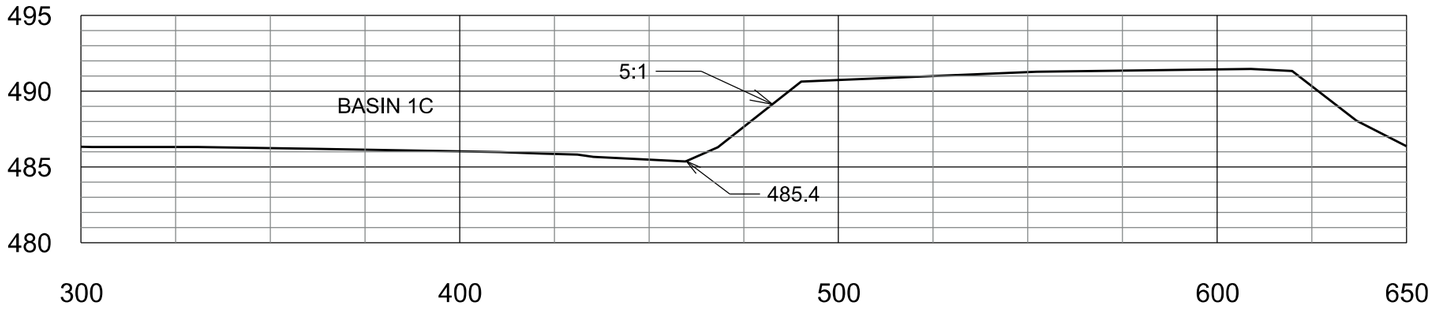

CROSS SECTION D-D

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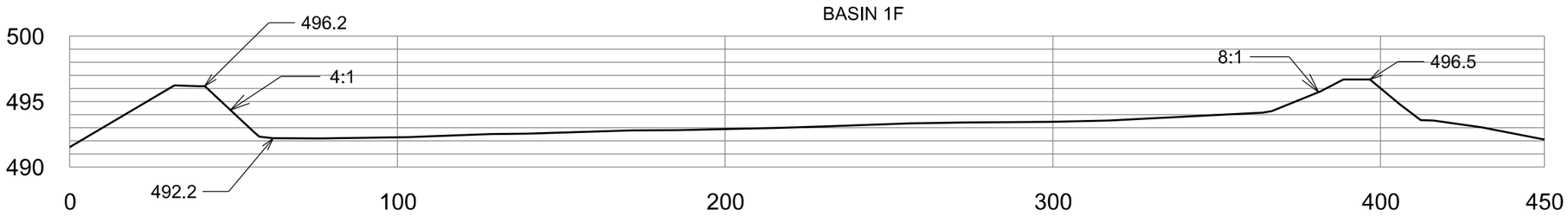

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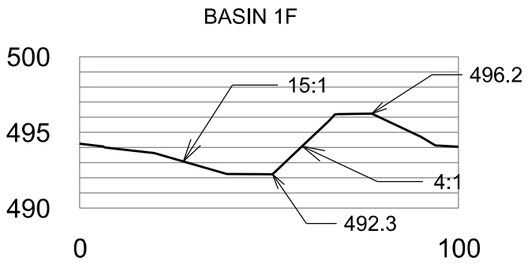
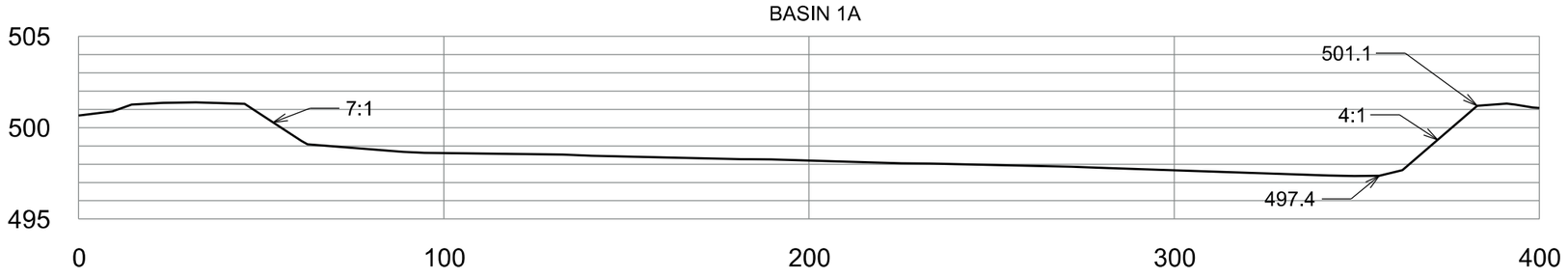


CROSS SECTION I-I



CROSS SECTION J-J

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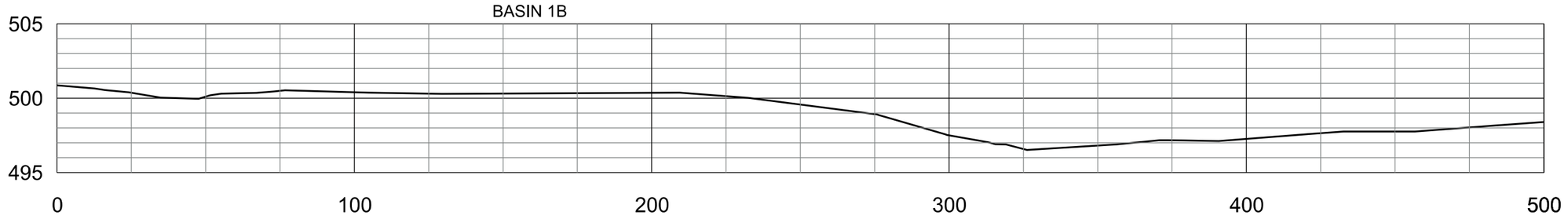

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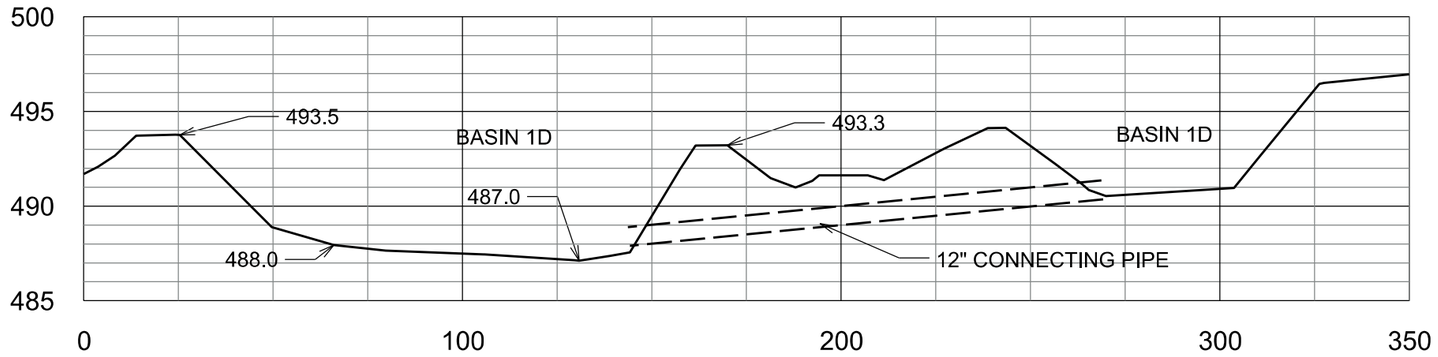

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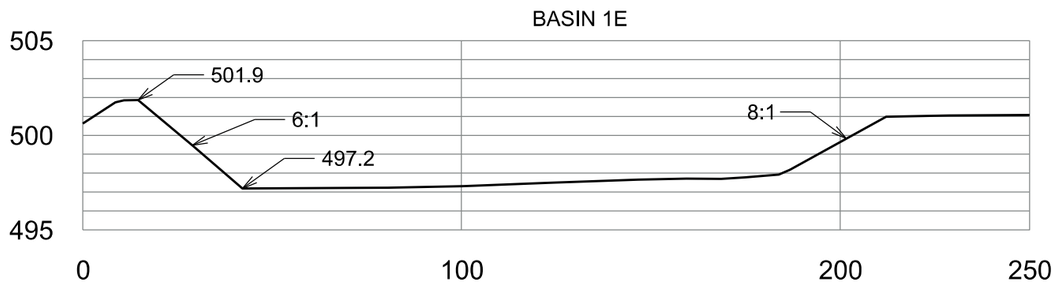

CROSS SECTION M-M

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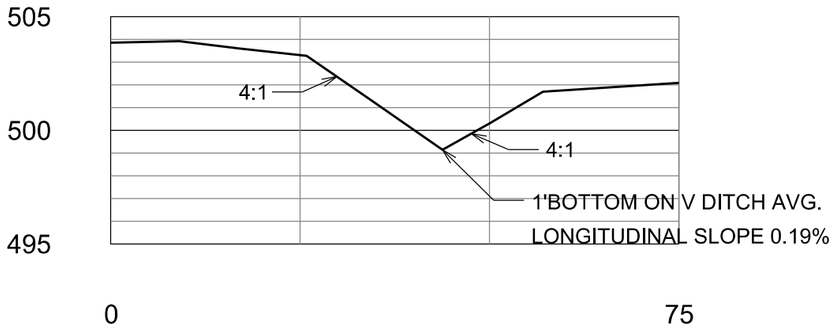

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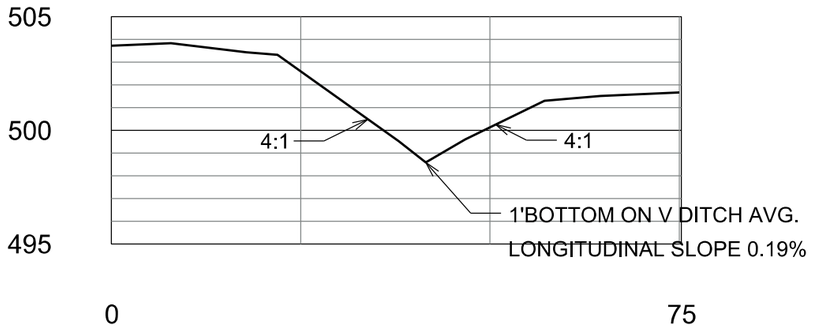
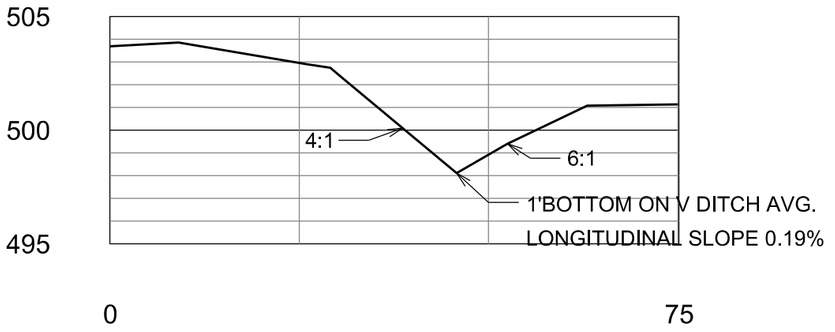


CROSS SECTION O-O



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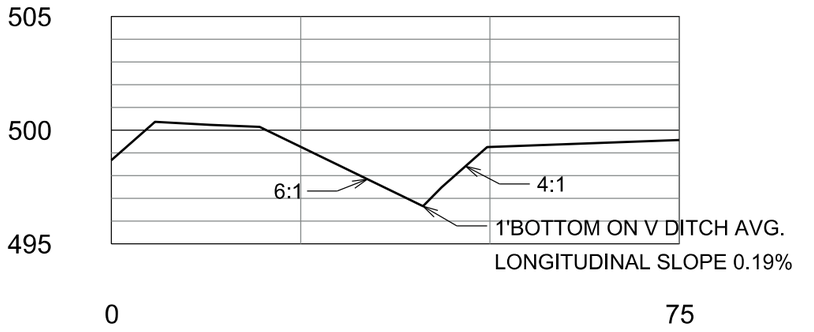

CROSS SECTION Q-Q

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Ditch Cross-Sections

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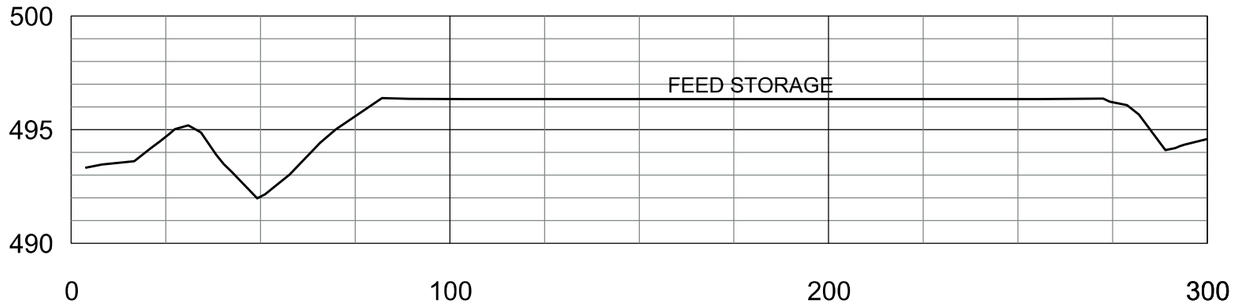

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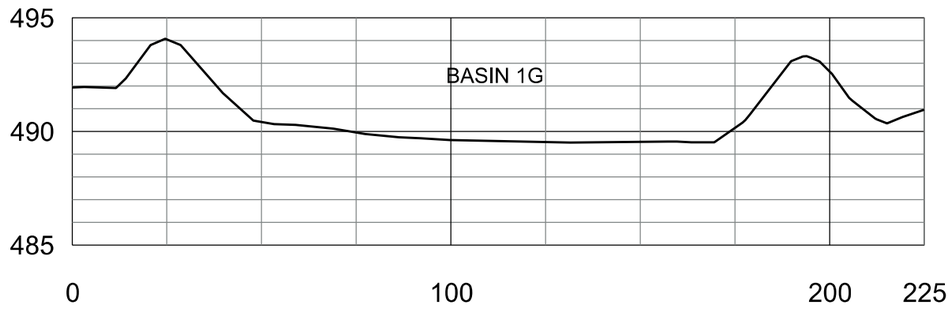

CROSS SECTION S-S

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Feed Storage Cross-Sections

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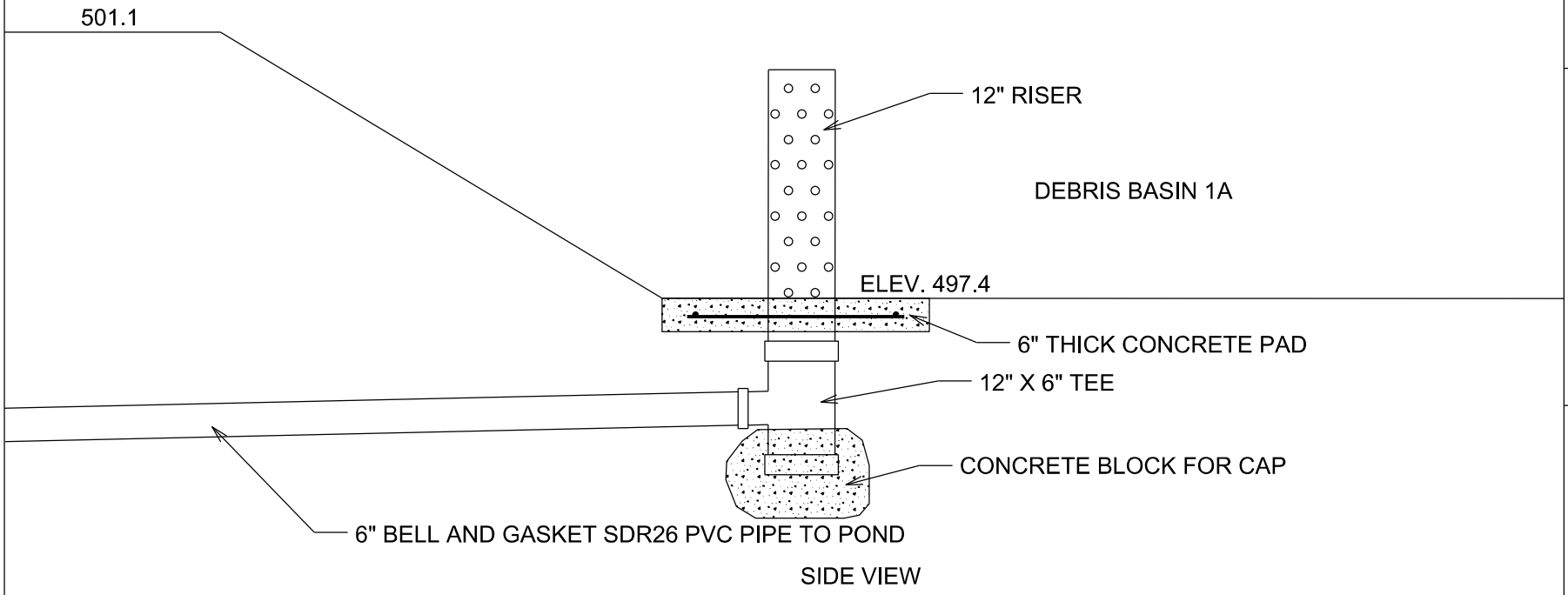
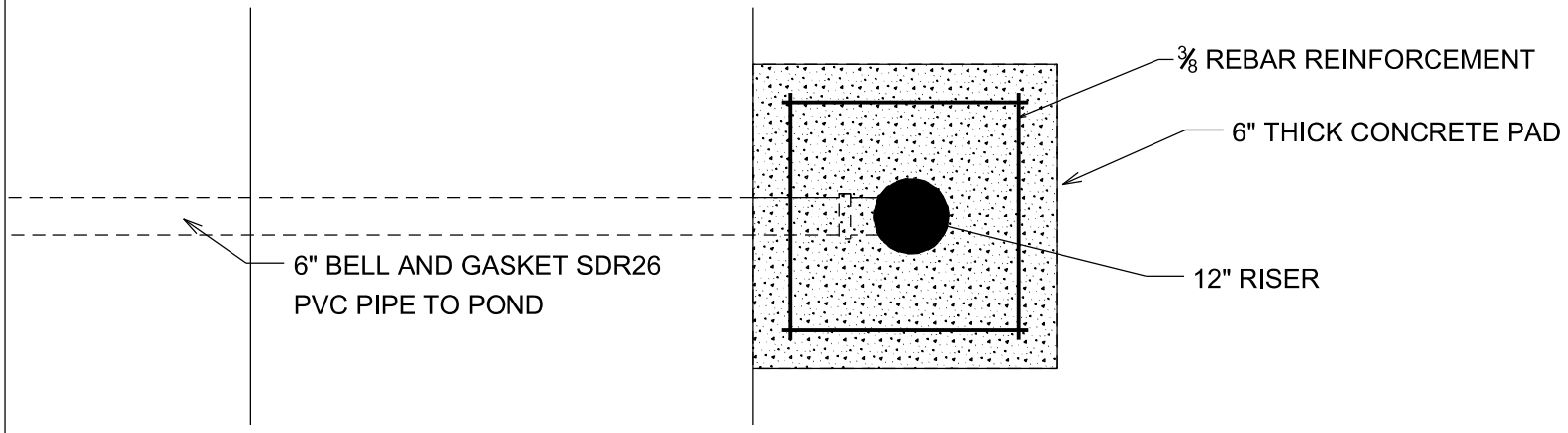


SIDE VIEW



TOP VIEW

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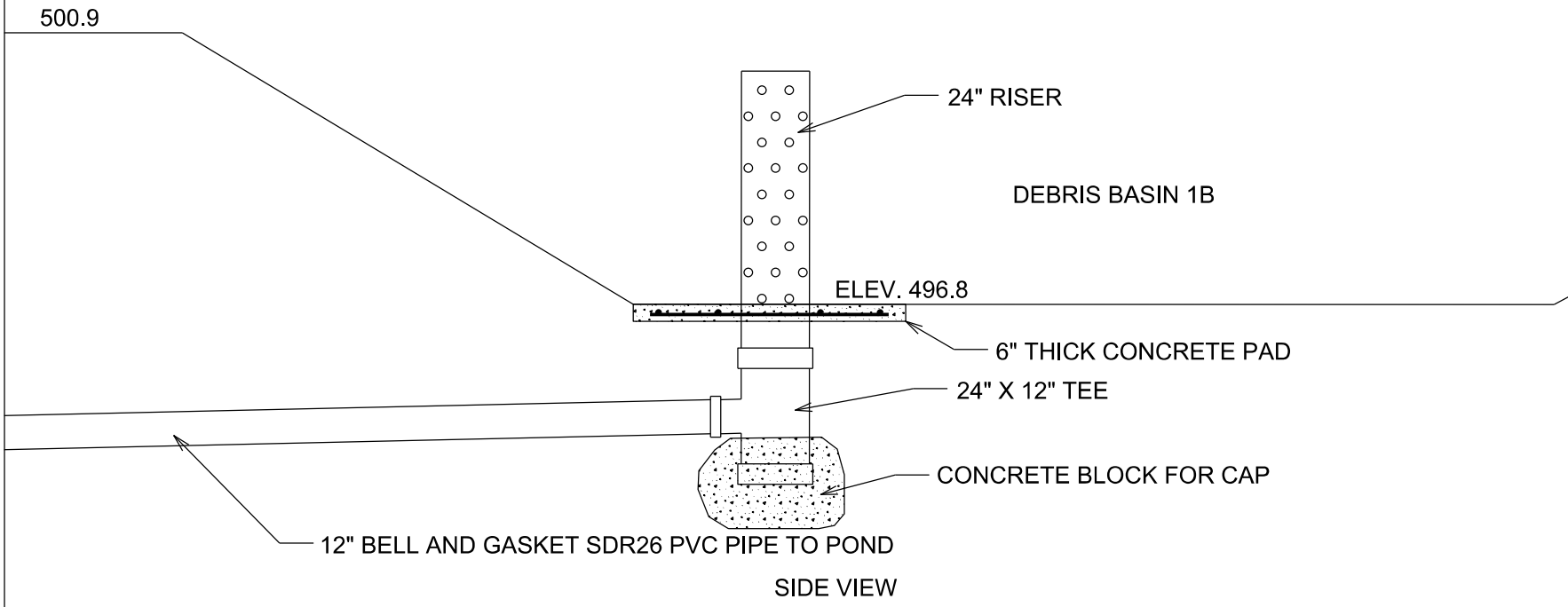
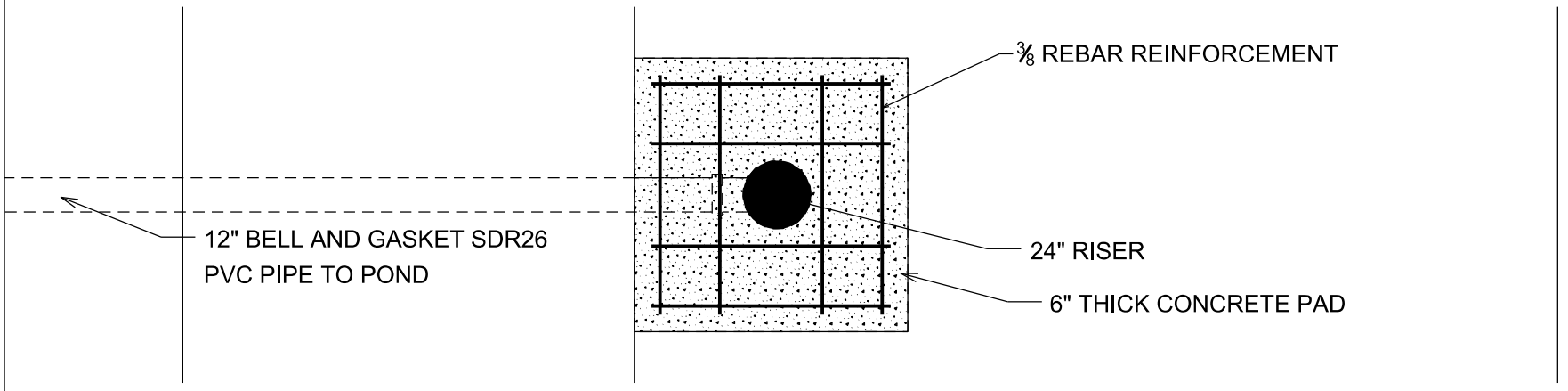


SIDE VIEW



TOP VIEW

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Basin 1B ipe Detail

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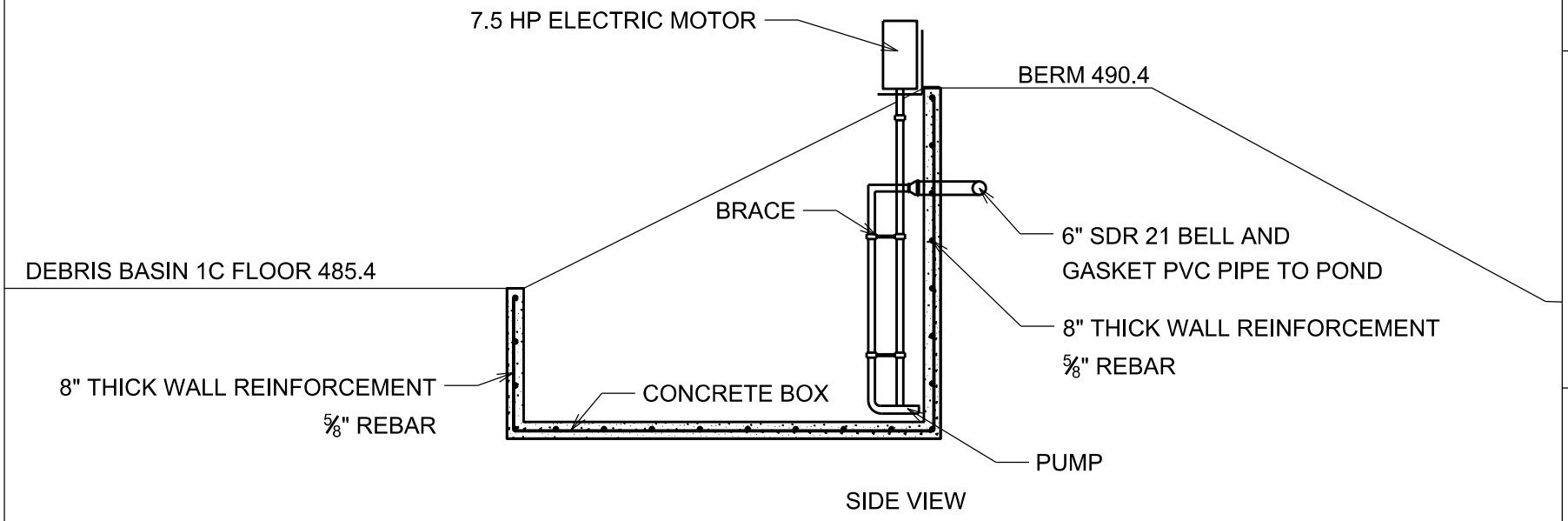

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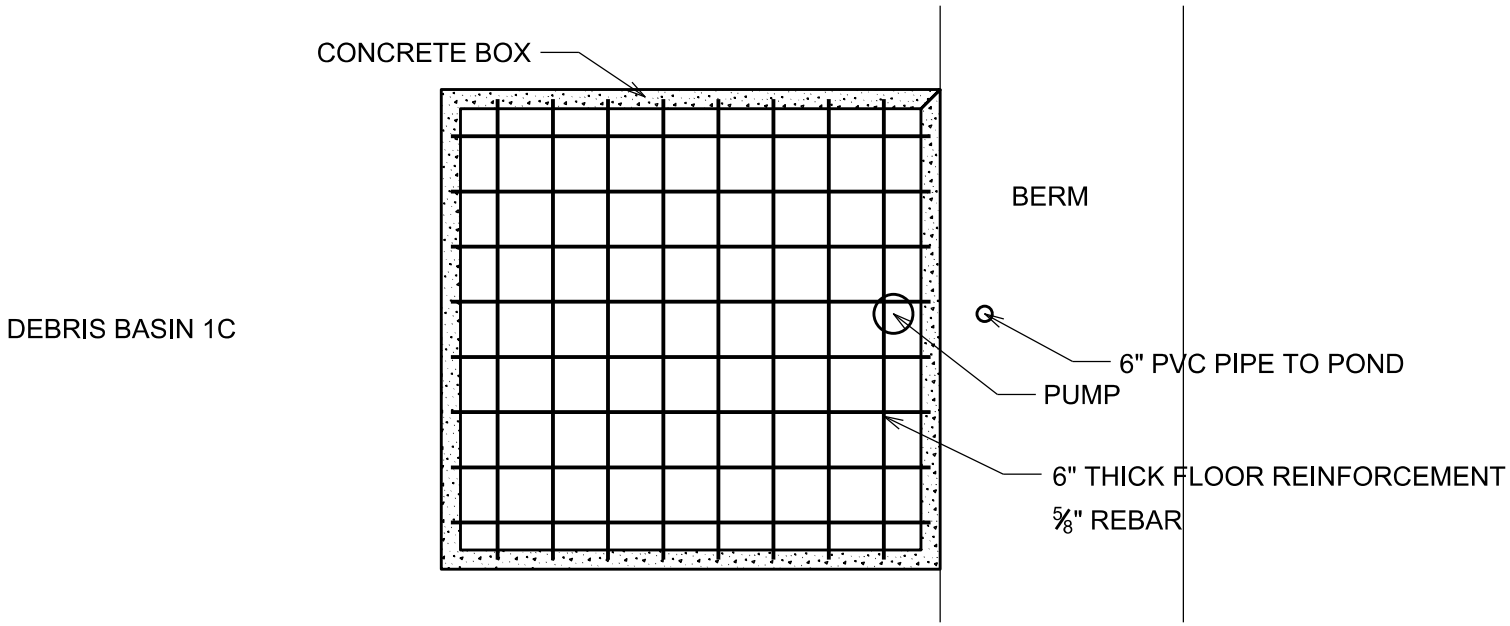

TOP VIEW

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Basin 1C Pipe Detail

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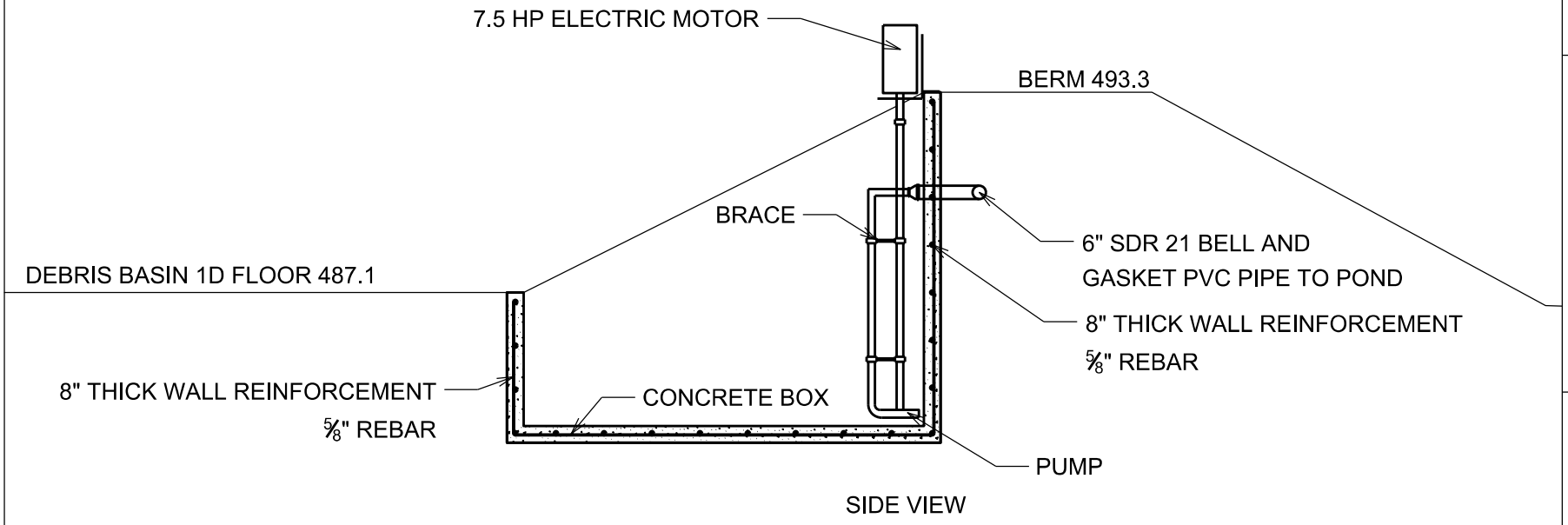

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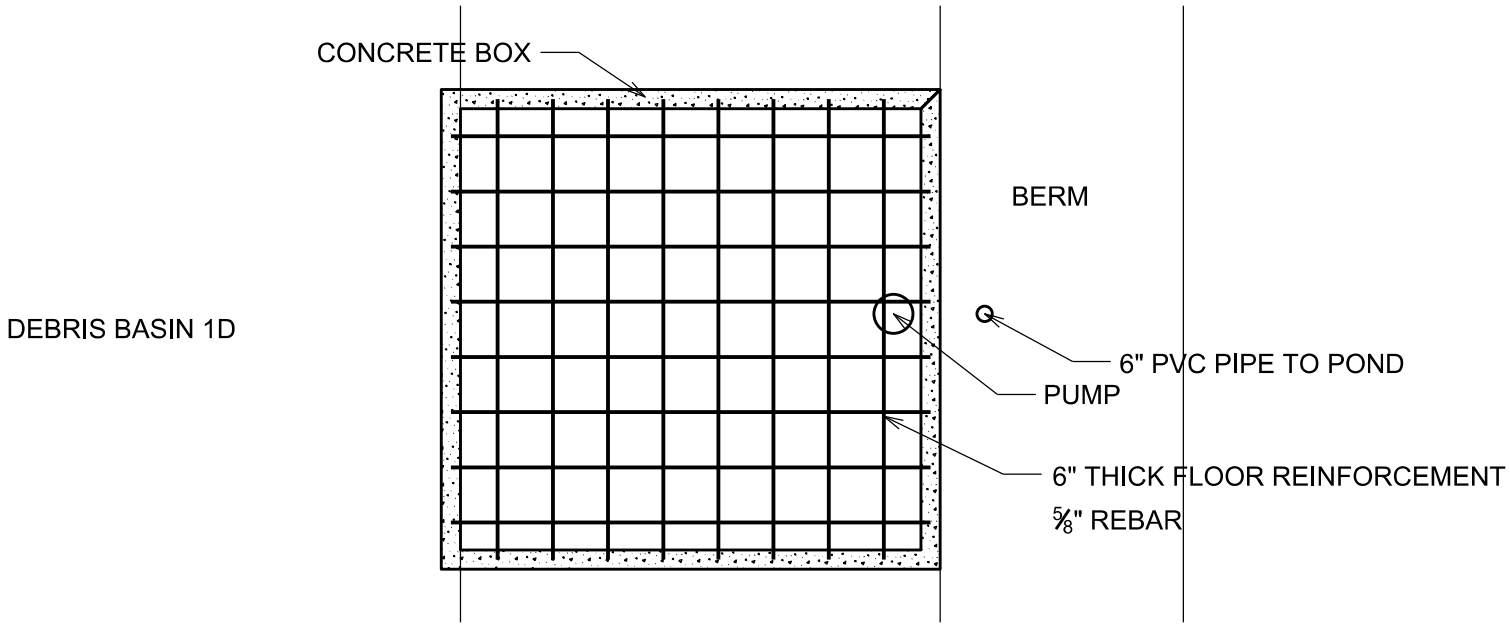

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Basin 1D Pipe Detail

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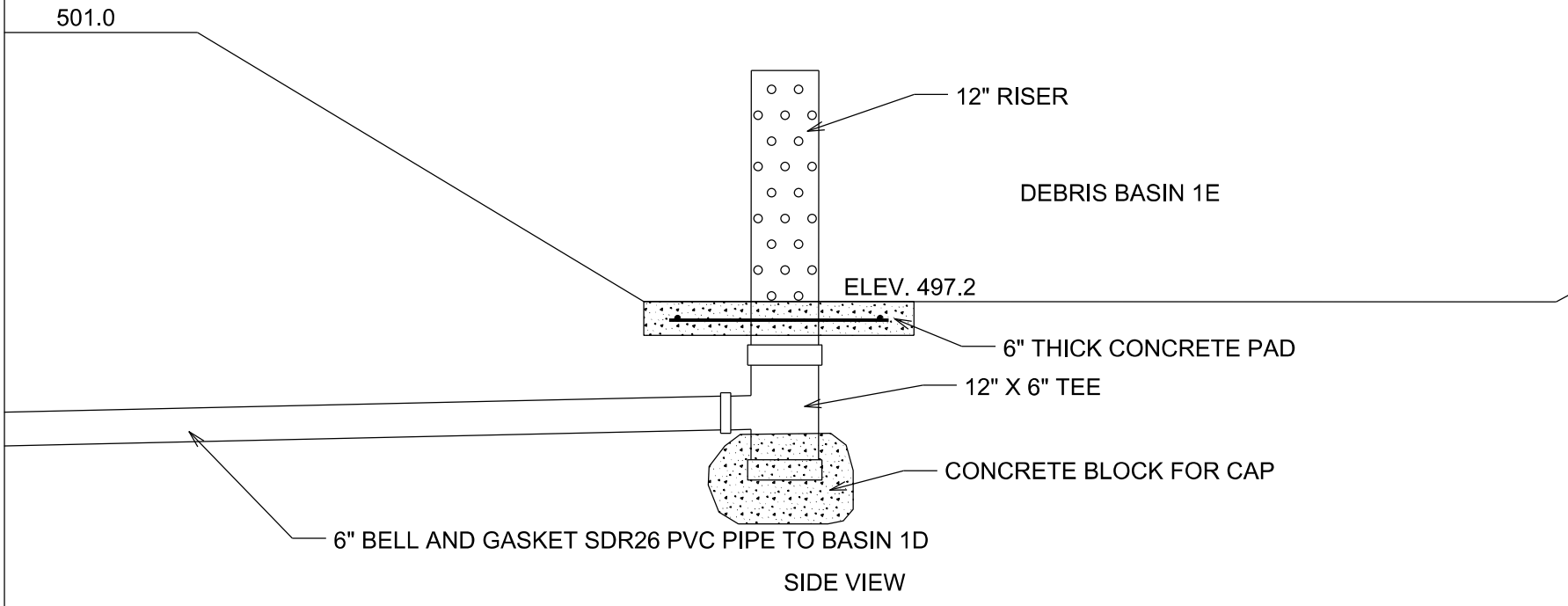
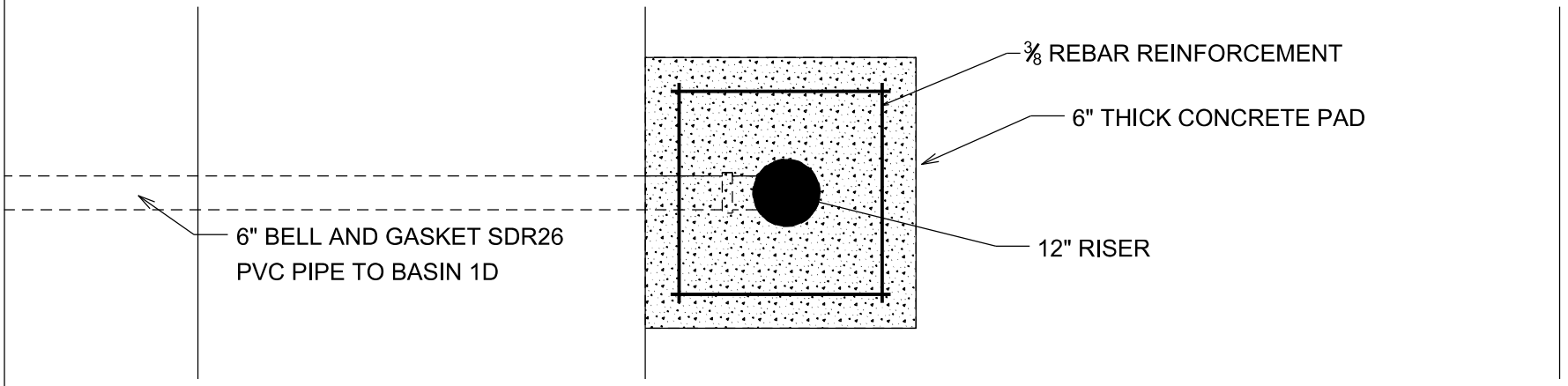


SIDE VIEW



TOP VIEW

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Basin 1E Pipe Detail

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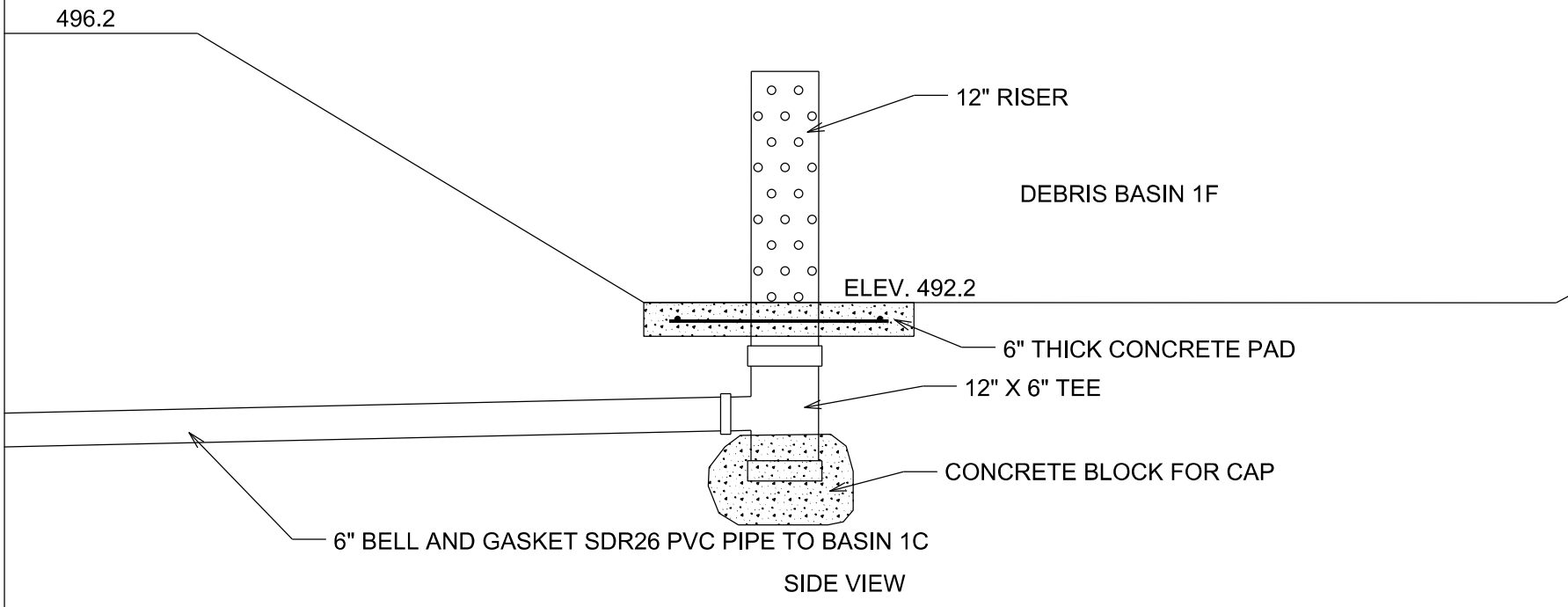

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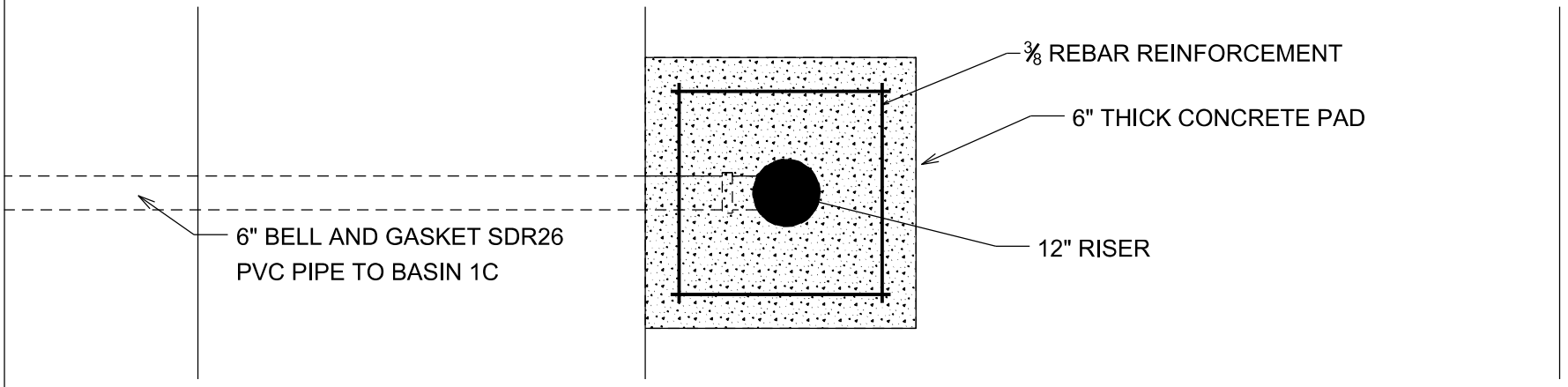

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Basin 1F Pipe Detail

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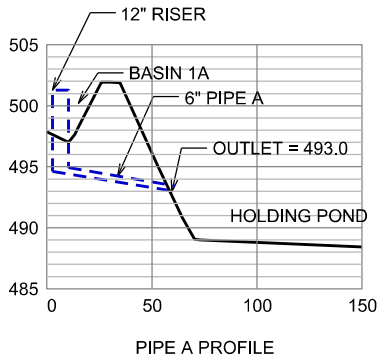
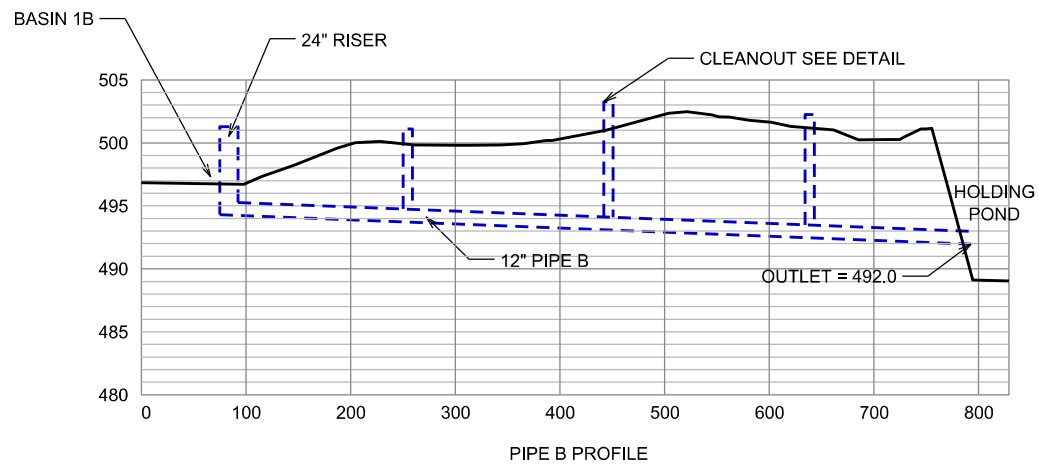
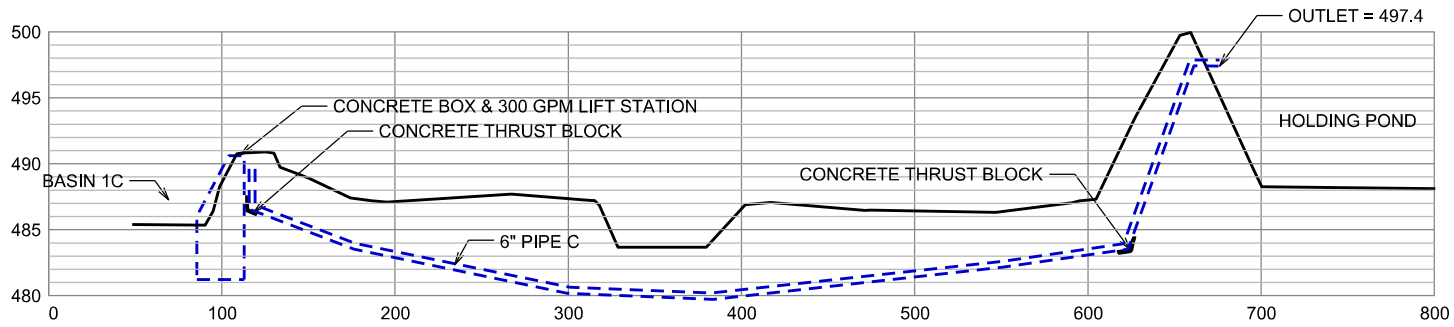


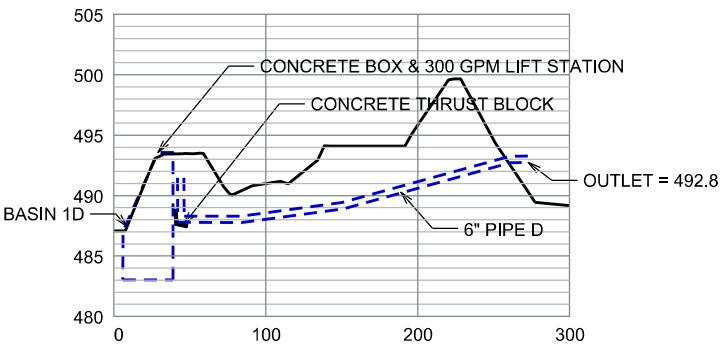
PIPE A PROFILE



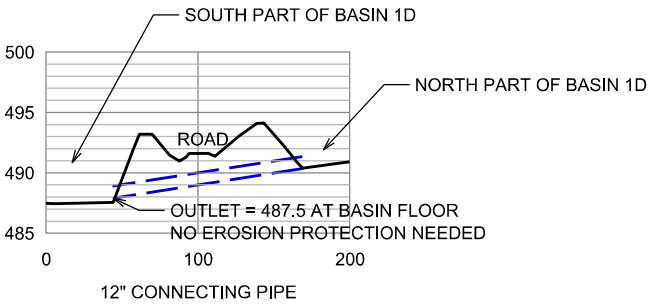
PIPE B PROFILE



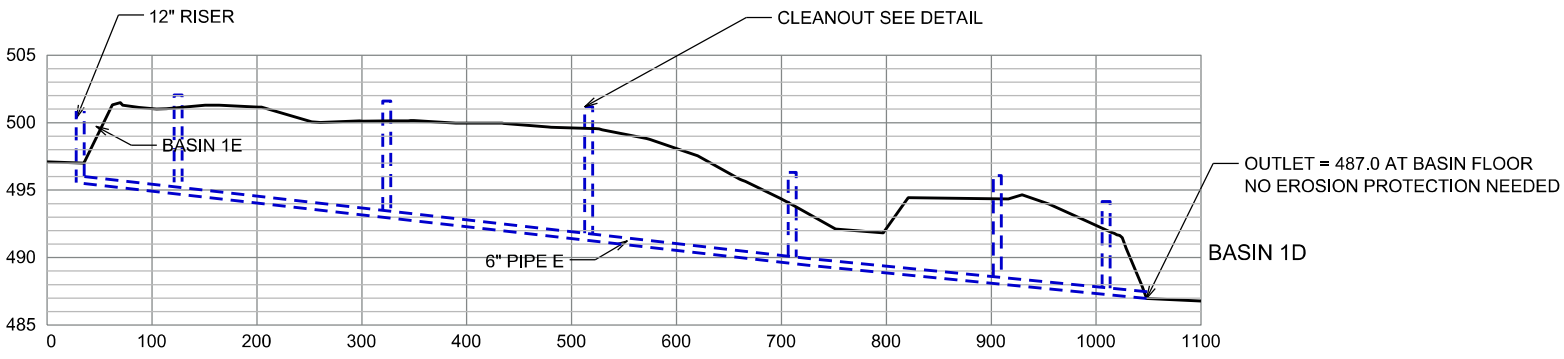
PIPE C PROFILE



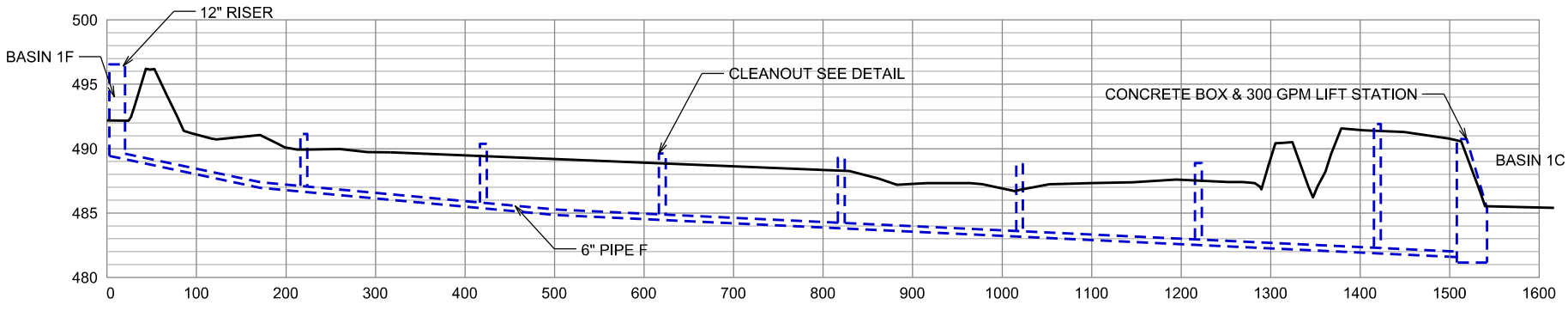
PIPE D PROFILE



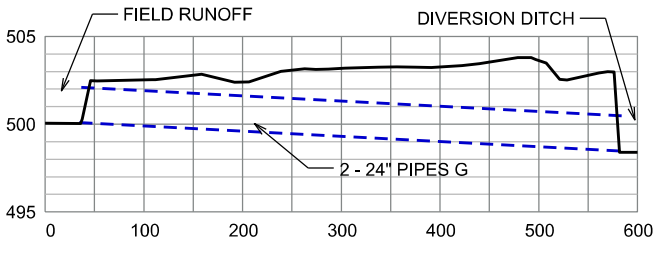
12" CONNECTING PIPE



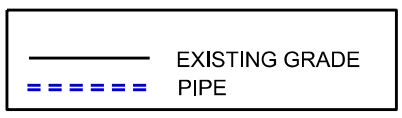
PIPE E PROFILE



PIPE F PROFILE



PIPES G PROFILE



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Pipe Profiles

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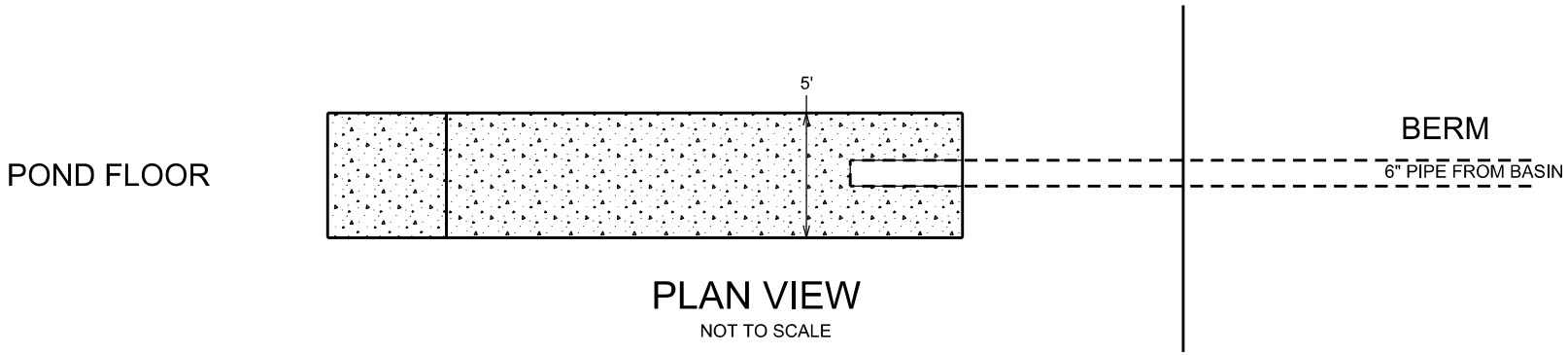
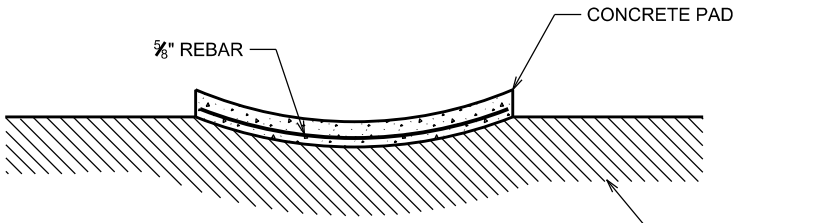


PLAN VIEW
NOT TO SCALE



TYPICAL CROSS SECTION
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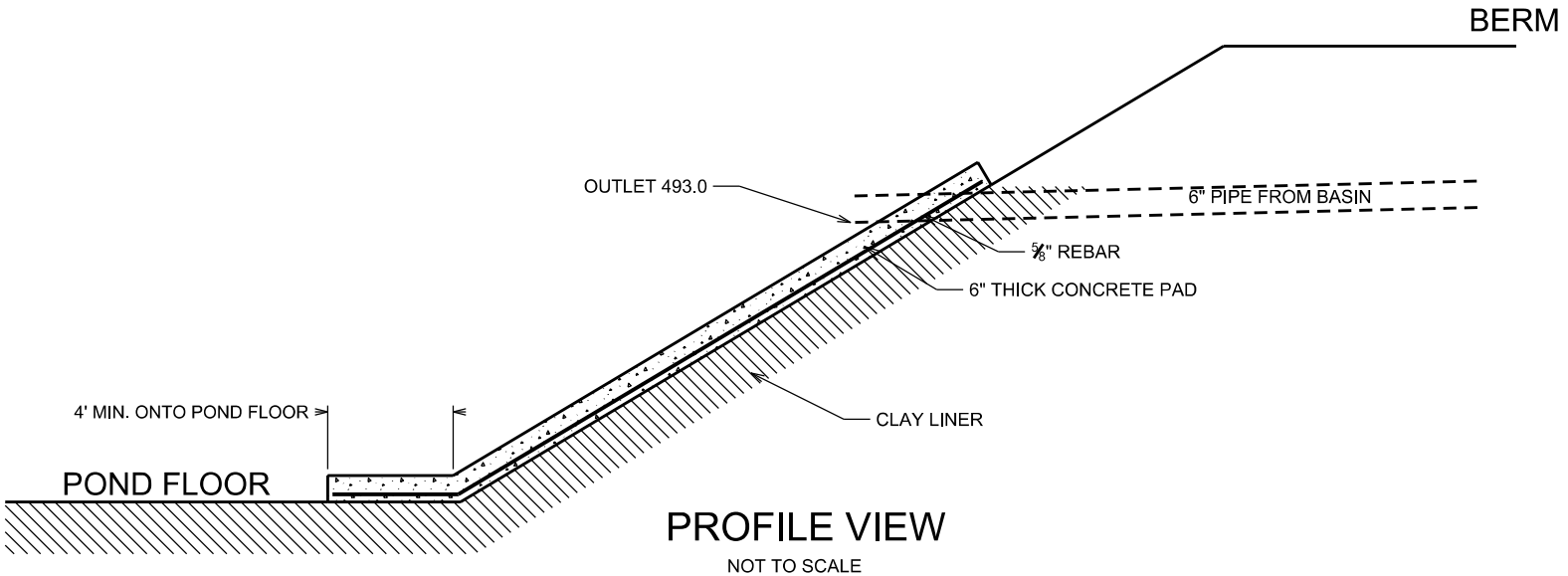

PROFILE VIEW
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Splash Pad 1

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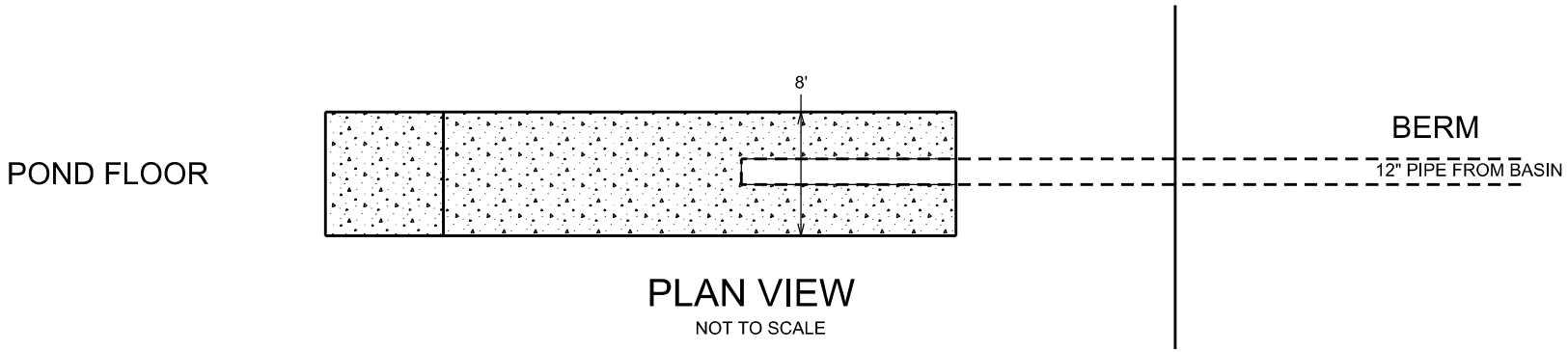

PLAN VIEW
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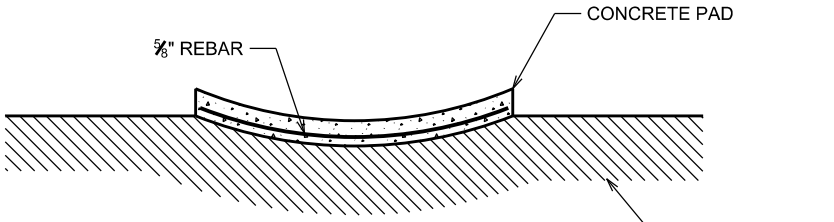

TYPICAL CROSS SECTION
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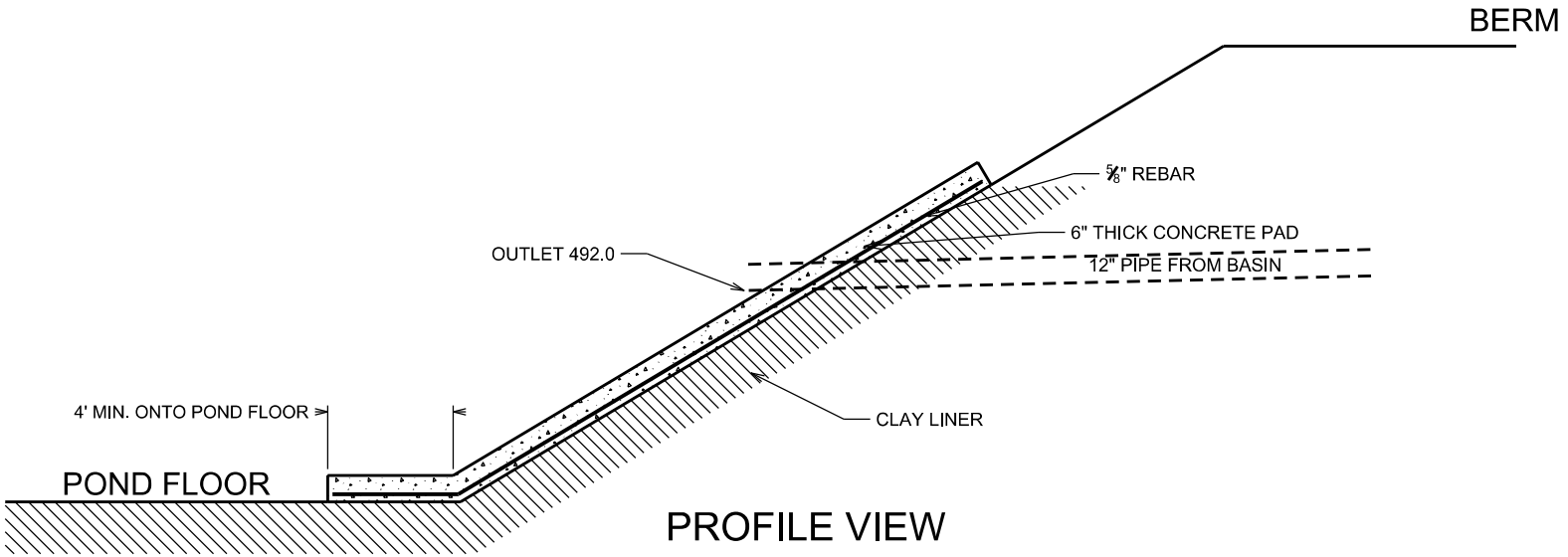

PROFILE VIEW
NOT TO SCALE

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Splash Pad 2

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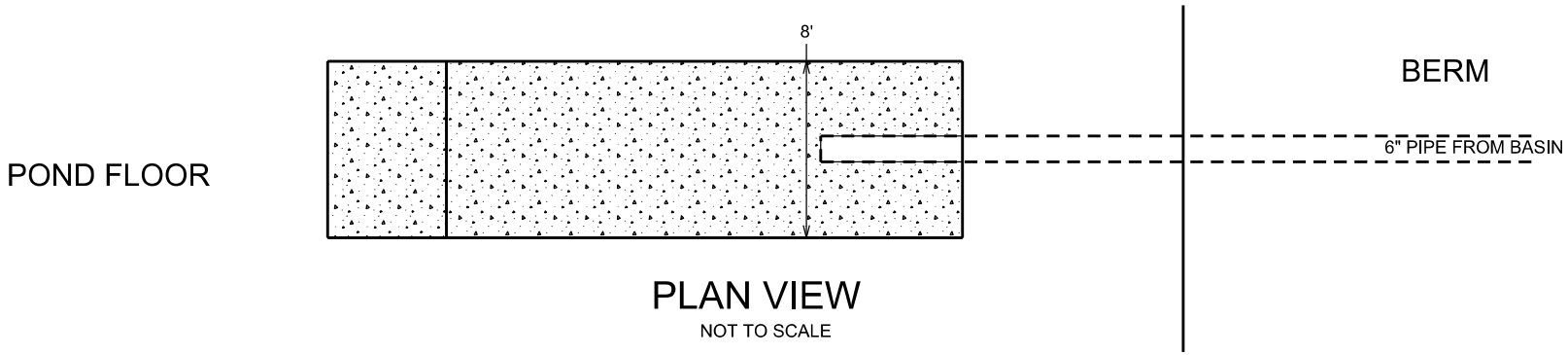
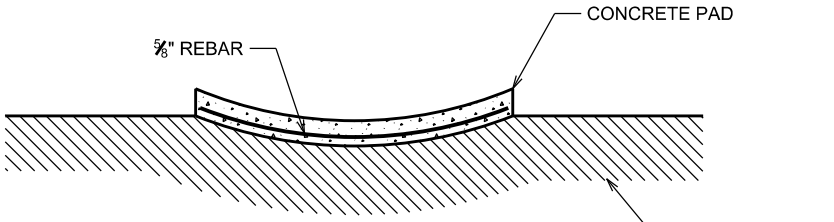


PLAN VIEW
NOT TO SCALE



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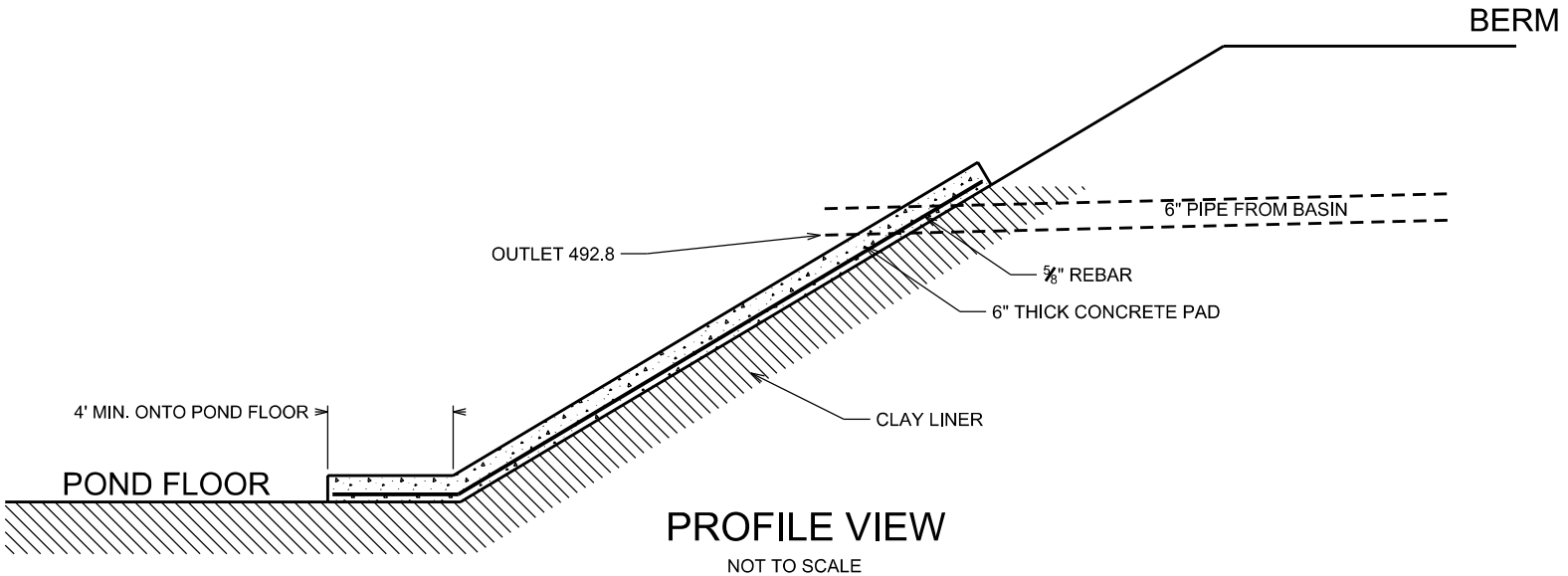

PROFILE VIEW
NOT TO SCALE

Date Printed: 07/25/2023

Rev.	Date

Splash Pad 3

Greenville Livestock Inc.
NE¼ , Sec. 8, T-1-N, R-1-W, 3rd Prin. Meridian
Clinton County, Illinois

15460 NW 48th St.
Raymond, NE 68428
Office: (402) 783-2100
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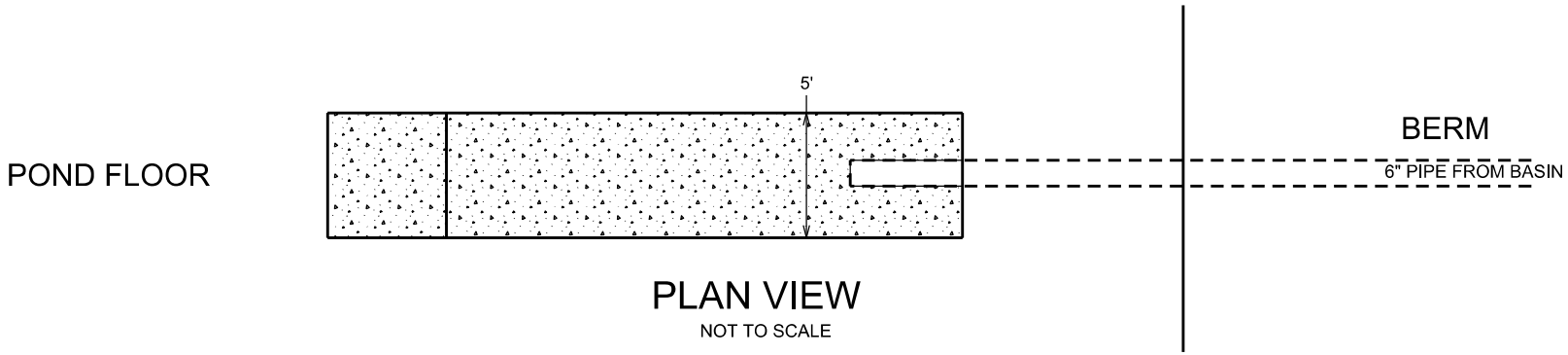

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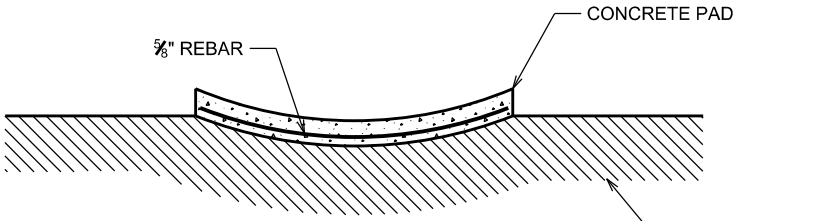

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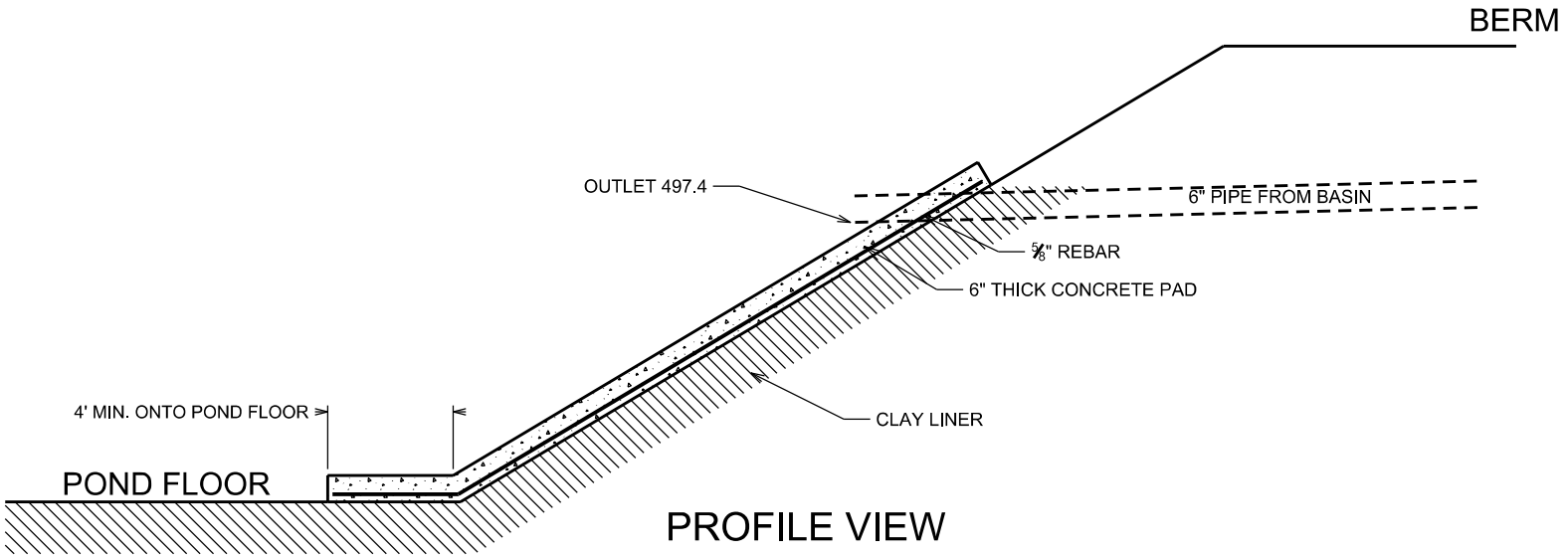

PROFILE VIEW
NOT TO SCALE

Date Printed: 07/25/2023

Rev.	Date

Splash Pad 4

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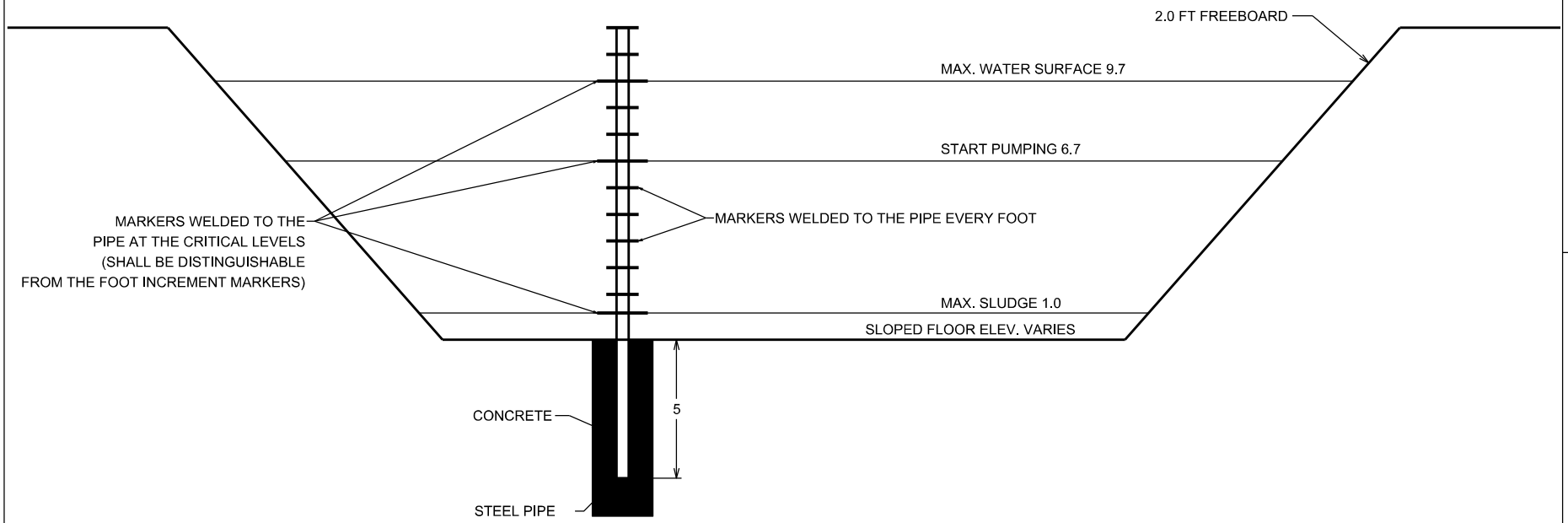

POND 1 DEPTH MARKER DETAIL

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Rev.	Date

Holding Pond 1 Depth Marker

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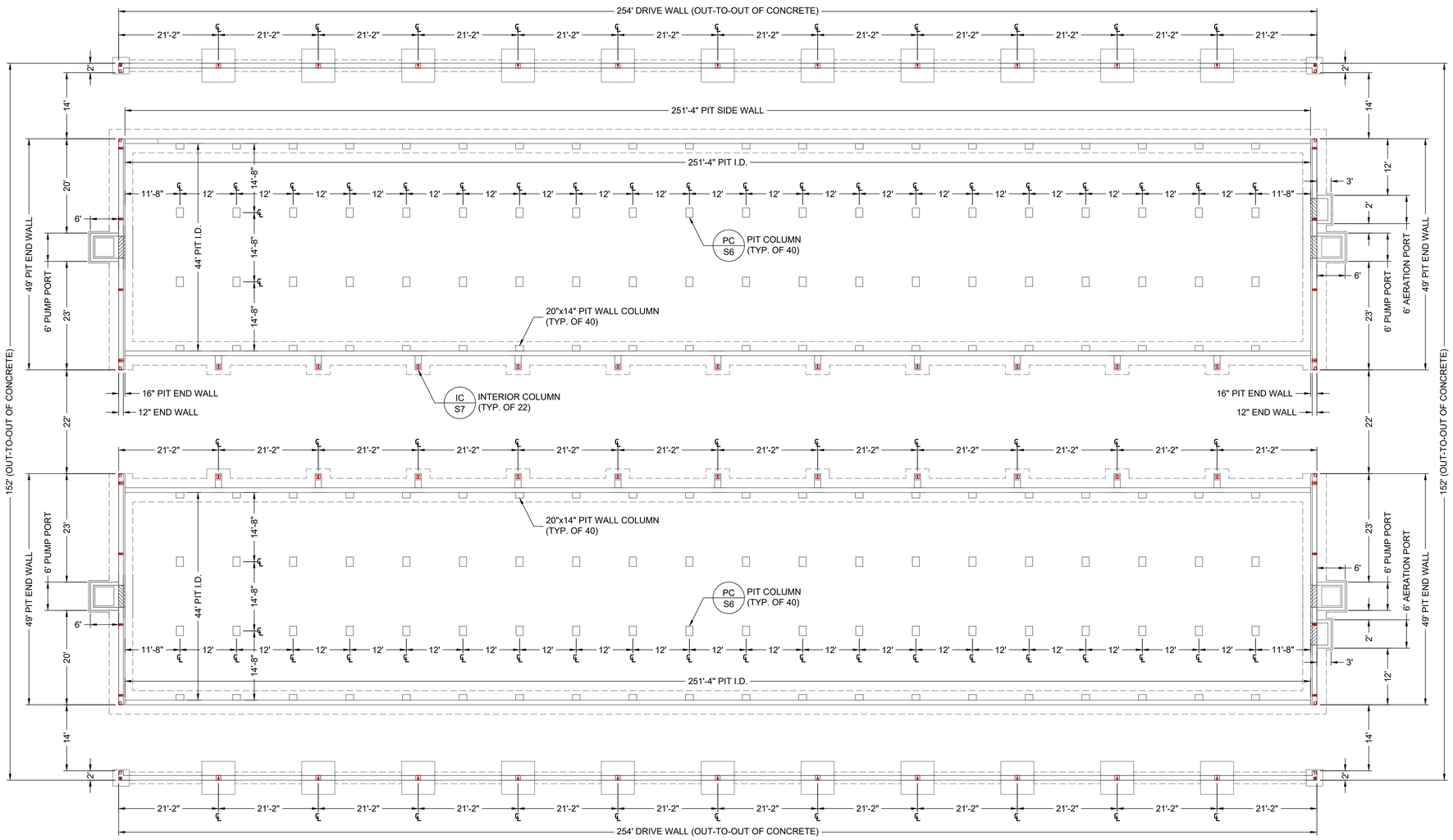

FOUNDATION PLAN
SCALE: 3/32" = 1'-0"
0 10' 20' 30'

Date: 10/3/23
Drawn: JLEU

Rev.	Date

Foundation Plan

Greenville Livestock
Deep Pit Cattle Barn
25815 Hugo Road
Centralia, Illinois 62801

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S1

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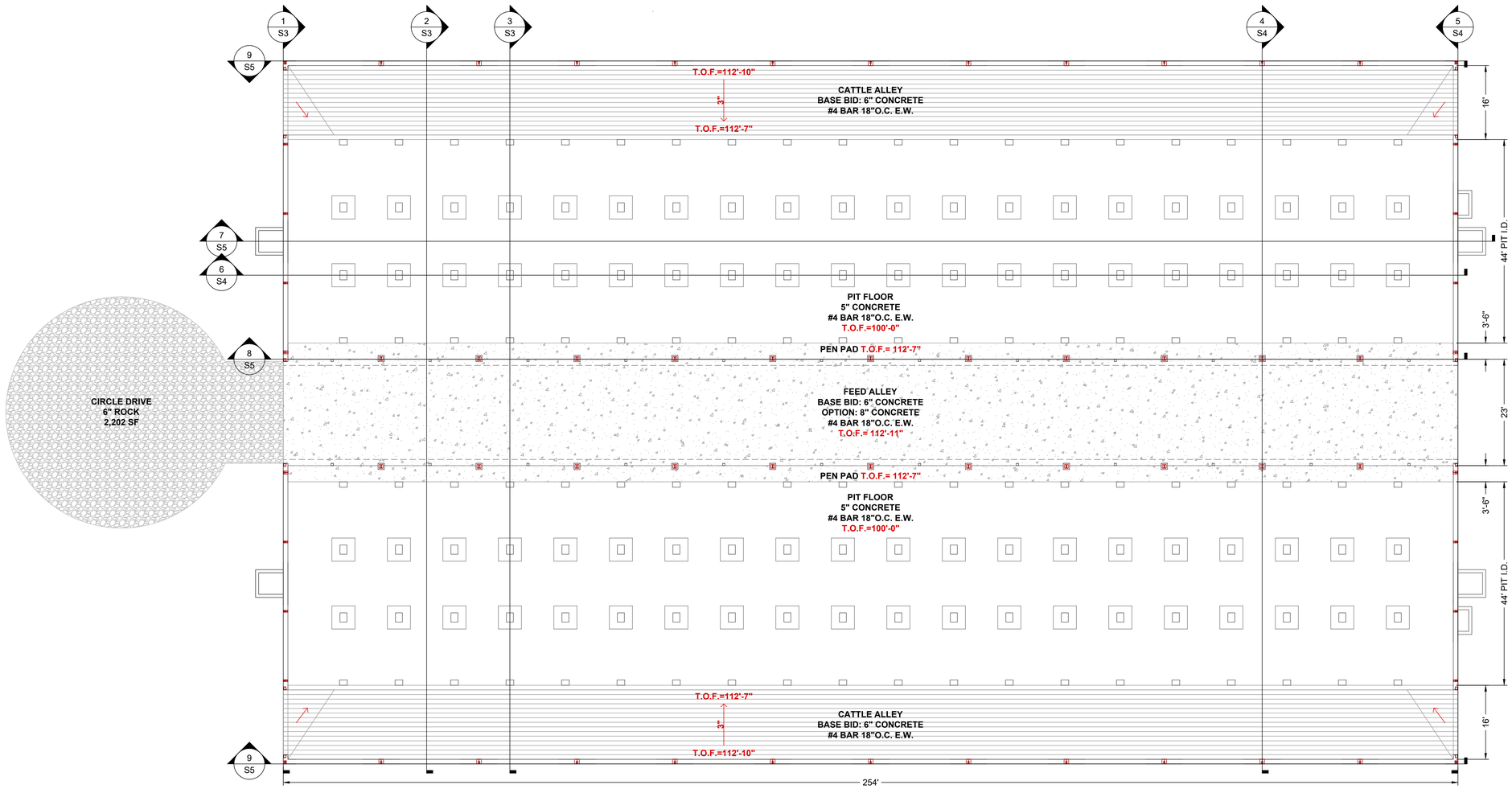
SURFACE LEGEND	
SYMBOL	DESCRIPTION
	CONCRETE BROOM FINISH
	CONCRETE LONGITUDINAL GROOVE FINISH
	CRUSHED LIMESTONE



FLATWORK PLAN
SCALE: 3/32" = 1'-0"
0 10' 20' 30'

Date: 10/3/23	
Drawn: JLEU	
Rev.	Date

Flatwork Plan

Greenville Livestock
Deep Pit Cattle Barn
25815 Hugo Road
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S2

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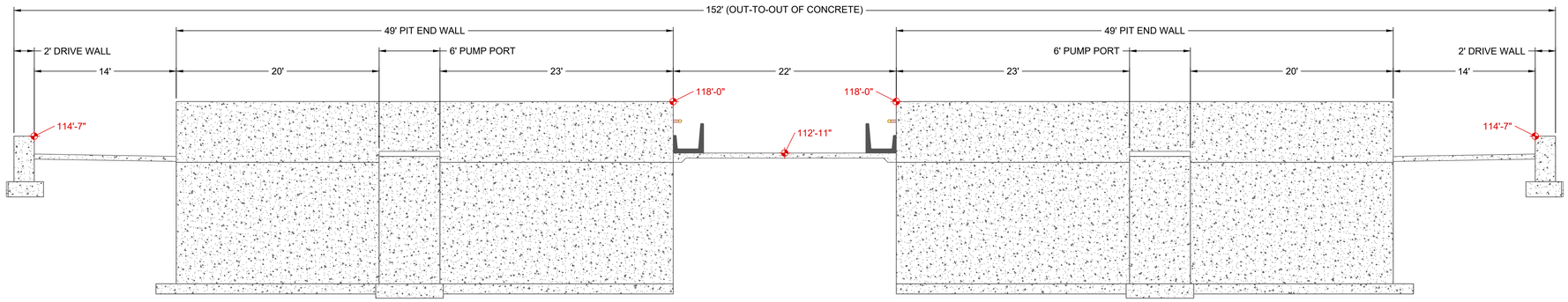
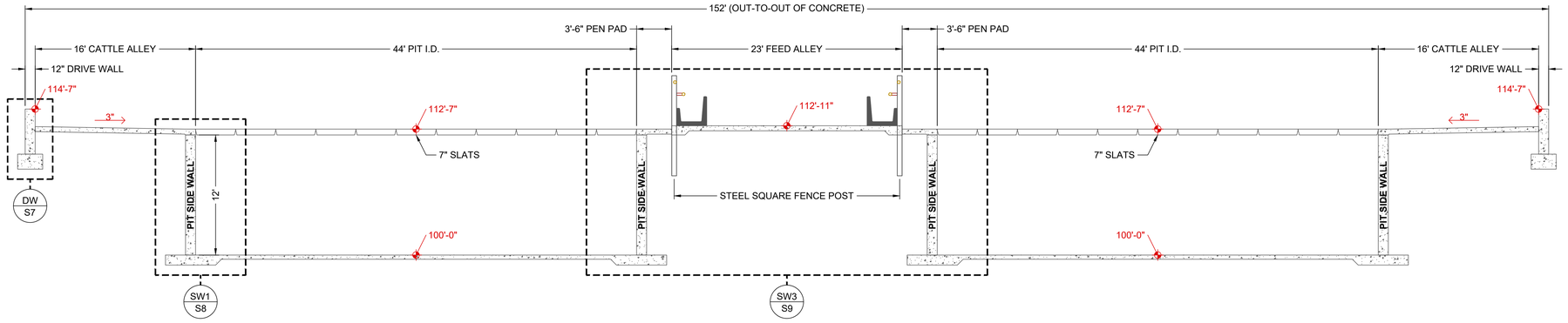
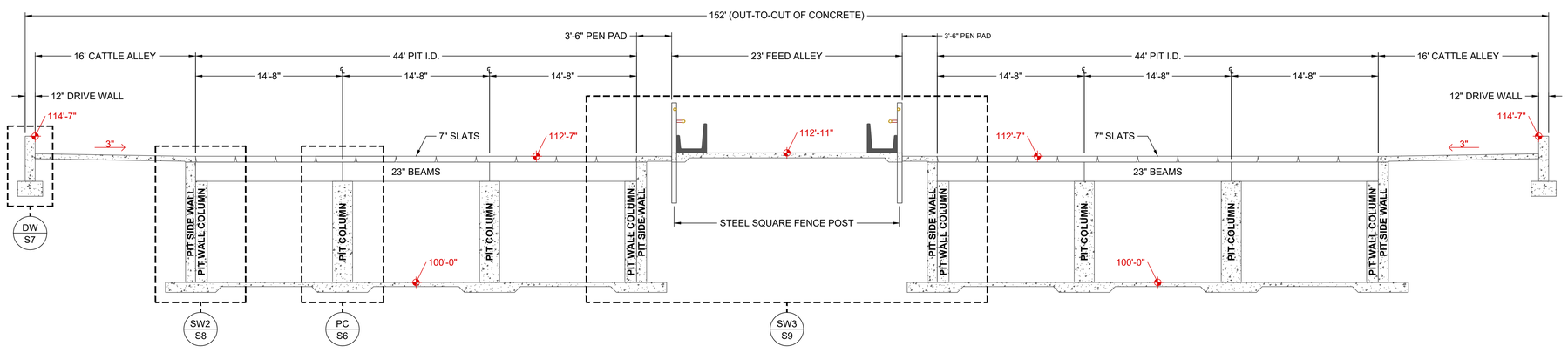


1 FOUNDATION SECTION
SCALE: 3/16" = 1'-0"
0 5' 10' 15'



2 FOUNDATION SECTION
SCALE: 3/16" = 1'-0"
0 5' 10' 15'



3 FOUNDATION SECTION
SCALE: 3/16" = 1'-0"
0 5' 10' 15'

Date: 10/3/23
Drawn: JLEU

Rev.	Date

Foundation Sections

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S3

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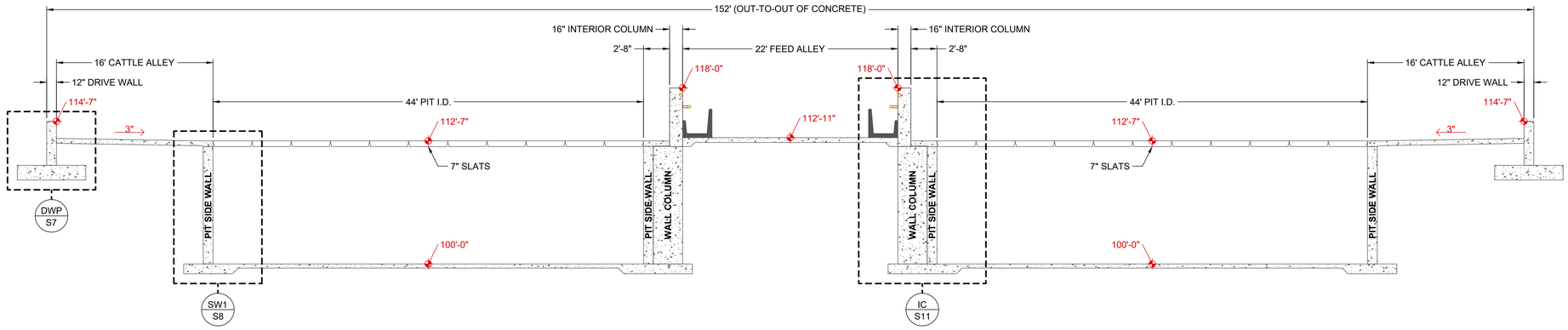
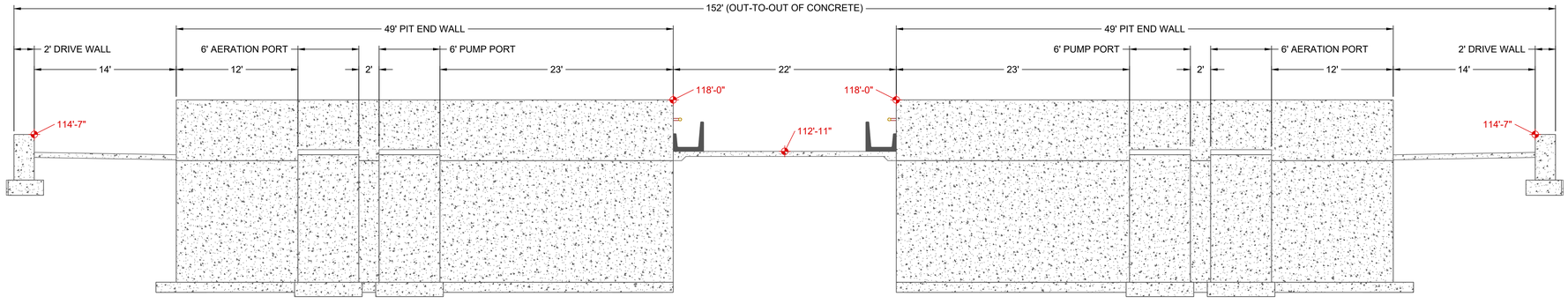
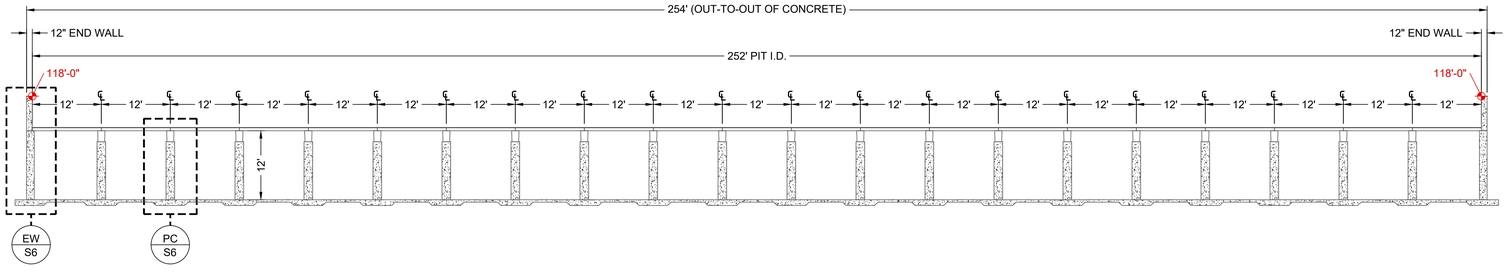


4 FOUNDATION SECTION
SCALE: 3/16" = 1'-0"
0 5' 10' 15'



5 FOUNDATION SECTION
SCALE: 3/16" = 1'-0"
0 5' 10' 15'



6 FOUNDATION SECTION
SCALE: 3/32" = 1'-0"
0 10' 20' 30'

Date: 10/3/23
Drawn: JLEU

Rev.	Date

Foundation Sections

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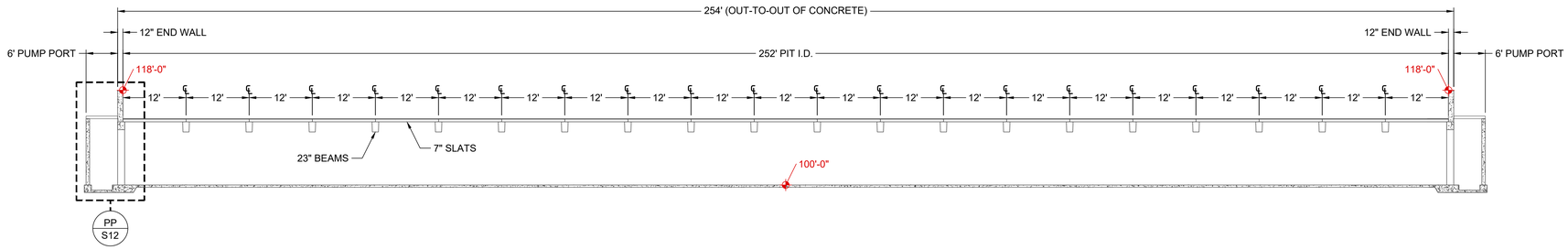
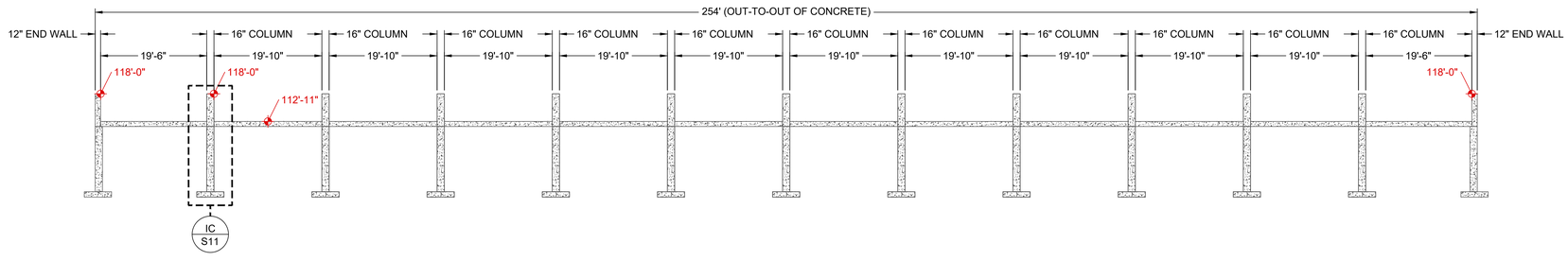
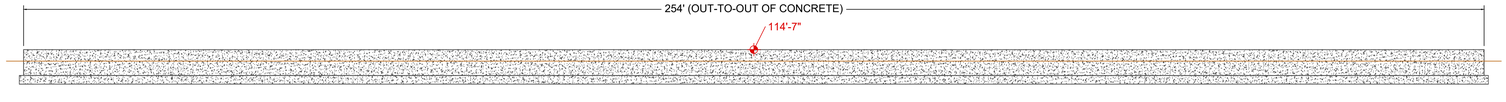


7 FOUNDATION SECTION
SCALE: 3/32" = 1'-0"
0 10' 20' 30'



8 FOUNDATION SECTION
SCALE: 3/32" = 1'-0"
0 10' 20' 30'



9 FOUNDATION SECTION
SCALE: 3/32" = 1'-0"
0 10' 20' 30'

Date: 10/3/23
Drawn: JLEU

Rev.	Date

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S5

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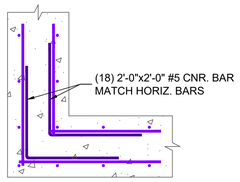
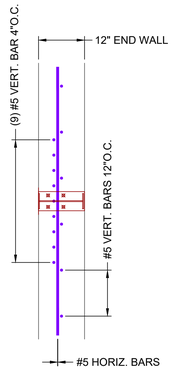
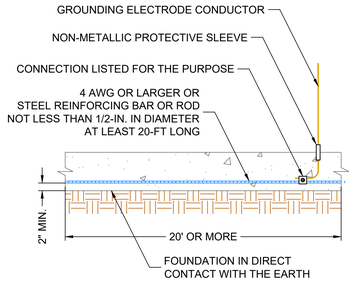


TOP VIEW AT PIT CORNER

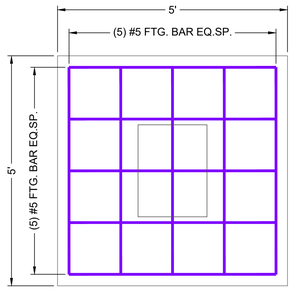
HC OVERLAP AT HORIZ. CORNER
NOT TO SCALE



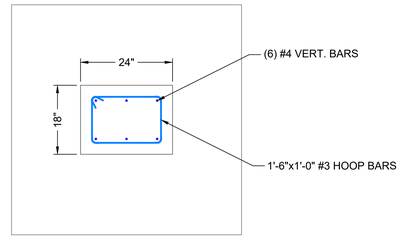
END WALL REINF. TOP VIEW AT BEARING PLATE



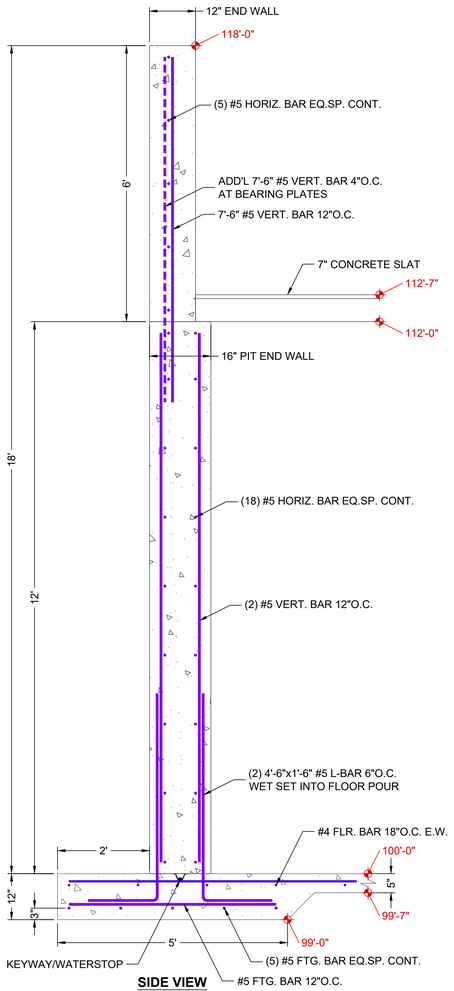
CEE CONCRETE-ENCASED ELECTRODE
NOT TO SCALE



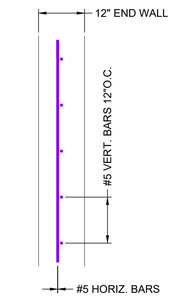
FOOTING REINF. TOP VIEW



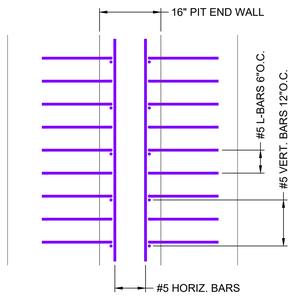
COLUMN REINF. TOP VIEW



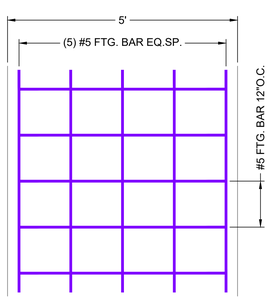
SIDE VIEW



END WALL REINF. TOP VIEW

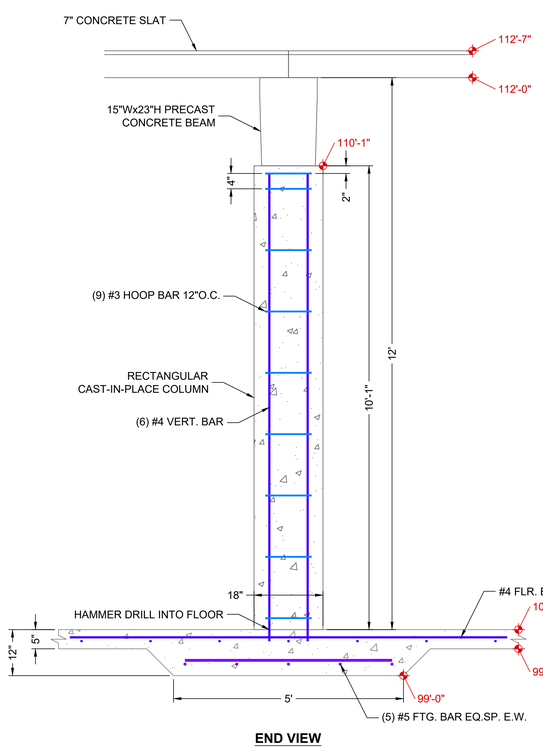


PIT WALL REINF. TOP VIEW

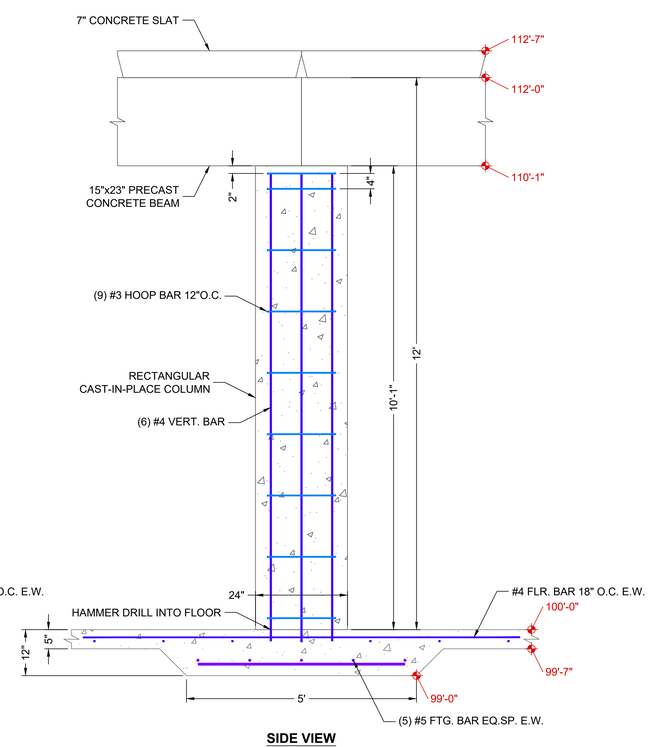


FOOTING REINF. TOP VIEW

EW PIT END WALL
SCALE: 3/4" = 1'-0"
0 1' 2' 3'



END VIEW



SIDE VIEW

PC PIT COLUMN
SCALE: 3/4" = 1'-0"
0 1' 2' 3'

Date: 10/3/23	
Drawn: JLEU	
Rev.	Date

Foundation Details

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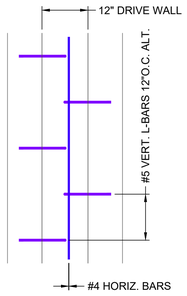
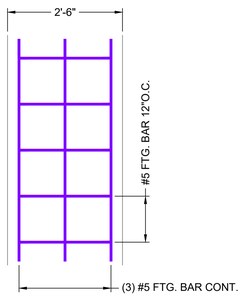
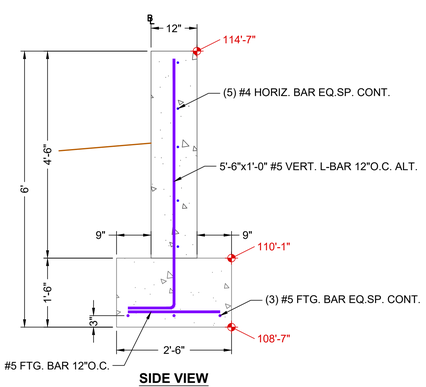


WALL REINF. TOP VIEW

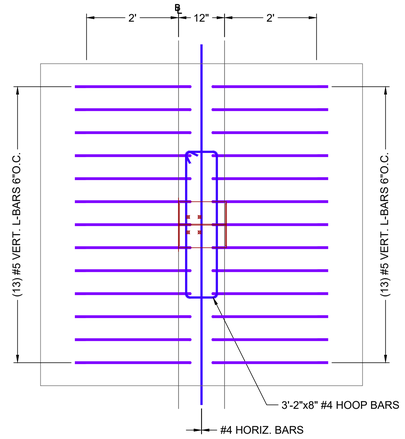


FOOTING REINF. TOP VIEW

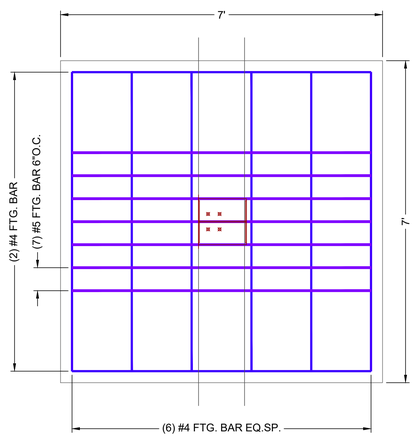


SIDE VIEW

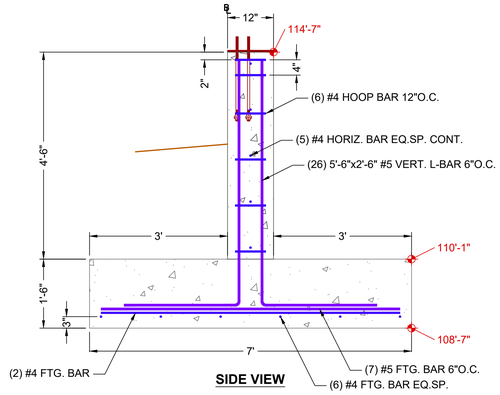
DW DRIVE WALL
SCALE: 3/4" = 1'-0"
0 1' 2' 3'



WALL REINF. TOP VIEW

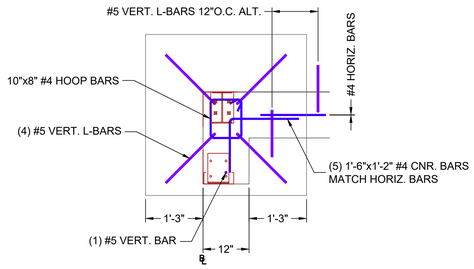


FOOTING REINF. TOP VIEW

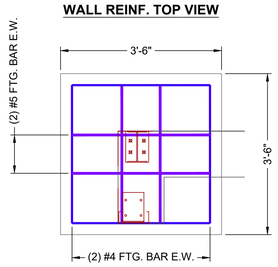


SIDE VIEW

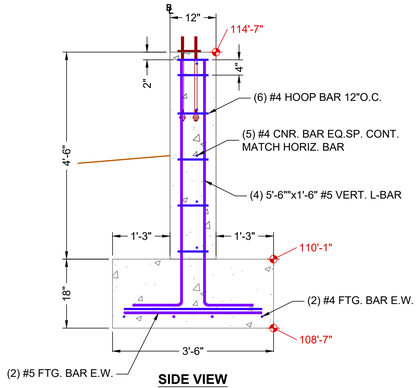
DWP DRIVE WALL AT BEARING PLATE
SCALE: 3/4" = 1'-0"
0 1' 2' 3'



WALL REINF. TOP VIEW



FOOTING REINF. TOP VIEW



SIDE VIEW

DWC DRIVE WALL AT BUILDING CORNER
SCALE: 3/4" = 1'-0"
0 1' 2' 3'

Date: 10/3/23	
Drawn: JLEU	
Rev.	Date

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S7

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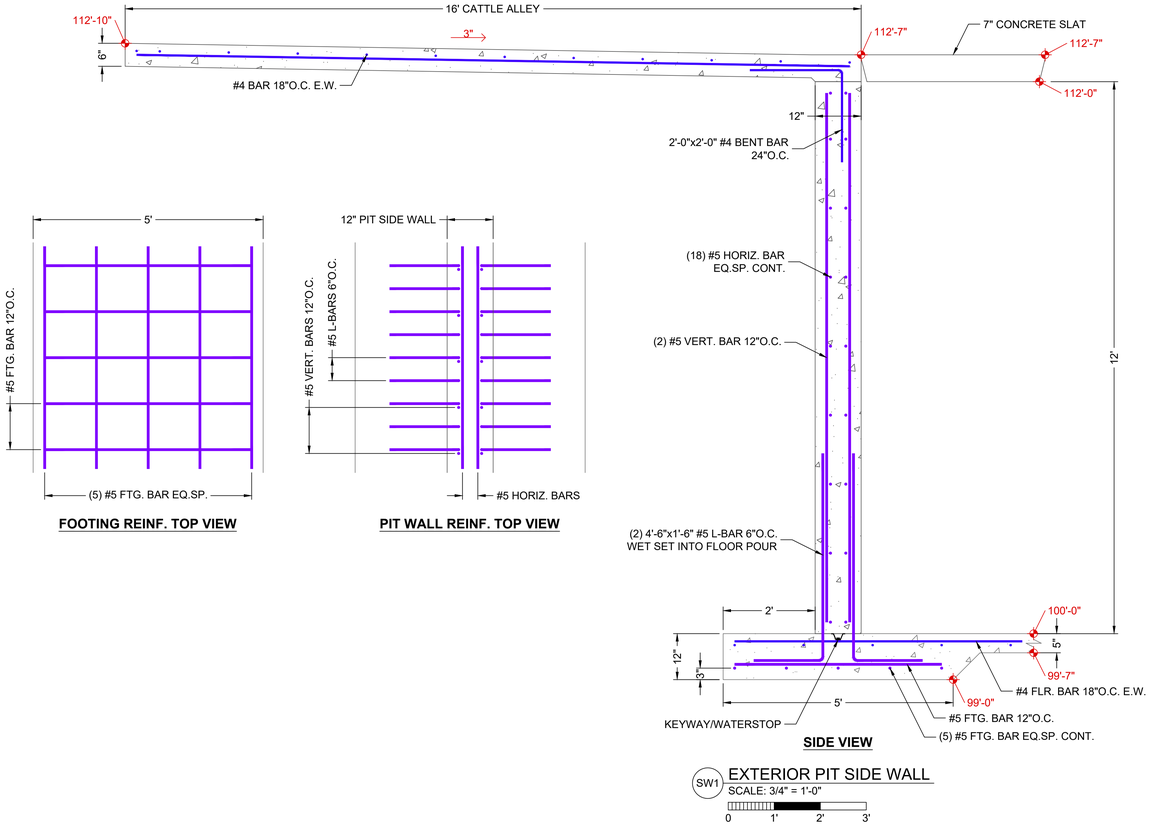

Date: 10/3/23	
Drawn: JLEU	
Rev.	Date

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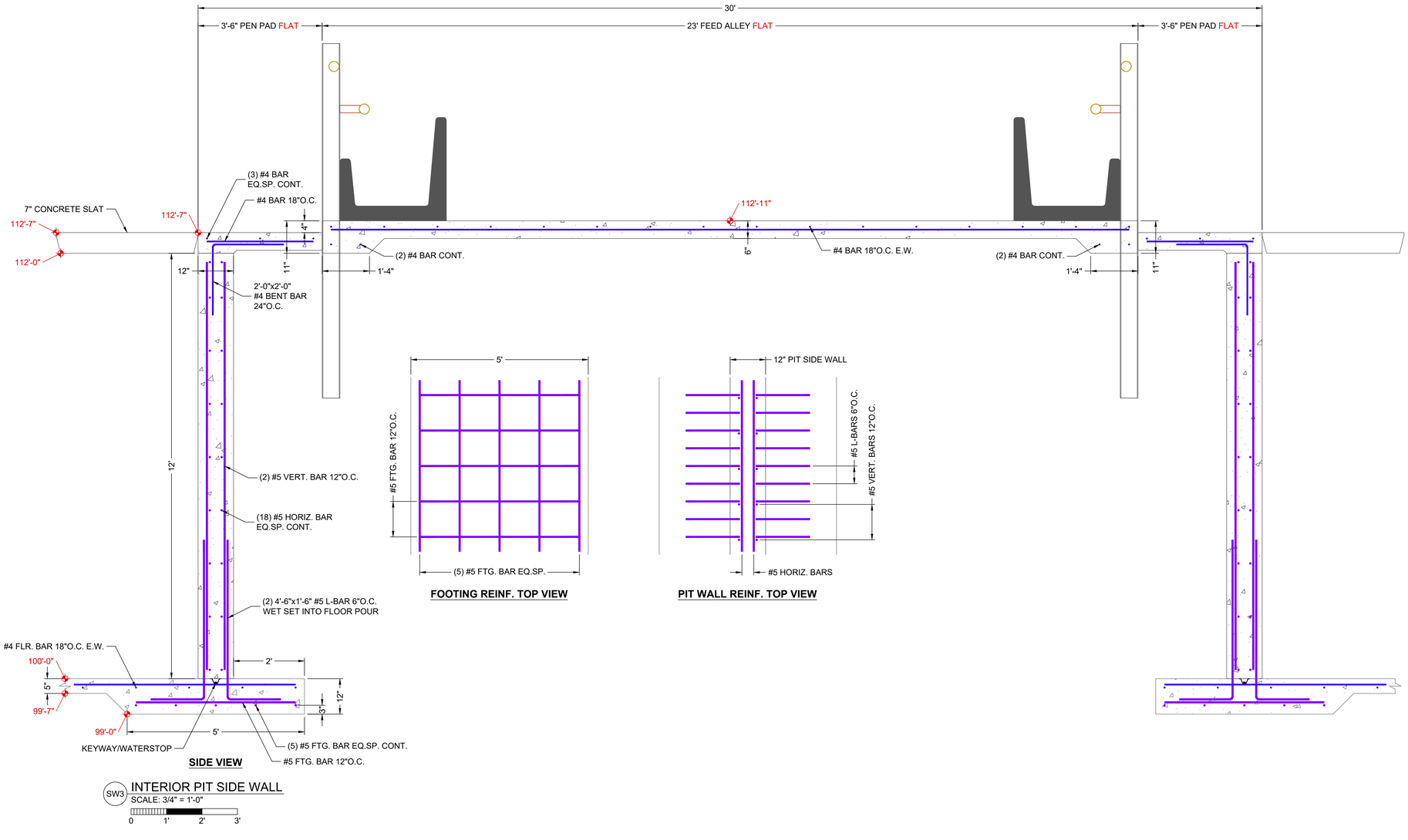

SW3 INTERIOR PIT SIDE WALL
SCALE: 3/4" = 1'-0"
0 1' 2' 3'

Date: 10/3/23	
Drawn: JLEU	
Rev.	Date

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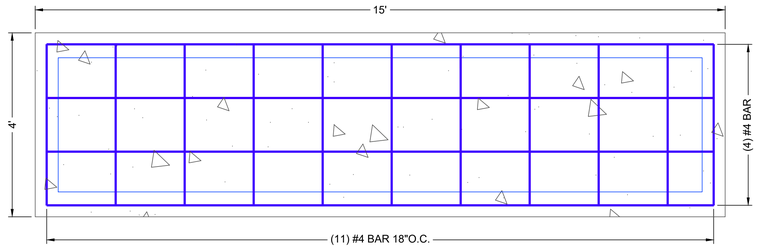
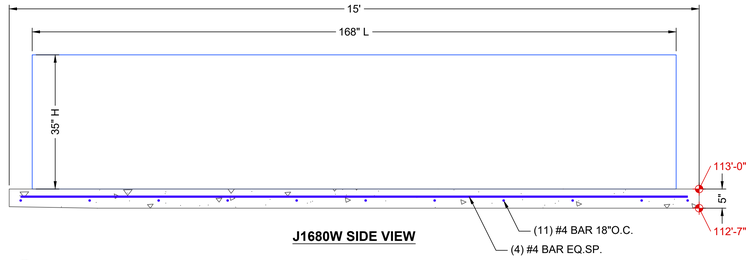
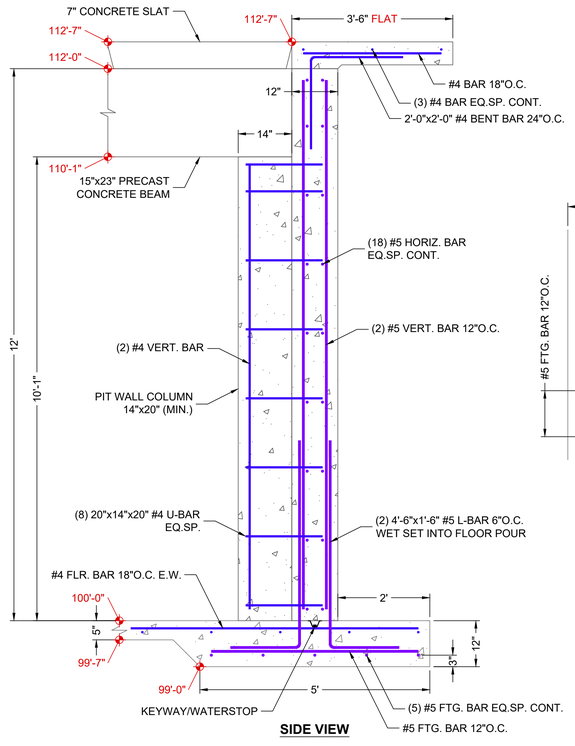


J1680W TOP VIEW

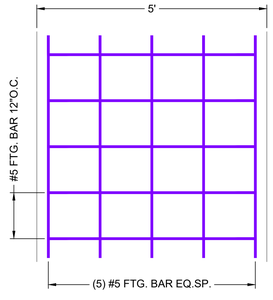


J1680W SIDE VIEW

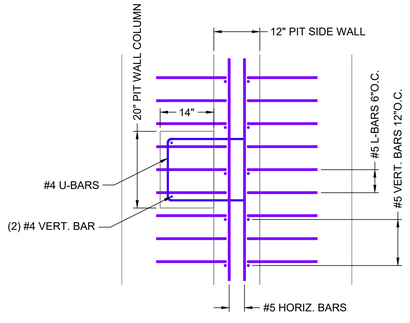
WP WATER PAD
SCALE: 3/4" = 1'-0"
0 1' 2' 3'



SIDE VIEW



FOOTING REINF. TOP VIEW



PIT WALL REINF. TOP VIEW

SW4 INTERIOR PIT SIDE WALL AT WALL COLUMN
SCALE: 3/4" = 1'-0"
0 1' 2' 3'

Date: 10/3/23
Drawn: JLEU

Rev.	Date

Foundation Details

Greenville Livestock Deep Pit Cattle Barn
25815 Hugo Road
Centralia, Illinois 62801

15460 NW 48th St.
Raymond, NE 68428
Office: (402) 783-2100
Fax: (402) 783-2104
Web Site: www.settje.com

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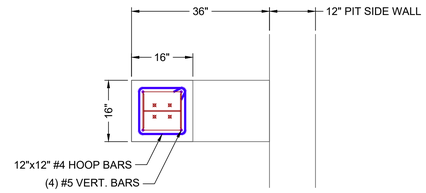
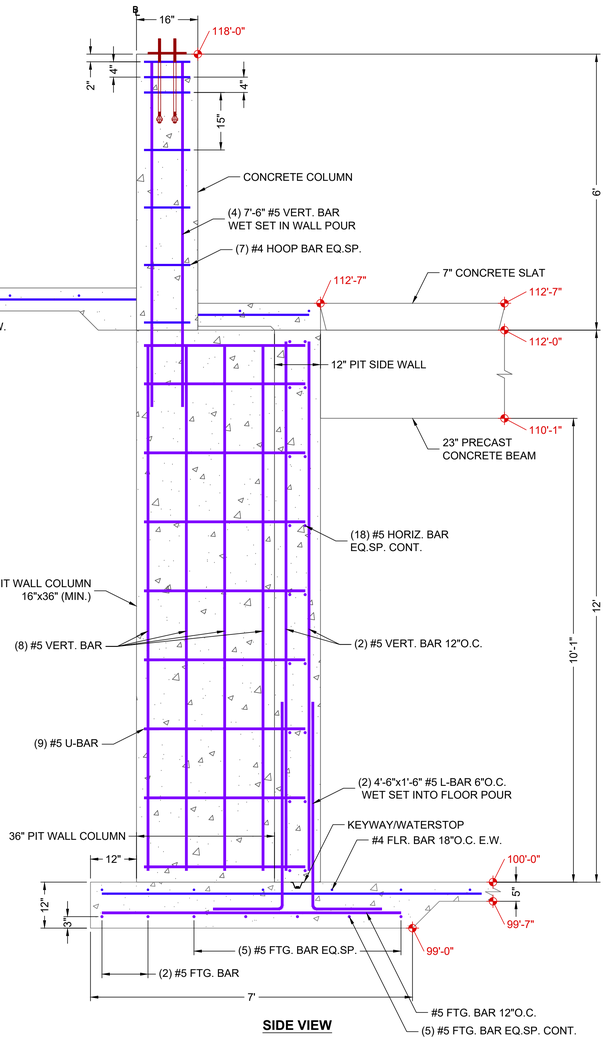
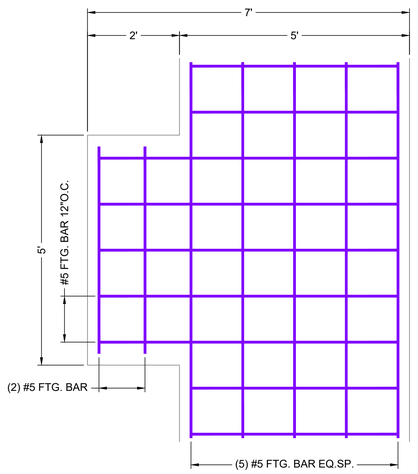


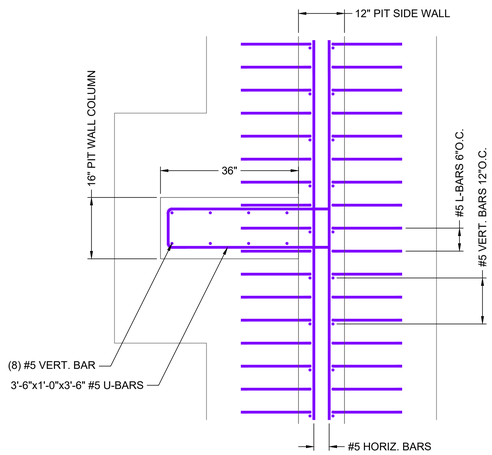
COLUMN REINF. TOP VIEW



SIDE VIEW



FOOTING REINF. TOP VIEW



PIT WALL REINF. TOP VIEW

IC INTERIOR COLUMN AT PIT SIDE WALL
SCALE: 3/4" = 1'-0"
0 1' 2' 3'

Date: 10/3/23	
Drawn: JLEU	
Rev.	Date

Foundation Details

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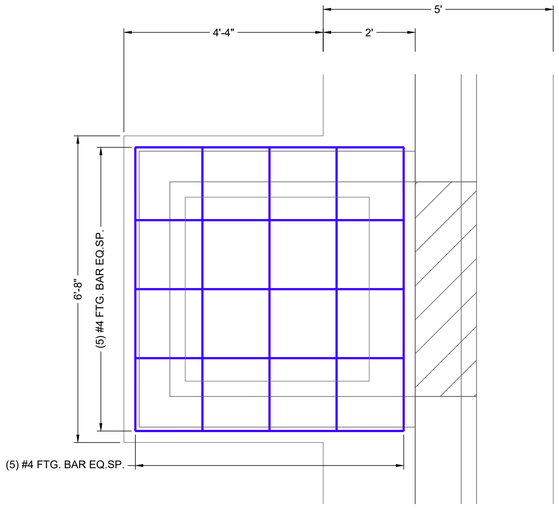
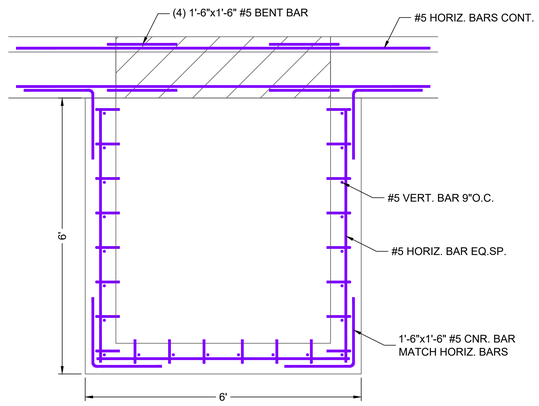
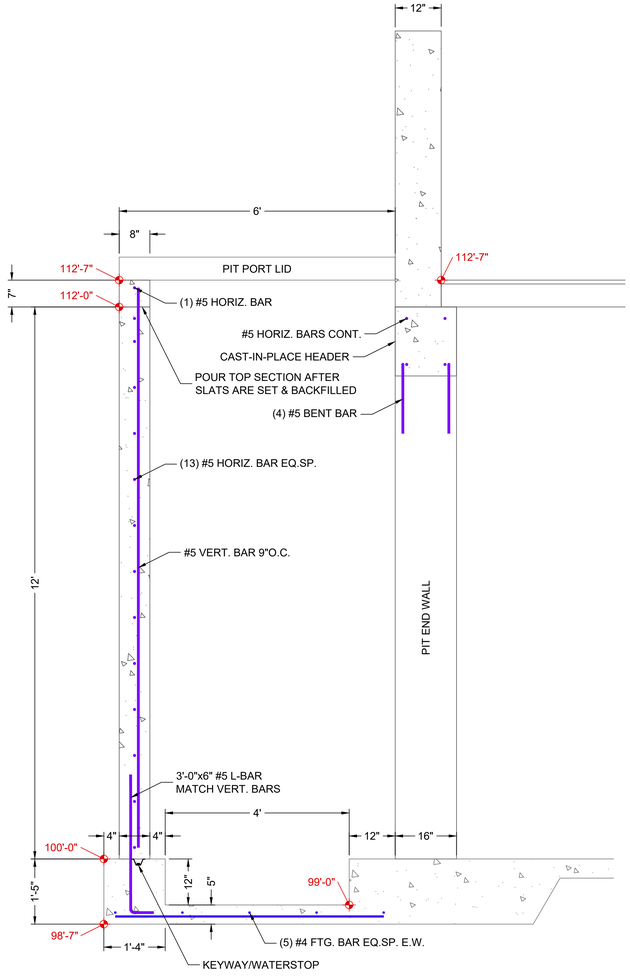


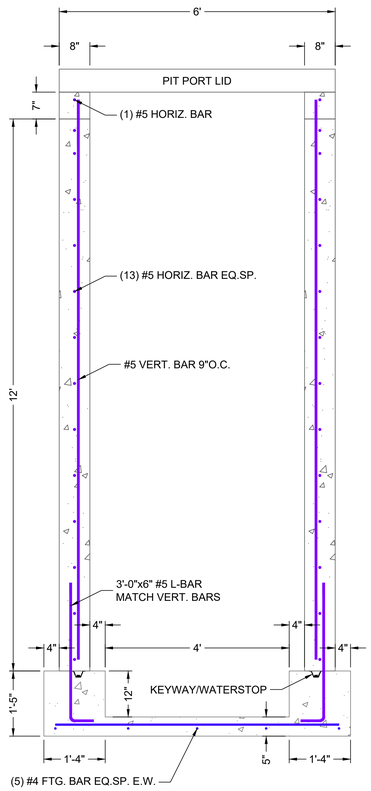
FOOTING REINF. TOP VIEW



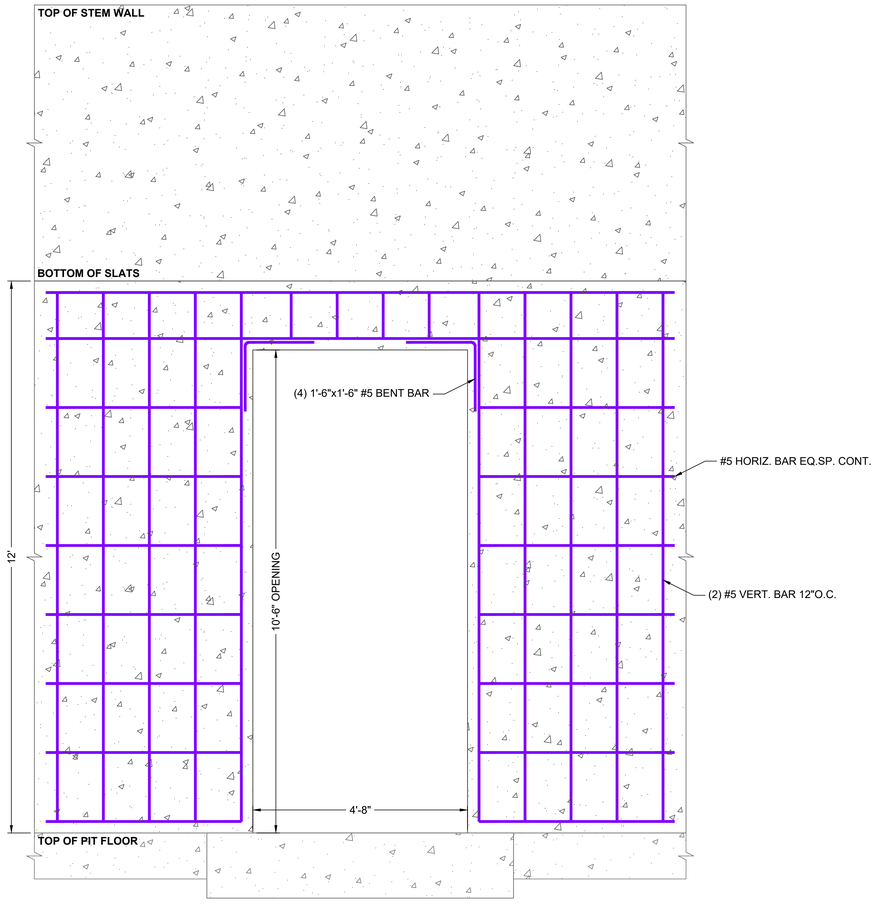
WALL REINF. TOP VIEW



SIDE VIEW



FRONT VIEW AT PUMP PORT



FRONT VIEW AT PIT END WALL

PP PUMP PORT
SCALE: 3/4" = 1'-0"
0 1' 2' 3'

Date: 10/3/23
Drawn: JLEU

Rev.	Date

Foundation Details

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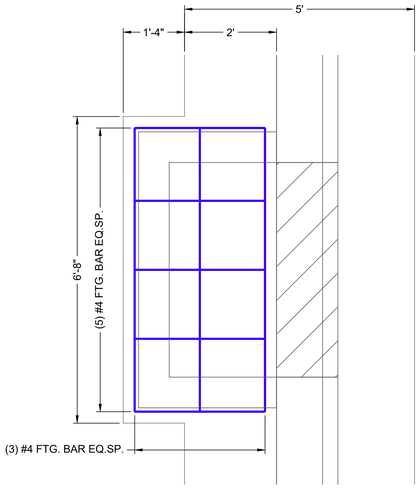
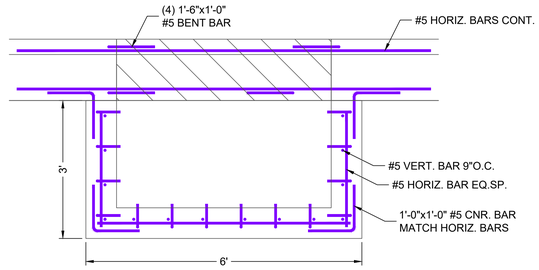
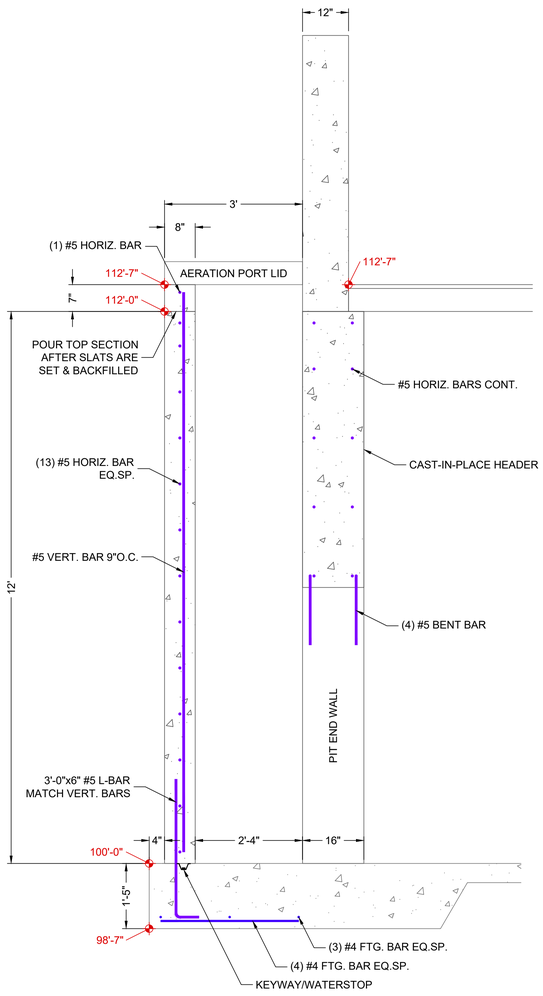


FOOTING REINF. TOP VIEW

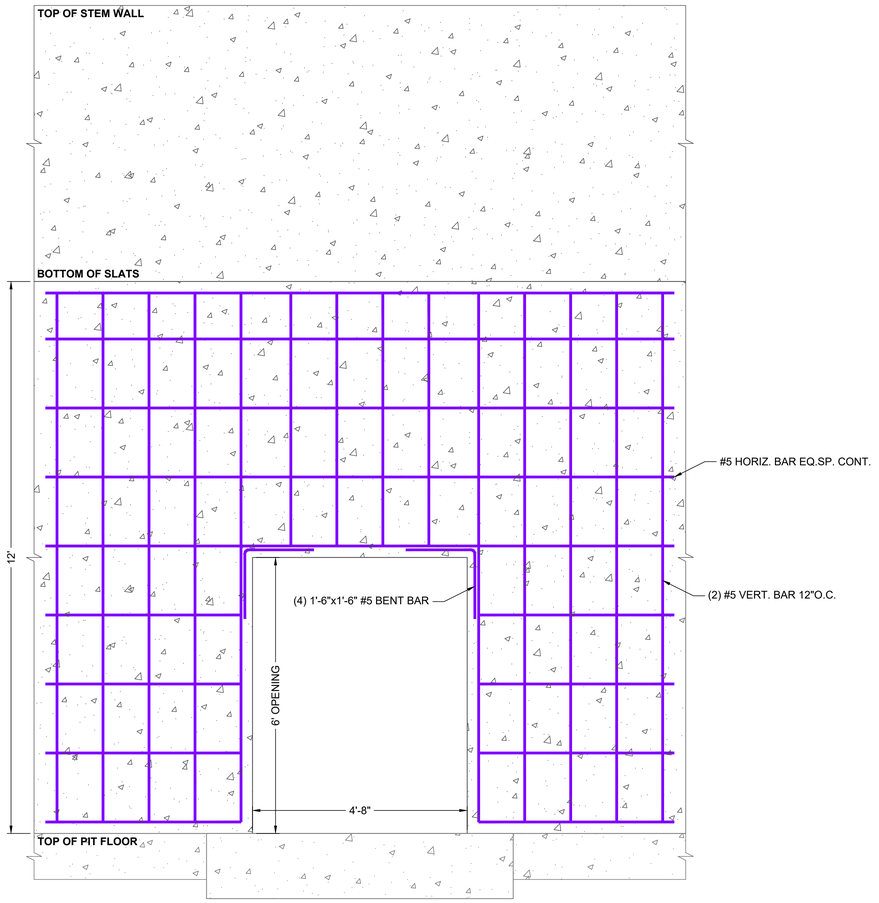


WALL REINF. TOP VIEW



SIDE VIEW

FRONT VIEW AT AERATION PORT



FRONT VIEW AT PIT END WALL

AP AERATION PORT
SCALE: 3/4" = 1'-0"
0 1' 2' 3'

Date: 10/3/23	
Drawn: JLEU	
Rev.	Date

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Greenville Livestock Inc.

Holding Pond 1 Design Volume

A. General Information:

1. Type of Construction . . . . . ***Existing Pens and Existing Holding Pond***

2. Feedlot Capacity ***3,200***

3. County . . . . . ***Clinton***

B. Minimum Runoff Storage Requirements (Mean Annual Runoff + 25-yr, 24-hr Storm Runoff)

1. Drainage Area

Feedlot Area	***34.00***	acres
Non-Diverted Contributing Drainage Area	***6.00***	acres
Total Runoff Area	***40.00***	acres

2. Runoff

Mean Annual Precipitation	***40.87***	inches
Annual Precipitation Runoff Percentage	***25.0%***	
Mean Annual Runoff Volume (See Next Page)	***1,312,980***	cubic feet
25-Year; 24-Hour Rainfall	***5.54***	inches
25-Year; 24-Hour Runoff (SCS Method; CN=90)	***4.40***	inches
25-Year; 24-Hour Runoff Volume	***603,916***	cubic feet

C. Holding Pond Surface Precipitation and Evaporation

Holding Pond Area	***312,487***	square feet
Mean Annual Precipitation Volume on Pond Surface	***1,064,279***	cubic feet
25-Year; 24-Hour Precipitation Volume on Pond Surface	***144,265***	cubic feet
Evap. Surface Area (at Freeboard Level)	***297,782***	square feet
Mean Annual Evaporation	***40.0***	inches
Mean Annual Evaporation Volume	***992,607***	cubic feet

D. Holding Pond Solids Accumulation Allowance (Bottom Foot of Floor)

Allowable Solids Volume	***172,800***	cubic feet

E. Holding Pond Total Requirements and Design Volumes

Total Req. Volume			***2,305,634***	cubic feet
Total Req. Volume Above Marker (25-Year; 24-Hour Storm)			***748,181***	cubic feet
Total Req. Volume Below Marker (Mean Annual Precip. - Evap.)			***1,384,652***	cubic feet
Design Volume Above Marker	***861,030 cubic feet***	=	***115.1 %***	of required volume
Design Volume Below Marker	***1,428,759 cubic feet***	=	***103.2 %***	of required volume

F. Holding Pond Levels

	Elevation (feet)	Volume (ft^3)	Volume (Acre-ft)	Surface Area (ft^2)
Overflow Level	***498.7***	***2981880***	***68.5***	***312487***
*Freeboard	***496.7***	***2371626***	***54.4***	***297782***
**Max. Operating Level	***493.7***	***1510596***	***34.7***	***276334***
Max. Sludge Level	***488.0***	***81837***	***1.9***	***152247***
Holding Pond Floor	***487.0***	***0***	***0.0***	***3747***

** Two feet below the top-of berm elevation*

*** If this level is exceeded, the holding pond shall be pumped below this level within 14 days.*

Greenville Livestock Inc.

Holding Pond 1

Additional Information Provided by Settje Agri-Services and Engineering

A. Curve Number Calculation for Mean Annual Runoff

1. Enter Variables

(a)	Annual Precipitation	*40.87*	inches
(b)	Curve Number for Feedlot	*90*	
(c)	Curve Number for Contributing Drainage	*74*	

2. Calculate Curve Number

Curve Number	*90*	*74*
Find S. .CN=1000/(10+S)	*1.11*	*3.51*
Solve for Runoff . Q=((P-(.2*S))2)/(P+(.8*S))	*39.57*	*36.94*
Ratio of Contributing Runoff to Feedlot Runoff	*0.93*	

Feedlot Acres	*34.00*	acres
Feedlot Runoff	*10.22*	inches
Feedlot Runoff Volume	*1,261,044*	cubic feet
Contributing Acres	*6.0*	acres
Contributing Runoff	*9.5*	inches
Contributing Runoff Volume	*51,936*	cubic feet
Total Drainage Area Runoff	*1,312,980*	cubic feet

A. Curve Number Calculation for 25-Year; 24-Hour Runoff

1. Enter Variables

(a)	Precipitation	*5.54*	inches
(b)	Curve Number for Feedlot	*90*	
(c)	Curve Number for Contributing Drainage	*74*	

2. Calculate Curve Number

Curve Number	*90*	*74*
Find S. .CN=1000/(10+S)	*1.11*	*3.51*
Solve for Runoff . Q=((P-(.2*S))2)/(P+(.8*S))	*4.40*	*2.80*
Ratio of Contributing Runoff to Feedlot Runoff	*0.64*	

Feedlot Acres	*34.00*	acres
Feedlot Runoff	*4.40*	inches
Feedlot Runoff Volume	*542,888*	cubic feet
Contributing Acres	*6.0*	acres
Contributing Runoff	*2.8*	inches
Contributing Runoff Volume	*61,029*	cubic feet
Total Drainage Area Runoff	*603,916*	cubic feet

Greenville Livestock Inc.

Holding Pond 1 Drainage Area

A. Solids Requirement

Debris Basin Number	*1A*	Aprox. Head Count	*300*
Pen Type (Existing/New)	*Existing*	Occupied Days per Year	*365*
Pens Draining to Basin 1A	*-*	Cleanings per Year	*2*
Average Animal Weight (lbs)	*750*	Average Slope	*1.0%*
		Slope Factor	*0.25*
		Total Solids	*5,133* cubic feet

B. Minimum Storage Requirements

Feedlot Area (Acres)	*1.4*	Feedlot Runoff (in)	*4.40*
Contributing Drainage Area (Acres)	*0*	Contributing Area Runoff (in)	*2.80*
Feedlot Curve Number	*90*	Full Detention Capacity	*22,354* cubic feet
Contributing Area Curve Number	*74*	Total Storage Requirement	*27,487* cubic feet
Total Runoff Area (Acres)	*1.4*		

Capacity Calculation Method Used *Method II*

Method I - Capacity Calculations for Rectangular Shaped Basin (See Attached Calculations)

2. Debris Basin Dimensions:

Total Water Depth	*0*	feet
Bottom Length	*0*	feet
Maximum Detention Depth	*0*	feet
Basin Channel Grade	*0.00*	%
Bottom Width	*0*	feet

Pen Side			Dike Side		
Depth Before Add. Storage (feet)	*0*		Depth Before Add. Storage (feet)	*0*	
Lot Slope	*0*	%	Lot Slope	*0*	%
Side Slopes	*0*	:1	Side Slopes	*0*	:1

3. Debris Basin Capacity: *0.0* acre inches; *0.0* acre feet; *0* cubic feet= *0* % Full Detention

Method II - Capacity Calculated Using Digital Terrain Modeling

2. Debris Basin Dimensions:

Maximum Detention Depth	*3.7*	feet
Max. Water Elevation (at capacity below)	*501.1*	feet

3. Debris Basin Capacity . . . . . *10.5* acre inches; *0.9* acre feet; *37,962* cubic feet= *138* % Full Detention

B. Debris Basin Flow

Aperture Type (Circular or Slotted)	*Circular*		
Aperture Size	*1-Inch-Diameter*	(See attached calculations)	
Aperture Vertical Spacing (inches)	*6.0*	(See attached calculations)	
Aperture Horizontal Spacing (inches)	*6.3*	(See attached calculations)	
Riser Diameter (inches)	*12*	(See attached calculations)	
Riser Height (feet)	*3*	Is a Pump Used?	*no*
Discharge Pipe Diameter (inches)	*6*	Is an Orifice Plate Used?	*No*
Outflow Location	*POND #1*	Flowrate (cfs)	*0.65*

DEBRIS BASIN # 1A FLOWS BY GRAVITY TO POND #1 AT 0.65 CFS
NOTE: CUSTOM RISER REQUIRED TO CONTROL FLOWRATE

Greenville Livestock Inc.

BASIN FLOW CALCULATIONS

DEBRIS BASIN # 1A

Required Basin Vol. (ft^3)	***27,487***	Limiting Device	***Riser***
In-Flow Volume (ft^3)	***0***	Limiting Flowrate (cfs)	***0.65***
Maximum Head (feet)	***3.7***	In-Flow (cfs)	***0.00***
Pump Capacity (gpm)	***0***	Release Time (hours)	**12**
Pump Capacity (cfs)	***0.00***		

PUMP INLET PIPE FLOW CALCULATIONS $Q=VA$; $V=(2g\Delta Z/(1+fL/D+\Sigma K_L))^{1/2}$

Q=flowrate; A=inside pipe area; V=velocity in pipe; g=acceleration of gravity; ΔZ=total head; f=friction losses due to pipe roughness; L=pipe length; D=inside pipe diameter; ΣK_L=total minor losses from entrances, exits, valves, etc.

L, Pipe Length (ft)	***50***	Pipe Material	***PVC***
D, Inside Pipe Diameter (in)	***6***	ε, Roughness	***5.0E-06***
Inside Pipe Area (in^2)	***28.3***	Re, Reynold's Number	***2.23E+05***
ΔZ, Average Head (ft)	***1.5***	Turbulent/Laminar?	***Turbulent***
ΣK_L, Total Minor Losses	***0.8***	V, Avg. Velocity (ft/s)	***5.41***
Seed Friction Factor	***0.015***	Q, Avg. Flowrate (cfs)	***1.06***
f, Friction Factor (calculated)	***0.015***	Q, Avg. Flowrate (gpm)	***477***

RISER CALCULATIONS-CIRCULAR HOLES $Q=C_dA(2gH)^{0.5}$

Q=Flowrate; Cd=Discharge Coefficient (0.61); A=Orifice Area; H=head

Riser Diameter (inches)	***12***	Hole Diameter (inches)	***1***
Riser Circumference (inches)	***37.7***	Portion of H Used	***1/2***
Vertical Hole Spacing (inches)	***6***	0.5H (feet)	***1.85***
Horizontal Hole Spacing (inches)	***6.28***	Flowrate at 0.5H (cfs)	***0.65***

Center of hole from bottom (feet)	Head on orifice (feet)	Number of orifices in row	Flow Through Orifice (cfs)	Flow Through Row (cfs)	Cumulative Flow (cfs)
0.0	1.8	6	0.036	0.219	0.219
0.5	1.3	6	0.031	0.187	0.405
1.0	0.8	6	0.025	0.148	0.553
1.5	0.3	6	0.016	0.095	0.648

Greenville Livestock Inc.

Holding Pond 1 Drainage Area

A. Solids Requirement

Debris Basin Number	*1B*	Aprox. Head Count	*2100*	
Pen Type (Existing/New)	*Existing*	Occupied Days per Year	*365*	
Pens Draining to Basin 1B	*-*	Cleanings per Year	*2*	
Average Animal Weight (lbs)	*750*	Average Slope	*3.0%*	
		Slope Factor	*0.25*	
		Total Solids	*35,930*	cubic feet

B. Minimum Storage Requirements

Feedlot Area (Acres)	*24.8*	Feedlot Runoff (in)	*4.40*	
Contributing Drainage Area (Acres)	*1.8*	Contributing Area Runoff (in)	*2.80*	
Feedlot Curve Number	*90*	Full Detention Capacity	*414,297*	cubic feet
Contributing Area Curve Number	*74*	Total Storage Requirement	*450,227*	cubic feet
Total Runoff Area (Acres)	*26.6*			

Capacity Calculation Method Used *Method II*

Method I - Capacity Calculations for Rectangular Shaped Basin (See Attached Calculations)

2. Debris Basin Dimensions:

Total Water Depth	*0*	feet
Bottom Length	*0*	feet
Maximum Detention Depth	*0*	feet
Basin Channel Grade	*0.00*	%
Bottom Width	*0*	feet

	Pen Side			Dike Side	
Depth Before Add. Storage (feet)	*0*		Depth Before Add. Storage (feet)	*0*	
Lot Slope	*0*	%	Lot Slope	*0*	%
Side Slopes	*0*	:1	Side Slopes	*0*	:1

3. Debris Basin Capacity:

0.0	acre inches		
0.0	acre feet		
0	cubic feet=	*0*	% Full Detention

Method II - Capacity Calculated Using Digital Terrain Modeling

2. Debris Basin Dimensions:

Maximum Detention Depth	*4.1*	feet
Max. Water Elevation (at capacity below)	*500.9*	feet

3. Debris Basin Capacity . . . . . *141.7* acre inches

11.8 acre feet

514,323 cubic feet= *114* % Full Detention

B. Debris Basin Flow

Aperture Type (Circular or Slotted)	*Circular*		
Aperture Size	*1-Inch-Diameter*	(See attached calculations)	
Aperture Vertical Spacing (inches)	*4.0*	(See attached calculations)	
Aperture Horizontal Spacing (inches)	*6.3*	(See attached calculations)	
Riser Diameter (inches)	*24*	(See attached calculations)	
Riser Height (feet)	*5*	Is a Pump Used?	*no*
Discharge Pipe Diameter (inches)	*12*	Is an Orifice Plate Used?	*No*
Outflow Location	*POND #1*	Flowrate (cfs)	*3.22*

DEBRIS BASIN # 1B FLOWS BY GRAVITY TO POND #1 AT 3.22 CFS

Greenville Livestock Inc.

BASIN FLOW CALCULATIONS

DEBRIS BASIN # 1B

Required Basin Vol. (ft^3)	***450,227***	Limiting Device	***Pipe***
In-Flow Volume (ft^3)	***0***	Limiting Flowrate (cfs)	***3.22***
Maximum Head (feet)	***4.1***	In-Flow (cfs)	***0.00***
Pump Capacity (gpm)	***0***	Release Time (hours)	**39**
Pump Capacity (cfs)	***0.00***		

PUMP INLET PIPE FLOW CALCULATIONS $Q=VA;\ V=(2g\Delta Z/(1+fL/D+\Sigma K_L))^{1/2}$

Q=flowrate; A=inside pipe area; V=velocity in pipe; g=acceleration of gravity; ΔZ=total head; f=friction losses due to pipe roughness; L=pipe length; D=inside pipe diameter; ΣK_L=total minor losses from entrances, exits, valves, etc.

L, Pipe Length (ft)	***690***	Pipe Material	***PVC***
D, Inside Pipe Diameter (in)	***12***	ε, Roughness	***5.0E-06***
Inside Pipe Area (in^2)	***113.1***	Re, Reynold's Number	***3.39E+05***
ΔZ, Average Head (ft)	***3***	Turbulent/Laminar?	***Turbulent***
ΣK_L, Total Minor Losses	***0.8***	V, Avg. Velocity (ft/s)	***4.10***
Seed Friction Factor	***0.014***	Q, Avg. Flowrate (cfs)	***3.22***
f, Friction Factor (calculated)	***0.014***	Q, Avg. Flowrate (gpm)	***1447***

RISER CALCULATIONS-CIRCULAR HOLES $Q=C_dA(2gH)^{0.5}$

Q=Flowrate; Cd=Discharge Coefficient (0.61); A=Orifice Area; H=head

Riser Diameter (inches)	***24***	Hole Diameter (inches)	***1***
Riser Circumference (inches)	***75.4***	Portion of H Used	***1/2***
Vertical Hole Spacing (inches)	***4***	0.5H (feet)	***2.05***
Horizontal Hole Spacing (inches)	***6.28***	Flowrate at 0.5H (cfs)	***2.13***
		Total for 8 Risers (cfs)	***17.05***

Center of hole from bottom (feet)	Head on orifice (feet)	Number of orifices in row	Flow Through Orifice (cfs)	Flow Through Row (cfs)	Cumulative Flow (cfs)
0.0	2.0	12	0.038	0.460	0.460
0.3	1.7	12	0.035	0.421	0.881
0.7	1.4	12	0.031	0.378	1.259
1.0	1.0	12	0.027	0.329	1.589
1.3	0.7	12	0.023	0.272	1.861
1.7	0.4	12	0.017	0.199	2.060
2.0	0.0	12	0.006	0.072	2.131

Greenville Livestock Inc.

Holding Pond 1 Drainage Area

A. Solids Requirement

Debris Basin Number	*1C*	Aprox. Head Count	*160*	
Pen Type (Existing/New)	*Existing*	Occupied Days per Year	*365*	
Pens Draining to Basin 1C	*-*	Cleanings per Year	*2*	
Average Animal Weight (lbs)	*750*	Average Slope	*3.0%*	
		Slope Factor	*0.25*	
		Total Solids	*2,738*	cubic feet

B. Minimum Storage Requirements

Feedlot Area (Acres)	*3*	Feedlot Runoff (in)	*4.40*	
Contributing Drainage Area (Acres)	*0.6*	Contributing Area Runoff (in)	*2.80*	
Feedlot Curve Number	*90*	Full Detention Capacity	*54,005*	cubic feet
Contributing Area Curve Number	*74*	Total Storage Requirement	*56,742*	cubic feet
Total Runoff Area (Acres)	*3.6*			

Capacity Calculation Method Used *Method II*

Method I - Capacity Calculations for Rectangular Shaped Basin (See Attached Calculations)

2. Debris Basin Dimensions:

Total Water Depth	*0*	feet
Bottom Length	*0*	feet
Maximum Detention Depth	*0*	feet
Basin Channel Grade	*0.00*	%
Bottom Width	*0*	feet

Pen Side			Dike Side		
Depth Before Add. Storage (feet)	*0*		Depth Before Add. Storage (feet)	*0*	
Lot Slope	*0*	%	Lot Slope	*0*	%
Side Slopes	*0*	:1	Side Slopes	*0*	:1

3. Debris Basin Capacity:

0.0	acre inches		
0.0	acre feet		
0	cubic feet=	*0*	% Full Detention

Method II - Capacity Calculated Using Digital Terrain Modeling

2. Debris Basin Dimensions:

Maximum Detention Depth	*5*	feet
Max. Water Elevation (at capacity below)	*490.4*	feet

3. Debris Basin Capacity . . . . . *29.6* acre inches

2.5 acre feet

107,325 cubic feet= *189* % Full Detention

B. Debris Basin Flow

Flowrate (cfs) *0.67*

Outflow Location *POND #1*

DEBRIS BASIN # 1C IS PUMPED TO POND #1 AT 0.67 CFS

Greenville Livestock Inc.

BASIN FLOW CALCULATIONS

DEBRIS BASIN # 1C

Required Basin Vol. (ft^3)	***56,742***	Limiting Device	***Pump***
In-Flow Volume (ft^3)	***65,398***	Limiting Flowrate (cfs)	***0.67***
Maximum Head (feet)	***5***	In-Flow (cfs)	***1.34***
Pump Capacity (gpm)	***300***	Release Time (hours)	**51**
Pump Capacity (cfs)	***0.67***		

PUMP INLET PIPE FLOW CALCULATIONS $Q=VA;\ V=(2g\Delta Z/(1+fL/D+\Sigma K_L))^{1/2}$

Q=flowrate; A=inside pipe area; V=velocity in pipe; g=acceleration of gravity; ΔZ=total head; f=friction losses due to pipe roughness; L=pipe length; D=inside pipe diameter; ΣK_L=total minor losses from entrances, exits, valves, etc.

L, Pipe Length (ft)	***30***	Pipe Material	***PVC***
D, Inside Pipe Diameter (in)	***8***	ε, Roughness	***5.0E-06***
Inside Pipe Area (in^2)	***50.3***	Re, Reynold's Number	***4.70E+05***
ΔZ, Average Head (ft)	***2.7***	Turbulent/Laminar?	***Turbulent***
ΣK_L, Total Minor Losses	***0.8***	V, Avg. Velocity (ft/s)	***8.54***
Seed Friction Factor	***0.013***	Q, Avg. Flowrate (cfs)	***2.98***
f, Friction Factor (calculated)	***0.013***	Q, Avg. Flowrate (gpm)	***1337***

RISER CALCULATIONS-CIRCULAR HOLES $Q=C_dA(2gH)^{0.5}$

Q=Flowrate; Cd=Discharge Coefficient (0.61); A=Orifice Area; H=head

Riser Diameter (inches)	***12***	Hole Diameter (inches)	***1***
Riser Circumference (inches)	***37.7***	Portion of H Used	***1/2***
Vertical Hole Spacing (inches)	***4***	0.5H (feet)	***2.5***
Horizontal Hole Spacing (inches)	***6.28***	Flowrate at 0.5H (cfs)	***1.40***

Center of hole from bottom (feet)	Head on orifice (feet)	Number of orifices in row	Flow Through Orifice (cfs)	Flow Through Row (cfs)	Cumulative Flow (cfs)
0.0	2.5	6	0.042	0.254	0.254
0.3	2.2	6	0.039	0.237	0.491
0.7	1.8	6	0.036	0.218	0.708
1.0	1.5	6	0.033	0.197	0.905
1.3	1.2	6	0.029	0.174	1.079
1.7	0.8	6	0.024	0.147	1.225
2.0	0.5	6	0.019	0.114	1.339
2.3	0.2	6	0.011	0.066	1.404

Greenville Livestock Inc.

Holding Pond 1 Drainage Area

A. Solids Requirement

Debris Basin Number	*1D*	Aprox. Head Count	*300*	
Pen Type (Existing/New)	*Existing*	Occupied Days per Year	*365*	
Pens Draining to Basin 1D	*-*	Cleanings per Year	*2*	
Average Animal Weight (lbs)	*750*	Average Slope	*1.0%*	
		Slope Factor	*0.25*	
		Total Solids	*5,133*	cubic feet

B. Minimum Storage Requirements

Feedlot Area (Acres)	*2.3*	Feedlot Runoff (in)	*4.40*	
Contributing Drainage Area (Acres)	*1.3*	Contributing Area Runoff (in)	*2.80*	
Feedlot Curve Number	*90*	Full Detention Capacity	*49,948*	cubic feet
Contributing Area Curve Number	*74*	Total Storage Requirement	*55,080*	cubic feet
Total Runoff Area (Acres)	*3.6*			

Capacity Calculation Method Used *Method II*

Method I - Capacity Calculations for Rectangular Shaped Basin (See Attached Calculations)

2. Debris Basin Dimensions:

Total Water Depth	*0*	feet
Bottom Length	*0*	feet
Maximum Detention Depth	*0*	feet
Basin Channel Grade	*0.00*	%
Bottom Width	*0*	feet

Pen Side			Dike Side		
Depth Before Add. Storage (feet)	*0*		Depth Before Add. Storage (feet)	*0*	
Lot Slope	*0*	%	Lot Slope	*0*	%
Side Slopes	*0*	:1	Side Slopes	*0*	:1

3. Debris Basin Capacity:

0.0	acre inches		
0.0	acre feet		
0	cubic feet=	*0*	% Full Detention

Method II - Capacity Calculated Using Digital Terrain Modeling

2. Debris Basin Dimensions:

Maximum Detention Depth	*6.2*	feet
Max. Water Elevation (at capacity below)	*493.3*	feet

3. Debris Basin Capacity . . . . . *21.3* acre inches

1.8	acre feet		
77,301	cubic feet=	*140*	% Full Detention

B. Debris Basin Flow

Flowrate (cfs)	*0.67*
Outflow Location	*POND #1*

DEBRIS BASIN # 1D IS PUMPED TO POND #1 AT 0.67 CFS

Greenville Livestock Inc.

BASIN FLOW CALCULATIONS

DEBRIS BASIN # 1D

Required Basin Vol. (ft^3)	***55,080***	Limiting Device	***Pump***
In-Flow Volume (ft^3)	***0***	Limiting Flowrate (cfs)	***0.67***
Maximum Head (feet)	***6.2***	In-Flow (cfs)	***0.00***
Pump Capacity (gpm)	***300***	Release Time (hours)	**23**
Pump Capacity (cfs)	***0.67***		

PUMP INLET PIPE FLOW CALCULATIONS $Q=VA$; $V=(2g\Delta Z/(1+fL/D+\Sigma K_L))^{1/2}$

Q=flowrate; A=inside pipe area; V=velocity in pipe; g=acceleration of gravity; ΔZ=total head; f=friction losses due to pipe roughness; L=pipe length; D=inside pipe diameter; ΣK_L=total minor losses from entrances, exits, valves, etc.

L, Pipe Length (ft)	***30***	Pipe Material	***PVC***
D, Inside Pipe Diameter (in)	***8***	ε, Roughness	***5.0E-06***
Inside Pipe Area (in^2)	***50.3***	Re, Reynold's Number	***4.75E+05***
ΔZ, Average Head (ft)	***2.75***	Turbulent/Laminar?	***Turbulent***
ΣK_L, Total Minor Losses	***0.8***	V, Avg. Velocity (ft/s)	***8.61***
Seed Friction Factor	***0.013***	Q, Avg. Flowrate (cfs)	***3.01***
f, Friction Factor (calculated)	***0.013***	Q, Avg. Flowrate (gpm)	***1349***

RISER CALCULATIONS-CIRCULAR HOLES $Q=C_dA(2gH)^{0.5}$

Q=Flowrate; Cd=Discharge Coefficient (0.61); A=Orifice Area; H=head

Riser Diameter (inches)	***12***	Hole Diameter (inches)	***1***
Riser Circumference (inches)	***37.7***	Portion of H Used	***1/2***
Vertical Hole Spacing (inches)	***4***	0.5H (feet)	***3.1***
Horizontal Hole Spacing (inches)	***6.28***	Flowrate at 0.5H (cfs)	***1.91***

Center of hole from bottom (feet)	Head on orifice (feet)	Number of orifices in row	Flow Through Orifice (cfs)	Flow Through Row (cfs)	Cumulative Flow (cfs)
0.0	3.1	6	0.047	0.283	0.283
0.3	2.8	6	0.045	0.267	0.550
0.7	2.4	6	0.042	0.251	0.801
1.0	2.1	6	0.039	0.233	1.034
1.3	1.8	6	0.036	0.214	1.247
1.7	1.4	6	0.032	0.192	1.440
2.0	1.1	6	0.028	0.169	1.608
2.3	0.8	6	0.023	0.141	1.749
2.7	0.4	6	0.018	0.106	1.855
3.0	0.1	6	0.008	0.051	1.905

Greenville Livestock Inc.

Holding Pond 1 Drainage Area

A. Solids Requirement

Debris Basin Number	*1E*	Aprox. Head Count	*225*	
Pen Type (Existing/New)	*Existing*	Occupied Days per Year	*365*	
Pens Draining to Basin 1E	*-*	Cleanings per Year	*2*	
Average Animal Weight (lbs)	*750*	Average Slope	*1.0%*	
		Slope Factor	*0.25*	
		Total Solids	*3,850*	cubic feet

B. Minimum Storage Requirements

Feedlot Area (Acres)	*1.3*	Feedlot Runoff (in)	*4.40*	
Contributing Drainage Area (Acres)	*0*	Contributing Area Runoff (in)	*2.80*	
Feedlot Curve Number	*90*	Full Detention Capacity	*20,757*	cubic feet
Contributing Area Curve Number	*74*	Total Storage Requirement	*24,607*	cubic feet
Total Runoff Area (Acres)	*1.3*			

Capacity Calculation Method Used *Method II*

Method I - Capacity Calculations for Rectangular Shaped Basin (See Attached Calculations)

2. Debris Basin Dimensions:

Total Water Depth	*0*	feet
Bottom Length	*0*	feet
Maximum Detention Depth	*0*	feet
Basin Channel Grade	*0.00*	%
Bottom Width	*0*	feet

	Pen Side			Dike Side	
Depth Before Add. Storage (feet)	*0*		Depth Before Add. Storage (feet)	*0*	
Lot Slope	*0*	%	Lot Slope	*0*	%
Side Slopes	*0*	:1	Side Slopes	*0*	:1

3. Debris Basin Capacity: *0.0* acre inches; *0.0* acre feet; *0* cubic feet= *0* % Full Detention

Method II - Capacity Calculated Using Digital Terrain Modeling

2. Debris Basin Dimensions:

Maximum Detention Depth	*3.8*	feet
Max. Water Elevation (at capacity below)	*501.0*	feet

3. Debris Basin Capacity . . . . . *9.3* acre inches; *0.8* acre feet; *33,912* cubic feet= *138* % Full Detention

B. Debris Basin Flow

Aperture Type (Circular or Slotted)	*Circular*		
Aperture Size	*1-Inch-Diameter*	(See attached calculations)	
Aperture Vertical Spacing (inches)	*6.0*	(See attached calculations)	
Aperture Horizontal Spacing (inches)	*6.3*	(See attached calculations)	
Riser Diameter (inches)	*12*	(See attached calculations)	
Riser Height (feet)	*4*	Is a Pump Used?	*no*
Discharge Pipe Diameter (inches)	*6*	Is an Orifice Plate Used?	*No*
Outflow Location	*BASIN 1D*	Flowrate (cfs)	*0.48*

DEBRIS BASIN # 1E FLOWS BY GRAVITY TO BASIN 1D AT 0.48 CFS

Greenville Livestock Inc.

BASIN FLOW CALCULATIONS

DEBRIS BASIN # 1E

Required Basin Vol. (ft^3)	***24,607***	Limiting Device	***Pipe***
In-Flow Volume (ft^3)	***0***	Limiting Flowrate (cfs)	***0.48***
Maximum Head (feet)	***3.8***	In-Flow (cfs)	***0.00***
Pump Capacity (gpm)	***0***	Release Time (hours)	**14**
Pump Capacity (cfs)	***0.00***		

PUMP INLET PIPE FLOW CALCULATIONS $Q=VA$; $V=(2g\Delta Z/(1+fL/D+\Sigma K_L))^{1/2}$

Q=flowrate; A=inside pipe area; V=velocity in pipe; g=acceleration of gravity; ΔZ=total head; f=friction losses due to pipe roughness; L=pipe length; D=inside pipe diameter; ΣK_L=total minor losses from entrances, exits, valves, etc.

L, Pipe Length (ft)	***1010***	Pipe Material	***PVC***
D, Inside Pipe Diameter (in)	***6***	ε, Roughness	***5.0E-06***
Inside Pipe Area (in^2)	***28.3***	Re, Reynold's Number	***1.00E+05***
ΔZ, Average Head (ft)	***3.5***	Turbulent/Laminar?	***Turbulent***
ΣK_L, Total Minor Losses	***0.8***	V, Avg. Velocity (ft/s)	***2.43***
Seed Friction Factor	***0.018***	Q, Avg. Flowrate (cfs)	***0.48***
f, Friction Factor (calculated)	***0.018***	Q, Avg. Flowrate (gpm)	***214***

RISER CALCULATIONS-CIRCULAR HOLES $Q=C_dA(2gH)^{0.5}$

Q=Flowrate; Cd=Discharge Coefficient (0.61); A=Orifice Area; H=head

Riser Diameter (inches)	***12***	Hole Diameter (inches)	***1***
Riser Circumference (inches)	***37.7***	Portion of H Used	***1/2***
Vertical Hole Spacing (inches)	***6***	0.5H (feet)	***1.9***
Horizontal Hole Spacing (inches)	***6.28***	Flowrate at 0.5H (cfs)	***0.67***

Center of hole from bottom (feet)	Head on orifice (feet)	Number of orifices in row	Flow Through Orifice (cfs)	Flow Through Row (cfs)	Cumulative Flow (cfs)
0.0	1.9	6	0.037	0.221	0.221
0.5	1.4	6	0.032	0.190	0.412
1.0	0.9	6	0.025	0.152	0.564
1.5	0.4	6	0.017	0.102	0.666

Greenville Livestock Inc.

Holding Pond 1 Drainage Area

A. Solids Requirement

Debris Basin Number	*1F*	Aprox. Head Count	*115*
Pen Type (Existing/New)	*Existing*	Occupied Days per Year	*365*
Pens Draining to Basin 1F	*-*	Cleanings per Year	*2*
Average Animal Weight (lbs)	*750*	Average Slope	*1.0%*
		Slope Factor	*0.25*
		Total Solids	*1,968* cubic feet

B. Minimum Storage Requirements

Feedlot Area (Acres)	*1.2*	Feedlot Runoff (in)	*4.40*
Contributing Drainage Area (Acres)	*0*	Contributing Area Runoff (in)	*2.80*
Feedlot Curve Number	*90*	Full Detention Capacity	*19,161* cubic feet
Contributing Area Curve Number	*74*	Total Storage Requirement	*21,128* cubic feet
Total Runoff Area (Acres)	*1.2*		

Capacity Calculation Method Used *Method II*

Method I - Capacity Calculations for Rectangular Shaped Basin (See Attached Calculations)

2. Debris Basin Dimensions:

Total Water Depth	*0*	feet
Bottom Length	*0*	feet
Maximum Detention Depth	*0*	feet
Basin Channel Grade	*0.00*	%
Bottom Width	*0*	feet

Pen Side			Dike Side		
Depth Before Add. Storage (feet)	*0*		Depth Before Add. Storage (feet)	*0*	
Lot Slope	*0*	%	Lot Slope	*0*	%
Side Slopes	*0*	:1	Side Slopes	*0*	:1

3. Debris Basin Capacity:

0.0	acre inches		
0.0	acre feet		
0	cubic feet=	*0*	% Full Detention

Method II - Capacity Calculated Using Digital Terrain Modeling

2. Debris Basin Dimensions:

Maximum Detention Depth	*4.0*	feet
Max. Water Elevation (at capacity below)	*496.2*	feet

3. Debris Basin Capacity . . . . . *14.1* acre inches

1.2 acre feet

51,111 cubic feet= *242* % Full Detention

B. Debris Basin Flow

Aperture Type (Circular or Slotted)	*Circular*		
Aperture Size	*1-Inch-Diameter*	(See attached calculations)	
Aperture Vertical Spacing (inches)	*6.0*	(See attached calculations)	
Aperture Horizontal Spacing (inches)	*6.3*	(See attached calculations)	
Riser Diameter (inches)	*12*	(See attached calculations)	
Riser Height (feet)	*4*	Is a Pump Used?	*no*
Discharge Pipe Diameter (inches)	*6*	Is an Orifice Plate Used?	*No*
Outflow Location	*BASIN 1C*	Flowrate (cfs)	*0.38*

DEBRIS BASIN # 1F FLOWS BY GRAVITY TO BASIN 1C AT 0.38 CFS

Greenville Livestock Inc.

BASIN FLOW CALCULATIONS

DEBRIS BASIN # 1F

Required Basin Vol. (ft^3)	***21,128***	Limiting Device	***Pipe***
In-Flow Volume (ft^3)	***0***	Limiting Flowrate (cfs)	***0.38***
Maximum Head (feet)	***4***	In-Flow (cfs)	***0.00***
Pump Capacity (gpm)	***0***	Release Time (hours)	**15**
Pump Capacity (cfs)	***0.00***		

PUMP INLET PIPE FLOW CALCULATIONS $Q=VA$; $V=(2g\Delta Z/(1+fL/D+\Sigma K_L))^{1/2}$

Q=flowrate; A=inside pipe area; V=velocity in pipe; g=acceleration of gravity; ΔZ=total head; f=friction losses due to pipe roughness; L=pipe length; D=inside pipe diameter; ΣK_L=total minor losses from entrances, exits, valves, etc.

L, Pipe Length (ft)	***1510***	Pipe Material	***PVC***
D, Inside Pipe Diameter (in)	***6***	ε, Roughness	***5.0E-06***
Inside Pipe Area (in^2)	***28.3***	Re, Reynold's Number	***8.06E+04***
ΔZ, Average Head (ft)	***3.5***	Turbulent/Laminar?	***Turbulent***
ΣK_L, Total Minor Losses	***0.8***	V, Avg. Velocity (ft/s)	***1.95***
Seed Friction Factor	***0.019***	Q, Avg. Flowrate (cfs)	***0.38***
f, Friction Factor (calculated)	***0.019***	Q, Avg. Flowrate (gpm)	***172***

RISER CALCULATIONS-CIRCULAR HOLES $Q=C_dA(2gH)^{0.5}$

Q=Flowrate; Cd=Discharge Coefficient (0.61); A=Orifice Area; H=head

Riser Diameter (inches)	***12***	Hole Diameter (inches)	***1***
Riser Circumference (inches)	***37.7***	Portion of H Used	***1/2***
Vertical Hole Spacing (inches)	***6***	0.5H (feet)	***2***
Horizontal Hole Spacing (inches)	***6.28***	Flowrate at 0.5H (cfs)	***0.70***

Center of hole from bottom (feet)	Head on orifice (feet)	Number of orifices in row	Flow Through Orifice (cfs)	Flow Through Row (cfs)	Cumulative Flow (cfs)
0.0	2.0	6	0.038	0.227	0.227
0.5	1.5	6	0.033	0.197	0.424
1.0	1.0	6	0.027	0.161	0.585
1.5	0.5	6	0.019	0.114	0.698

Greenville Livestock Inc.

Holding Pond 1 Drainage Area

A. Solids Requirement

Debris Basin Number	*1G*	Aprox. Head Count	*0*
Pen Type (Existing/New)	*Feed Storage*	Occupied Days per Year	*365*
Pens Draining to Basin 1G	*-*	Cleanings per Year	*1*
Average Animal Weight (lbs)	*0*	Average Slope	*0.0%*
		Slope Factor	*0.25*
		Total Solids	*0* cubic feet

B. Minimum Storage Requirements

Feedlot Area (Acres)	*0*	Feedlot Runoff (in)	*4.40*
Contributing Drainage Area (Acres)	*2.3*	Contributing Area Runoff (in)	*5.30*
Feedlot Curve Number	*90*	Full Detention Capacity	*44,270* cubic feet
Contributing Area Curve Number	*98*	Total Storage Requirement	*44,270* cubic feet
Total Runoff Area (Acres)	*2.3*		

Capacity Calculation Method Used *Method II*

Method I - Capacity Calculations for Rectangular Shaped Basin (See Attached Calculations)

2. Debris Basin Dimensions:

Total Water Depth	*0*	feet
Bottom Length	*0*	feet
Maximum Detention Depth	*0*	feet
Basin Channel Grade	*0.00*	%
Bottom Width	*0*	feet

Pen Side			Dike Side		
Depth Before Add. Storage (feet)	*0*		Depth Before Add. Storage (feet)	*0*	
Lot Slope	*0*	%	Lot Slope	*0*	%
Side Slopes	*0*	:1	Side Slopes	*0*	:1

3. Debris Basin Capacity:

0.0	acre inches		
0.0	acre feet		
0	cubic feet=	*0*	% Full Detention

Method II - Capacity Calculated Using Digital Terrain Modeling

2. Debris Basin Dimensions:

Maximum Detention Depth	*3.5*	feet
Max. Water Elevation (at capacity below)	*493.5*	feet

3. Debris Basin Capacity . . . . . *12.5* acre inches

1.0 acre feet

45,198 cubic feet= *102* % Full Detention

B. Debris Basin Flow

Aperture Type (Circular or Slotted)	*None*		
Aperture Size	*NA*	(See attached calculations)	
Aperture Vertical Spacing (inches)	*0.0*	(See attached calculations)	
Aperture Horizontal Spacing (inches)	*0.0*	(See attached calculations)	
Riser Diameter (inches)	*0*	(See attached calculations)	
Riser Height (feet)	*NA*	Is a Pump Used?	*no*
Discharge Pipe Diameter (inches)	*0*	Is an Orifice Plate Used?	*No*
Outflow Location	*BASIN 1C*	Flowrate (cfs)	*0.96*

DEBRIS BASIN # 1G FLOWS BY GRAVITY TO BASIN 1C AT 0.96 CFS

Greenville Livestock Inc.

BASIN FLOW CALCULATIONS

DEBRIS BASIN # 1G

Required Basin Vol. (ft^3)	***44,270***	Limiting Device	***Pipe***
In-Flow Volume (ft^3)	***0***	Limiting Flowrate (cfs)	***0.96***
Maximum Head (feet)	***3.5***	In-Flow (cfs)	***0.00***
Pump Capacity (gpm)	***0***	Release Time (hours)	**13**
Pump Capacity (cfs)	***0.00***		

PUMP INLET PIPE FLOW CALCULATIONS $Q=VA$; $V=(2g\Delta Z/(1+fL/D+\Sigma K_L))^{1/2}$

Q=flowrate; A=inside pipe area; V=velocity in pipe; g=acceleration of gravity; ΔZ=total head; f=friction losses due to pipe roughness; L=pipe length; D=inside pipe diameter; ΣK_L=total minor losses from entrances, exits, valves, etc.

L, Pipe Length (ft)	***240***	Pipe Material	***HDPE***
D, Inside Pipe Diameter (in)	***6***	ε, Roughness	***5.0E-06***
Inside Pipe Area (in^2)	***28.3***	Re, Reynold's Number	***2.01E+05***
ΔZ, Average Head (ft)	***3.5***	Turbulent/Laminar?	***Turbulent***
ΣK_L, Total Minor Losses	***0.8***	V, Avg. Velocity (ft/s)	***4.87***
Seed Friction Factor	***0.016***	Q, Avg. Flowrate (cfs)	***0.96***
f, Friction Factor (calculated)	***0.016***	Q, Avg. Flowrate (gpm)	***430***

RISER CALCULATIONS-CIRCULAR HOLES $Q=C_dA(2gH)^{0.5}$

Q=Flowrate; Cd=Discharge Coefficient (0.61); A=Orifice Area; H=head

Riser Diameter (inches)	***NA***	Hole Diameter (inches)	
Riser Circumference (inches)	***#VALUE!***	Portion of H Used	
Vertical Hole Spacing (inches)		H (feet)	***0***
Horizontal Hole Spacing (inches)		Flowrate at H (cfs)	***#NUM!***

Center of hole from bottom (feet)	Head on orifice (feet)	Number of orifices in row	Flow Through Orifice (cfs)	Flow Through Row (cfs)	Cumulative Flow (cfs)
0.0	0.0	#VALUE!	#NUM!	#NUM!	#NUM!

Livestock Waste Control Design Requirements for Liquid Manure Storage

Facility Information

Facility Name: Greenville Livestock Inc.
County: Clinton
Structure Name: Building 1 Concrete Manure Storage Pit North
Data Source: MWPS-18 2nd ed, Section 1, Table 6

Liquid Manure Production

Building Number	Head Count	Animal Type	Average Weight lbs	Unit Waste Production ft^3/1000 lbs/day	Total Liquid Manure Production, ft^3 in 180 days
1 - Proposed	250	Beef Cattle	925	0.785	32676
		Swine Gestating Sow	400	0.375	0
		Swine Finishing/gdu	150	0.800	0
		Chicken Broiler	2	1.500	0
		Swine Finishing/gdu	150	0.800	0
		Beef Cattle	925	0.785	0
		Dairy Heifer	875	0.933	0
		Dairy Calf	200	1.220	0
		Turkey Male	20	0.600	0
		Chicken Broiler	2	1.500	0
				Column Totals	**32,676**

Storage Requirement

Spillage and Washwater generated in 180 days, ft^3	**6,535**
Required Volume for 180 days, ft^3	**39,211**

Provided Storage

Inside Pit Length, ft	251.0
Inside Pit Width, ft	44.0
Pit Area, sf	11,044
Total Pit Depth, ft	12.0
Freeboard, ft	0.5

Total Storage At Freeboard (cubic feet)	**127,006**
Total Storage (% of Required)	**324%**

Stage Storage Data

	Depth From Bottom, ft	Storage Volume		
		Cubic Feet	Acre Inch	Gallons
Top Of Pit Wall	12.0	132,528	36.5	991,376
Freeboard	11.5	127,006	35.0	950,068
	11.0	121,484	33.5	908,761
	10.5	115,962	31.9	867,454
	10.0	110,440	30.4	826,146
	9.5	104,918	28.9	784,839
	9.0	99,396	27.4	743,532
	8.5	93,874	25.9	702,224
	8.0	88,352	24.3	660,917
Winter Pump Down	7.5	82,830	22.8	619,610
	7.0	77,308	21.3	578,302
	6.5	71,786	19.8	536,995
	6.0	66,264	18.3	495,688
	5.5	60,742	16.7	454,381
	5.0	55,220	15.2	413,073
	4.5	49,698	13.7	371,766
	4.0	44,176	12.2	330,459
	3.5	38,654	10.6	289,151
	3.0	33,132	9.1	247,844
	2.5	27,610	7.6	206,537
	2.0	22,088	6.1	165,229
	1.5	16,566	4.6	123,922
	1.0	11,044	3.0	82,615
	0.5	5,522	1.5	41,307
	0.0	0	0.0	0

Livestock Waste Control Design Requirements for Liquid Manure Storage

Facility Information

Facility Name: Greenville Livestock Inc.
County: Clinton
Structure Name: Building 1 Concrete Manure Storage Pit South
Data Source: MWPS-18 2nd ed, Section 1, Table 6

Liquid Manure Production

Building Number	Head Count	Animal Type	Average Weight lbs	Unit Waste Production ft^3/1000 lbs/day	Total Liquid Manure Production, ft^3 in 180 days
1 - Proposed	250	Beef Cattle	925	0.785	32676
		Swine Gestating Sow	400	0.375	0
		Swine Finishing/gdu	150	0.800	0
		Chicken Broiler	2	1.500	0
		Swine Finishing/gdu	150	0.800	0
		Beef Cattle	925	0.785	0
		Dairy Heifer	875	0.933	0
		Dairy Calf	200	1.220	0
		Turkey Male	20	0.600	0
		Chicken Broiler	2	1.500	0
				Column Totals	**32,676**

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	6.0	66,264	18.3	495,688
	5.5	60,742	16.7	454,381
	5.0	55,220	15.2	413,073
	4.5	49,698	13.7	371,766
	4.0	44,176	12.2	330,459
	3.5	38,654	10.6	289,151
	3.0	33,132	9.1	247,844
	2.5	27,610	7.6	206,537
	2.0	22,088	6.1	165,229
	1.5	16,566	4.6	123,922
	1.0	11,044	3.0	82,615
	0.5	5,522	1.5	41,307
	0.0	0	0.0	0

NOAA Atlas 14, Volume 2, Version 3
Location name: Centralia, Illinois, USA*
Latitude: 38.546°, Longitude: -89.2162°
Elevation: 458.73 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.410** (0.370-0.456)	**0.488** (0.441-0.541)	**0.578** (0.522-0.641)	**0.650** (0.586-0.720)	**0.742** (0.667-0.821)	**0.814** (0.728-0.900)	**0.883** (0.787-0.976)	**0.956** (0.848-1.05)	**1.05** (0.928-1.16)	**1.13** (0.986-1.24)
10-min	**0.637** (0.575-0.708)	**0.761** (0.688-0.845)	**0.899** (0.811-0.997)	**1.00** (0.904-1.11)	**1.14** (1.02-1.25)	**1.24** (1.10-1.36)	**1.33** (1.18-1.47)	**1.43** (1.26-1.57)	**1.55** (1.36-1.71)	**1.64** (1.44-1.81)
15-min	**0.781** (0.704-0.868)	**0.931** (0.842-1.03)	**1.10** (0.996-1.22)	**1.24** (1.11-1.37)	**1.40** (1.26-1.55)	**1.53** (1.37-1.69)	**1.65** (1.47-1.83)	**1.78** (1.57-1.96)	**1.93** (1.70-2.13)	**2.05** (1.79-2.26)
30-min	**1.03** (0.932-1.15)	**1.25** (1.13-1.38)	**1.51** (1.36-1.68)	**1.72** (1.54-1.90)	**1.98** (1.78-2.19)	**2.18** (1.95-2.41)	**2.38** (2.12-2.64)	**2.59** (2.30-2.85)	**2.87** (2.52-3.16)	**3.08** (2.69-3.39)
60-min	**1.26** (1.14-1.40)	**1.53** (1.38-1.70)	**1.90** (1.71-2.10)	**2.18** (1.97-2.42)	**2.57** (2.31-2.84)	**2.88** (2.57-3.18)	**3.19** (2.84-3.52)	**3.52** (3.12-3.87)	**3.96** (3.49-4.37)	**4.32** (3.78-4.76)
2-hr	**1.53** (1.37-1.72)	**1.85** (1.66-2.08)	**2.31** (2.06-2.59)	**2.67** (2.39-2.99)	**3.17** (2.83-3.55)	**3.58** (3.18-3.99)	**4.01** (3.54-4.47)	**4.46** (3.92-4.96)	**5.10** (4.45-5.65)	**5.62** (4.88-6.24)
3-hr	**1.63** (1.46-1.84)	**1.97** (1.77-2.23)	**2.46** (2.21-2.79)	**2.86** (2.56-3.23)	**3.42** (3.04-3.85)	**3.88** (3.44-4.36)	**4.37** (3.85-4.90)	**4.90** (4.29-5.48)	**5.65** (4.91-6.31)	**6.27** (5.41-7.01)
6-hr	**1.95** (1.75-2.19)	**2.35** (2.12-2.64)	**2.93** (2.63-3.29)	**3.40** (3.05-3.81)	**4.06** (3.63-4.53)	**4.61** (4.10-5.14)	**5.19** (4.60-5.78)	**5.82** (5.12-6.46)	**6.72** (5.86-7.46)	**7.47** (6.46-8.29)
12-hr	**2.31** (2.09-2.57)	**2.78** (2.52-3.10)	**3.44** (3.12-3.83)	**3.98** (3.59-4.42)	**4.73** (4.25-5.24)	**5.35** (4.79-5.91)	**6.00** (5.34-6.62)	**6.70** (5.93-7.38)	**7.69** (6.75-8.47)	**8.52** (7.42-9.38)
24-hr	**2.70** (2.51-2.92)	**3.25** (3.02-3.52)	**4.03** (3.74-4.36)	**4.66** (4.31-5.03)	**5.54** (5.11-5.98)	**6.26** (5.76-6.76)	**7.03** (6.43-7.59)	**7.84** (7.12-8.47)	**8.98** (8.10-9.73)	**9.93** (8.88-10.8)
2-day	**3.13** (2.90-3.39)	**3.76** (3.48-4.08)	**4.65** (4.31-5.05)	**5.38** (4.97-5.83)	**6.41** (5.89-6.94)	**7.25** (6.64-7.85)	**8.14** (7.42-8.83)	**9.10** (8.23-9.88)	**10.5** (9.38-11.4)	**11.6** (10.3-12.7)
3-day	**3.34** (3.10-3.62)	**4.01** (3.73-4.35)	**4.96** (4.60-5.38)	**5.73** (5.30-6.21)	**6.83** (6.29-7.39)	**7.73** (7.09-8.37)	**8.70** (7.93-9.44)	**9.73** (8.82-10.6)	**11.2** (10.1-12.2)	**12.5** (11.1-13.6)
4-day	**3.56** (3.31-3.85)	**4.26** (3.97-4.62)	**5.27** (4.89-5.70)	**6.08** (5.64-6.59)	**7.25** (6.69-7.85)	**8.22** (7.54-8.90)	**9.26** (8.45-10.0)	**10.4** (9.41-11.3)	**12.0** (10.8-13.1)	**13.3** (11.8-14.6)
7-day	**4.12** (3.83-4.43)	**4.93** (4.60-5.31)	**6.06** (5.64-6.52)	**6.96** (6.46-7.49)	**8.23** (7.62-8.85)	**9.27** (8.54-9.97)	**10.4** (9.51-11.2)	**11.5** (10.5-12.4)	**13.2** (11.9-14.3)	**14.6** (13.1-15.8)
10-day	**4.66** (4.34-5.01)	**5.58** (5.20-6.01)	**6.83** (6.36-7.34)	**7.82** (7.27-8.41)	**9.22** (8.55-9.91)	**10.4** (9.56-11.1)	**11.6** (10.6-12.4)	**12.8** (11.7-13.8)	**14.6** (13.2-15.8)	**16.1** (14.4-17.4)
20-day	**6.42** (6.02-6.86)	**7.64** (7.16-8.16)	**9.14** (8.56-9.77)	**10.3** (9.65-11.0)	**11.9** (11.1-12.7)	**13.2** (12.2-14.0)	**14.4** (13.4-15.4)	**15.7** (14.5-16.8)	**17.5** (16.0-18.8)	**18.9** (17.2-20.3)
30-day	**7.89** (7.43-8.38)	**9.34** (8.79-9.92)	**11.0** (10.4-11.7)	**12.3** (11.6-13.1)	**14.1** (13.2-14.9)	**15.4** (14.4-16.4)	**16.8** (15.7-17.9)	**18.2** (16.9-19.3)	**20.0** (18.5-21.4)	**21.4** (19.7-22.9)
45-day	**9.82** (9.27-10.4)	**11.6** (10.9-12.3)	**13.5** (12.8-14.3)	**15.0** (14.2-15.9)	**17.0** (16.0-18.0)	**18.6** (17.4-19.6)	**20.1** (18.8-21.3)	**21.6** (20.2-22.9)	**23.6** (22.0-25.1)	**25.2** (23.3-26.8)
60-day	**11.6** (11.0-12.2)	**13.7** (12.9-14.4)	**15.9** (15.0-16.7)	**17.5** (16.6-18.5)	**19.7** (18.6-20.8)	**21.4** (20.2-22.6)	**23.0** (21.6-24.3)	**24.6** (23.1-26.1)	**26.7** (24.9-28.4)	**28.3** (26.3-30.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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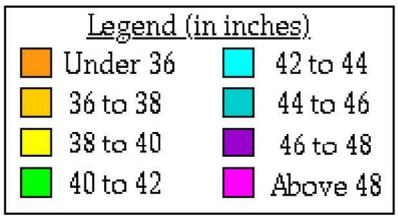
PF graphical

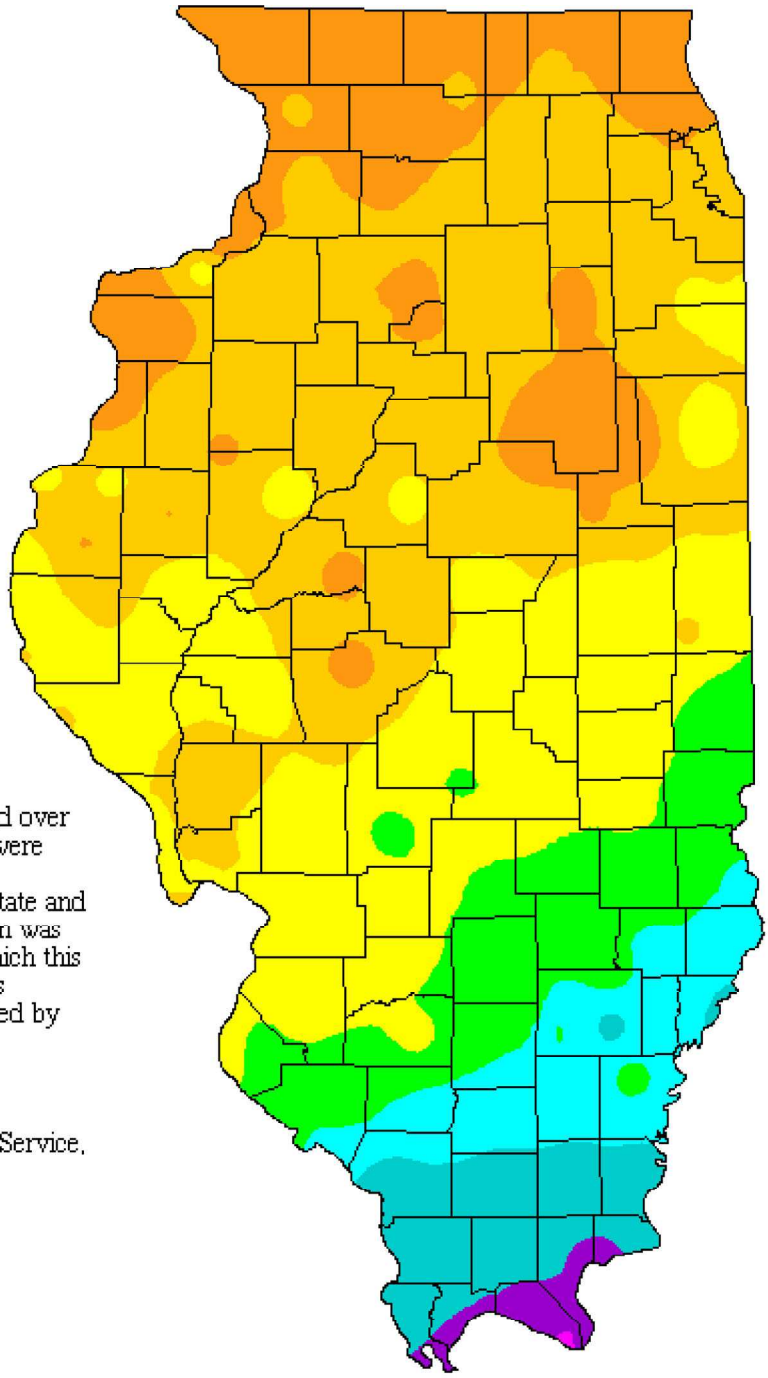
Average Annual Precipitation

Illinois



For information on the PRISM modeling system, visit the SCAS web site at http://www.ocs.orst.edu/prism

The latest PRISM digital data sets created by the SCAS can be obtained from the Climate Source at http://www.climatesource.com



This is a map of annual precipitation averaged over the period 1961-1990. Station observations were collected from the NOAA Cooperative and USDA-NRCS SnoTel networks, plus other state and local networks. The PRISM modeling system was used to create the gridded estimates from which this map was made. The size of each grid pixel is approximately 4x4 km. Support was provided by the NRCS Water and Climate Center.

3. CONSTRUCTION SPECIFICATIONS

CONSTRUCTION & CONCRETE SPECIFICATIONS

Prepared by Settje Agri-Services and Engineering, Inc.
15460 NW 48th Street | Raymond, Nebraska 68428

Greenville Livestock

NE 1/4 of Sec. 8, T-1N, R-1W
Clinton County, Illinois

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CONSTRUCTION & CONCRETE SPECIFICATIONS

CONSTRUCTION ADMINISTRATION PLAN

On Site Monitoring

The following is a list of items that will need inspection and/or testing during construction of the proposed livestock waste control system. The design Engineer or other independent representative must inspect or oversee each item. Items covered as part of the work must be inspected before they are covered. The Contractor is responsible to provide adequate advance notice to the Engineer to inspect work before it is covered. 48 hours advance notice is required unless noted otherwise.

- Concrete reinforcement size and spacing prior to pouring
- Excavation grades

Safety Measures

Excavations occupied by personnel should be made in accordance with the Occupational Safety and Health Administration (OSHA) Construction Standards-29 CFR Part 1926, Subpart P-Excavations as published in the Federal Register, Vol. 54, 209, Tuesday, October 31, 1989, Rules, and Regulations.

OSHA states that a soil should be reclassified if the properties, factors, or conditions affecting the soil's classification change in any way. Provide adequate egress, emergency rescue equipment, PPE, and engineering controls to reduce hazards related to water accumulation, adjacent structures, hazardous atmospheres, and buried hazards.

Clean Up

During construction, the Contractor shall keep the work site, areas adjacent to the work site, and access roads in an orderly condition. Any spillage or debris resulting from the Contractors' operations shall be removed in a timely manner. Upon completion, all debris, etc. shall be removed from the area. All access roads, other than public, shall be graded, smoothed over, and left in a well-drained condition prior to equipment removal.

Site Preparation & Maintenance

All areas scheduled for new earthwork shall be cleared of old equipment, old buildings, trees, stumps, roots, brush, and boulders. The topsoil material shall be either treated as waste and disposed of away from the proposed fill areas, or, stockpiled for later use as top dressing in grassed areas. After all unsuitable materials have been removed from the area, the resulting ground surface shall be thoroughly scarified and compacted to a minimum depth of six inches before placement of additional compacted earth fill. All drainage channels crossing fill areas shall be cleaned and widened to accommodate compaction equipment. Such channels shall be backfilled with suitable material as specified for compacted earth fill.

All waste material cleared from the areas to be cut and filled shall be discarded away from the cut or fill areas.

Unless specified by the Engineer, all materials to be used as fill shall be on site materials removed from planned excavations for site grading, ditches, utilities, etc. shown on the plans. A sample of any additional

alternative borrow materials should be submitted to the Engineer before its planned use for pertinent laboratory testing and approval. Any cut areas outside the pit area shall be graded and left in a well-drained condition.

Dewatering of the site (if necessary) during construction shall be done in a manner that optimizes the condition of the borrow area. Water shall not be allowed to pond over potential borrow material for long periods of time. Pumping of runoff water that collects in the construction site during construction (if necessary) shall be conducted in a timely manner to prevent saturation of large areas of materials to be excavated and re-used as fill. All runoff water shall be released to an acceptable drainage course as determined by the Engineer. Equipment to apply water to the soil and remove water from the borrow area shall be supplied by the Contractor.

CONCRETE CONSTRUCTION

Subgrade Preparation

Site grading is to be done to provide accurate and compacted earth and sub-grades where practical for building sites. Some amount of fine (hand) excavation and/or placement of sub-grade fill are to be expected. Material used for sub grade backfill shall be non-settling, clean sand or gravel or suitable earth fill with adequate compaction effort utilized wherever depths demand the same. Subgrade material shall be compacted to 95% standard proctor density in lifts not exceeding 6 inches or the limit of the compaction equipment, whichever is less.

Construction Inspections

The following is a list of critical items that will need inspection and/or testing.

Concrete manure storage structures shall be inspected and tested by the Engineer or Engineer's representative according to the following schedule.

- Prior to pouring, all footing excavation, pit floor excavations and associated reinforcement steel shall be inspected by the Engineer or the Engineer's representative. The Engineer shall be notified a minimum of 72 hours prior to the anticipated floor pour to allow for scheduling.
- Prior to pouring, all wall steel, forms, and water stop shall be inspected by the Engineer or Engineer's representative. The Engineer shall be notified a minimum of 72 hours prior to the anticipated floor pour to allow for scheduling.

Curing

All concrete shall be protected from premature or too rapid curing by the use of covering, spraying of curing compounds, or the frequent and sustained wetting with water.

Forming & Trenching

All forms or trenches shall be a type or quality suited to the finished dimensions and grades to be provided. Forms or trenches shall be at the proper elevation, width, true to line, plum, and square as required. All forms shall be securely anchored to maintain concrete alignment and slope.

Type & Strength

Compressive Strength: Compressive strength test shall be conducted at random at the discretion of the Engineer.

Unless indicated otherwise on the structural drawings, 28-day compressive strength minimum is as follows:

- Footings, walls, interior slabs on grade: minimum of 3,000 psi
- Air Content: All concrete exposed to freezing and thawing and/or required to watertight shall have an air content as specified in 2.03.G. All interior slabs subject to abrasion shall have a maximum air content of 4%.
- Water/Cement Ratio: All concrete subjected to freezing and thawing shall have a maximum water/cement ratio of 0.50.
- Admixture Usage: All pumped concrete, concrete for industrial slabs, architectural concrete, concrete required to be watertight, and concrete with a water/cement ratio below 0.50 shall contain the specified high-range water-reducing admixture (superplasticizer). All concrete slabs placed at air temperatures below 50 degrees F shall contain the specified non-corrosive, non-chloride accelerator. All concrete required to be air entrained shall contain an approved air-entraining admixture.
- Maximum slump of 5.0 inches and a minimum of 3.0 inches as determined by ASTM C 143.

Reinforcement

Materials

- Standard Bars: New grade 60 or as shown on the Drawings, Free of mill scale, excessive rust, or other coating that would prohibit proper bond with concrete
- Tie Wire: FS QQ-s-461, annealed steel, black, 16-gauge minimum.

Fabrication

- Fabricate to size, dimension and shape shown on approved drawings and within tolerances specified in ACI 301.

Placement

- Place concrete reinforcement in accordance with the approved drawings for reinforcing bars and bar supports.
- Support reinforcement and guard against displacement during concreting.
- Continue reinforcement through construction joints but do not continue reinforcement through expansion joints unless so detailed. All rebar joints shall be overlapped a minimum of 20 rebar diameters.
- Move within allowable tolerances to avoid interference with other reinforcing steel, conduits or embedded items.
- Tie securely or use splice devices to prevent displacement of splices during concrete placement.
- Install wire fabric in longest practical length. Lap adjoining pieces one full mesh minimum, and tie splices with 16-gauge wire. Do not make end laps midway between supporting beams, or directly over beams of continuous structures. Offset end laps in adjacent widths to prevent continuous laps.

Field Quality Control

- Inspection of forms, trenches and reinforcement: At least 48 hours prior to placing of concrete notify the ENGINEER so that a qualified representative may inspect forms, trenches and reinforcing in place and secure approval for the placement of concrete.

Cast-in-place Concrete

Concrete Materials

- Local aggregates not complying with ASTM C33 but which have shown by special test or actual service to produce concrete of adequate strength and durability may be used when acceptable to the Engineer.
- Fine Aggregate: Clean, sharp, natural sand free from loam, clay lumps or other deleterious substances.
- Maximum Aggregate Size: Not larger than 1/5 of the narrowest dimension between sides of forms, 1/3 of the depth of slabs, nor 3/4 of the minimum clear spacing between individual reinforcing bars or bundles of bars. These limitations may be waived if, in the judgment of the ENGINEER, workability and methods of consolidation are such that concrete can be placed without honeycomb or voids.
- Water: Clean, free of deleterious amounts of acids, alkalis or organic materials.
- Air Entraining Admixture: conform to ASTM C260.

Concrete Related Materials

- Water Stop: SikaSwell or equivalent.
- Joint Material: Pre-formed, non-extruding type ASTM D1751.
- Bonding and Repair Materials: The compound shall be a polyvinyl acetate, re-wettable type.

Installation Procedures

Mixing

- Mix and deliver concrete in accordance with ASTM C94-74.
- Cooled or heated water shall be used in accordance with ACI 306 and 305.
- Discharge at the site should be within one hour after mixing. Attention is called to the importance of scheduling and dispatching trucks from the batching point so that they shall arrive at the site of the work just before the concrete is required, thus avoiding excessive mixing of concrete while waiting or delays in placing successive layers of concrete in the forms.

Admixtures

- Use admixtures for water reducing and set-control in strict compliance with the manufacturer's directions.
- Use amounts of admixtures as recommended by the manufacturer for climatic conditions prevailing at the time of placing. Adjust quantities and types of admixtures as required to maintain quality control.

Weather Protection

- Cold Weather:
  Apply recommendations of ACI 306 – latest issue.

- Hot Weather:
  Apply recommendations of ACI 305 – latest issue. Employ suitable means to prevent drying too rapidly. Shade fresh concrete as soon as possible without marring surface.
- Wet Weather:
  Unless adequate protection is provided, do not place concrete in rain, sleet or snow.

Placing Concrete

- Convey concrete from mixer to final position by method, which will prevent separation or loss of material.
- Regulate rate of placement so concrete remains plastic and flows into position.
- Deposit concrete in continuous operation until panel or section is completed.
- Use mechanical vibrating equipment for consolidation when required.
- Vertically insert and remove hand-held vibrators at points 18 inches to 30 inches apart.
- Do not use vibrators to transport concrete in forms.
- Vibrate concrete minimum amount required for consolidation.

Joints

- Construction Joints:
  Locate and install construction joints, which are not shown on the drawings, so as not to impair the strength and appearance of the structure, as acceptable to the Engineer.
- Provide keyways at least 1-1/2” deep in all construction joints in walls, slabs and between walls and footings, accepted bulkheads designed for this purpose may be used for slabs.

Inspection By Contractor on Site

- Inspect the work prior to concrete pouring to ensure that excavations and formwork are complete and that ice and excess water are removed.
- Check that reinforcement is secured in place.
- Verify that expansion joint material, anchors, and other embedded items are secured in position
- Inspect the site at least once prior to pouring, once during every 20 deliveries of fresh concrete, and once after the pours are complete.

Compaction of Backfill

Hand compaction or suitable mechanical compaction shall be provided to backfill around, adjacent to, and above all concrete footings, foundations, and walls that are below grade. Dry density of compacted backfill shall be at least 90% of Standard Proctor Density. Moisture content of backfill material shall be maintained or adjusted to allow proper compaction.

4. NUTRIENT MANAGEMENT PLAN

SETTJE
Agri-Services & Engineering, Inc.

Greenville Livestock, Inc.

Introduction

Nutrient Management Plan

Post Construction Storm Water Pollution Prevention Plan

Emergency Response Plan

Operation and Maintenance Plan

Best Management Practices

Mortality & Chemical Management Plan

Record Keeping

Table of Contents

1. Introduction

This document will serve as a comprehensive file that details the requirements and specifications in order to properly operate and maintain the facility and properly dispose of all waste, while reducing the opportunity for damage to the surrounding environment. It includes a Comprehensive Nutrient Management Plan, Post Construction Storm Water Pollution Prevention Plan, Emergency Response, an Operation and Maintenance Plan, Best Management Practices, and Mortality Management Plan.

The plan follows the narrative approach in that it describes the methods and procedures that will be used for determining nutrient application rates. It considers the production, loss and utilization of nutrients by crops to preserve the local natural resources.

1.1 Facility Description

The facility is a feedlot used for the purpose of finishing cattle for the market. The facility encompasses all structures or conveniences necessary for the finishing of cattle including feeding pen, debris basins, deep pit, holding pond, maintenance areas, commodity storage areas, and cropland for the application of manure.

Table 1 - Facility Location

Legal. Description (S-T-R)	County, State	UTM Coordinates
SW ¼ of the NW 1/4 of Section 9, Township 1N, Range 1W	Clinton., IL	38° 32' 41.4" 89° 13' 2.7"

To travel to the facility, trek three miles west of Centralia, IL on Hwy 161 and then north ½ mile on county Road 5 then 1 mile west on Hugo Road.

2. Nutrient Management Plan

This Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for a Confined Animal Feeding Operation (CAFO). This CNMP documents the planning decisions and operation and maintenance for the animal feeding operation. Greenville Livestock, Inc. encompasses an existing beef cattle feedlot near Centralia, IL with a capacity of 3,200 head of beef cattle. The proposed deep pit barn will not add any additional head count to the CNMP. The solid manure, liquid manure or effluent is applied to the cropland as fertilizer or irrigation water. The facility has 3,486.9 acres of crop land for application of all manures.

The objectives of the plan are as follows:

1. Provide management with a system to properly handle and dispose of the nutrients contained in the waste generated at the facility.

2. Protect the natural resources of the area.

3. Maximize the reuse of nutrients by properly applying them to croplands as fertilizer.

4. Comply with state and federal regulations and provide a means of monitoring, measuring and determining compliance.

In general the nutrients generated at the facility will be disposed of by applying them to cropland as fertilizer and or irrigation water. This plan details and evaluates the production of manure, the land base available for disposal, and the proper handling of nutrients to prevent ground and surface water contamination. A nitrogen-based application of livestock waste shall be utilized.

This document serves as a supplement to documents previously submitted. The document was developed to detail the application of solid manure and effluent in order to predict the feasibility of the manure management system with the current real estate available. The tables contained within this document were developed from the Manure Management Planner software from the Purdue Research Foundation.

2.1 Manure Handling

The solid manure generated from the feedlot is stockpiled inside the pens areas and directly land applied. Usually the manure is land applied during the fall and spring months. Manure from the settling basins is removed annually to not impede their function. Effluent collected and stored in the holding ponds is dewatered via the nearby irrigation distribution system.

Equipment for application of nutrients will be calibrated on an annual basis. Manure and fertilizer will be uniformly applied to soils. Manure and fertilizer application equipment will be calibrated to deliver within 10 percent of the planned rate. Calibration of the solid manure box spreader should follow the procedures outlined in applicable state of federal guidance. To determine the application rate, the producer must divide the weight of the manure collected on a tarp by the area covered.

2.2 Temporary Manure Stacks

Temporary Manure Stacks shall be maintained in a manner to prevent runoff from entering surface water or groundwater and prevent discharges. A cover and pad or other control shall be provided to prevent runoff from the temporary manure stacks entering surface water and groundwater. Any livestock waste stored in excess of 6 months shall be contained in a permanent structure. Temporary manure stacks shall be located at a distance greater than

100 feet from water wells, 200 feet from potable water wells, or 400 feet from a community water supply well.

2.3 Planned Nutrient Applications

The planned nutrient applications were developed by applying solid manure to every field once every other year with exception of the effluent application fields. Effluent application will occur on an as needed basis during the growing season and should not require an application greater than one acre inch within one month's time to utilize.

2.4 Land Application Site Information (Land Treatment)

2.5 Land Inventory

Agitate and de-water any structure detaining effluent. Ample liquid will be left in the pond so that the remaining sludge (if any) can be pumped without plugging the pumping equipment

The facility management owns or has contracted 3,486.9 acres of land for the application of solid manure, liquid manure and liquid effluent. The lands are used for the production of agricultural commodities and their locations and boundaries have been identified on the attached field maps see (Appendix B). Each parcel of land has been evaluated with regard to its fitness for manure applications. The evaluation takes in to account many factors as follows:

1. Conservation practices
2. Soil type
3. Land slope
4. Soil erodibility
5. Soil test phosphorus
6. Tile inlet locations
7. Distance to surface waters
8. Proximity to wells
9. Location of conduits to surface water
10. Subsurface drainage tiles

The evaluations are then projected over several years to determine the sustainability of the land to maintain production and avoid pollution.

Table 2 - Field Information

Field ID	Sub-field ID	Total Acres	Spread-able Acres	County	Predominant Soil Type
AT Back 40	1	39.54	39.5	Clinton	912A
AT Home Base	4	71.87	57.2	Clinton	912A
Arlene Wollenweber North Pasture	8	70.1	56.5	Clinton	912A

Field ID	Sub-field ID	Total Acres	Spread-able Acres	County	Predominant Soil Type
Arlene Wollenweber W. Farm South	7	115.32	114.9	Clinton	912A
Arlene Wollenweber W. Farm North	106	74.8	66.3	Clinton	912A
Bens	59	32.25	23.1	Marion	912B2
Bowen	11	33.42	33.4	Marion	912A
Bowen Hills	10	14.88	14.88	Marion	13A
Bowen Tower	9	61.42	61.4	Marion	912A
Brinkman	94	19.24	19.24	Clinton	912A
Carson	12	39.96	39.96	Clinton	991
Carter	58	80.67	80.67	Marion	2A
Cooks 60	17	59.09	59.1	Marion	991A
D Wollenweber N. Pasture Front	22	36.1	35.2	Clinton	912B2
D Wollenweber S. Pasture	21	40.1	40.3	Clinton	934C2
Darrell Home Base	65	55.49	43.6	Clinton	912A
Darrell Hogpen 2	60	43.01	43.01	Marion	912A
Darrell Scott 36	90	37.8	37.1	Marion	912A
Darrell North	61	39.04	39	Marion	2A
Darrell Woods	62	56.53	55.2	Marion	12A
Dean Jett	19	55.44	55.4	Marion	991A
D Wollenweber N Pasture Back	23	47.33	46.9	Marion	912A
Eikhoff	91	32.03	31.5	Clinton	934C2
Forrest 1	26	78.82	76.4	Marion	991A
Forrest 4 Black	28	38.69	38.69	Marion	912A
Forrest 2	29	35.89	35.89	Marion	991A
Forrest 3	84	42.23	42.2	Marion	991 A
Fulton Lane	63	79.43	78.1	Marion	912A
Fulton Lane South	64	35.36	28.5	Marion	2A
Grasher	36	78.62	63.4	Clinton	912A
Heinrich 40	33	39.04	39	Clinton	912A
Heinrich 120	34	117.1	100.7	Clinton	912A
Henson 10	66	10.85	10.85	Marion	13A
Highschool	67	13.88	13.88	Marion	218A
Hill North	89	79.99	79.99	Clinton	991
Hill South	46	45.83	45.8	Clinton	3A
Janets 108	68	108.74	104.8	Marion	991A

Field ID	Sub-field ID	Total Acres	Spread-able Acres	County	Predominant Soil Type
Janets Across House	69	95.16	95.16	Marion	912A
Jett Pond	70	10.43	10.4	Marion	912A
Joyce 58	31	60.33	60.3	Marion	991A
Kissner	71	26.25	23.2	Marion	13B
Lyons-Lippert-Cruz	73	81.56	70.6	Marion	912A
Vogt Back 32	72	31.04	31	Marion	912A
Melvins 80	5	76.78	76.2	Clinton	912A
Myers Hill	74	80.06	72.5	Marion	991A
North 60 Pivot	40	48	40.1	Clinton	13A
North 60 VG	41	28.2	28.1	Clinton	934B2
North 40	42	41.64	39.8	Clinton	912A
Parks 80	75	79.25	67.5	Marion	991A
Peggy Bass North	85	43.58	32.3	Marion	912B2
Peggy Bass South of Lane	86	71.99	61.1	Marion	912A
Peterson East & West	13	74.06	74.1	Clinton	991
Petrea	76	26.67	26.7	Marion	13A
Promiseland	92	17.14	15.5	Clinton	912B2
Robinson 62	48	59.38	59.3	Marion	912A
Robinson Tower 40	47	39.24	39.2	Marion	991A
Rosenbaum	20	77.74	76	Clinton	991
Smith East	78	24.6	24.6	Marion	13A
Smith West	77	32.49	32.49	Marion	13A
South of Tracks	95	78.05	65.8	Clinton	912A
South Trolard	93	75.78	60.7	Clinton	5C3
Spinner	51	14.22	14.22	Marion	912A
Stastik 80	14	78.49	78.49	Clinton	912A
Terry 80	79	79.06	79.06	Clinton	2
Trolard North	52	79.9	73.1	Clinton	912A
Whyers 10	82	7.38	7.4	Marion	13A
Wollenweber Sandvol 70	24	65.8	65.8	Marion	912A
Wooters	83	19.25	17.8	Clinton	934C2

2.6 Land Application Strategy

The application strategy will be to apply manure at a rate determined to be the most beneficial to the crop(s) grown while avoiding detrimental effects such as runoff causing contamination to waters of the state. The facility will land apply the solid manure by use of a manure

spreaders. The application will be made as evenly as possible throughout the desired area of the field to reduce the possibility of localized over application and to maximize the beneficial value of the nutrients. In addition the management will attempt to apply all solid manure generated annually to insure adequate holding capacity until the next spreading cycle.

The holding ponds are dewatered via an irrigation system to adjacent to the facility. The area is identified on the site plans. The primary objective of applying effluent will be to maintain adequate holding capacity of the facility's structures as to avoid a discharge into waters of the state.

2.7 Land Application Precautions

With the application of manure several precautions must be taken in order to avoid runoff and its effects. These precautions will be considered during the evaluation of the land treatment regimens included in this plan. Arguably the greatest precaution is avoiding an area of a field that should not receive manure or setback areas (see field maps). These areas include but are not limited to waters of state or groundwater wells. As an aid a Geographical Information System (GIS) map was developed for each field to illustrate the necessary setbacks (see field maps). The producer shall use these maps as a guide when applying manure however actual measurements may be necessary. In addition, management will apply to the following procedures:

- Management will not apply manure or effluent within 200 feet of any streams, lakes, impounded waters, and tile pipe inlets.
- Management will inject or incorporate the day it is applied to avoid the ¼ mile residence setback.
- Management will evaluate the soil moisture and weather conditions (forecast rainfall) prior to land application procedures.
- When liquids are applied to cropland, care will be taken to ensure wind direction is not conducive to neighbor residences and runoff is prevented.
- Effluent will not be applied in a manner to allow contamination to surface waters.
- All land application equipment must be periodically inspected for leaks or problems that result in improper operation.
- Management must ensure that land application equipment is properly calibrated on a routine basis for livestock waste application.

Table 3 - Manure Application Setbacks

Feature/Sensitive Area	State Setback Criteria	Setback Distance (Feet)
Wetland	200-foot setback, all manure applications	200
Stream, lake, impounded waters	200-foot setback, all manure applications	200
Registered Wells	200-foot setback, all manure applications	200
Tile pipe inlet	200-foot setback, all manure applications	200

A potential risk for runoff exists on slopes greater than five percent unless erosion is controlled to soil loss tolerance (T) or less. In the case of a producer that has fields that do not meet these criteria and where manure storage capacity necessitates winter application, a recommendation might be to minimize winter application as much as possible and target the fields, and areas of fields, that are the flattest and the furthest away from any surface water or concentrated flow areas.

Soil erosion for this operation has been addressed and managed by incorporating no-till cropping practices when feasible. Both the management and consulting agronomist are cognizant of the issue and thus soil erosion will be monitored and addressed as needed.

2.8 Ephemeral and Gully Erosion

Ephemeral and Gully Erosion has been evaluated for all crop fields with the nutrient management plan. All fields were found to have grassed areas where erosion could become an issue thus Ephemeral and Gully Erosion has already been addressed.

2.9 Soil Tests

Soil Phosphorus Sampling. Soil samples results were extrapolated from previous years' sampling for the purpose of the current projections in this plan. Attached is an example extrapolation for one of the application fields. Fields where livestock waste is applied shall be sampled twice for each field during the term of the permit. Soil testing must be conducted as follows:

1) Soil sampling for phosphorus shall be in accordance with the sampling protocols in Chapter 8 of the Illinois Agronomy Handbook, 24th Edition, incorporated by reference at 35 Ill. Adm. Code 501.200. Laboratory analysis for soil phosphorus (Bray P1 or Mehlich 3) shall be in accordance with Recommended Chemical Soil Test Procedures for the North Central Region

2) Soil samples shall be at the same time in the cropping cycle and rotation so that results are comparable year to year; and

3) The two required soil samples for each field must be taken at least one year apart.

4) No Livestock Waste Land Application will take place whenever the Bray P1 or Mehlich soil test exceeds 300 pounds per acre for the top 7 inches. Analyses shall be conducted in accordance with NRCS 590 to demonstrate all application fields comply with this requirement. Below is a sample calculation.

(A) Total Uptake	240.00 lb/acre
(B) Soil Sample (Avg)	21.60 lb/acre
(C) Total Nitrogen Credits	25 lb/acre
(D) Commercial Fertilizer	50 lb/acre
Projected Rate	
(A - (B + C + D)) / 3.6 lb/ton(Manure Sample Avg)	39.8 tons/acre
Projected Nitrogen Need	
A - (B + C)	193.40 lb/acre

2.10 Risk Assessment Phosphorus Index

The NRCS nutrient management standard (590 Standard) requires that the phosphorus (P) index be utilized to determine the potential for phosphorus transport off the fields. A Revised Universal Soil Loss Equation (RUSLE2) calculation was run on the land where application occurs, and the results are included in Appendix D.

2.11 Winter Application Plan

To conduct surface land application on frozen, ice covered, or snow covered ground; the requirements of this subsection (b) must be met.

1) No land application may occur within ¼ mile of a non-farm residence.

2) No discharge may occur during land application of livestock waste.

3) Surface land application on frozen ground shall not occur within 24-hours preceding a forecast of 0.25 inches or more of precipitation in a 24-hour period as measured in liquid form. The CAFO owner or operator shall use one of the following two methods for determining whether these conditions exist and shall maintain a record of the forecast from the source used.

A) A prediction of a 60 percent or greater chance of 0.25 inches or more of precipitation in a 24-hour period as measured in liquid form, obtained from the National Weather Service's Meteorological Development Laboratory, Statistical Modeling Branch 1325 East West Highway, Silver Spring MD 20910, for the location nearest to the land application area; or

B) A prediction of 0.25 inches or more of precipitation in a 24-hour period as measured in liquid form and identified as higher than QPF category 2 obtained from the National Weather Service Meteorological Development Laboratory, Statistical Modeling Branch, 1325 East West Highway, Silver Spring MD 20910, for the land application area location.

4) Surface land application of livestock waste on ice covered or snow

covered land shall not occur within 24 hours preceding a forecast of 0.1 inches or more of precipitation in a 24-hour period as measured in liquid form. The CAFO owner or operator shall use one of the two methods provided below for determining whether or not these conditions exist and shall maintain a record of the forecast from the source used.

A) A prediction of a 60 percent or greater chance of 0.1 inches or more of precipitation in a 24-hour period as measured in liquid form obtained from the National Weather Service's Meteorological Development Laboratory, Statistical Modeling Branch, 1325 East West Highway, Silver Spring MD 20910 for the location nearest to the land application area; or

B) A prediction of 0.1 inches or more of precipitation in a 24-hour period as measured in liquid form and identified as higher than QPF category 1 obtained from the National Weather Service's Meteorological Development Laboratory, Statistical Modeling Branch, 1325 East West Highway, Silver Spring MD 20910 for the land application area location.

5) If the land application of livestock waste is on ice covered or snow covered land, surface land application shall not occur when the predicted high temperature exceeds 32 degrees F on the day of land application or on any of the 7 days following land application as predicted by the National Weather Service's Meteorological Development Laboratory, Statistical Modeling Branch, 1325 East West Highway, Silver Spring MD 20910 for the location nearest to the land application area. The owner or operator shall maintain a record of the forecast from the source used. http://www.nws.noaa.gov/mdl/synop/products/bullform.mex.htm.

6) If the surface land application of livestock waste is on ice covered or snow-covered land, the CAFO owner or operator shall visually monitor for runoff from the site. The CAFO owner or operator daily must monitor each ice covered or snow-covered field where

land application has been conducted when the ambient temperature is 32 degrees F or greater following winter land application until all the ice or snow melts from the land application area.

7) If the surface land application of livestock waste is on ice covered or snow-covered land and a runoff from the land application area occurs, the CAFO owner or operator shall report any discharge of livestock waste within 24 hours after the discovery of the discharge as follows:

A) The report shall be made to the Agency through the Illinois Emergency Management Agency by calling 1-800-782-7860 or 1-217-782-7860;

B) Within 5 days after this telephone report, the CAFO owner or operator shall file a written report with the Agency that includes the name and telephone number of the person filing the report, location of the discharge, an estimate of the quantity of the discharge, time and duration of the discharge, actions taken in response to the discharge, and observations of the condition of the discharge with regards to turbidity, color, foaming, floatable solids and other deleterious conditions of the runoff for each day of each runoff event until the ice or snow melts off the site.

2.12 Manure Nutrient Content

Manure should be sampled less than one month from the time it is to be applied due to the volatilization of nitrogen. Manure analysis of nitrogen, phosphorous, and potassium are required prior to land applications on an annual basis. Samples will be taken to represent the average of each type of manure from the pen surface, basins, and sludge and/or effluent from the holding pond. The specific method of analysis shall be identified on the test results. However it will be the discretion of the testing laboratory to determine the appropriate method of analysis based upon the material being analyzed. The results analysis shall be used to determine appropriate land application rates.

2.13 Solid/Slurry Manure Production

The feedlot will produce approximately 14,024 T.s of solid manure annually (see Table 4 - Solid Manure Production Calculations) and 910,584 gallons of liquid manure annually (see Table 5 – Slurry/Liquid Manure Production Calculations). The solid manure volume may vary greatly depending upon weather conditions. However, it can be expected that manure stored in the pens to dry to an average of at least 50% moisture. The calculations used to estimate the manure produced were derived from the Ag. Waste Field Management Handbook.

Table 4 - Solid Manure Production Calculations

Head Count	Avg Animal Wt.	Animal Wt. (1000's lbs.)	Manure Produced (lbs./day/1000 lbs. of animal wt.)	As Is Annual Manure Produced (T.s @ 88.4% moisture)	Collected Annual Manure Produced (T.s @ 50% moisture)
2,700	850	2,295	59.2	24,795	14,024

Table 5 – Slurry Manure Production Calculations

Head Count	Avg Animal Wt.	Animal Wt. (1000's lbs.)	Manure Produced (Gallons/day/1000 lbs. of animal wt.)	As Is Annual Manure Produced (Gallons)
500	850	425	5.87	910,584

*Volume produced per day is based on the Ag. Waste Field Management Handbook

Table 6 - Estimated Solid Manure Content

Manure Source	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source
Pens	13.7	0.3	15.0	9.4	15.0	9.4	Lbs./Ton	Facility Analysis

Table 7 - Estimated Slurry Manure Content

Manure Source	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source
Pit	45.0	21.0	24.0	36.0	24.0	36.0	Lbs./1,000 gallons	Default Average

(1) Entered analysis may be the average of several individual analyses.

(2) Illinois assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications. For more information about nitrogen availability in Illinois, see Illinois Administrative Code, Livestock Management Facility Regulations, sections 900.806, 900.808 (http://www.ilga.gov/commission/jcar/admincode/008/00800900sections.html).

Table 8 - Total Solid Manure Nutrient Content

Tons of Manure Produced Annually		14,024
	Lbs./Ton	**Total Lbs.**
Total N	13.7	192,129
NH_4-N	0.3	4,207
P_2O_5	15.0	210,360
K_2O	9.4	131,826

Table 9 - Total Slurry Manure Nutrient Content

Gallons of Manure Produced Annually		910,584
	Lbs./1,000 gallons	**Total Lbs.**
Total N	45.0	40,976
NH_4-N	21.0	19,122
P_2O_5	24.0	21,854
K_2O	36.0	32,871

2.14 Solid/Slurry Manure Application

The solid and slurry manure may be applied to the fields at maximum rate for nitrogen in that year and only applied to fields that will be growing corn, corn silage, or double cropped with

wheat silage. Solid and Slurry manure will be applied in the early fall and late spring. As weather permits, manure application will take place anytime between harvest and planting.

2.15 Solid/Slurry Manure Equipment

Solid manure pull type spreaders will be used to distribute solids to the application fields. The Slurry manure will be applied using a tethered injection or by tank wagon. If necessary the management of the facility may retain a custom manure hauler of applicator to assist the distribution in a timely matter.

2.16 Effluent Application

The approximate volume of applicable effluent for the facility will total 9.7 million gallons annually. This value was calculated by considering the sum of the annual runoff, and the precipitation volume less the evaporation volume. However both solid and liquid waste generation volume can vary greatly depending upon climate conditions. Thus the volumes mentioned are only estimate based.

Table 10 - Effluent Production

Calculation Item	Volume (gallons)
++Mean Annual Runoff Volume (gallons)	9,610,208
Mean Annual Precipitation Volume On Pond Surface (gallons)	7,555,652
Total Effluent Requirement (gallons)	**17,165,860**
Mean Annual Evaporation Volume (gallons)	-7,424,700
Annual Net Effluent Volume (gallons)	**= 9,741,164**

Table 11 - Estimated Effluent Content

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source
Holding Pond		0.7	0.2	1.8	3.1	1.8	3.1	Lb./1000Gal	Facility Analysis

(1) Entered analysis may be the average of several individual analyses.

(2) Illinois assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Illinois, see Illinois Administrative Code, Livestock Management Facility Regulations, sections 900.806, 900.808 (http://www.ilga.gov/commission/jcar/admincode/008/00800900sections.html).

Table 12 - Total Effluent Nutrient Value

Gallons of Effluent Produced Annually (x 1000)		9,741
	Lbs. /1000 gal.	Total Lbs.
Total N	0.7	6,819
NH_4-N	0.2	1,948.2
P_2O_5	1.8	17,534
K_2O	3.1	30,197

The effluent application predictions were made so that runoff collected in the holding pond would be applied annually to a select few fields near the facility via Center Pivot or Volume Gun irrigation system.

The pivot irrigation system will involve the use of a buried pipe from the holding pond pump to the center point of the pivot.

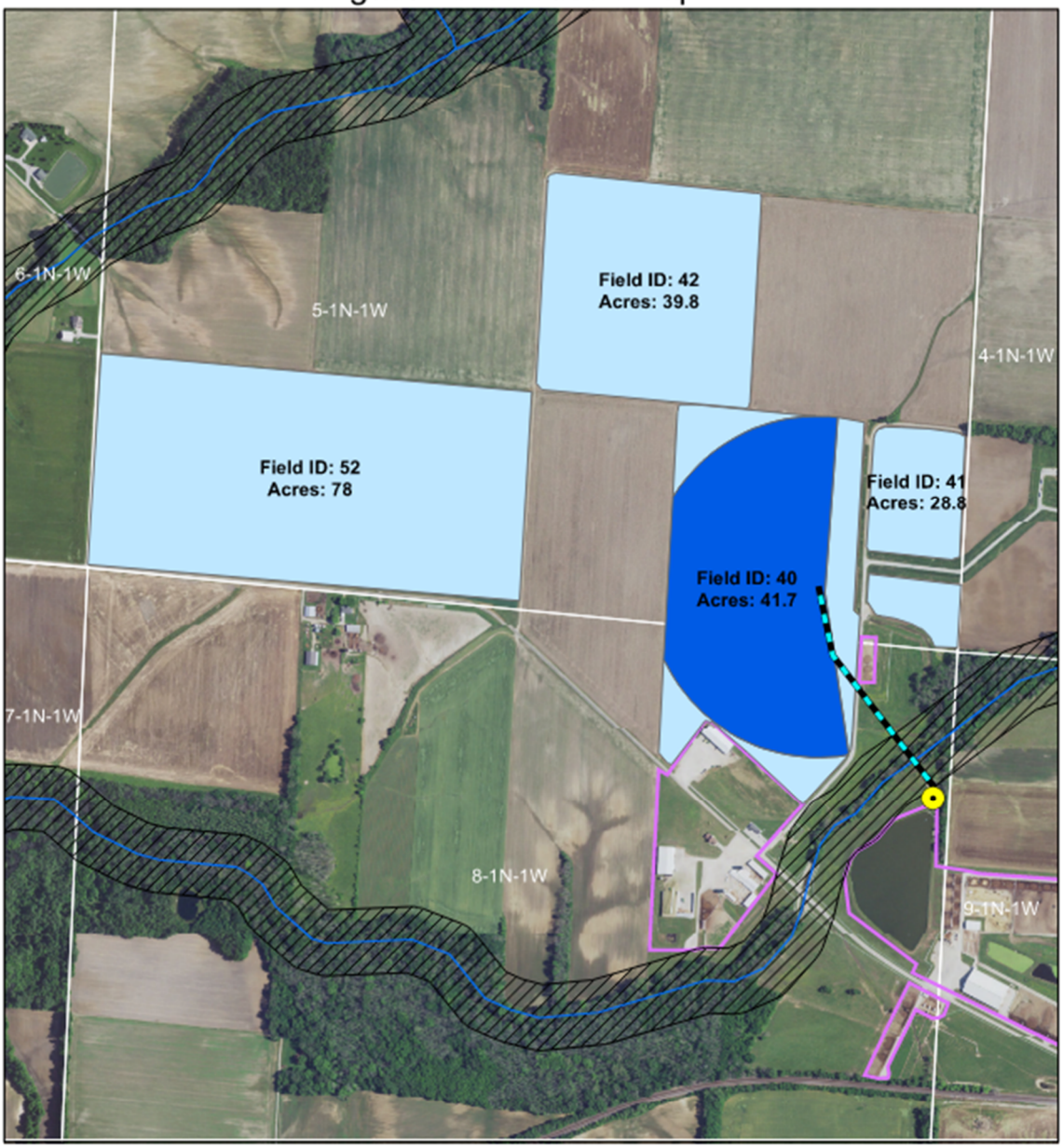
The volume gun will utilize a portable above ground flexible hose to transfer waste from the holding pond pump to the applications sites.

The effluent application does not need to exceed one acre inch in a month's time in order to distribute all liquids produced annually. This practice in turn will reduce the possibility of erosion. In addition, the pivot is a low pressure drop nozzle system in order to reduce erosion. Fields North 60 Pivot and North 60 Volume Gun will not receive solid manure in order to preserve the ability to apply effluent as necessary without exceeding nutrient requirements.

2.16.1 Subsurface Drainage Inspections

Management will conduct visual inspections prior, during, and following any effluent applications. Leaks shall be repaired in a timely manner. When the equipment is in long term continual use, it will be monitored twice daily to detect leaks.

Greenville Livestock, Inc.
Irrigation Distribution Map



3. Post Construction Storm Water Pollution Prevention Plan

This document will serve as the Post Construction Storm Water Pollution Prevention Plan. It includes an Emergency Response, an Operation and Maintenance Plan, Best Management Practices, and Mortality Management Plan. This document details the requirements and specifications in order to properly operate and maintain the facility while reducing the opportunity for damage to the surrounding environment.

3.1 Runoff Collection System Description

In general, the runoff from the facility as a result of precipitation will be collected through a series of diversions and containment structures to an earthen holding pond. Extraneous runoff from outside the facility will be diverted around or prevented from entering the facility drainage area. All waste generated from the facility will be distributed and disposed of according to the Nutrient Management Plan.

3.2 Stage Storage

Whenever the manure storage capacity is less than the required amount, manure removal and land application shall be initiated and conducted on all days suitable for land application. Manure shall not be applied to saturated, frozen, or snow-covered ground unless the potential risk for runoff is minimized as described above. Liquid manure shall not be applied at rates that exceed the infiltration rate of the soil, and the amount being applied shall not exceed the moisture-holding capacity of the soil profile at the time of application.

4. Emergency Response Plan

4.1 Emergency Response Strategies

An owner or operator of a livestock waste lagoon shall report any release of livestock waste from the livestock waste handling facility or from the transport of livestock waste by means of transportation equipment within 24 hours after the discovery of the release. Reports of releases to surface waters, including to sinkholes, drain inlets, broken subsurface drains or other conduits to groundwater or surface waters, shall be made upon discovery of the release, except when such immediate notification will impede the owner's or operator's response to correct the cause of the release or to contain the livestock waste, in which case the report shall be made as soon as possible but no later than 24 hours after discovery.

4.1.1 Definition of a Release

The "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, or dumping of livestock waste into the environment. A release does not include the normal application of fertilizer such as the application of livestock waste to crop land at agronomic rates established by guidelines of the Agency, regulations of the Illinois Pollution Control Board or in a waste management plan developed pursuant to the Livestock Management Facilities Act [510 ILCS 77] and regulations promulgated thereunder for the crop grown. A release is not application to a grassed area under 35 Ill. Adm. Code 506.303(r), or use of a runoff field application system under 35 Ill. Adm. Code 501.404(d). Air emissions are not releases under this Part.

A release of effluent from the result of irrigation distribution into waters of the state is considered a release or discharge.

4.2 Spill & Release Prevention

The maintenance of all equipment associated with waste containment, transport, and distribution in optimum working conditions will prevent spills and leaks. Each employee responsible for handling manure will be educated within one week of their first employment date on the proper maintenance of the equipment. In addition, when equipment is in long-term continual use (such as in irrigation distribution) it will be monitored twice daily to detect leaks and any equipment failure in a timely manner.

Overbuilding the structure will minimize the risk of the holding pond overtopping or breaching due to power failures, storms, and chronic wet periods. Accidental spills of solids could result from such activities as hauling and transporting solid manure. All employees of the facility are responsible for taking immediate action to contain any spill or leak that they may observe, provided their immediate safety is not in jeopardy. Containment procedures include taking action to prevent further loss of the material and preventing the material from spreading. In the case of an emergency, up to four employees of the operation can be made available.

In the event of an immediate safety hazard the area will be evacuated to a safe distance. All other employees will be warned as best possible. The Centralia Fire Department, rescue squad or Clinton County sheriff's office at (911) shall be notified immediately.

4.3 Release Response Practices

4.3.1 Stop The Cause

Shut off any mechanical device (such as a pump) or empty any containment structure that may be causing the spill or leak to continue.

4.3.2 Containment

Contain the spill with local area soils by building temporary dikes or dams. The equipment to build such structures is readily available as the owner has a loader, a box scrapper and a manure spreader.

4.3.3 Absorb Effluent

Absorb any effluent substance with local soil. The material will then be disposed of by land application at agronomical rates according to the guidelines in the Comprehensive Manure Nutrient Management Plan.

4.3.4 Verbal Notification

Management must immediately report any accidental releases of wastewater off of the property to **IEPA (800) 782-7860 within 24 hours of the event.**

4.3.5 Written Notification

A written report of a discharge will be submitted to IEPA within 5 days of the event. Such a report shall be recorded on the enclosed form titled Livestock Waste Discharge Notification.

4.4 Small Spill Response Plan

Repair any equipment failure such as valves or joints in piping that may be causing a small-scale leak.

Reporting shall not be required in the case of a release of less than 25 Gallons that is not released to the waters of the State or from a controlled and recovered release during field application.

5. OPERATION AND MAINTENANCE PLAN

5.1 Solid Manure Storage

The solid manure will be stored in the pens as manure pack or allowed to settle and be stored in the sediment basis. On an annual basis the manure will be scraped from the pens and basins and hauled directly to the crop fields and applied according to the manure nutrient management plan. This method will allow the facility to adequately store and contain all manure without the need for additional area for solid manure storage.

5.2 Transportation of Solid/Slurry Waste

Management does not incorporate manure applied to cropland sooner than 7 days, if at all. The facility usually applies manure immediately prior to planting in the spring from March 15th to April 15th and after harvest or the end of the grazing season, typically from September 15th to November 30th. The solid manure generated from the feedlot will be transported to the application sites using pull type manure spreaders. The Slurry manure will be applied using a tethered injection or by tank wagon. The facility owns the equipment for such hauling and distribution. Care will be taken by the applicator to prevent spills and ensure proper maintenance of the facility. The Emergency Response Plan (ERP) contained at the end of this section will be implemented should any accidents arise.

5.3 Manure Application Considerations

5.3.1 Irrigation Distribution System

The holding pond is pumped to a center pivot and volume gun irrigation distribution system as illustrated on the Irrigation Distribution Site map covering 188.3 acres. The pivot is connected by an 8" high-pressure underground and surface pipe, to a 700-gpm electric floating pump located on the berm of the pond.

5.3.2 Surface Water Considerations

Management will not apply manure or effluent within 200 feet of any streams, lakes, or impounded waters. The producer shall use these maps as a guide when applying manure, however actual measurements may be necessary.

5.3.3 Wetlands

The owners of the tracts of each parcel have been consulted with regards to identifying any wetlands on the manure application sites. These sites are identified on the maps located in the CNMP and the acres included within the wetland areas have been excluded from the total acreage. When applying manure, management shall not apply manure or effluent within 200 feet of any wetland.

5.3.4 Manure Gifted, Traded or Sold

Management will keep a record of any manure or effluent that is sold, gifted or traded and will not be responsible for keeping record of or determining distribution

rates of such manure. Records of manure transactions will detail the date, amount of manure transferred on a daily basis, party sold or given to, and any other details of the transfer. Management will provide the receiving party a representative manure sample analysis report.

5.4 Inspection Requirements

Management will keep detailed written documentation for the operation, maintenance, and inspection of the LWCF and related components on a weekly basis, or after each runoff event, whichever occurs first. This inspection shall consist of measuring and recording the change in pond depth, recording the LWCF condition, and evaluating the maintenance procedures as outlined herein. Corrective measures that are taken will be documented on the Operation and Maintenance Record Keeping Form.

Parcels receiving manure will be monitored and inspected daily by the operator of manure application equipment to ensure that manure and/or runoff from the application site is not leaving the site. If a discharge occurs, management will take necessary corrective action immediately. Documentation of each corrective action shall be made and be available for inspection by the state if requested. All records shall be kept by management for a period of at least five years at the facility.

5.4.1 Pumping Station Systems and Debris Basin Maintenance

These Standard Operating Procedures shall be implemented by the management of the AFO and pertain specifically to pumping equipment and debris basins.

5.4.2 Equipment Safety

All pumping equipment will have controlled access and be monitored to prevent any tampering or unauthorized use.

5.4.3 Equipment Inspections

All pumping equipment shall be inspected by management within 24 hours of each significant runoff event. Such inspections shall ensure the proper operation of all valving, backflow prevention devices and pumping equipment.

5.5 Pit and Manure Storage Maintenance Procedures

1. Repair and re-vegetate any areas of significant erosion.
2. Repair any damaged earthwork to original grade.
3. Repair any safety signs to original specifications.
4. Remove and dispose of significant trash and debris that will affect the functioning of the manure storage pit system.
5. Management must immediately report any accidental releases of wastewater off of the property to the Department of Environmental Quality according to the Emergency

Response Plan. Should such activities occur, management will develop and a remedial action plan to prevent further accidental releases if possible.

6. Management shall record all aforementioned information of the enclosed forms to comply with this plan.

5.6 Basin Maintenance

All basins must be maintained to completely empty into the lift station and/or holding pond as is appropriate. The cleaning of basin solids will occur after an extended period without rain to allow adequate time for the waste and clay floor to dry. Cleaning during dry times will prevent rutting of the basin floor. The equipment operator will leave a thin layer of livestock waste to prevent equipment contact with the clay liner. Any damage to the liner must be repaired immediately with compacted clay.

5.6.1 Basin Inspections

All basins shall be inspected by management within 24 hours of each significant runoff event. Such inspections shall assure the proper operation of all valving, backflow prevention devices, and pumping equipment. Necessary repairs shall be implemented within 24 hours.

5.6.2 Sludge Removal

The pond will not be allowed to accumulate sludge above the Maximum Sludge Depth (as defined in the engineering calculations). When the need to restore capacity to the structure is determined from the listed indicator, the sludge will be removed when the sludge level reaches the Maximum Sludge Depth.

Agitation and pumping unit or excavation equipment will be used to physically remove a portion or all of the accumulated sludge/sediment. The removal equipment will not be allowed to physically come into contact with the liner; therefore, this system should allow proper protection of the liner.

Samples shall be obtained in order to determine proper land application rates. The method and location of sludge and sediment application will be in accordance with the NMP for this facility.

Management will remove sludge from basins in a timely manner (at least annually) to ensure proper drainage.

5.7 Holding Pond Maintenance Procedures

The holding pond shall be inspected by management weekly and within 24 hours of each significant runoff event to ensure proper function and or for damage. The following list is an example of inspection items and corrective actions (Please note that the following list is a suggestion and the items to be inspected are not limited to the list).

1. **Erosion** - Repair and re-vegetate any areas of significant erosion.
2. **Damaged Grade Work** - Repair any damaged earthwork to original grade.
3. **Liners & Pipes** - Repair any damaged liner or pipes as discovered.

4. **Trash** - Remove and dispose of significant trash or debris that will affect the functioning of the pumping unit system.
5. **Weed Control** - The pond will be maintained with seeding of the berms, diversion drainage channels and all disturbed soil. Proper herbicide applications and spraying will also take place to prevent the growth of unwanted vegetation on the berms to help maintain structural integrity.
6. **Extraneous Runoff** - Extraneous storm water runoff is diverted around the LWCF to eliminate unnecessary volume. These diversions will be maintained on a regular basis to prevent the backup and spillage of fresh water into the waste retention pond.

5.8 Minimum Standards for Safe Disposal of Manure and Manure Storage pit water

1. Keep floors as clean and dry as possible to avoid anaerobic decomposition of organic material.
2. Avoid manure buildup, thereby decreasing odor sources.
3. Ventilation will be adequate to prevent buildup of dusts, gases, moisture and heat, which may intensify odor. All buildings are power ventilated, thus greatly reducing gas and moisture buildup.
4. Interior of buildings surfaces are conducive to power washing weekly facilitate cleaning and reduce chance for dust and debris to accumulate.
5. Feed delivery systems are of the type and design to release as little dust as possible. Odorants readily attach to airborne feed particles and dust, which can be easily released to outside air. Exhaust fans and shutters will be cleaned of dust and debris to maximize warm season ventilation.

6. BEST MANAGEMENT PRACTICES

The following Best Management Practices (BMP) may be implemented by management of the operation, based upon the existing physical and economic conditions, opportunities and constraints:

6.1 Odor Control BMP's

The following management practices will assist in minimizing odor effect.

6.1.1 Facility Maintenance and Odor Control Practices.

- Keep pens as clean and dry as possible to avoid anaerobic decomposition of organic material.
- Avoid manure buildup, thereby decreasing odor sources.
- Basins will be cleaned as needed. Care will be taken to account for wind direction and timing of such activities to stay away from weekends and Holidays.

6.1.2 Pond Odor Control Practices

- The pond (s) will be managed properly with respect to dewatering as often as specified above.
- The pond is large enough to consistently hold all runoff, store excess runoff and apply in a timely manner to cropland.
- The pond (s) will be inspected and monitored as specified in the Operation and Maintenance Plan to prevent excess sludge accumulation and odor production associated with normal pond activities.

6.1.3 Land Application

- The application of liquid and solid manure onto cropland may be a significant source of odors and nuisance complaints from surrounding neighbors. The following procedures may help alleviate those concerns.
- When liquids are applied to cropland, care will be taken to ensure wind direction is not conducive to neighbor residences and runoff is prevented.
- Try to apply manure during times when the air is warming and rising from the ground.
- Try to avoid application on hot humid days (where odors will stay close to the ground) and on weekends or holidays.

6.2 Other Best Management Practices

6.2.1 Surface Water

Manure and effluent will not be applied in a manner to allow contamination to surface waters.

6.2.2 Conservation Practices

Manure and effluent will utilize application areas that are under proper conservation treatment to prevent runoff into surface waters.

6.2.3 Agronomic Rates

Manure and effluent will not be applied in excess of agronomic rates for Nitrogen and shall provide for sampling and management as specified in the Nutrient Management Plan (NMP) in this application.

7. MORTALITY & CHEMICAL MANAGEMENT PLAN

Disposal of mortalities shall conform to Illinois Department of Agriculture's guidelines. Mortalities will be removed from the feeding area immediately upon discovery and placed in temporary storage area awaiting pickup from a rendering company. Minor storm water runoff from this area shall be confined to the localized vicinity and not initially directed to a manure control structure. However this area will lay within the drainage area of the LWCF and thus this practice will further ensure containment during major storm events.

Animal mortalities will not be disposed of in any livestock waste control facility.

7.1 Catastrophic Mortality Event

In the case of a catastrophic mortality event, management shall contact the agencies listed below management within 18 hours of discovery.

Illinois Environmental Protection Agency	(217) 782-2829
Illinois Department of Agriculture	(217) 782-2172

Final disposal of mortalities from a catastrophic event shall be approved on a case-by-case basis by the superior agency in charge. Depending on the nature of such an event different state or federal agencies may have jurisdiction.

7.2 Temporary Mortality Storage Area

Prior to final disposal, mortalities shall be stored in a location and manner consistent with this plan and the rules and regulations in effect at the time of such storage. This area is located on-site and is designated on the Mortality Management Site Map.

7.2.1 Runoff Control

Storm water runoff from this area shall either be contained and disposed of by land application or directed into the LWCF. Mortalities shall temporarily be stored un-covered.

7.3 Mortality Disposal Methods

7.3.1 Primary method

Within 36 hours of discovery, mortalities shall be disposed of via commercial renderer.

7.3.2 Secondary method

If the Primary Disposal Method is unattainable, mortalities shall be buried within 36 hours. Burial shall be conducted at the location designated on the Mortality Management Site Map.

7.4 Chemical Management Plan

Chemicals such as herbicides, insecticides and rodenticides may be used at this AFO to control unwanted vegetative growth, insect pests and rodents.

7.4.1 Chemical Storage

Chemicals will be stored in their original containers in a designated area with restricted entrance, away from feedstuffs.

7.4.2 Container Disposal

Empty containers will be flushed and disposed of according to label instructions. Chemicals or chemical containers will not be disposed of in any liquid manure, dry manure or process wastewater system associated with this LWCF.

8. Record Keeping

Records will be maintained by documenting the actual rate at which nutrients were applied compared to the recommended and planned rates. The records will indicate the reasons for difference in application rates. Records will include:

a) A copy of all applicable records

b) A copy of the Permit Application

c) Records documenting the visual inspections of water lines, pumps, storage structures, manure application equipment, diversions, and runoff from land application sites.

d) Weekly records of the depth of the manure and process wastewater in the

liquid livestock waste storage as indicated by the depth marker.

e) Records documenting any actions taken to correct deficiencies as required

f) Records of mortalities management and practices used by the facility

g) Records documenting the current design of any livestock waste storage

structures, including volume for solids accumulation, design treatment.

volume, total design volume, and approximate number of days of storage

capacity;

h) Records of the date, time, and estimated volume of any overflow;

i) A copy of the facility's site-specific nutrient management plan;

j) Expected crop yields for land application areas;

k) The dates livestock waste is applied to each land application area;

l) Records documenting subsurface drainage inspections conducted

m) Results from livestock waste and soil sampling;

n) Explanation of the basis for determining livestock waste application rates;

o) Calculations showing the total nitrogen and phosphorus to be applied to

each field, including sources other than livestock waste;

p) Total amount of nitrogen and phosphorus actually applied to each field,

including documentation of calculations for the total amount applied;

q) The method used to apply the livestock waste;

r) Date of livestock waste application equipment inspection;

s) Maximum number and type of animals, whether in open confinement or housed under roof by the following types: beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, turkeys, ducks, other;

t) All records necessary to prepare the annual report

u) Total number of acres of land application area covered by the nutrient management plan;

v) The quantity of livestock waste removed when a manure storage area or waste containment area is dewatered;

w) The following information for each day during which livestock wastes are applied to land:

1) the amount applied to each field in either gallons, wet tons or dry tons per acre;

2) soil water conditions at the time of application (such as dry, saturated, flooded, frozen, snow-covered);

3) an estimate of the amount of precipitation 24 hours prior to, and for 24 hours after, the application;

4) the type of application method used (surface, surface with incorporation, or injection);

5) the location of the field where livestock waste was applied;

6) the results of leak inspection of livestock waste application equipment;

7) the name and address of off-site recipients of livestock waste, the

amount of waste transferred to each off-site recipient in gallons or dry tons, off-site location on a topographic map, and acreage of each site used by the off-site recipient;

8) Weather conditions, including precipitation, air temperature, wind speed, wind direction and dew point, at time of land application and for 24 hours prior to and for 24 hours following application; and

9) Records of the weather forecasts required to be maintained

x) The laboratory analysis sheets reporting the analysis of the livestock waste samples shall be kept on file at the facility for the term of the permit and for 5 years after expiration of the permit; and

y) Records documenting the test methods and sampling protocols for manure, litter and process wastewater and soil analyses.

Records shall be maintained for five years.

9. NUTRIENT MANAGEMENT PLAN ATTACHMENTS

1. Manure Management Land Estimator
2. Nutrient Balance Extrapolation
3. Planned Manure Applications
4. Maps of Application Sites
5. Maps of Soil Types for Application Sites
6. RUSLE2 Profile Erosion Calculation Records
7. Illinois Phosphorus Index Worksheets
8. Nitrogen Risk for Individual Fields

Manure Management Land Estimator Worksheet
Open Feedlot Manure

A	B	C	D
Permitted Head Count	Turns Per Year	Total Head Count Finished Per Year	Avg. Wt. (lbs.)
3200	2.3	7,360	850

Production and Storage Loss

E	F	G	H	I	J	K	L	M
	Nitrogen				Phosphorus			
	Produced	Storage Loss			Produced	Storage Loss		
Manure Type	N / Animal / Year (lbs)	Total N / Year (c*f) (lbs.)	% Retained (book value)	After Losses (g*h) (lbs)	P_2O_5 / Animal / Year (book value) (lbs)	Total P_2O_5 / Year (c*j) (lbs)	% Retained (book value)	After Losses (k*l) (lbs)
Solids	48.6	357,611	50%	178,806	7.07	52,005	95%	**49,404**
Effluent	48.6	357,611	5%	17,881	7.07	52,005	5%	**2,600**

Nitrogen Application Loss

N	O	P	Q	R	S	T	U
Manure Type	% of Organic N in Manure (book value)	First Year Available Organic-N (book value) (%)	Total Organic N (i*o*p) (lbs.)	Ammonium in Manure (book value) (%)	Available Ammonium (book value) (%)	Total NH4-H (i*r*s) (lbs.)	Total (q+t) (lbs N/year)
Solids	80%	50%	71,522	20%	5%	1788	**73,310**
Effluent	10%	70%	1,252	90%	50%	8046.25	**9,298**

Solids Distribution Minimums

V	W	X	Y	Z	AA	AB	AC
Crop	Yield	N Uptake Per Yield Unit (book value) (lbs)	N Uptake (w*x) (lbs/acre)	Minimum Required Area For Complete Nitrogen Distribtuion (u / x) (acres)	P Uptake Per Yield Unit (book value) (lbs)	Total P Uptake (w * aa) (lbs/acre)	Minimum Required Area For Complete Phosphorus Distribtuion (m / ab) (acres)
Corn Silage	22.9	8.00	183	400.2	3.0	69	719.1
Corn	190	1.00	190	385.8	0.4	70	702.8
Soybeans	56	4.00	224	327.3	0.8	45	1,102.8
Wheat	80	1.25	100	733.1	0.6	50	996.1
Oats	80	0.78	63	1,171.7	0.2	19	2,653.6
Alfalfa	6	52.00	312	235.0	9.0	54	914.9

Effluent Distribution Minimums

AD	AE	AF	AG	AH	AI	AJ	AK
Crop	Yield	N Uptake Per Yield Unit (book value) (lbs)	N Uptake (ae*af) (lbs/acre)	Minimum Required Area For Complete Nitrogen Distribtuion (u/ag) (acres)	P Uptake Per Yield Unit (book value) (lbs)	Total P Uptake (ae*ai) (lbs/acre)	Minimum Required Area For Complete Phosphorus Distribtuion (i/aj) (acres)
Soybeans	75	4.00	300	31.0	0.8	60	43.3
Corn Silage	26	8.00	208	44.7	3.0	78	33.3
Corn	215	1.00	215	43.2	0.4	80	32.7

Values derived from USDA NRCS "Agricultural Waste Management Field Handbook"
Manure is broadcast applied, not incorporated, and is applied to cool soils

Example Nutrient
Balance Extrapolation

Crop Year	Crop	Yield	**Nutrients Applied** N Lb/A	P2O5 Lb/A	Phos Removal Lb/A	Phosphorus Balance After Removal Lb/A
2009	Soybean	55	0	0	44	-44
2010	Corn	145	119	180	43.5	92.5
2011	Soybean	55	0	0	44	48.5
2012	Corn	145	134	0	43.5	5
2013	Soybean	55	0	0	44	-39
2014	Corn	165	158	280	49.5	191.5
2015	Soybean	55	0	0	44	147.5
2016	Corn	165	158	0	49.5	98
2017	Soybean	55	0	0	44	54
2018	Corn	165	158	0	49.5	4.5
2019	Soybean	55	0	0	44	-39.5
2020	Corn	180	176	280	54	186.5
2021	Soybean	55	0	0	44	142.5
2022	Corn	180	176	0	54	88.5
2023	Soybean	55	0	0	44	44.5
2024	Corn	190	188	280	57	267.5
2025	Soybean	55	0	0	44	223.5
2026	Corn	190	188	0	57	166.5
2027	Soybean	55	0	0	44	122.5
2028	Corn	190	188	0	57	65.5

Report Number
F24348-6516
Account Number
99990

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Purchase Order: 348-6516

Lab Number: 71342
Sample ID: 1
Manure Type: BEEF, SOLID (CONCRETE LOT) (3)

MANURE ANALYSIS

Date Received: 12/13/2024
Date Reported: 12/19/2024 **Page:** 1 of 1

Analysis	Unit	Analysis Result (As Received)	Pounds Per Ton	First Year Availability @ Pounds Per Ton
Moisture	%	85.38	1708	
Solids	%	14.62	292	
Nitrogen, Total Kjeldahl (TKN)	%	0.311	6.2	3.6 *
Phosphorus (P)	%	0.140	6.4 (as P_2O_5)	6.4 * (as P_2O_5)
Potassium (K)	%	0.122	2.9 (as K_2O)	2.9 * (as K_2O)

@ Estimate of first-year availability does not account for incorporation losses. Consult MWPS-18, "Livestock Waste Facilities Handbook" for additional information.
* Source: MWPS-18, Livestock Waste Facilities Handbook, 1993 # Source: A3411, "Manure Nutrient Credit Worksheet", University of Wisconsin

Report Approved By: Dai C Hy Approval Date: 12/19/2024
David Henry - Agronomist / Technical Services - CCA

Planned Manure Application - Effluent - Field North 60 Pivot, North 60 VG, NW 40 and Trolard North - Continuous Corn (Pivot/Volume Gun)

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/1000 gal)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Not Incorporated	0.65	0.20	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	0.4	Not Incorporated	0.30	0.12	0.15	0.06	0.07	0.03	0.04	0.02
				0.32	0.15	0.06	0.07	0.03	0.04	0.02
Phosphorus	1.8	Not Incorporated	0.8	1.44						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
		Crop Rotation				Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Corn	215	bu/ac	225.8	1.2	271	35	306	0.3	69.0
2025	Corn	215	bu/ac	225.8	1.2	271	35	306	0.3	69.0
2026	Corn	215	bu/ac	225.8	1.2	271	35	306	0.3	69.0
2027	Corn	215	bu/ac	225.8	1.2	271	35	306	0.3	69.0
2028	Corn	215	bu/ac	225.8	1.2	271	35	306	0.3	69.0

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (1000's gal/acre)	3 Year Previous Manure Application Rate (1000's gal/acre)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (1000's gal/acre)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (1000's gal/acre)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					54.3									
2022					54.3									
2023					54.3									
2024	10.0	1.0	31.6	0	54.3	54.3	0.9	54.3	1.5	54.3	3.3	0.0	47.3	258.6
2025	10.0	1.0	31.6	0	54.3	54.3	0.9	54.3	1.5	54.3	3.3	0.0	47.3	258.6
2026	10.0	1.0	31.6	0	54.3	54.3	0.9	54.3	1.5	54.3	3.3	0.0	47.3	258.6
2027	10.0	1.0	31.6	0	54.3	54.3	0.9	54.3	1.5	54.3	3.3	0.0	47.3	258.6
2028	10.0	1.0	31.6	0	54.3	54.3	0.9	54.3	1.5	54.3	3.3	0.0	47.3	258.6

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Effluent App. Rate For Balance of Nitrogen (am/ao) (1000's gal/acre)	Desired Application Rate For Nitrogen (1000's gal/acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	0.32	821.1	54.3	17.1	241.5	1478.0	1409.0	78.2	9.2
2025	0.32	821.1	54.3	17.1	241.5	1478.0	2818.1	78.2	18.5
2026	0.32	821.1	54.3	17.1	241.5	1478.0	4227.1	78.2	27.7
2027	0.32	821.1	54.3	17.1	241.5	1478.0	5636.1	78.2	36.9
2028	0.32	821.1	54.3	17.1	241.5	1478.0	7045.2	78.2	46.2

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Slurry - Field - South Trolard, Eikhoff, South of Tracks, Promiseland, Brinkman- Continuous Corn (Injected)

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/1000 gal)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	30.0	Incorp. immediately	0.95	28.50	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	17.0	Incorp. immediately	0.35	5.95	0.15	2.55	0.07	1.19	0.04	0.68
				34.45	0.15	2.55	0.07	1.19	0.04	0.68
Phosphorus	25.0	Incorp. immediately	0.7	17.5						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T
Crop Rotation						Nitrogen Demand	Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (n * 110%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (p*s) (lbs/acre)
2024	Corn	190	bu/ac	209.0	1.2	251	0.3	63.8
2025	Corn	190	bu/ac	209.0	1.2	251	0.3	63.8
2026	Corn	190	bu/ac	209.0	1.2	251	0.3	63.8
2027	Corn	190	bu/ac	209.0	1.2	251	0.3	63.8
2028	Corn	190	bu/ac	209.0	1.2	251	0.3	63.8

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (1000's gal/acre)	3 Year Previous Manure Application Rate (1000's gal/acre)	3 Year Previous Manure Application Credit (y*k) (lbs/acre)	2 Year Manure Application Rate (1000's gal/acre)	2 Year Previous Manure Application Credit (aa*i) (lbs/acre)	1 Year Previous Manure Application Rate (1000's gal/acre)	1 Year Previous Manure Application Credit (ac*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (v+w+z+ab+ad+ae) (lbs/acre)	Remaining Deficient N Recommendation (r-af) (lb/ac)
2021			0									
2022			0									
2023			0									
2024	10.0	0	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	240.8
2025	10.0	0	0	0.0	0.0	0.0	0.0	6.0	15.3	0.0	25.3	225.5
2026	10.0	0	6	0.0	0.0	6.0	7.1	0.0	0.0	0.0	17.1	233.7
2027	10.0	0	0	6.0	4.1	0.0	0.0	6.0	15.3	0.0	29.4	221.4
2028	10.0	0	6	0.0	0.0	6.0	7.1	0.0	0.0	0.0	17.1	233.7

Initial Application Rate

AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ
Scenario ID:	First Year Availability (e) (lbs/1000 gal)	Allowable Effluent App. Rate For Balance of Nitrogen (ag/ai) (1000's gal/acre)	Desired Application Rate For Nitrogen (1000's gal/acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (ai*ak)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	34.45	7.0	6.0	206.7	34.1	174.7	110.9	105.0	41.2
2025	34.45	6.5	0.0	0.0	225.5	163.6	210.7	0.0	-22.7
2026	34.45	6.8	6.0	206.7	27.0	169.6	316.4	105.0	18.5
2027	34.45	6.4	0.0	0.0	221.4	160.7	413.3	0.0	-45.4
2028	34.45	6.8	6.0	206.7	27.0	169.6	519.0	105.0	-4.2

- Nitrogen availability based UNL NebGuide G1335 - "Determining Crop Available Nutrients from Manure"
- Application rates are based on UNL Nitrogen fertilizer recommendations for corn grain, found in EC117 - "Fertilizer Suggestions for Corn"
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4 Previous Legume Crop N Credit = UNL Guidelines or Ward Guide
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate
6 Irrigation Water N Credit = (inches pumped x ppm Nitrate N x 2.7) / 12

Planned Manure Application - Solids - Fields AT Back 40,AT Home Base, Arlene Wollenweber North Pasture, Arlene Wollenweber W. Farm South, Bowen Tower, and Carter

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2025	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2026	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2027	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2028	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					0									
2023					0									
2024	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2025	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2026	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2027	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2028	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	37.7	20.0	101.6	89.9	452.3	391.4	240.0	179.1
2025	5.08	29.1	0.0	0.0	147.7	436.3	781.1	0.0	132.6
2026	5.08	33.4	0.0	0.0	169.6	500.6	1220.8	0.0	71.6
2027	5.08	36.1	0.0	0.0	183.4	541.4	1715.7	0.0	25.1
2028	5.08	37.7	20.0	101.6	89.9	565.4	2220.2	240.0	204.2

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application Fields; Bens, Bowen, Bowen Hills, Carson, Cooks 60, Darrell Home Base, Darrell Hogpen 2, Arlene Wollenweber W. Farm North, and Forest 1

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2025	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2026	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2027	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2028	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					20									
2022					0									
2023					0									
2024	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2025	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2026	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2027	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2028	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	36.1	0.0	0.0	183.4	433.2	386.6	0.0	-46.5
2025	5.08	37.7	25.0	127.0	64.5	565.4	891.1	300.0	192.6
2026	5.08	29.1	0.0	0.0	147.7	436.3	1280.8	0.0	146.1
2027	5.08	33.4	0.0	0.0	169.6	500.6	1720.5	0.0	85.1
2028	5.08	36.1	0.0	0.0	183.4	541.4	2215.5	0.0	38.6

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields: D Wollenweber N. Pasture Front & Back, Darrell Scott 36, Darrell North, Darrell Woods, Dean Jett, and Heinrich 120

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2025	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2026	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2027	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2028	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					20									
2023					0									
2024	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2025	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2026	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2027	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2028	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	33.4	0.0	0.0	169.6	400.5	339.6	0.0	-60.9
2025	5.08	36.1	0.0	0.0	183.4	541.4	834.5	0.0	-107.4
2026	5.08	37.7	20.0	101.6	89.9	565.4	1338.9	240.0	71.6
2027	5.08	29.1	0.0	0.0	147.7	436.3	1728.7	0.0	25.1
2028	5.08	33.4	0.0	0.0	169.6	500.6	2168.4	0.0	-35.8

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields: Fulton Lane, Fulton Lane South, Grasher, Heinrich 40, Hensen 10, Highschool

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2025	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2026	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2027	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2028	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					20									
2023					0									
2024	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2025	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2026	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2027	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2028	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	33.4	0.0	0.0	169.6	400.5	339.6	0.0	-60.9
2025	5.08	36.1	0.0	0.0	183.4	541.4	834.5	0.0	-107.4
2026	5.08	37.7	20.0	101.6	89.9	565.4	1338.9	240.0	71.6
2027	5.08	29.1	0.0	0.0	147.7	436.3	1728.7	0.0	25.1
2028	5.08	33.4	0.0	0.0	169.6	500.6	2168.4	0.0	-35.8

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields; D Wollenweber S. Pasture, Forrest 4 Black, Forrest 2, Forrest 3

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2025	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2026	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2027	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2028	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					0									
2023					20									
2024	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2025	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2026	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2027	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2028	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	29.1	0.0	0.0	147.7	349.0	302.5	0.0	-46.5
2025	5.08	33.4	0.0	0.0	169.6	500.6	742.2	0.0	-107.4
2026	5.08	36.1	0.0	0.0	183.4	541.4	1237.1	0.0	-153.9
2027	5.08	37.7	20.0	101.6	89.9	565.4	1741.6	240.0	25.1
2028	5.08	29.1	0.0	0.0	147.7	436.3	2131.3	0.0	-21.4

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields; Hill North, Hill South, Janets 108, Janets Across House, Jett Pond, Joyce 58, Kissner

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2025	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2026	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2027	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2028	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					0									
2023					20									
2024	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2025	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2026	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2027	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2028	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	29.1	0.0	0.0	147.7	349.0	302.5	0.0	-46.5
2025	5.08	33.4	0.0	0.0	169.6	500.6	742.2	0.0	-107.4
2026	5.08	36.1	0.0	0.0	183.4	541.4	1237.1	0.0	-153.9
2027	5.08	37.7	20.0	101.6	89.9	565.4	1741.6	240.0	25.1
2028	5.08	29.1	0.0	0.0	147.7	436.3	2131.3	0.0	-21.4

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields; Lyons-Lippert Cruz, Vogt Back 32, Melvins 80, Myers Hill, Parks 80, Peggy Bass North

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2025	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2026	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2027	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2028	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					20									
2022					0									
2023					0									
2024	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2025	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2026	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2027	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2028	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	36.1	0.0	0.0	183.4	433.2	386.6	0.0	-46.5
2025	5.08	37.7	20.0	101.6	89.9	565.4	891.1	240.0	132.6
2026	5.08	29.1	0.0	0.0	147.7	436.3	1280.8	0.0	86.1
2027	5.08	33.4	0.0	0.0	169.6	500.6	1720.5	0.0	25.1
2028	5.08	36.1	0.0	0.0	183.4	541.4	2215.5	0.0	-21.4

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields; Peggy Bass South of Lane, Peterson E &W, Petrea, Robinson 62, Robinson Tower 40, Rosenbaum

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2025	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2026	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2027	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
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**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					20									
2022					0									
2023					0									
2024	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2025	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2026	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2027	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2028	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
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2025	5.08	37.7	20.0	101.6	89.9	565.4	891.1	240.0	132.6
2026	5.08	29.1	0.0	0.0	147.7	436.3	1280.8	0.0	86.1
2027	5.08	33.4	0.0	0.0	169.6	500.6	1720.5	0.0	25.1
2028	5.08	36.1	0.0	0.0	183.4	541.4	2215.5	0.0	-21.4

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields; Smith East, Smith West, Spinner, Stastik 80, Terry 80, Verlin Hills

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
2024	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2025	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2026	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9
2027	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2028	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					0									
2023					0									
2024	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2025	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2026	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2027	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2028	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	37.7	20.0	101.6	89.9	452.3	391.4	240.0	179.1
2025	5.08	29.1	0.0	0.0	147.7	436.3	781.1	0.0	132.6
2026	5.08	33.4	0.0	0.0	169.6	500.6	1220.8	0.0	71.6
2027	5.08	36.1	0.0	0.0	183.4	541.4	1715.7	0.0	25.1
2028	5.08	37.7	20.0	101.6	89.9	565.4	2220.2	240.0	204.2

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields; Verlin House, Whyers 10, Wollenweber Sandovol 70, Wooters

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
Amm.-Nitrogen	0.3	Incorp. immediately	0.95	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
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2027	Soybeans	56	bu/ac	58.8	3.7	218	0	218	0.8	46.5
2028	Corn	190	bu/ac	199.5	1.2	239	35	274	0.3	60.9

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					0									
2023					0									
2024	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2025	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2026	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2027	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2028	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
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- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
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4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Planned Manure Application - Solids - Fields; AW1,FF3, FF7, KC80, MV1, RM1, RM2, SE40, VH5, VH6, VH7, VH8

Manure Analysis Information

A	B	C	D	E	F	G	H	I	J	K
			Total Nitrogen Available (tons)							
Nutrient	Analysis Value (lbs/ton)	Application Method/Timing (select from list)	First Year Availability Factor	First Year Value (b*d) (lbs)	Second Year Availability Factor (book value)	Second Year Value (b*f) (lbs)	Third Year Availability Factor (book value)	Third Year Value (b*h) (lbs)	Fourth Year Availability Factor (book value)	Fourth Year Value (b*j) (lbs)
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Org.-Nitrogen	13.7	Incorp. immediately	0.35	4.80	0.17	2.33	0.08	1.10	0.04	0.55
				5.08	0.17	2.33	0.08	1.10	0.04	0.55
Phosphorus	15.0	Incorp. immediately	0.8	12						

Nitrogen and Phosphorus Demand

L	M	N	O	P	Q	R	S	T	U	V
	Crop Rotation					Nitrogen Demand			Phosphorus Demand	
Scenario ID:	Current Crop	5-Year Average Yield For Current Crop (bu/ac or T/ac)	Crop Harvest Units	Realistic Yield Goal (s * 105%)	Nitrogen Uptake Per Harvest Unit (book value) (lbs)	Total Nitrogen Uptake (p*q) (lbs/acre)	Organic Matter Added N Value (book value) (lbs)	Crop Nitrogen Recommendation (r+s) (lbs/ac)	Phos. Uptake Per Harvest Unit (book value) (lbs)	Total Phos. Uptake (lbs/acre)
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**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

Nitrogen Credits

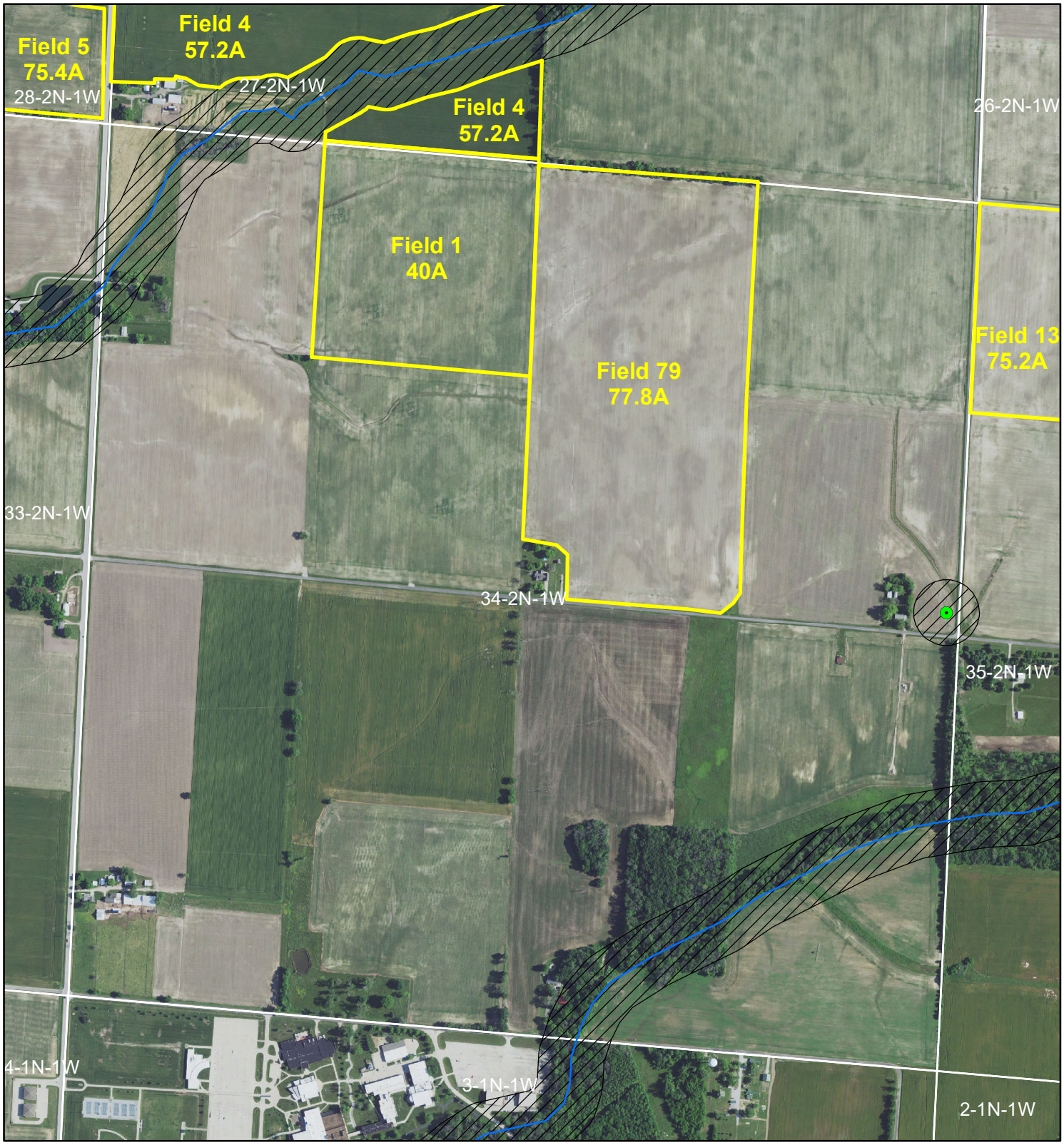
Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN
Scenario ID:	Soil Test Residual Nitrate (lbs/acre)	Soil Organic Matter (%)	Organic Matter Credit (ab*p*.14) (lbs/acre)	Previous Year Legume Credit (lbs/acre)	Manure Application Rate (tons)	3 Year Previous Manure Application Rate (tons)	3 Year Previous Manure Application Credit (af*k) (lbs/acre)	2 Year Manure Application Rate (tons)	2 Year Previous Manure Application Credit (ah*i) (lbs/acre)"	1 Year Previous Manure Application Rate (tons)	1 Year Previous Manure Application Credit (aj*g) (lbs/acre)	Irrigation Water and Other Credits (lb/ac)	Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre)	Remaining Deficient N Recommendation (t-am) (lb/ac)
2021					0									
2022					20									
2023					0									
2024	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6
2025	15.0	1.0	8.2	0	0	20.0	11.0	0.0	0.0	0.0	0.0	0.0	34.2	183.4
2026	15.0	1.0	27.9	40	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.9	191.5
2027	15.0	1.0	8.2	0	0	0.0	0.0	0.0	0.0	20.0	46.6	0.0	69.8	147.7
2028	15.0	1.0	27.9	40	0	0.0	0.0	20.0	21.9	0.0	0.0	0.0	104.9	169.6

Initial Application Rate

AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX
Scenario ID:	First Year Availability (d) (lbs/ton)	Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre)	Desired Application Rate For Nitrogen (tons / acre)	Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR)	Commercial Nitrogen Fertilizer Applied (lbs. of N / acre)	Phosphorus Applied at Allowable N Rate (lbs/acre)	Phos Balance After Allowable N Rate (lbs/acre)	Phosphorus Applied at Desired N Rate (lbs/acre)	Phos Balance After Desired N Rate (lbs/acre)
2024	5.08	33.4	0.0	0.0	169.6	400.5	339.6	0.0	-60.9
2025	5.08	36.1	0.0	0.0	183.4	541.4	834.5	0.0	-107.4
2026	5.08	37.7	20.0	101.6	89.9	565.4	1338.9	240.0	71.6
2027	5.08	29.1	0.0	0.0	147.7	436.3	1728.7	0.0	25.1
2028	5.08	33.4	0.0	0.0	169.6	500.6	2168.4	0.0	-35.8

- Nitrogen availability based MWPS-18 Livestock Waste Facilities Handbook
- Application rates are based on Illinois Agronomy Handbook
3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches
4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14
5 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate

Greenville Livestock, Inc.
Application Land Map



Wells
IL Streams
Application Land
setbacks
Facility Border
Section Lines

0 260 520 1,040 1,560 2,080
Feet

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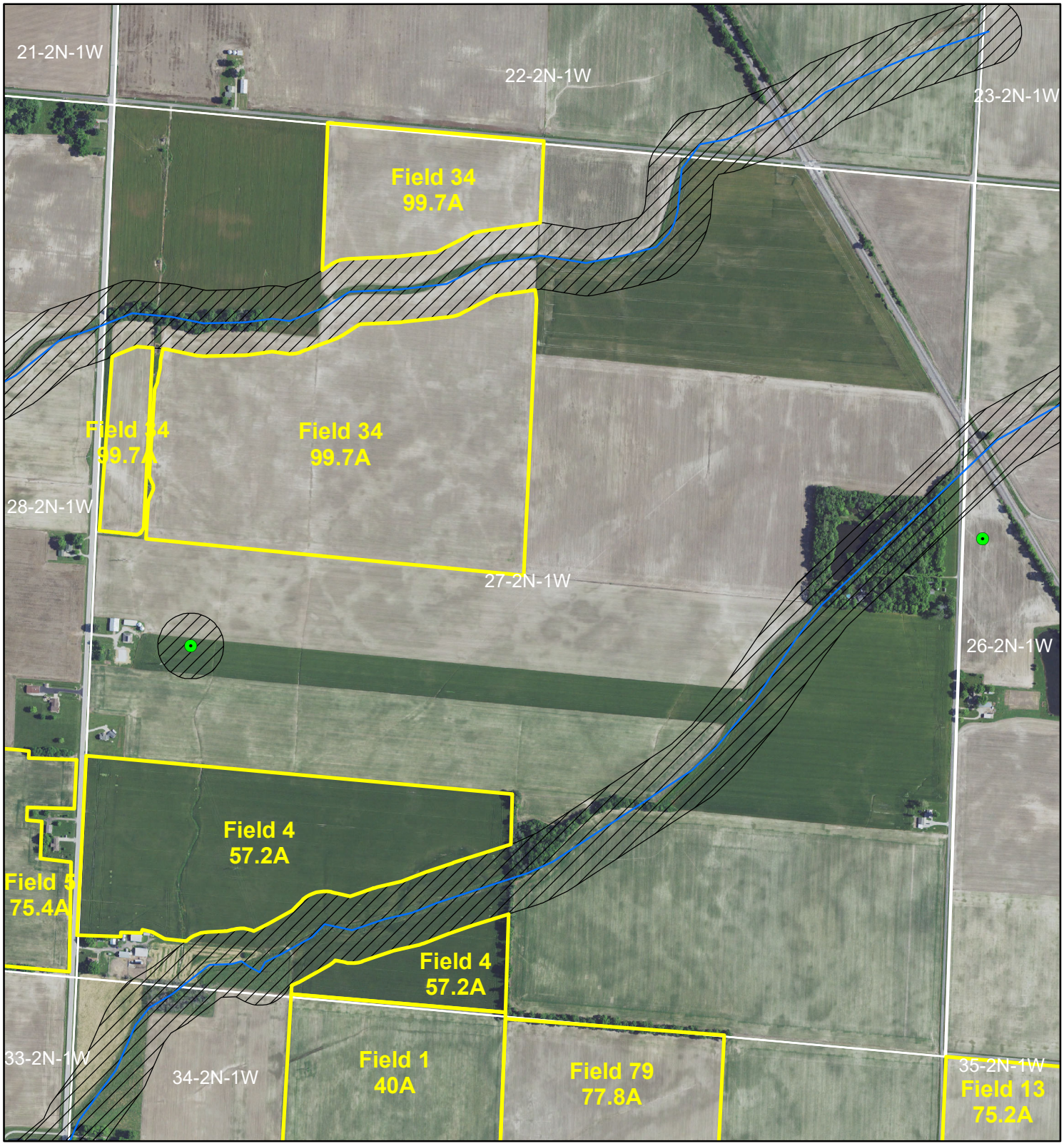
Greenville Livestock, Inc.
Application Land Map



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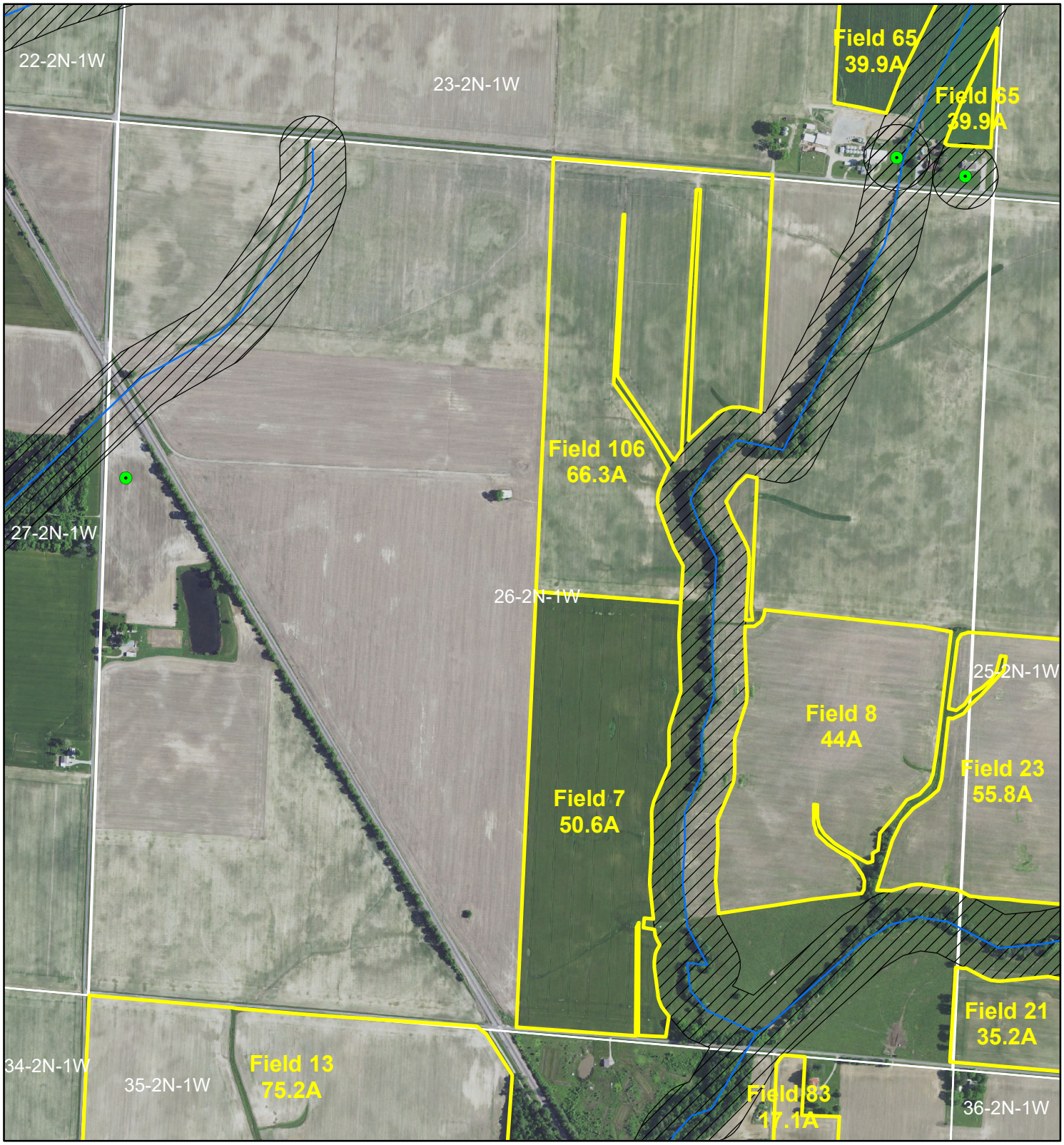

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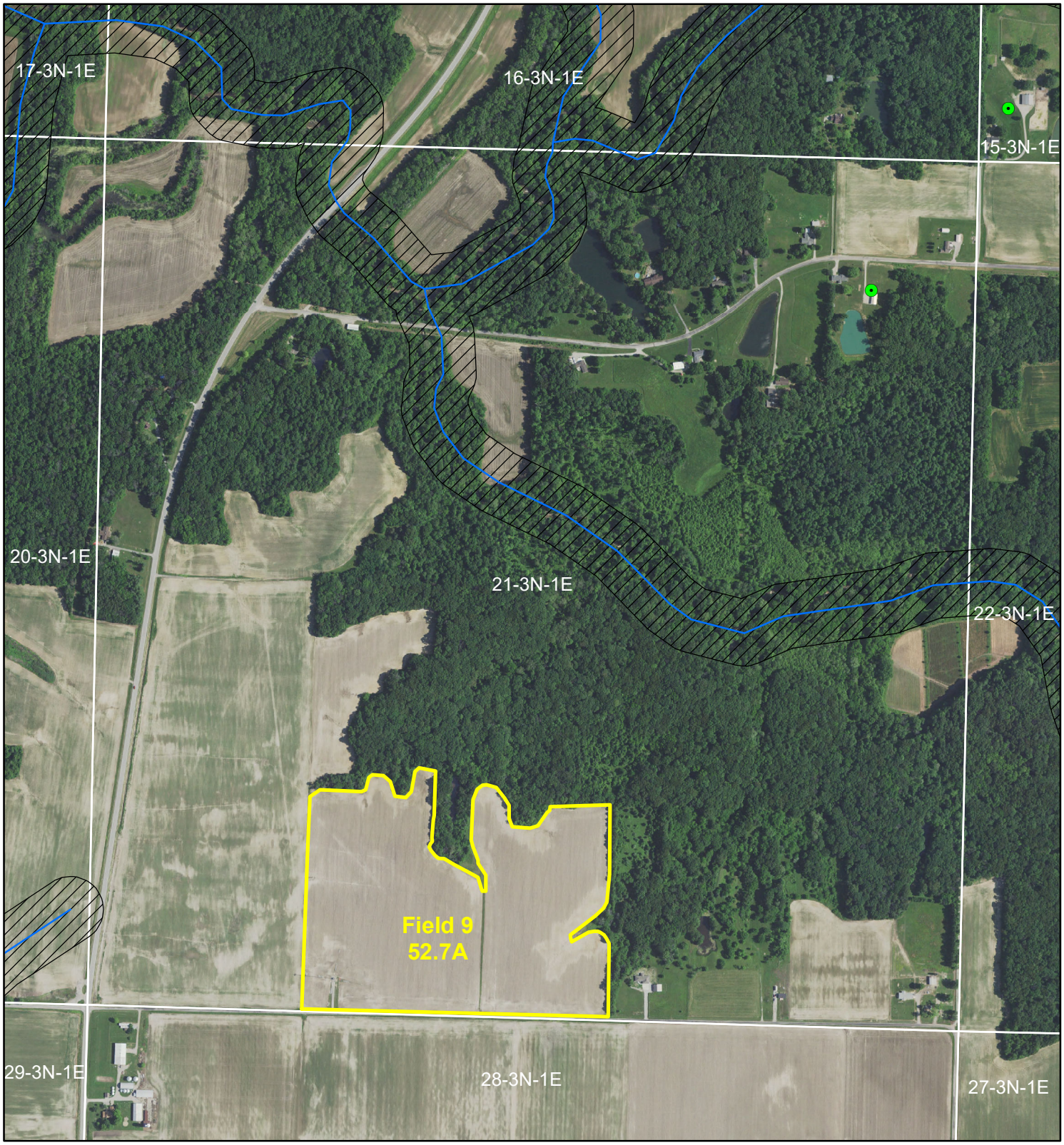

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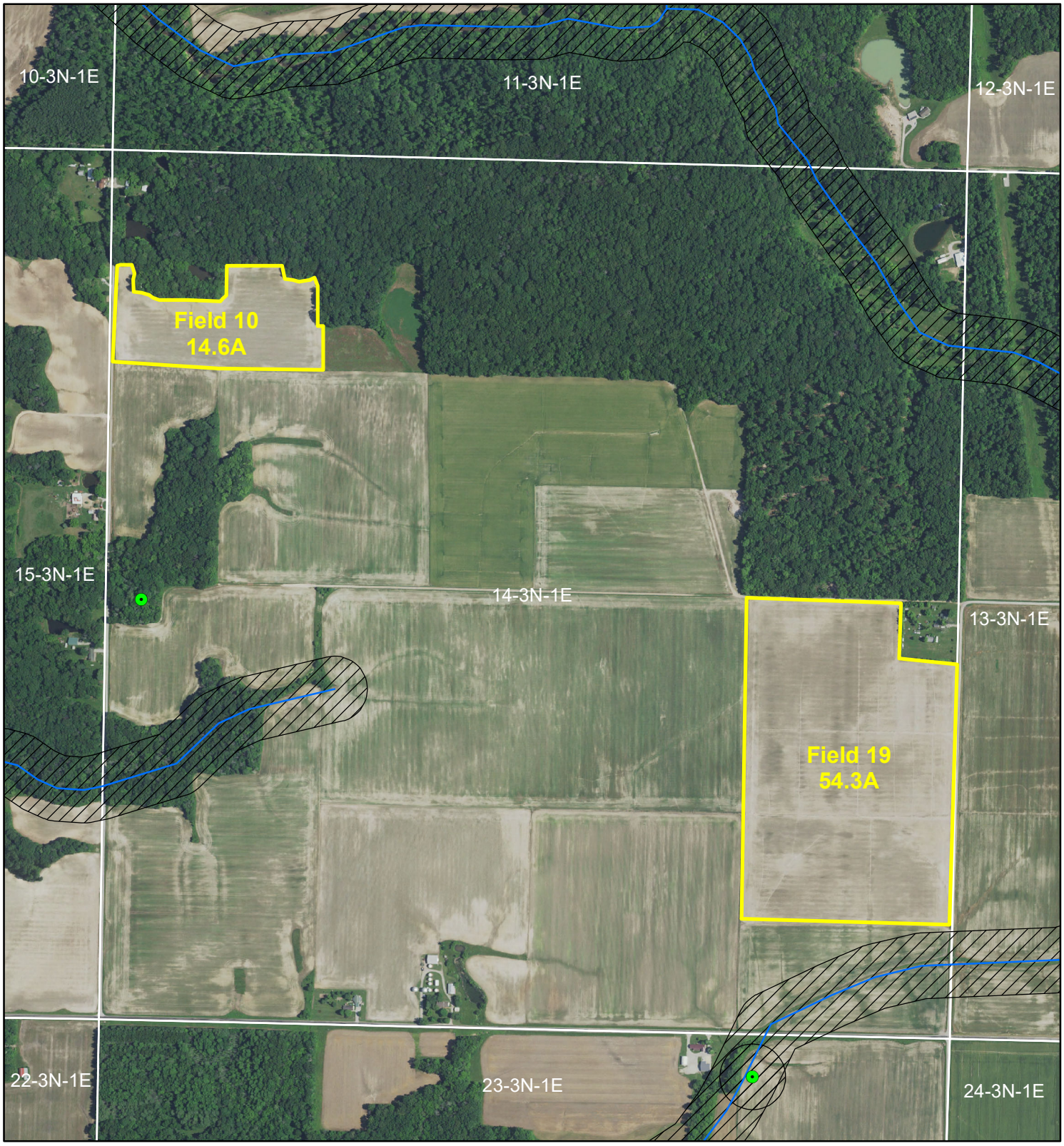

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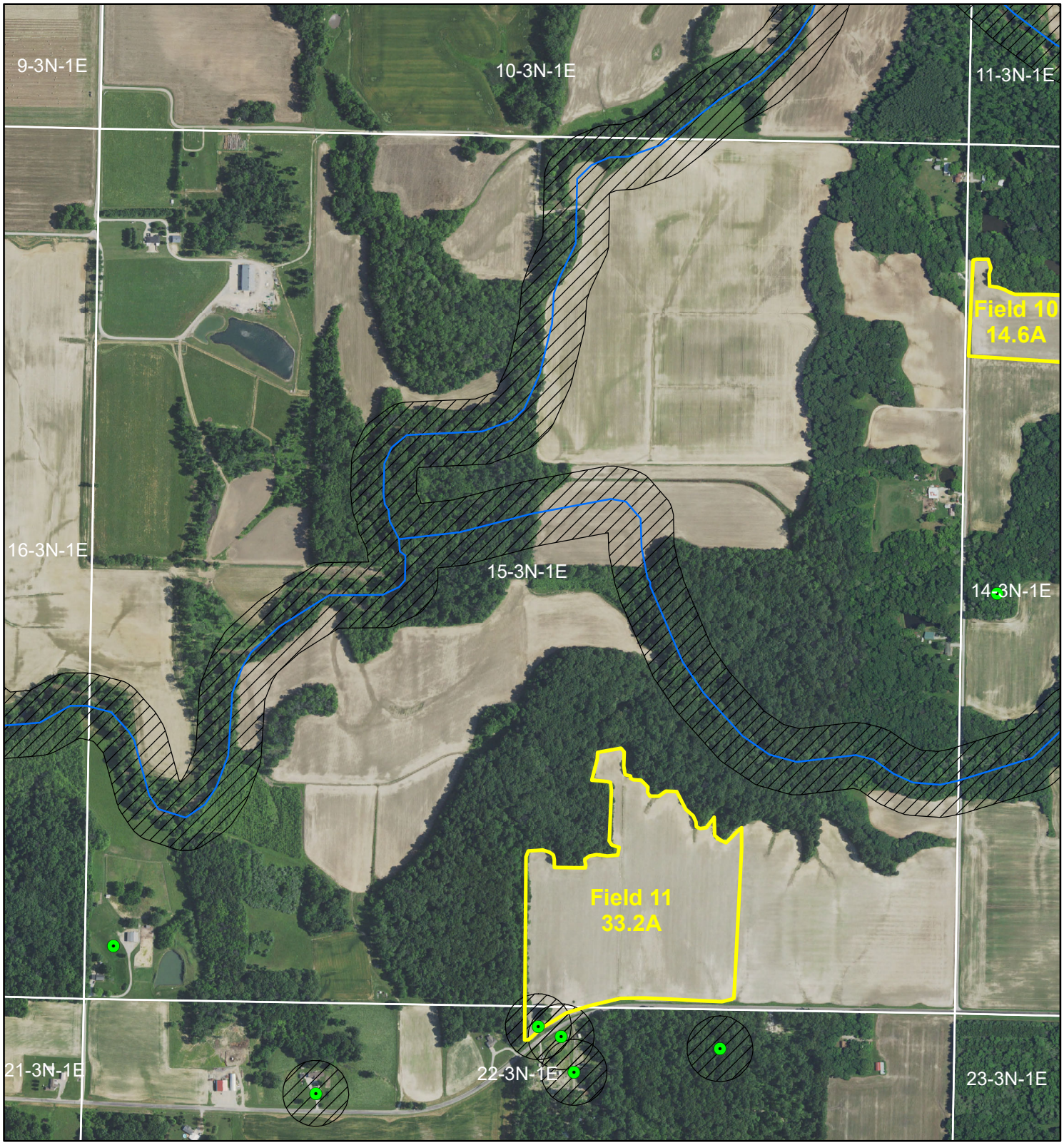

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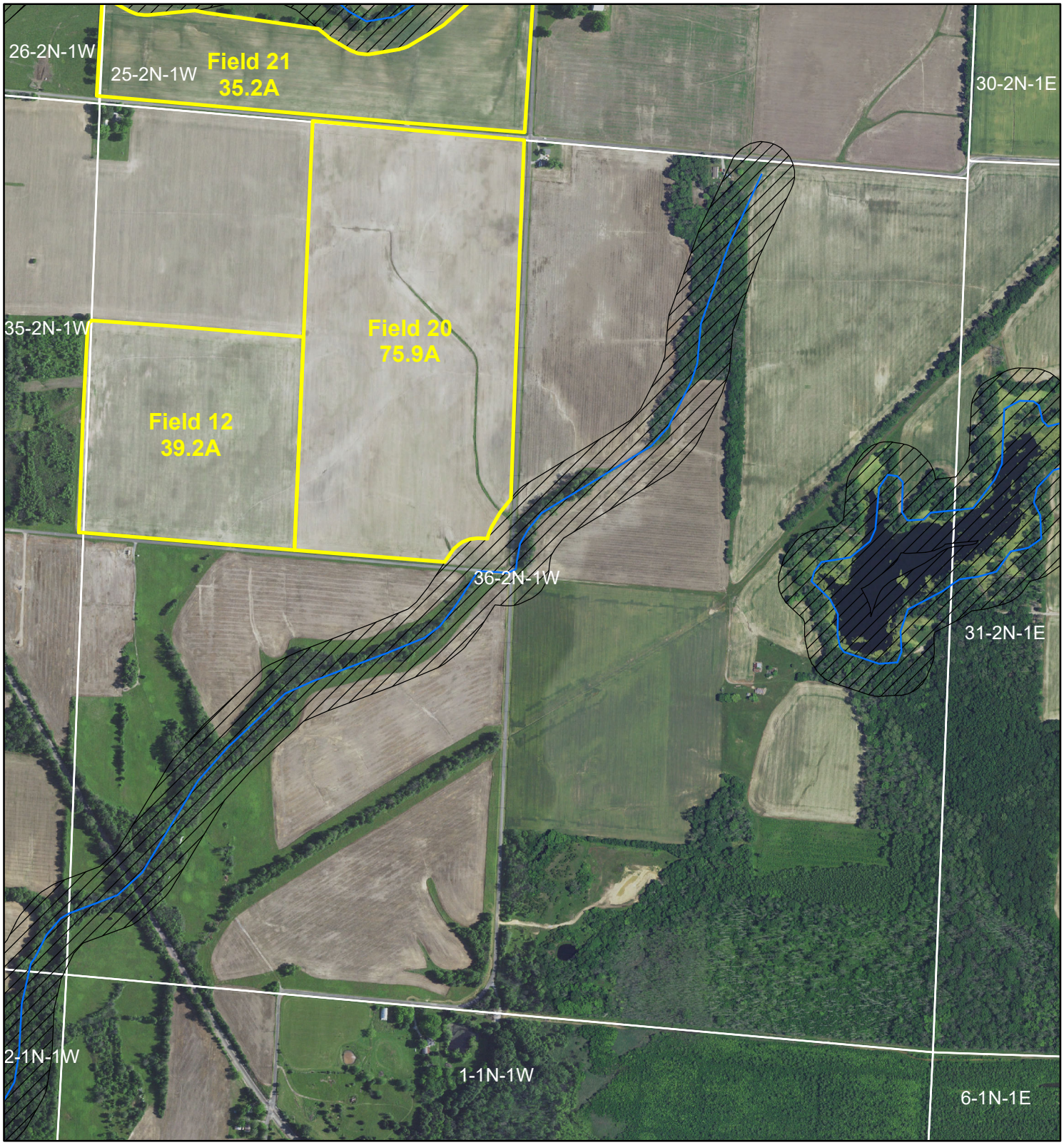

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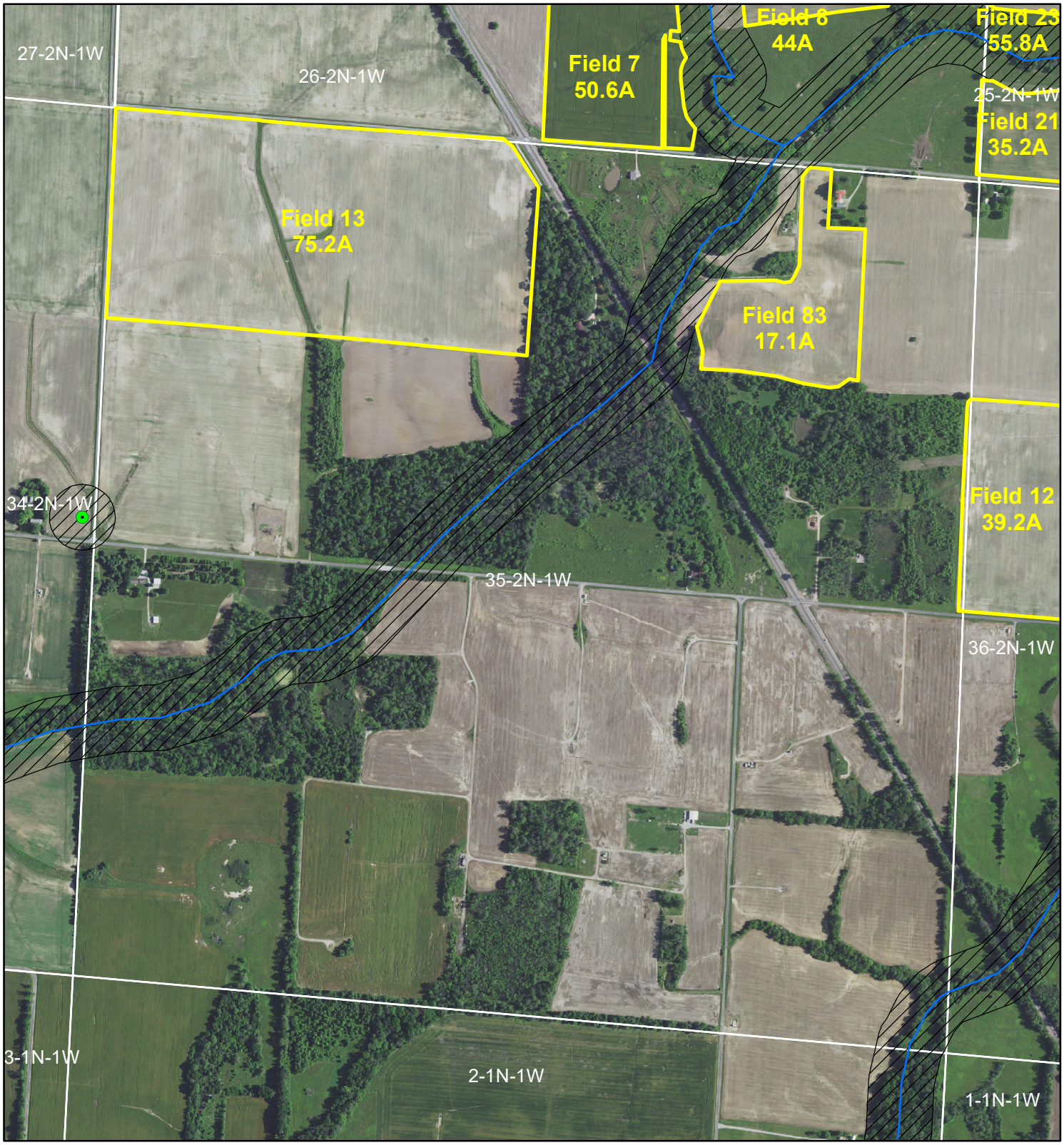

- Wells
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- Application Land
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- Section Lines

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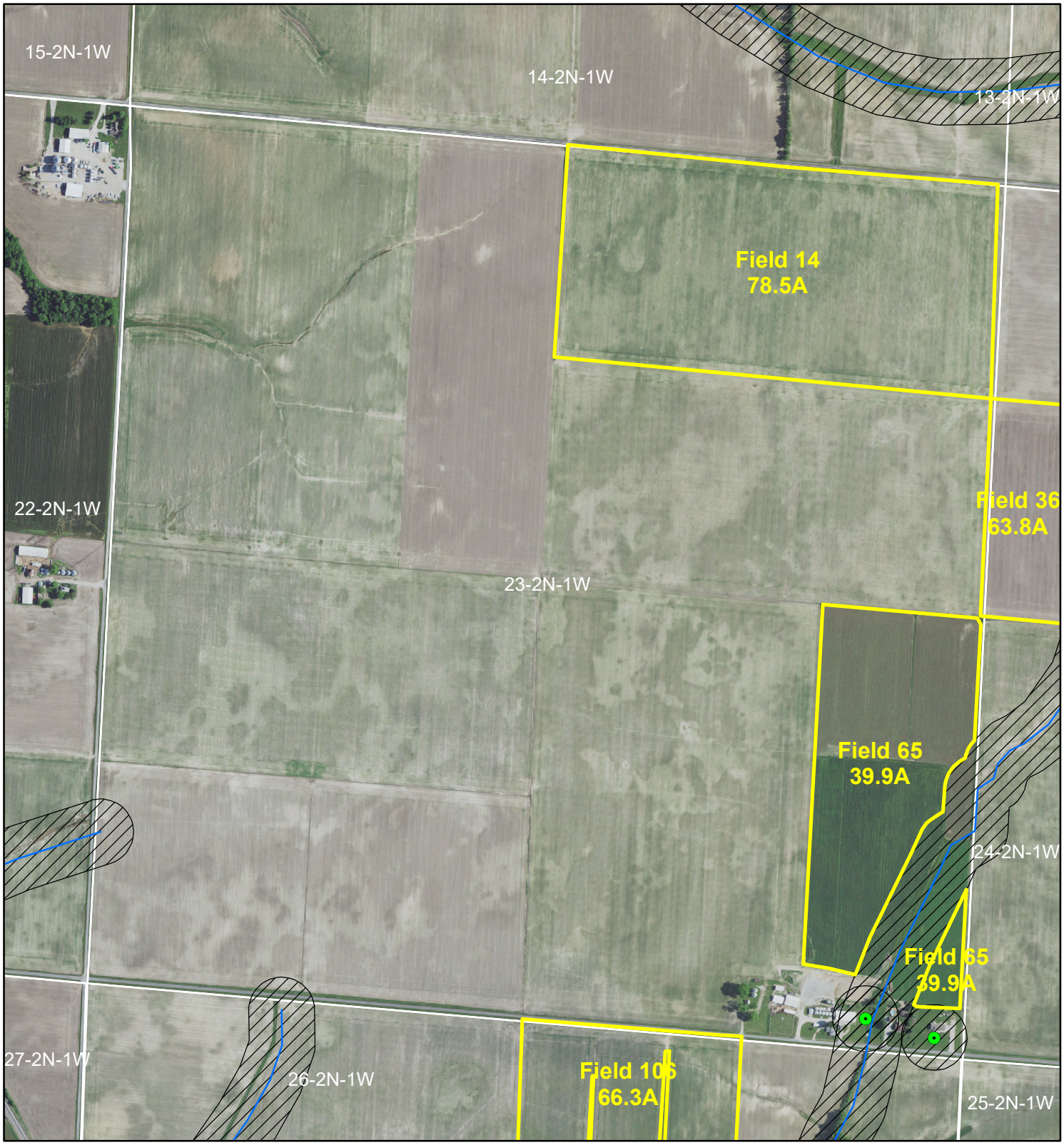
Application Land Map



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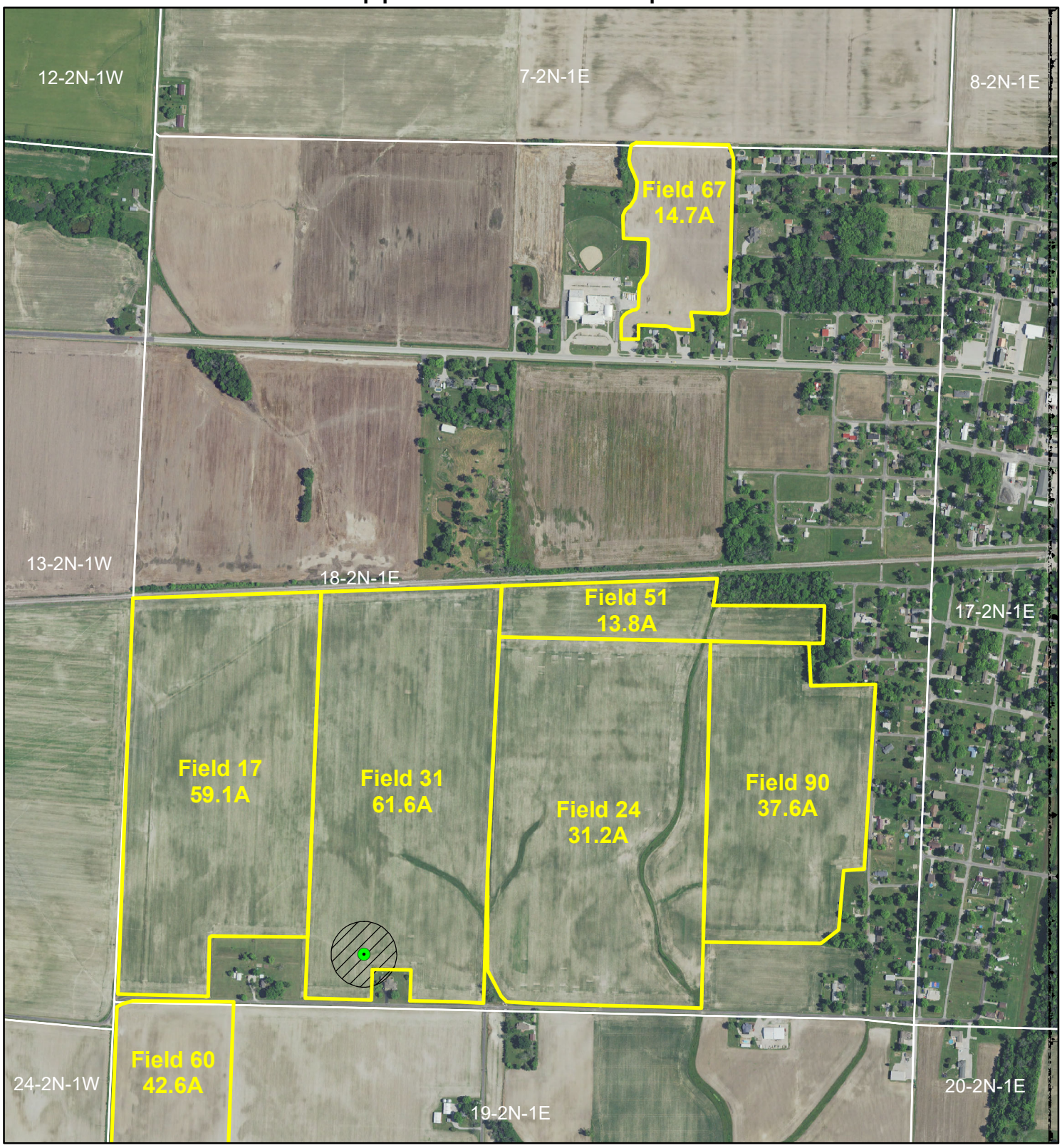

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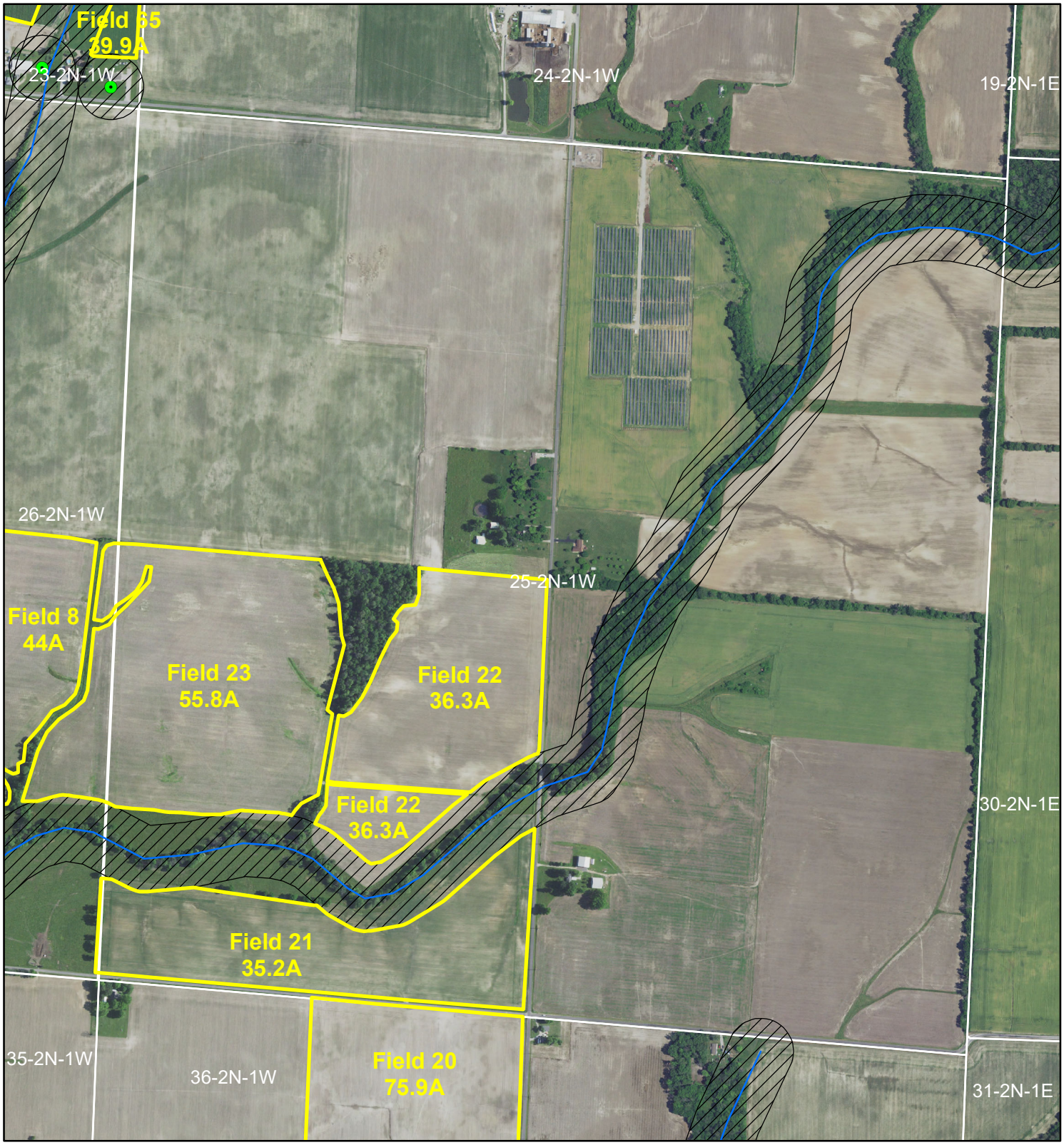

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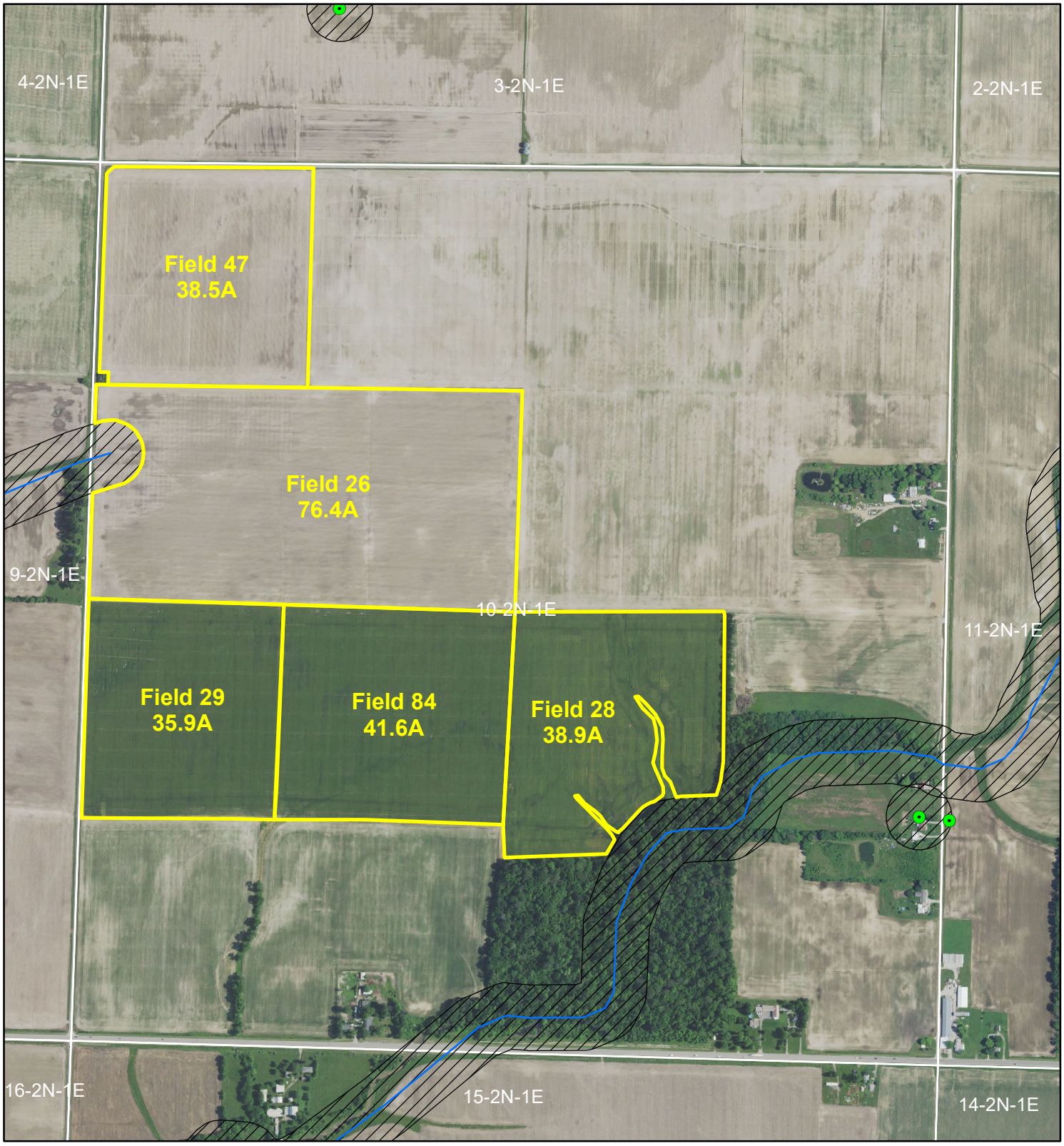

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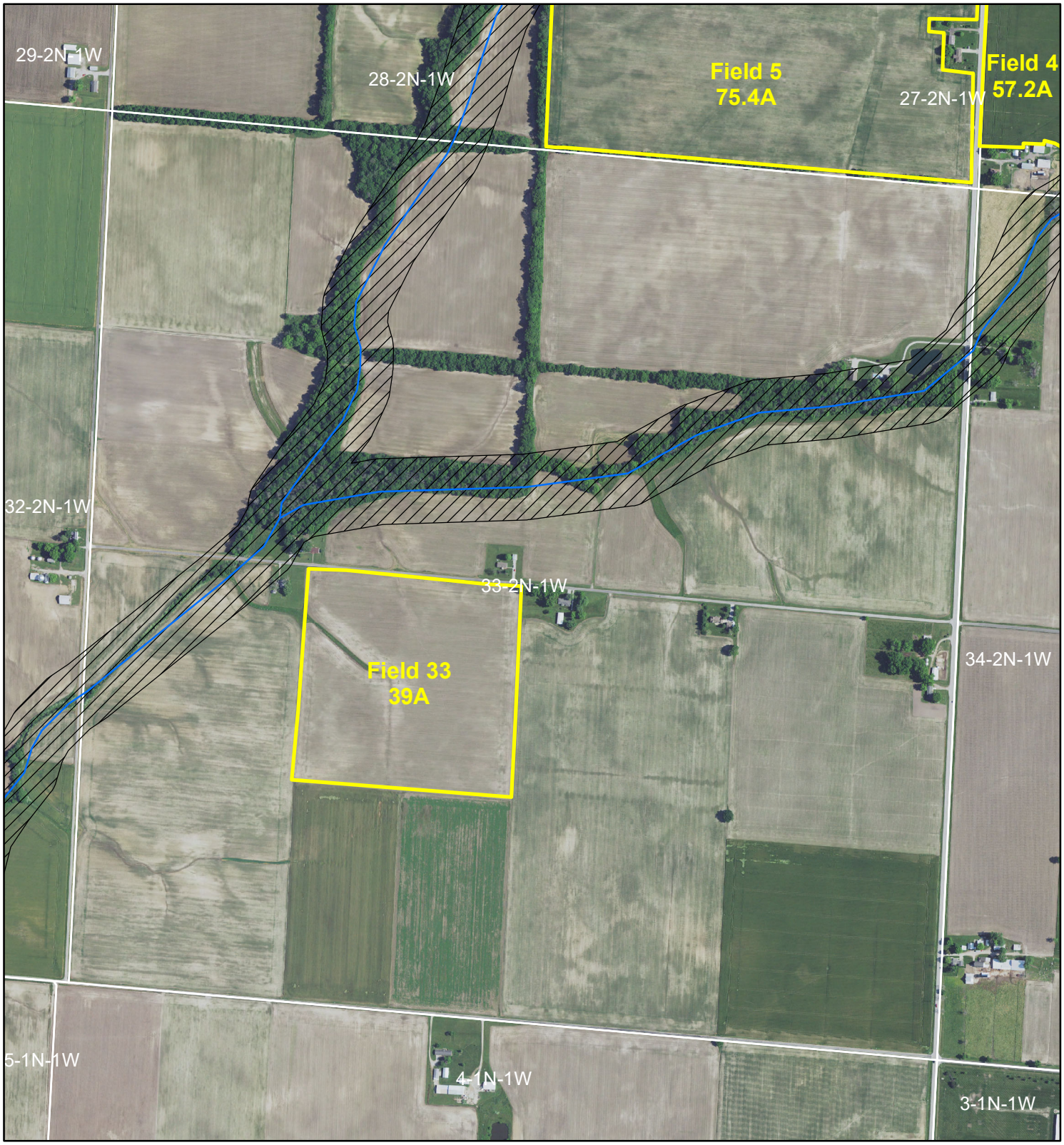

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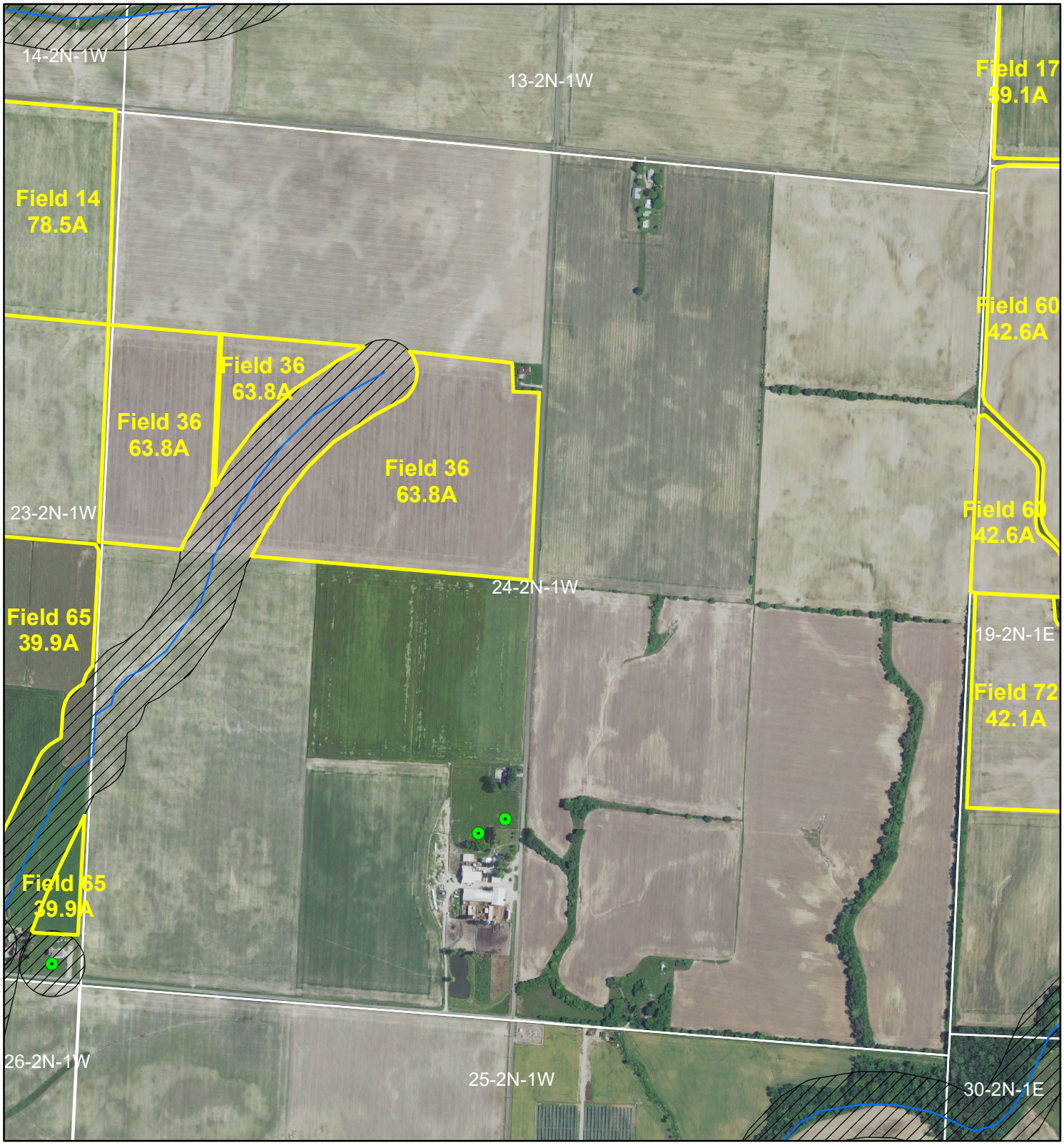
Greenville Livestock, Inc.
Application Land Map



- Wells
- IL Streams
- Application Land
- setbacks
- Facility Border
- Section Lines

0 260 520 1,040 1,560 2,080
Feet

N
W E
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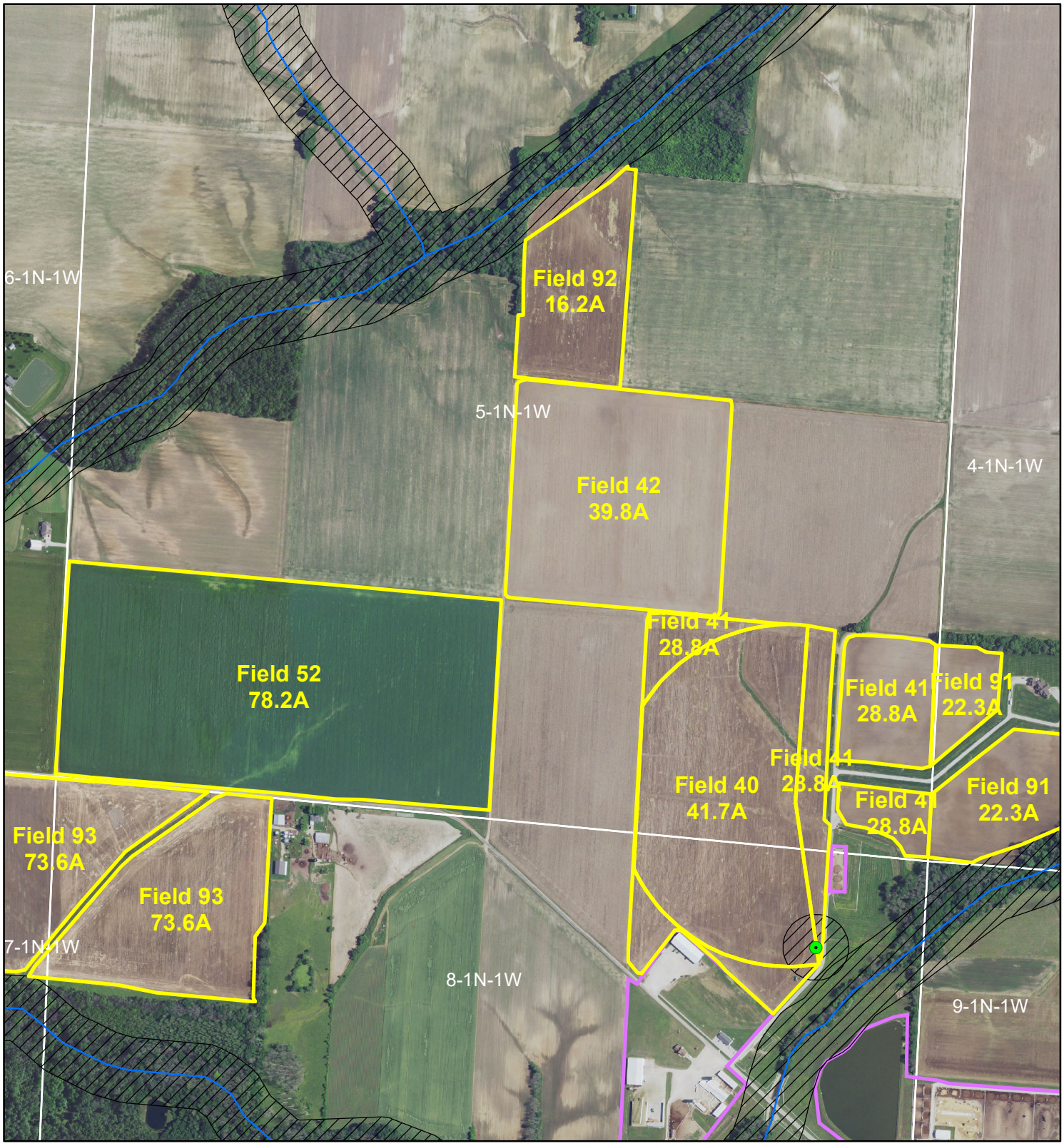
Greenville Livestock, Inc.
Application Land Map



Wells
IL Streams
Application Land
setbacks
Facility Border
Section Lines

0 260 520 1,040 1,560 2,080
Feet

N
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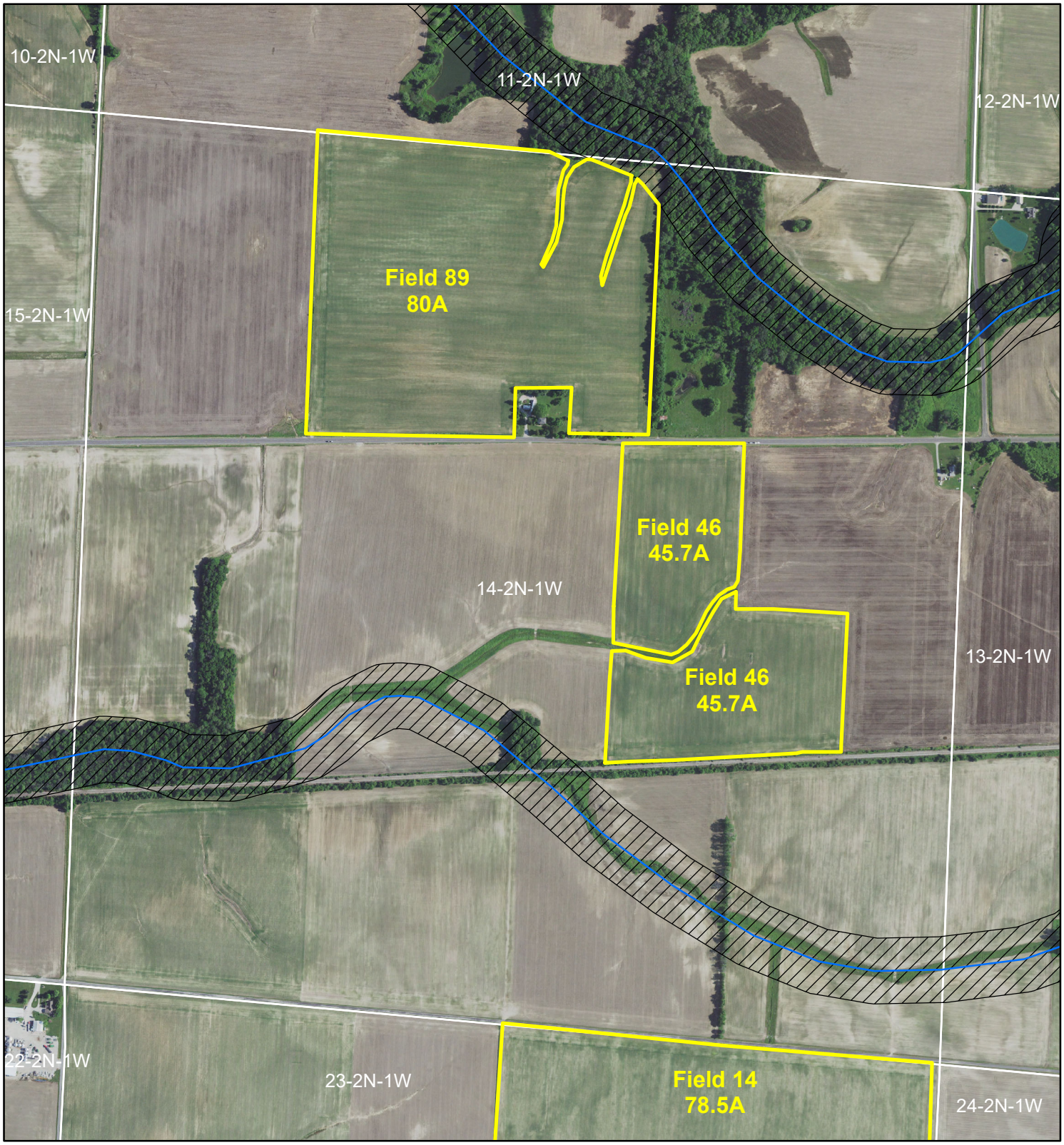
S

Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

Facility Border

Section Lines

0 260 520 1,040 1,560 2,080

Feet

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Greenville Livestock, Inc.
Application Land Map

Wells
IL Streams
Application Land
setbacks
Facility Border
Section Lines

0 260 520 1,040 1,560 2,080
Feet

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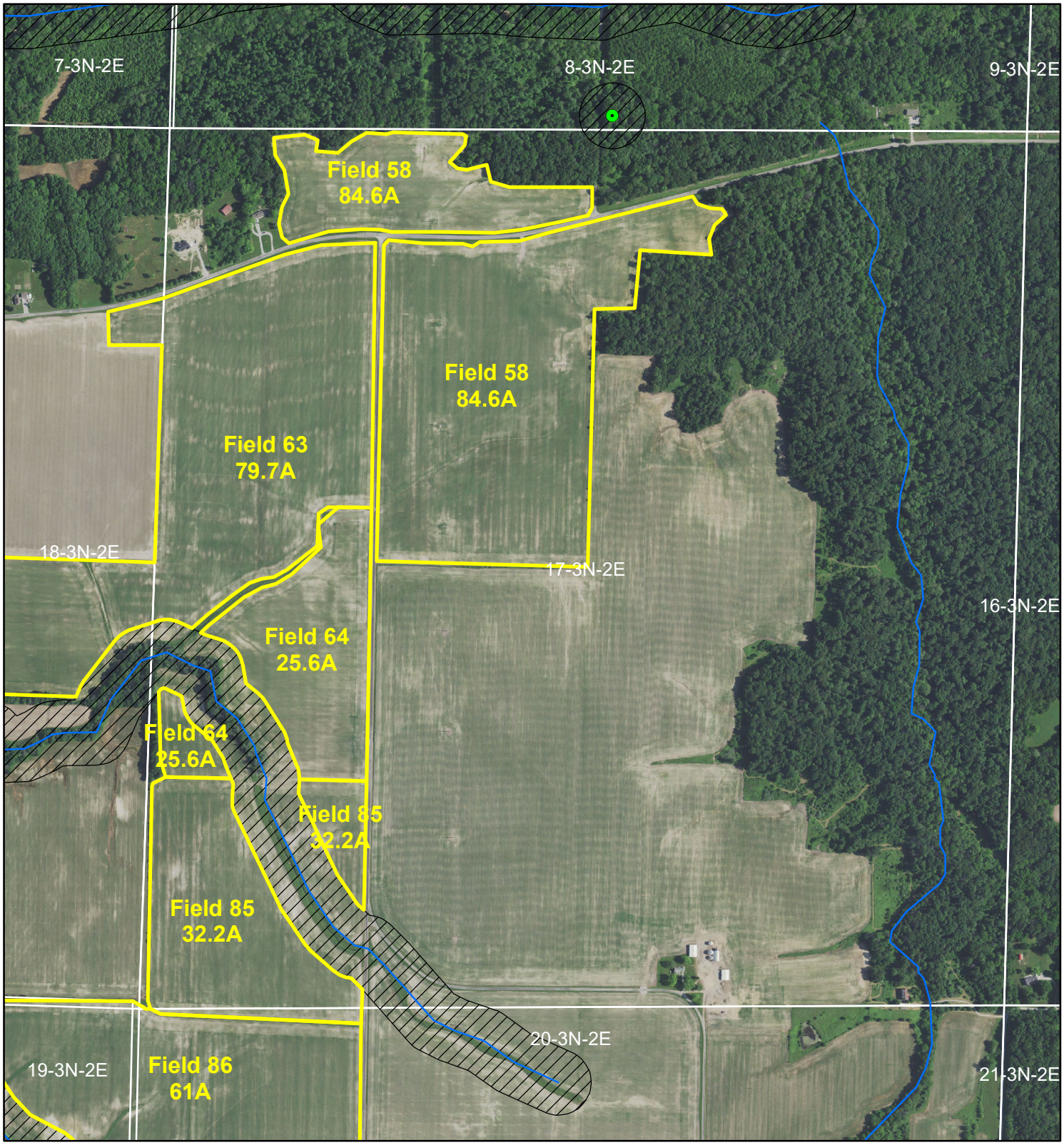
Greenville Livestock, Inc.
Application Land Map



- Wells
- IL Streams
- Application Land
- setbacks
- Facility Border
- Section Lines

0 260 520 1,040 1,560 2,080
Feet

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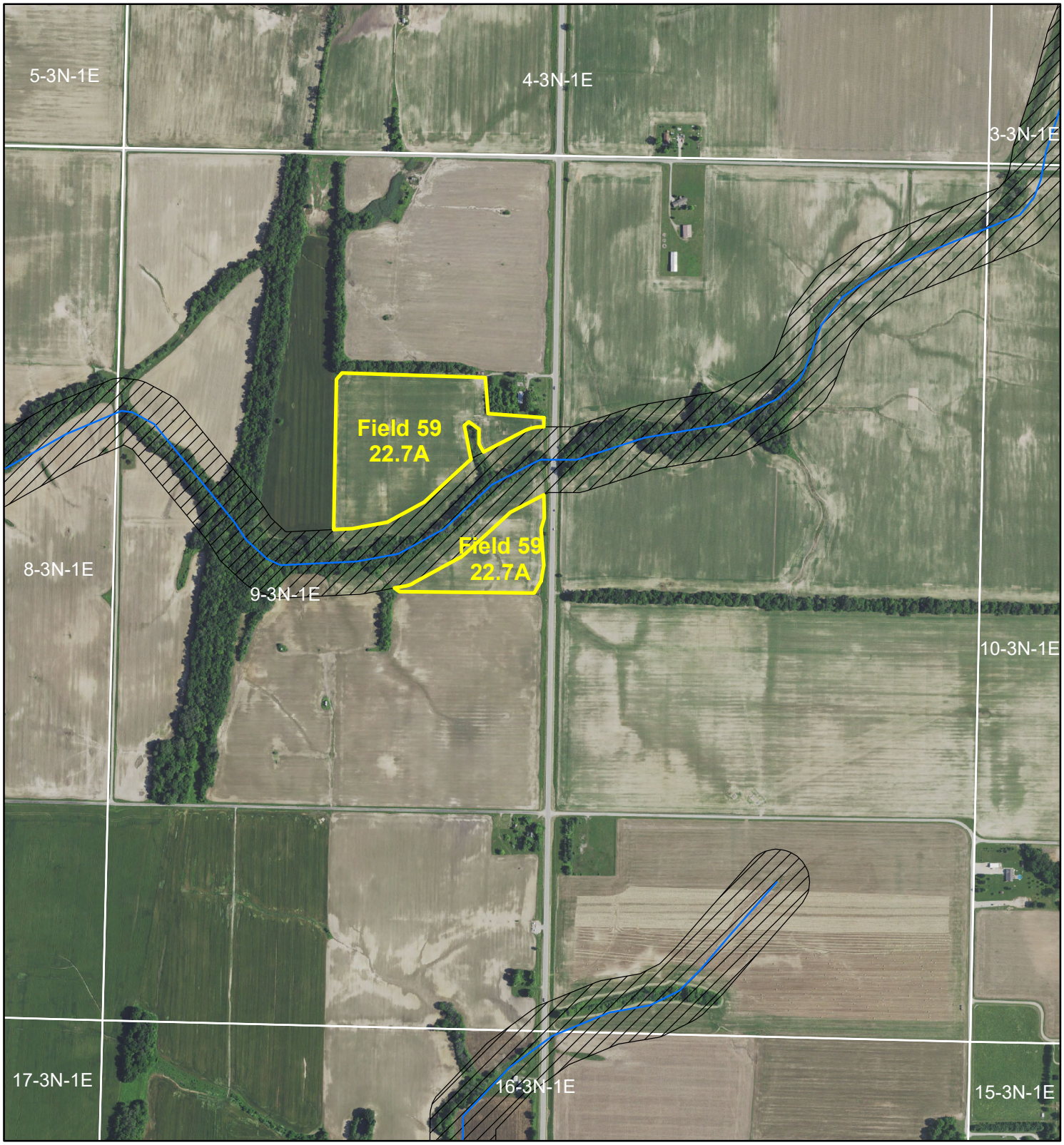
Greenville Livestock, Inc.
Application Land Map



Wells
IL Streams
Application Land
setbacks
Facility Border
Section Lines

0 260 520 1,040 1,560 2,080
Feet

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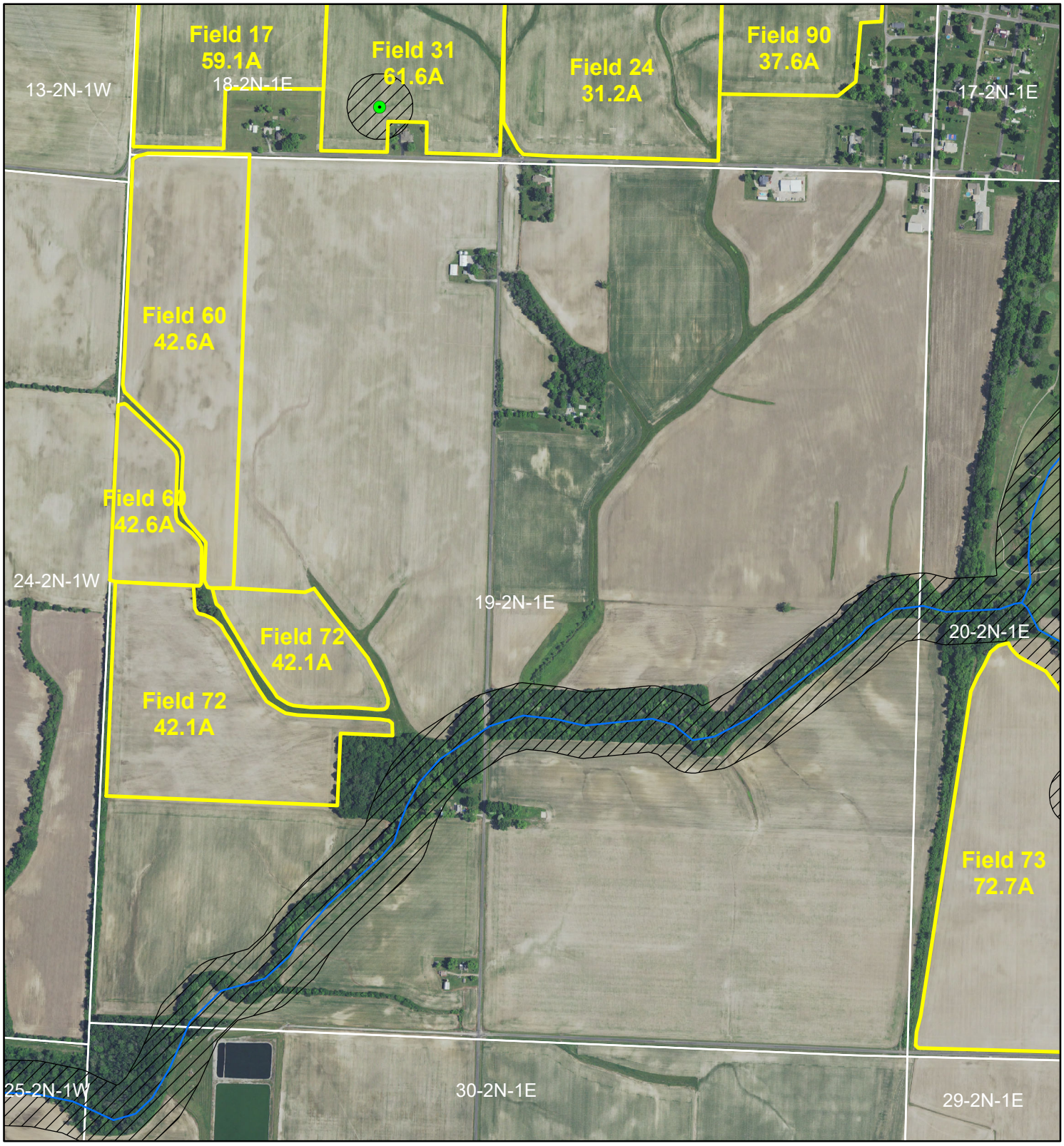
Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

Facility Border

Section Lines

0 260 520 1,040 1,560 2,080

Feet

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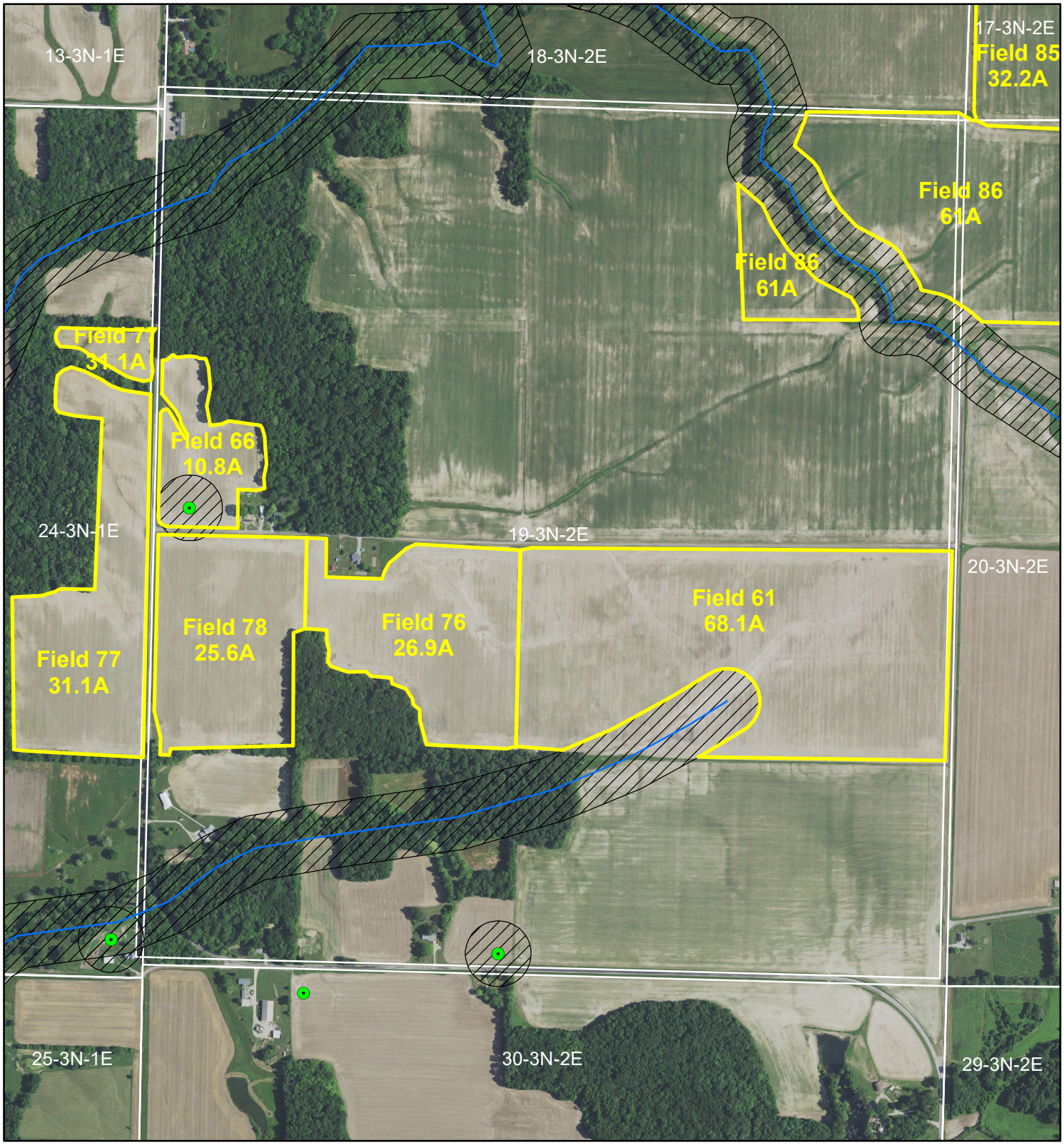
S

Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

Facility Border

Section Lines

0 260 520 1,040 1,560 2,080

Feet

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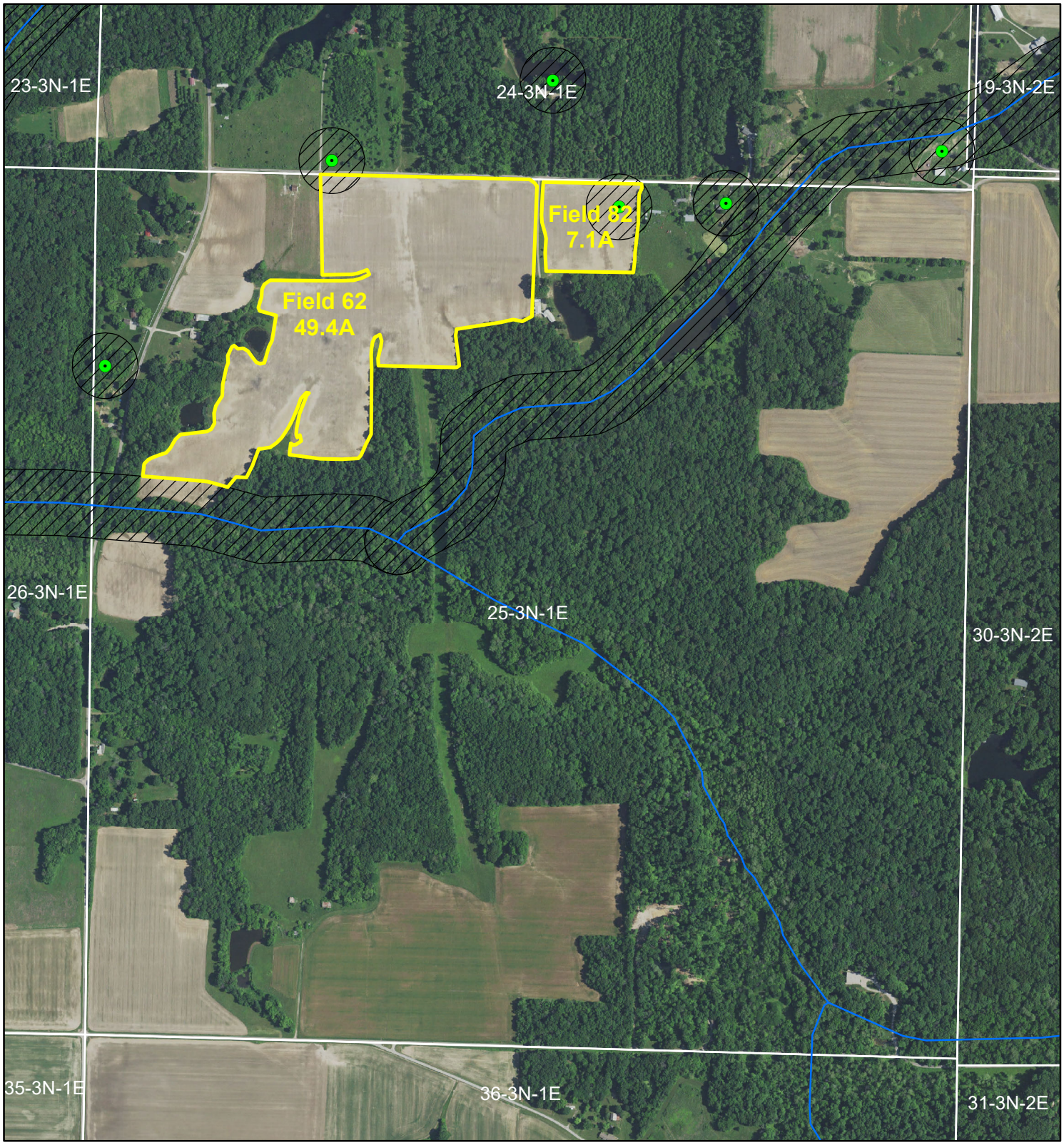
W E
S

Greenville Livestock, Inc.
Application Land Map



Wells
IL Streams
Application Land
setbacks
Facility Border
Section Lines

0 260 520 1,040 1,560 2,080
Feet

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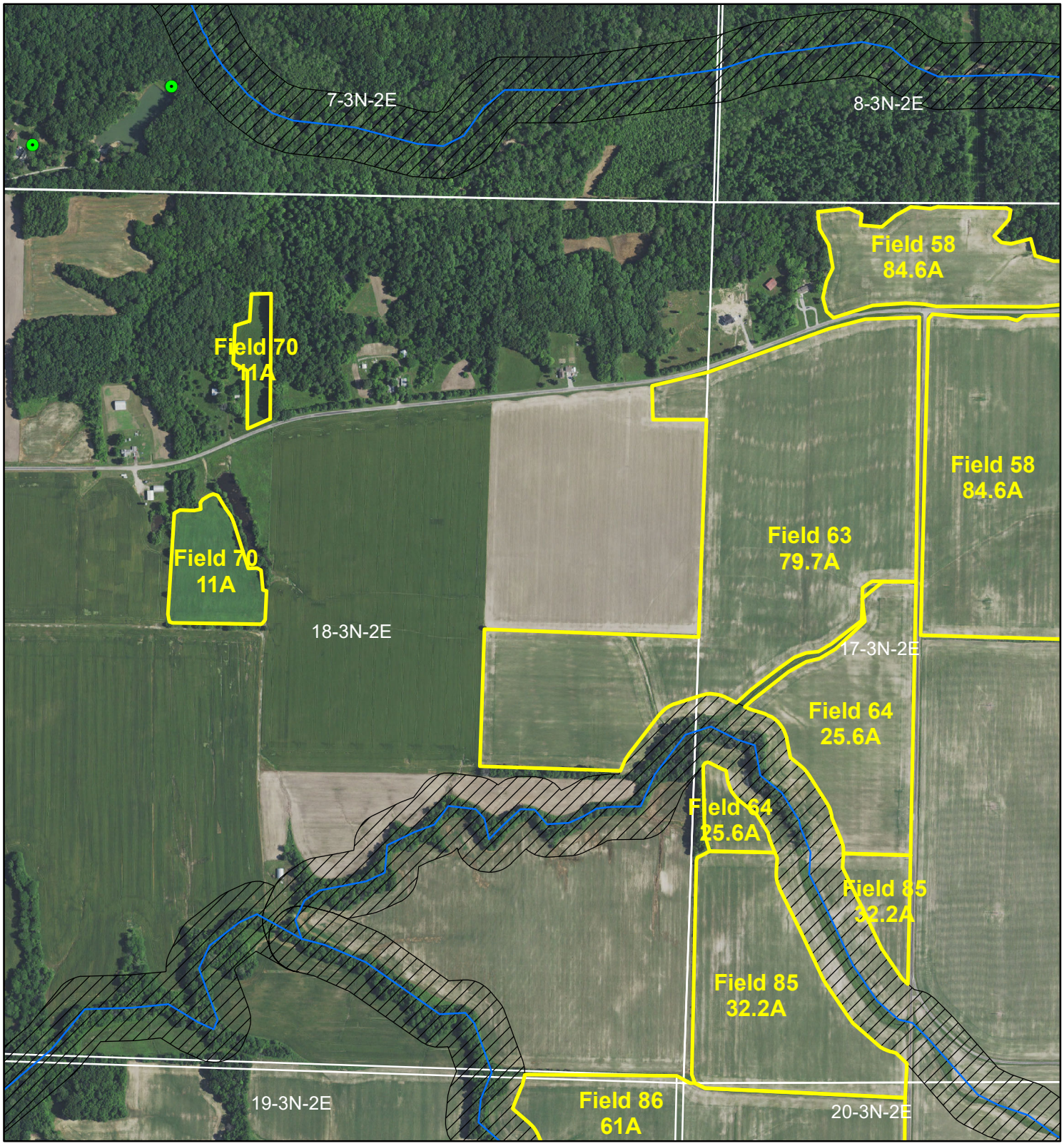
W E
S

Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

Facility Border

Section Lines

0 260 520 1,040 1,560 2,080

Feet

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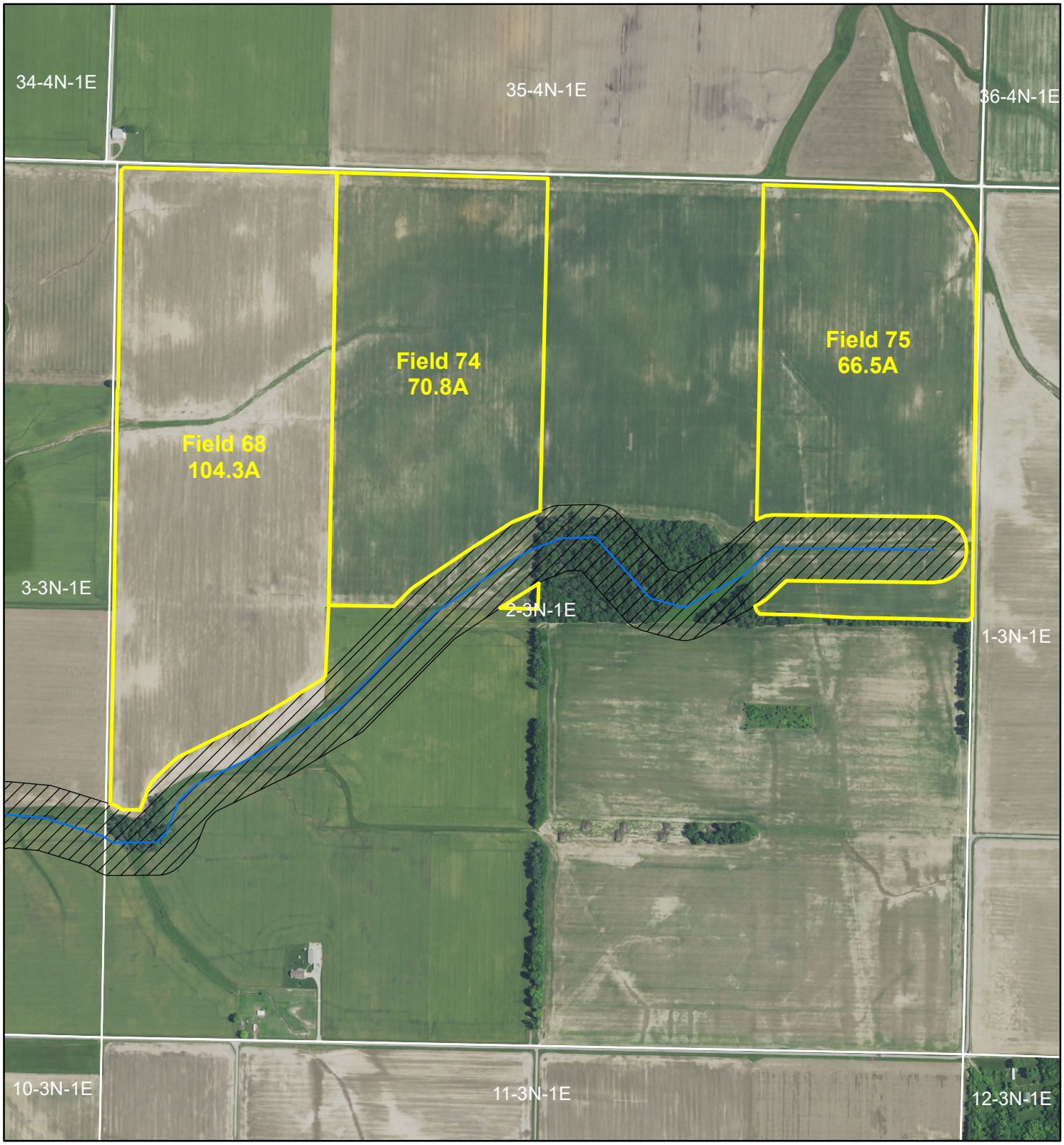
W E

S

Greenville Livestock, Inc.
Application Land Map



Wells
IL Streams
Application Land
setbacks
Facility Border
Section Lines

0 260 520 1,040 1,560 2,080
Feet

N
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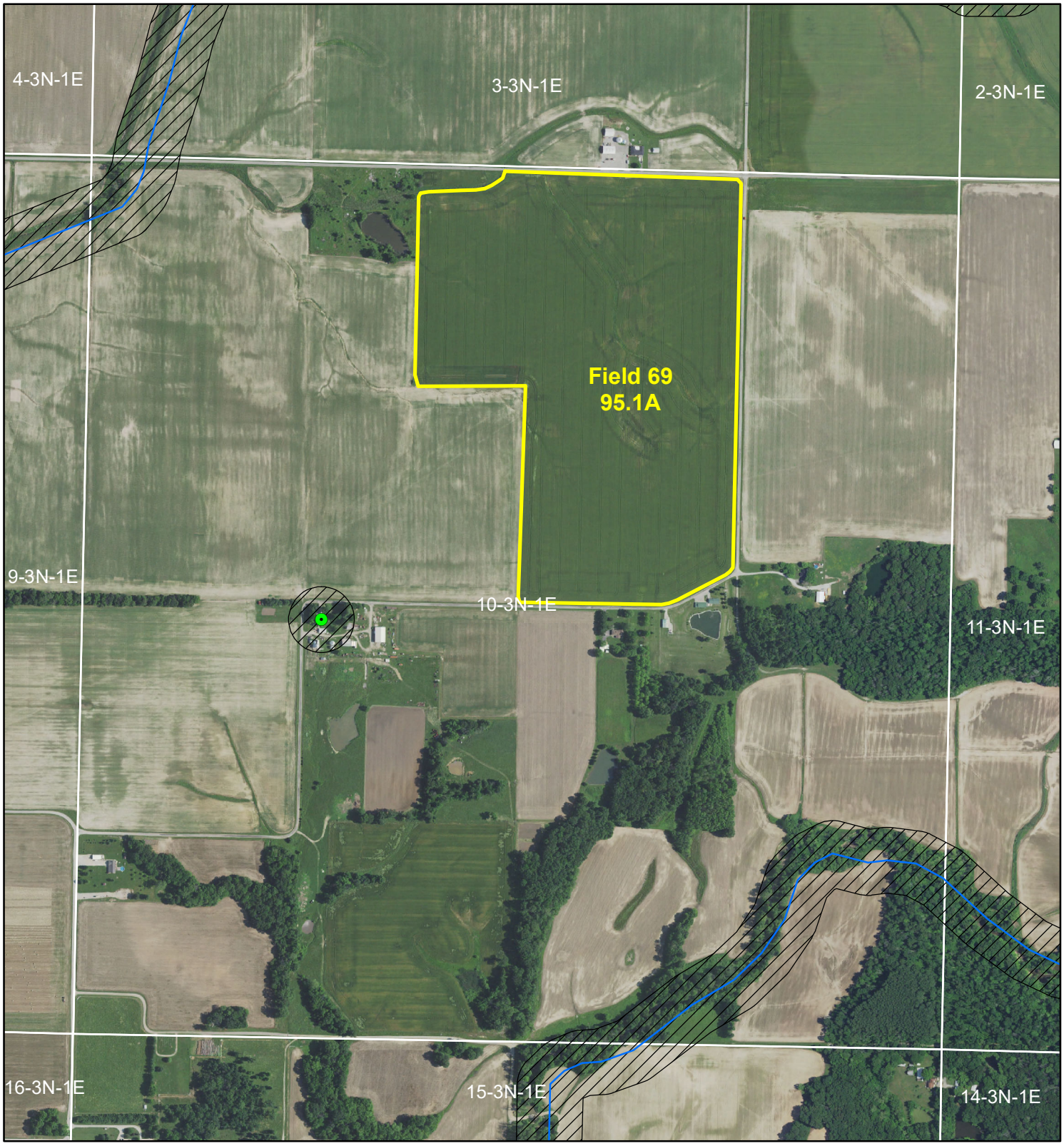
S

Greenville Livestock, Inc.
Application Land Map



Wells
IL Streams
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setbacks
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0 260 520 1,040 1,560 2,080
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Greenville Livestock, Inc.
Application Land Map

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setbacks

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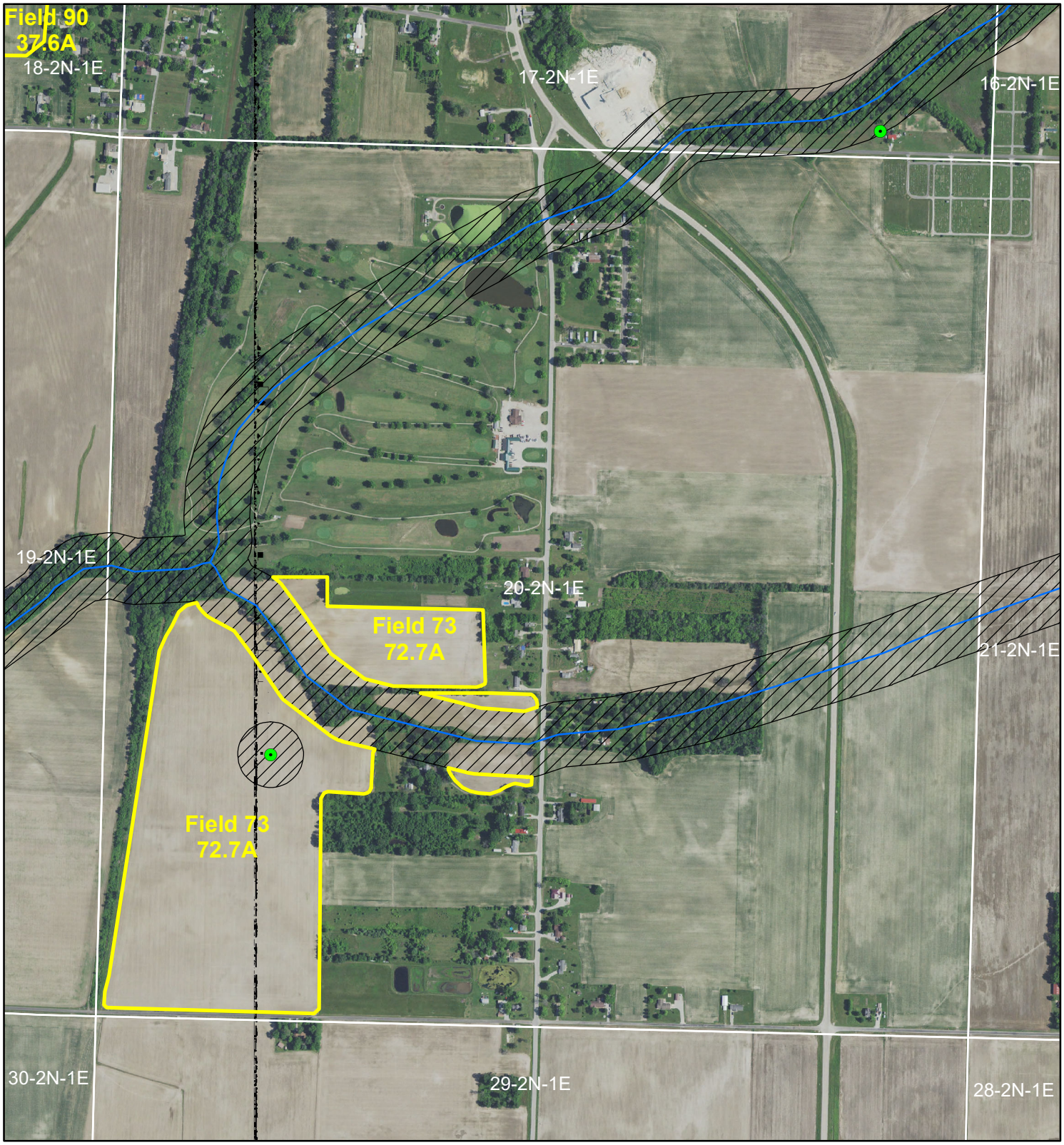
Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

Facility Border

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0 260 520 1,040 1,560 2,080

Feet

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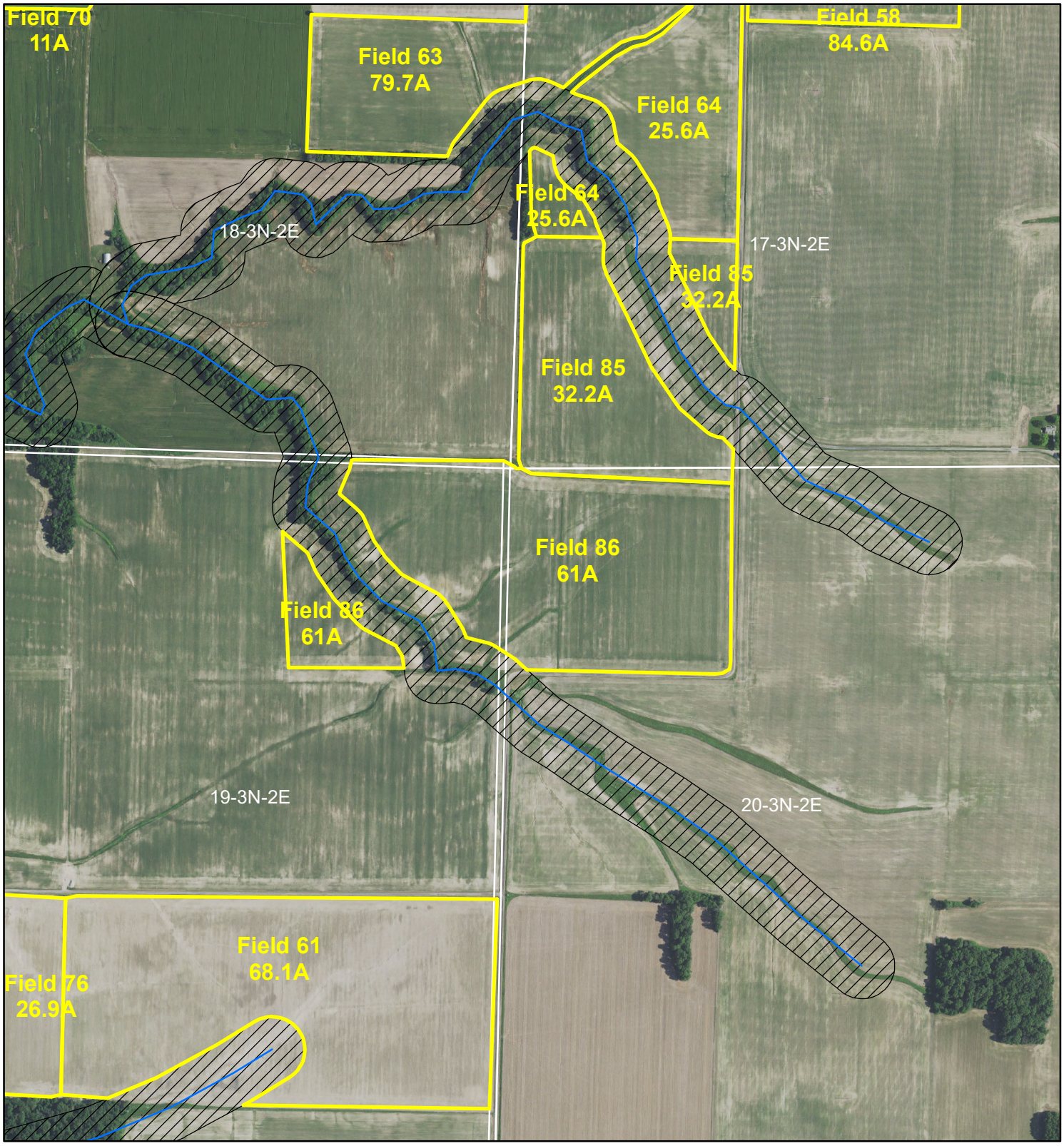
Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

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0 260 520 1,040 1,560 2,080

Feet

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W E
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Greenville Livestock, Inc.
Application Land Map

Wells

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setbacks

Facility Border

Section Lines

0 260 520 1,040 1,560 2,080

Feet

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W E

S

Greenville Livestock, Inc.
Application Land Map

Wells
IL Streams
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setbacks
Facility Border
Section Lines

0 260 520 1,040 1,560 2,080
Feet

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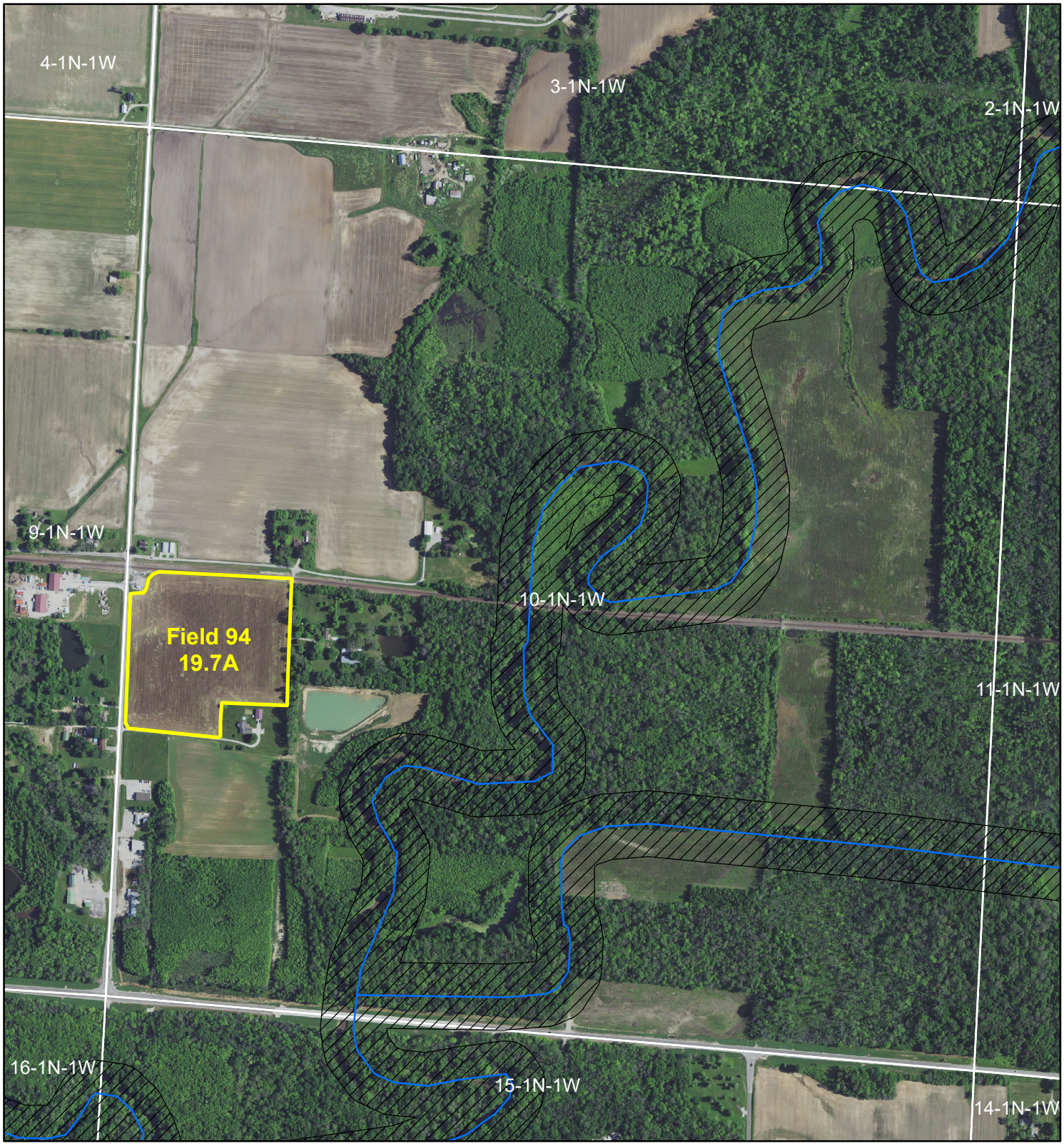
S

Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

Facility Border

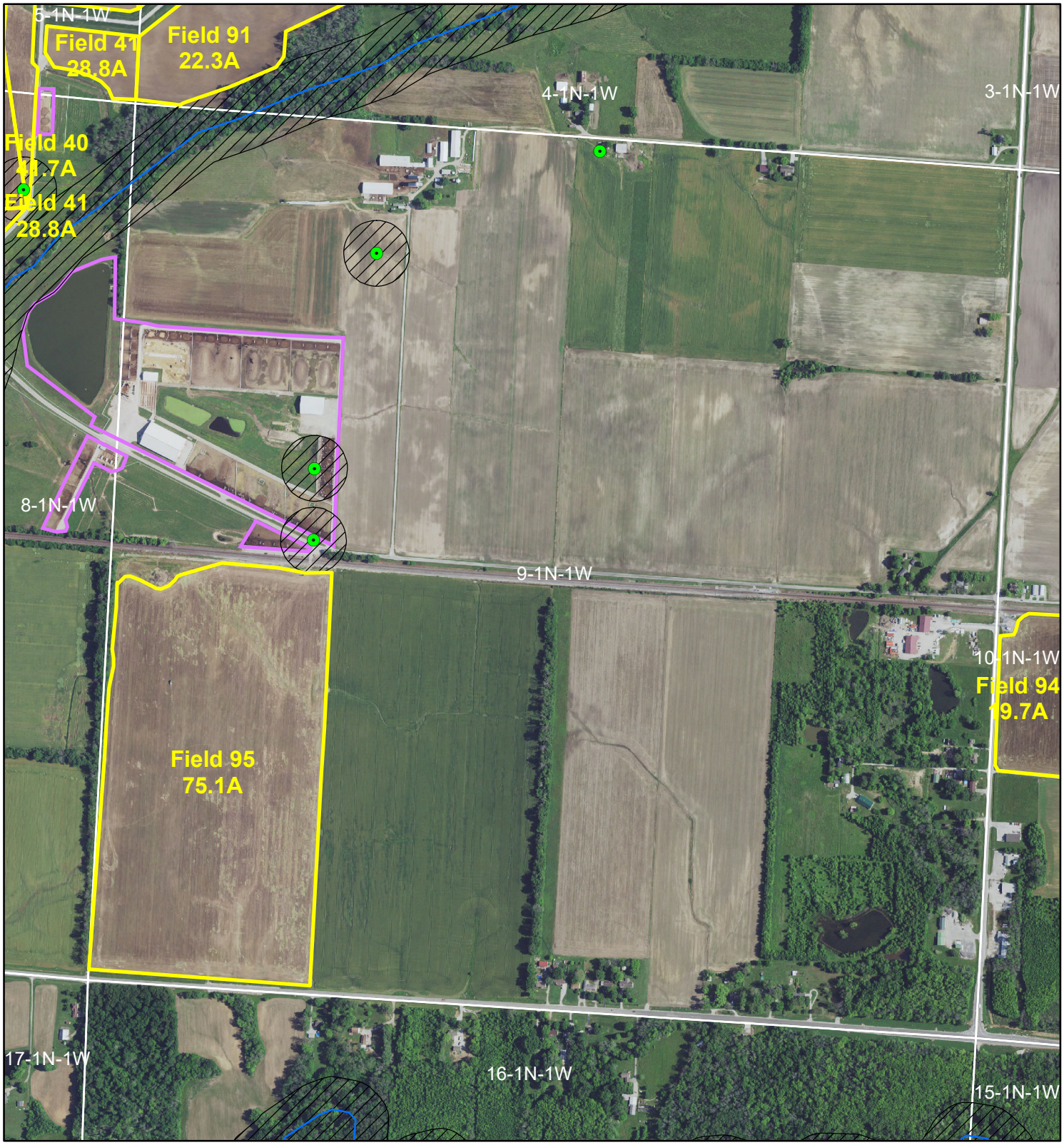
Section Lines

0 260 520 1,040 1,560 2,080

Feet

N
W E
S

Greenville Livestock, Inc.
Application Land Map



Wells

IL Streams

Application Land

setbacks

Facility Border

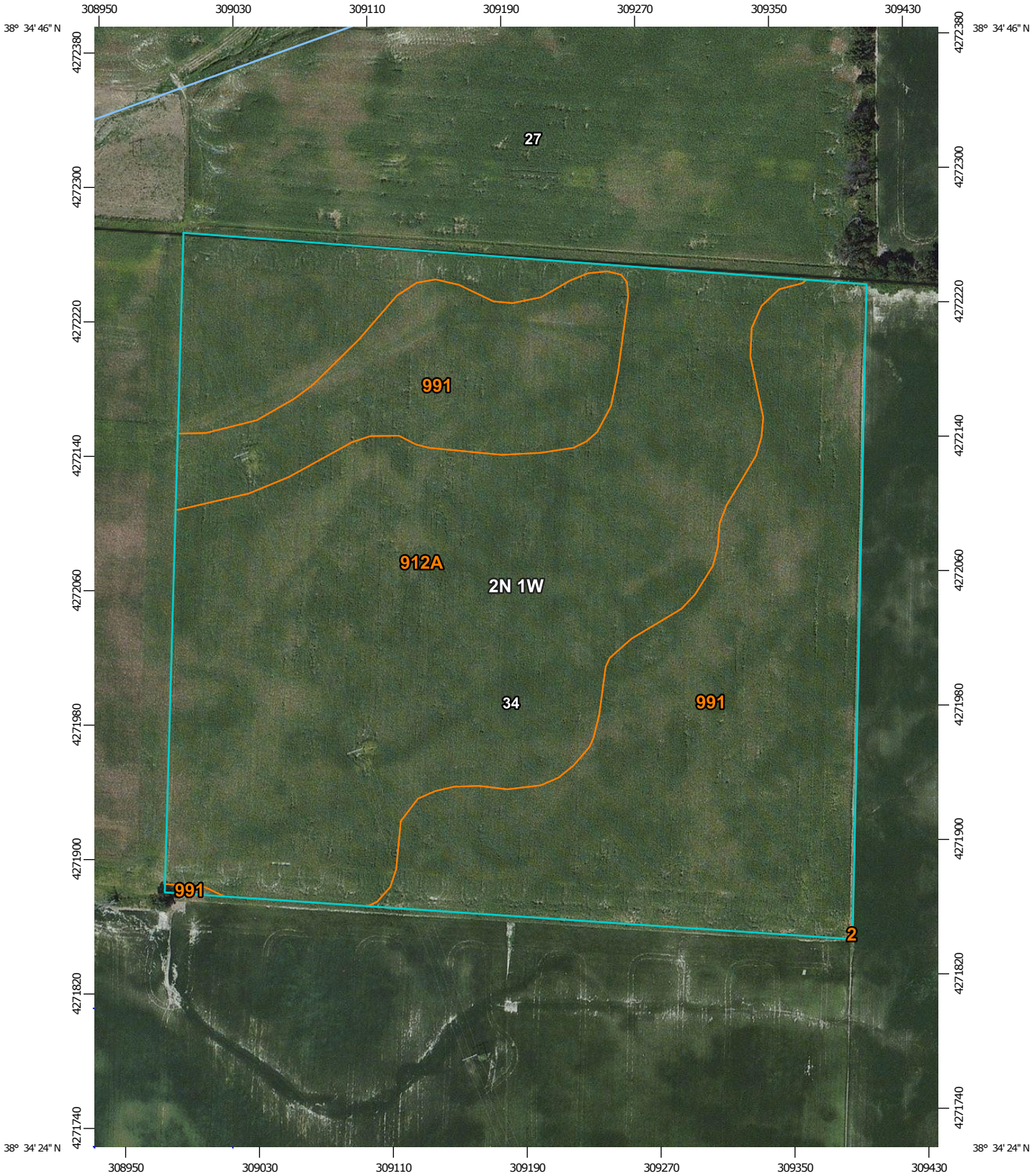
Section Lines

0 260 520 1,040 1,560 2,080

Feet

N
W E
S

Soil Map—Clinton County, Illinois
(Greenville Livestock (A.T. back 40))



Map Scale: 1:3,250 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

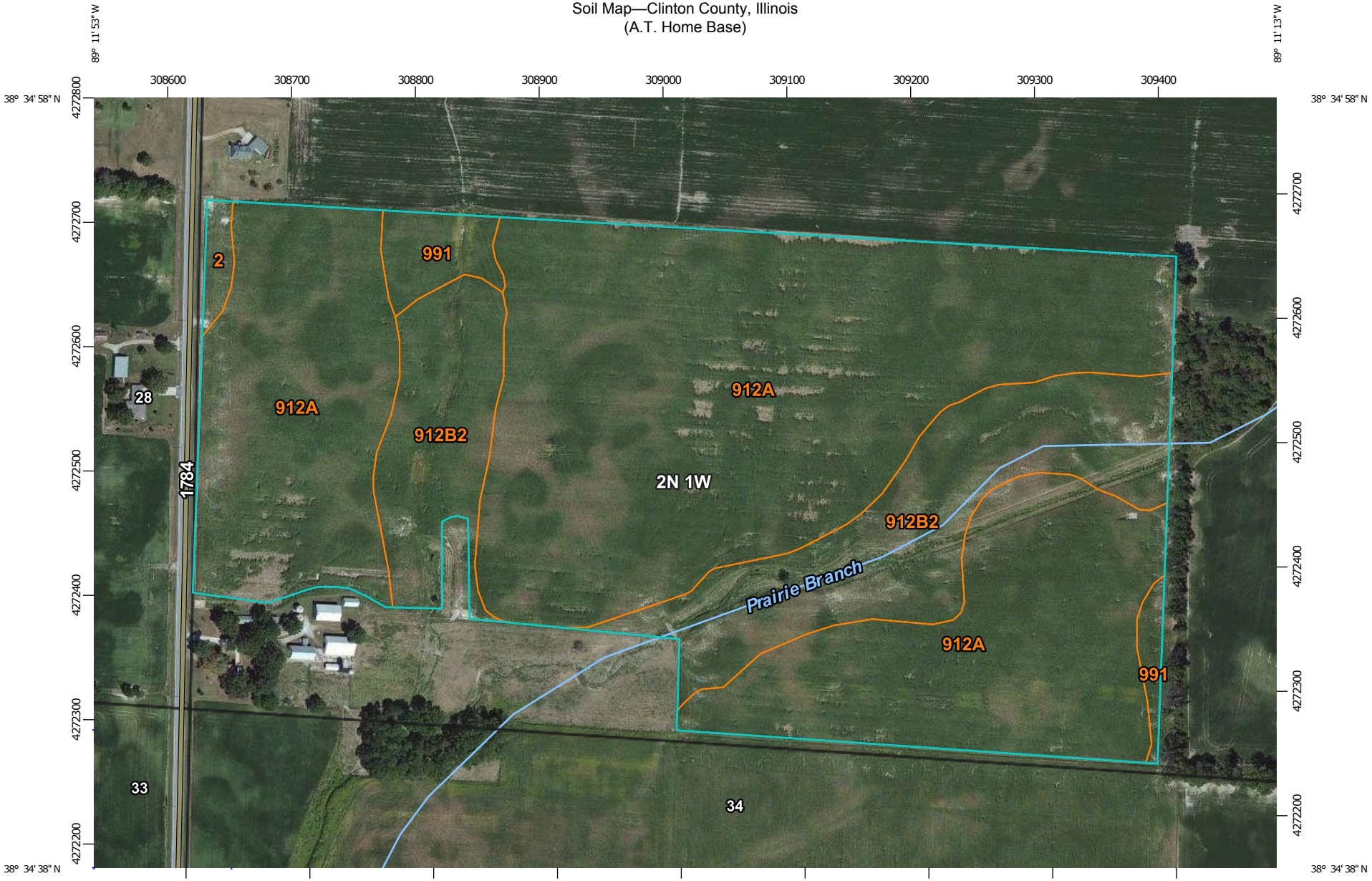
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	0.0	0.0%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	22.0	55.4%
991	Cisne-Huey complex	17.8	44.6%
Totals for Area of Interest		**39.8**	**100.0%**

Soil Map—Clinton County, Illinois
(A.T. Home Base)



Map Scale: 1:4,370 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

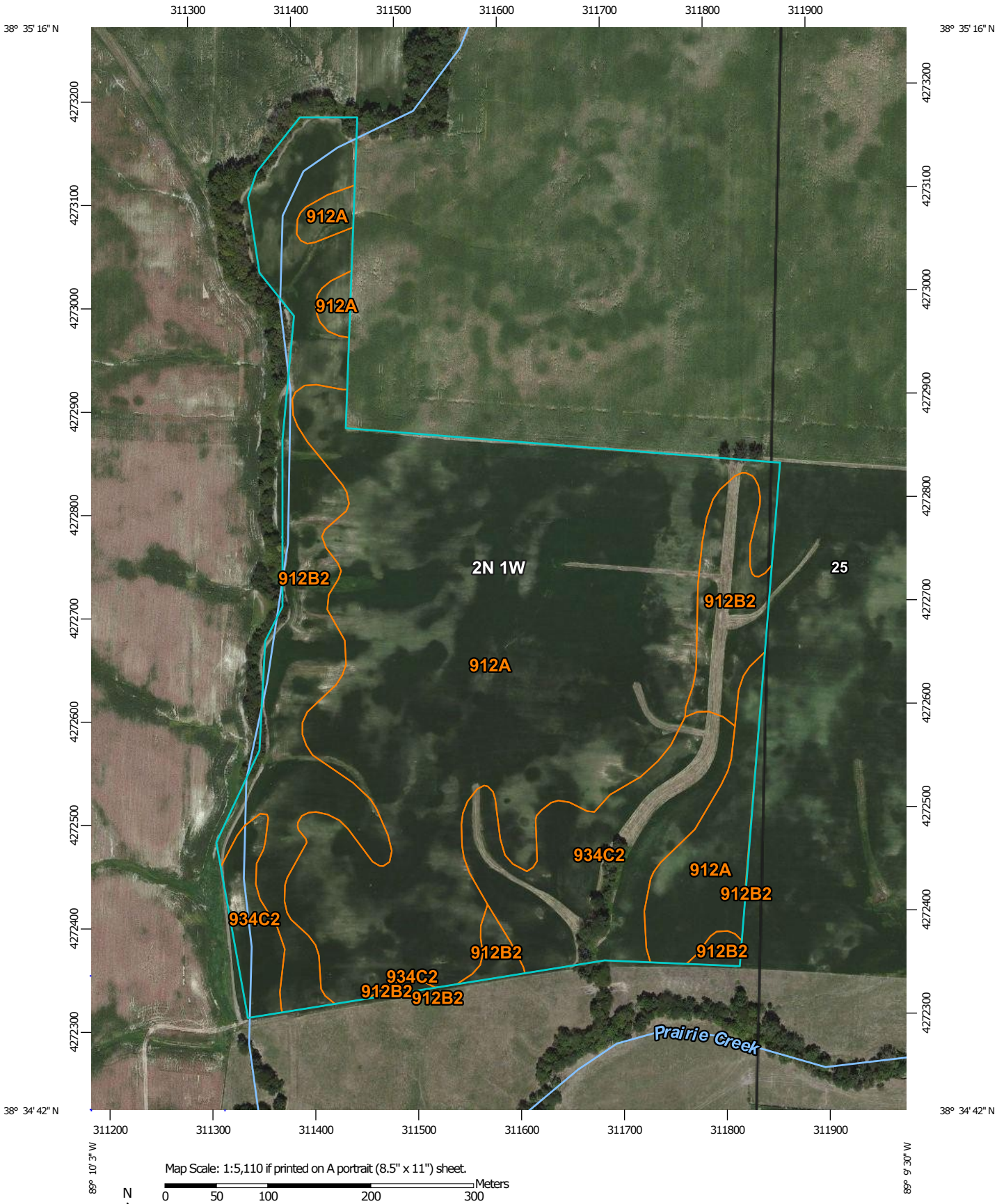
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	0.5	0.7%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	53.0	75.6%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	14.7	21.0%
991	Cisne-Huey complex	1.9	2.7%
Totals for Area of Interest		**70.2**	**100.0%**

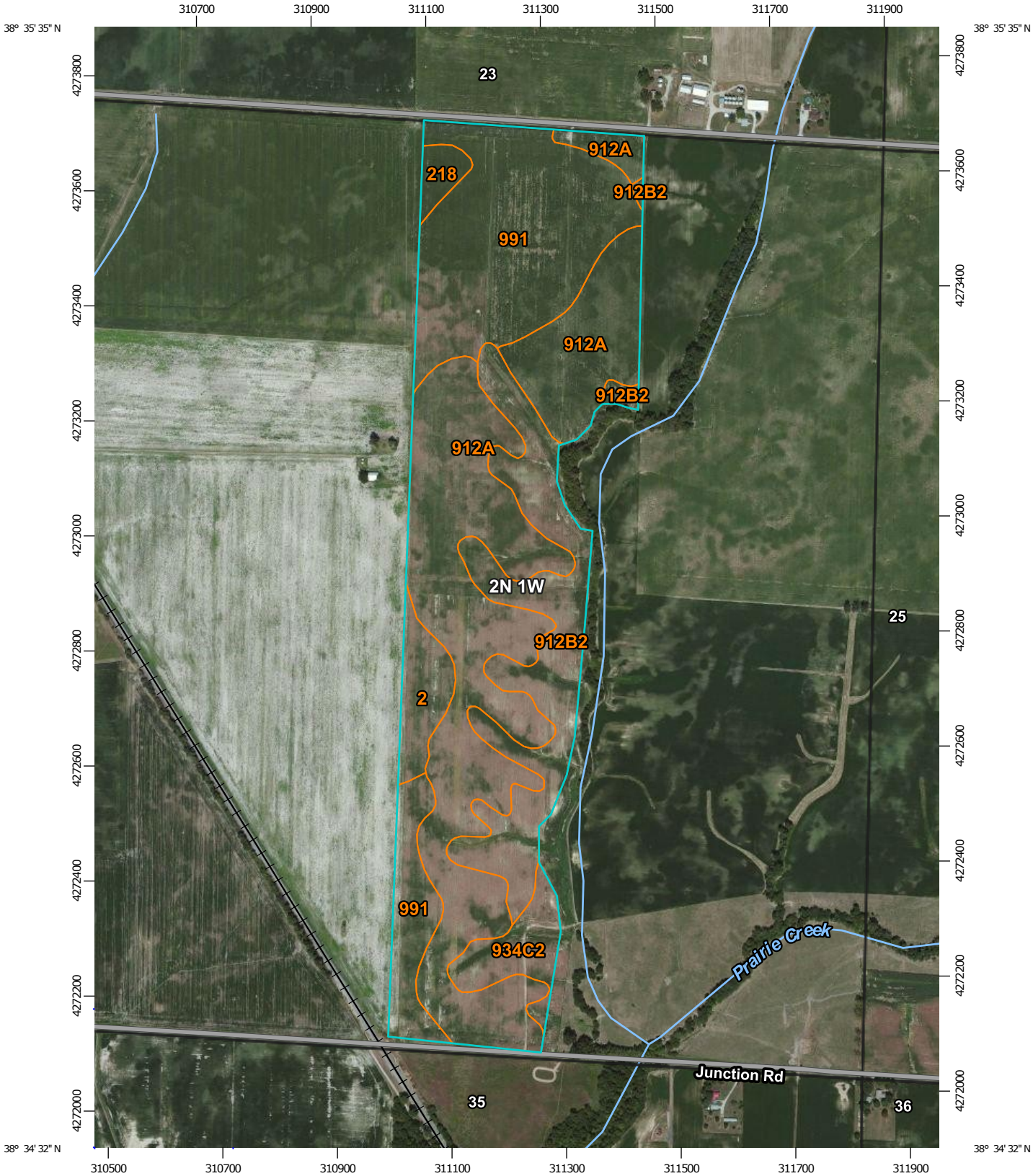
Soil Map—Clinton County, Illinois
(Greenville Livestock (A. Wollenweber North Pasture))



Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	43.4	63.0%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	15.9	23.0%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	9.7	14.0%
Totals for Area of Interest		**69.0**	**100.0%**

Soil Map—Clinton County, Illinois
(Arlene Wollenweber W. Farm)



Map Scale: 1:9,500 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	4.8	3.8%
218	Newberry silt loam	1.8	1.4%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	56.3	44.5%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	23.4	18.5%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	5.3	4.2%
991	Cisne-Huey complex	35.0	27.6%
Totals for Area of Interest		**126.6**	**100.0%**

Soil Map—Marion County, Illinois
(Bens)
SE, NW S9T3N R1E

Map Scale: 1:3,010 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

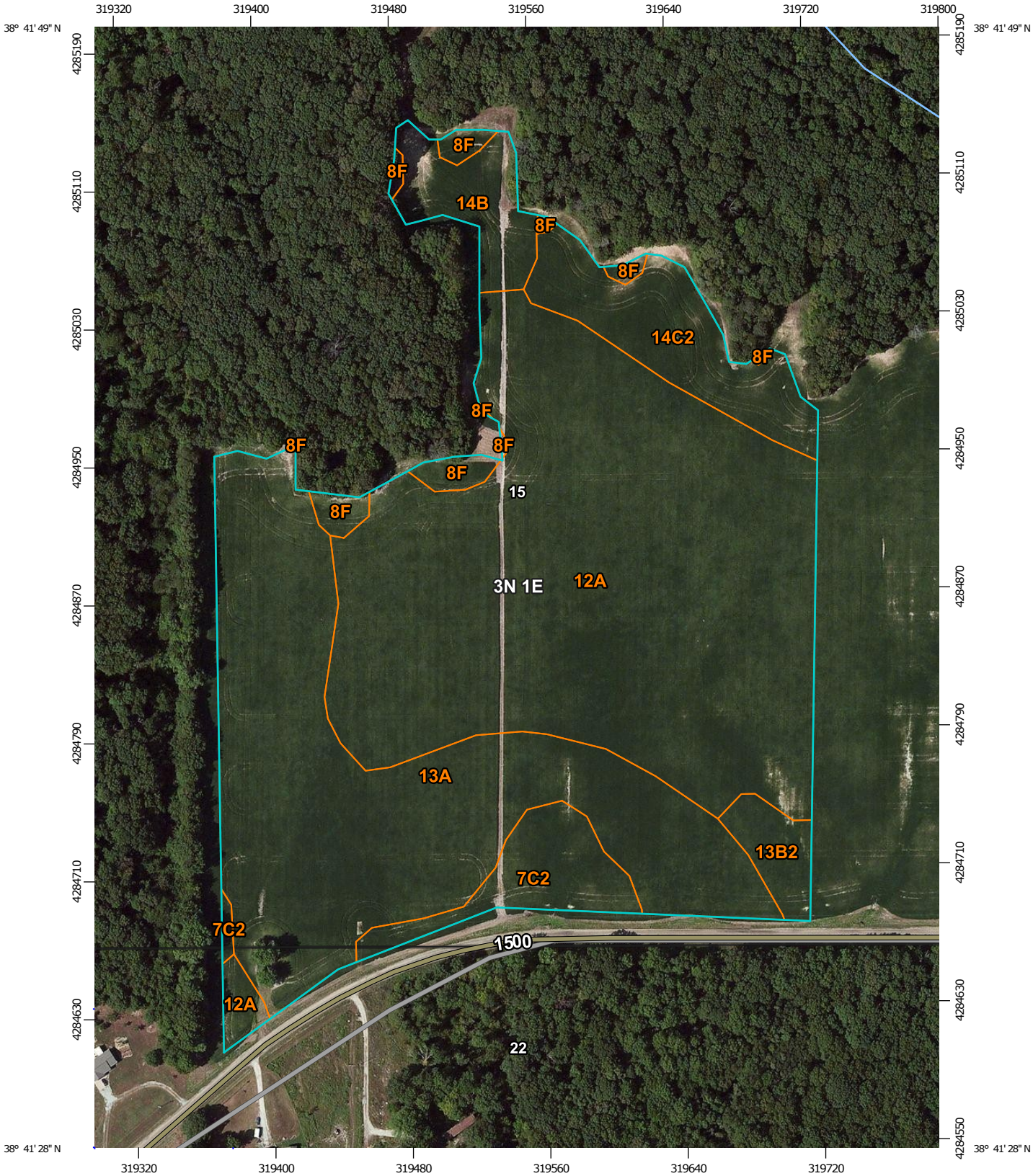
Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	13.6	38.0%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	22.3	62.0%
Totals for Area of Interest		**35.9**	**100.0%**

Soil Map—Marion County, Illinois
(Bowen)



Map Scale: 1:3,170 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	1.3	4.3%
8F	Hickory silt loam, 18 to 35 percent slopes	0.6	2.0%
12A	Wynoose silt loam, 0 to 2 percent slopes	14.7	49.6%
13A	Bluford silt loam, 0 to 2 percent slopes	9.4	31.7%
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	0.6	1.9%
14B	Ava silt loam, 2 to 5 percent slopes	1.1	3.7%
14C2	Ava silt loam, 5 to 10 percent slopes, eroded	2.0	6.8%
Totals for Area of Interest		**29.5**	**100.0%**

Soil Map—Marion County, Illinois
(Bowen Hills)

Map Scale: 1:2,130 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13A	Bluford silt loam, 0 to 2 percent slopes	10.0	68.2%
14B	Ava silt loam, 2 to 5 percent slopes	0.4	2.7%
652C2	Passport silt loam, 5 to 10 percent slopes, eroded	3.7	25.3%
947D2	Hickory-Passport silt loams, 10 to 18 percent slopes, eroded	0.5	3.7%
Totals for Area of Interest		**14.6**	**100.0%**

Soil Map—Marion County, Illinois
(Bowen Tower)

Map Scale: 1:4,410 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
8F	Hickory silt loam, 18 to 35 percent slopes	0.5	0.9%
13B	Bluford silt loam, 2 to 5 percent slopes	6.3	10.5%
218A	Newberry silt loam, 0 to 2 percent slopes	5.1	8.5%
888C2	Passport-Grantfork silt loams, 5 to 10 percent slopes, eroded	4.7	7.9%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	23.6	39.5%
914C2	Atlas-Grantfork silt loams, 5 to 10 percent slopes, eroded	1.7	2.9%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	17.8	29.8%
Totals for Area of Interest		**59.7**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Brinkman))

Map Scale: 1:2,350 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

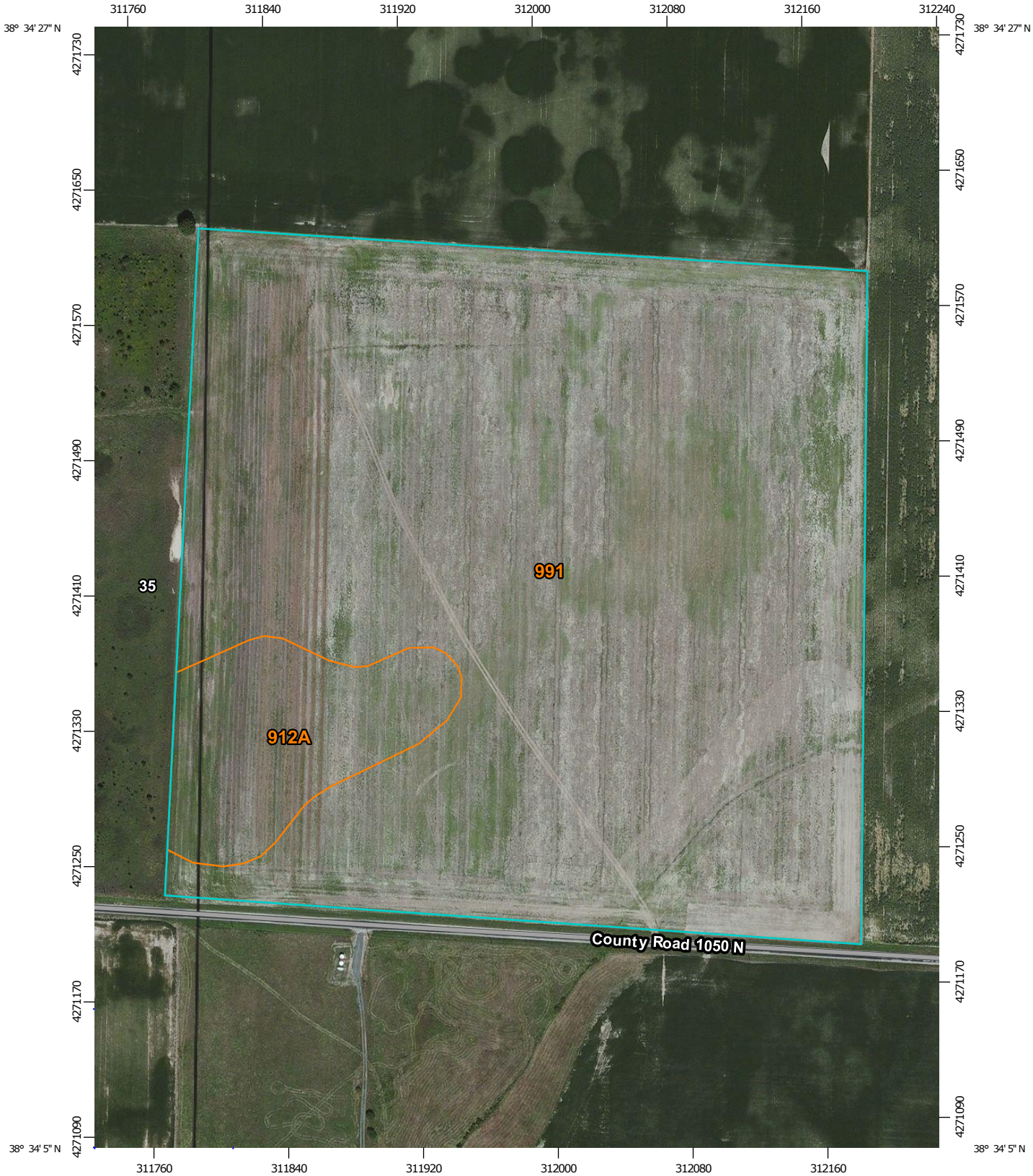
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5C3	Blair silty clay loam, 5 to 10 percent slopes, severely eroded	0.0	0.0%
13A	Bluford silt loam, 0 to 2 percent slopes	6.7	34.4%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	9.3	47.3%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	3.6	18.3%
Totals for Area of Interest		**19.6**	**100.0%**

Soil Map—Clinton County, Illinois
(Carson)

SW, NW S36 T2N R1E



Map Scale: 1:3,230 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

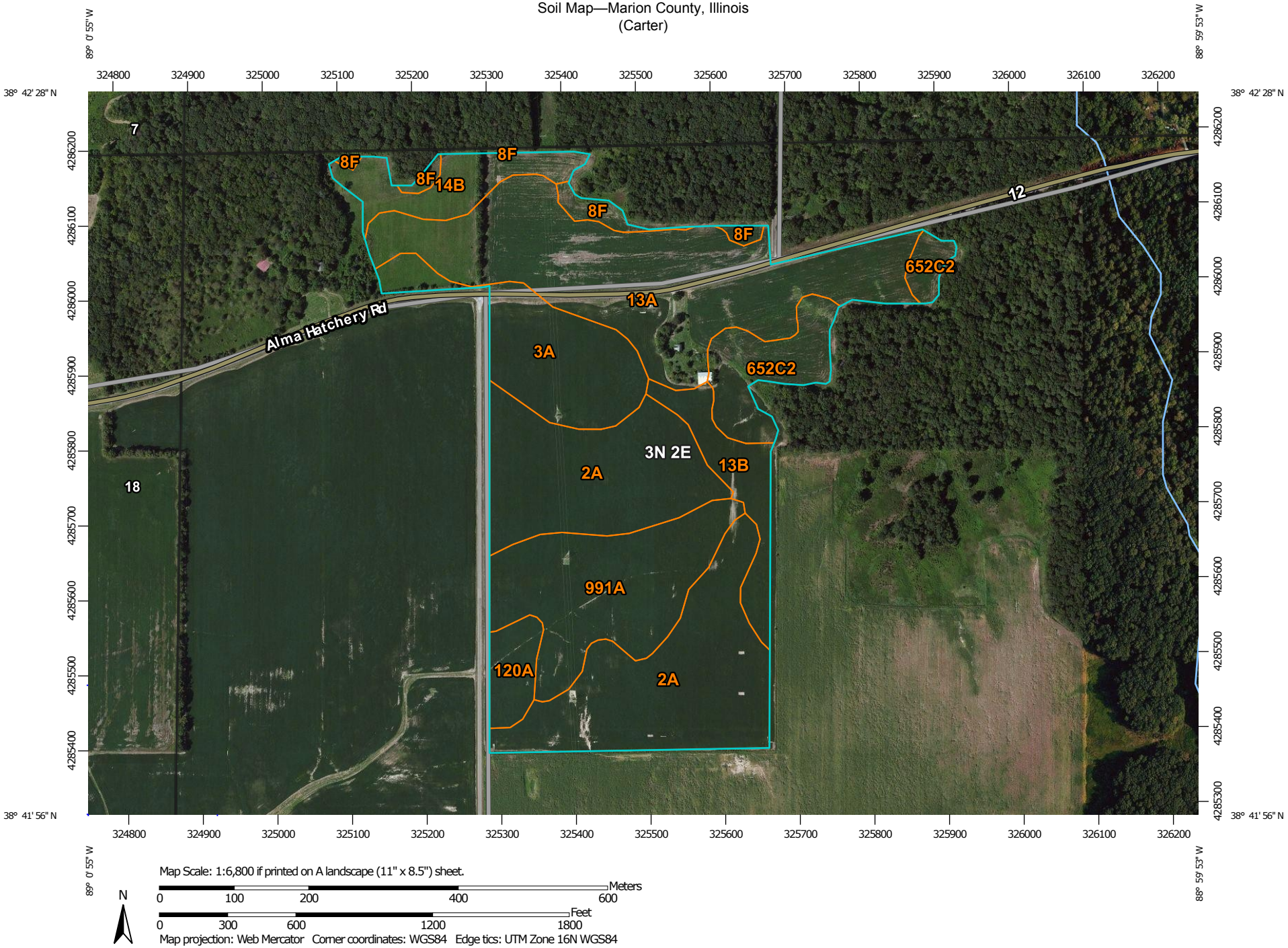
Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	3.7	9.3%
991	Cisne-Huey complex	36.2	90.7%
Totals for Area of Interest		**39.9**	**100.0%**

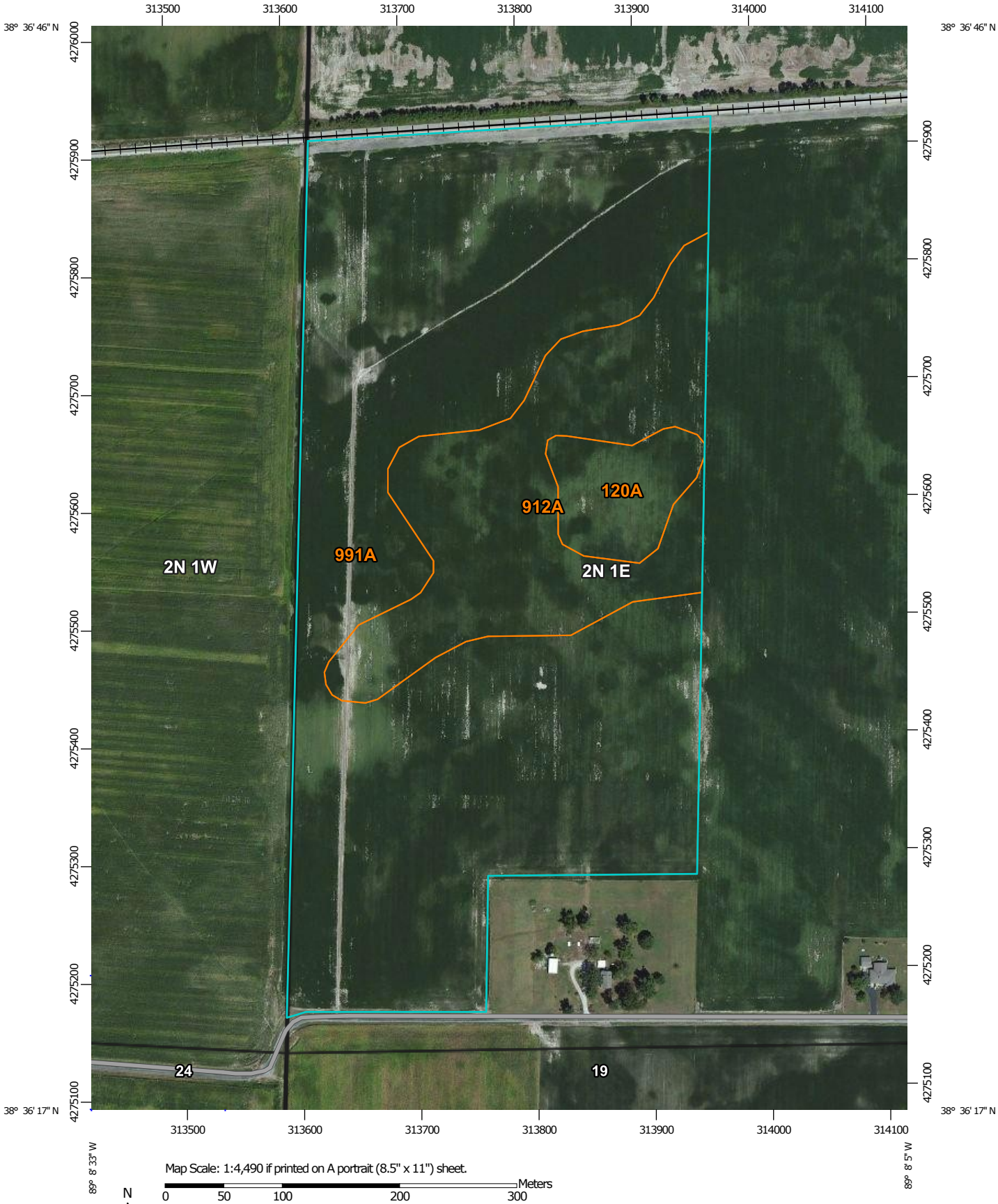
Soil Map—Marion County, Illinois
(Carter)



Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	24.7	30.0%
3A	Hoyleton silt loam, 0 to 2 percent slopes	8.1	9.9%
8F	Hickory silt loam, 18 to 35 percent slopes	1.5	1.8%
13A	Bluford silt loam, 0 to 2 percent slopes	21.2	25.8%
13B	Bluford silt loam, 2 to 5 percent slopes	3.8	4.6%
14B	Ava silt loam, 2 to 5 percent slopes	4.0	4.9%
120A	Huey silt loam, 0 to 2 percent slopes	2.1	2.5%
652C2	Passport silt loam, 5 to 10 percent slopes, eroded	5.5	6.7%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	11.4	13.8%
Totals for Area of Interest		**82.4**	**100.0%**

Soil Map—Marion County, Illinois
(Cooks 60)



Map Scale: 1:4,490 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

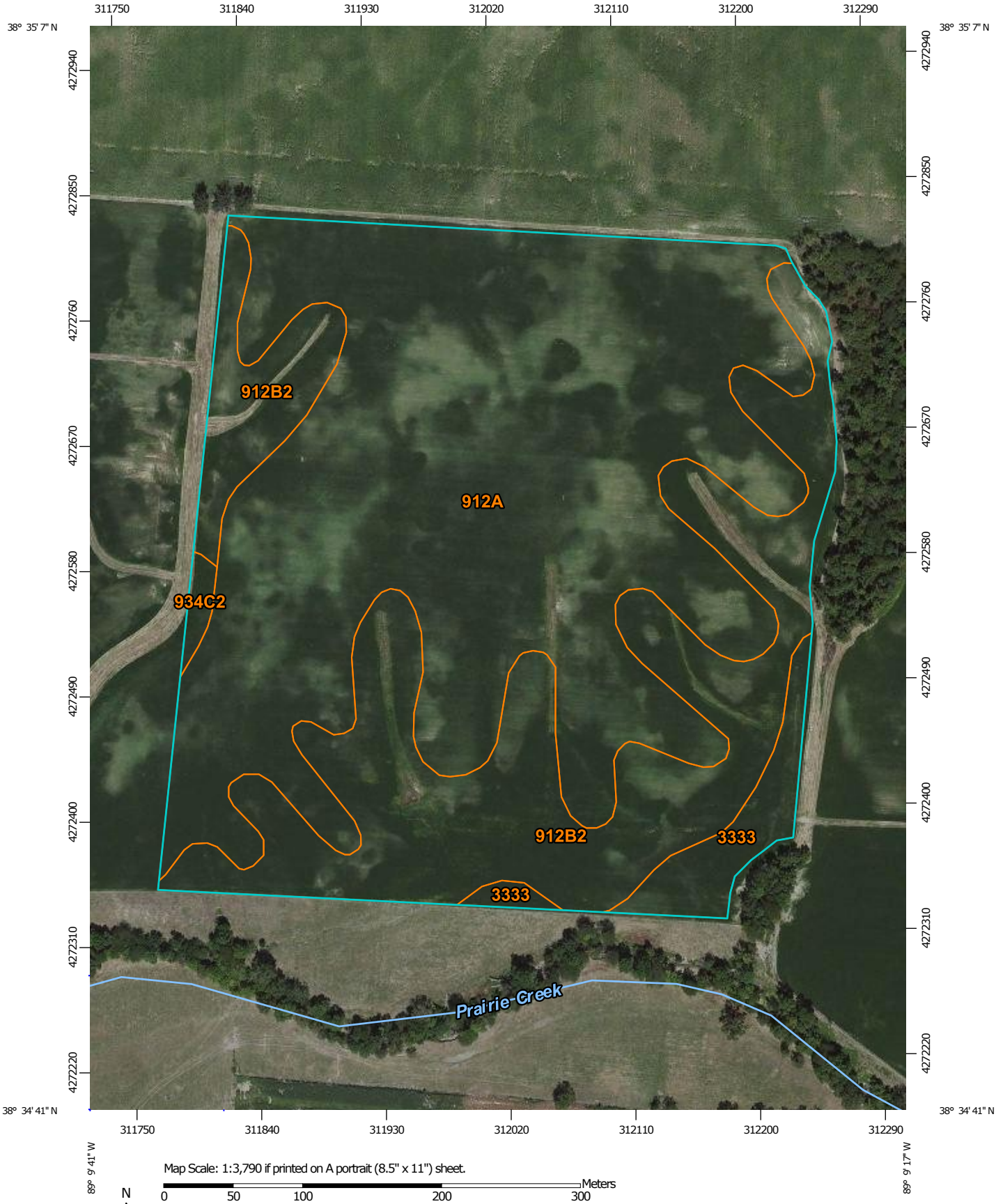
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
120A	Huey silt loam, 0 to 2 percent slopes	2.7	4.6%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	12.6	21.4%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	43.8	74.0%
Totals for Area of Interest		**59.1**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock D. Wollenweber N. Pasture Back)

NW, SW S25 T2N R1W



Map Scale: 1:3,790 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

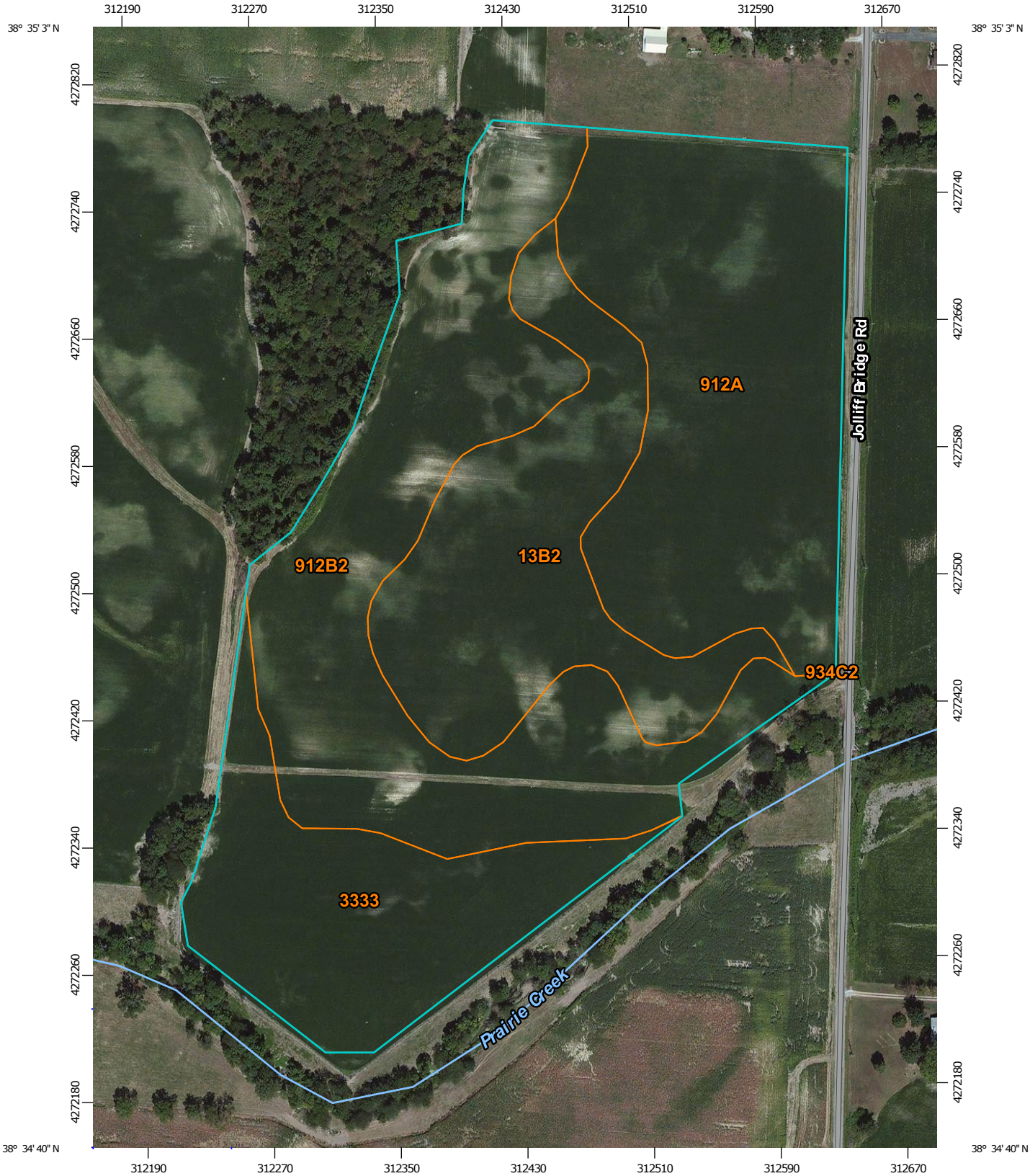
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	33.7	63.2%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	17.3	32.5%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	0.3	0.6%
3333	Wakeland silt loam, frequently flooded	2.0	3.7%
Totals for Area of Interest		**53.3**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenvilled Livestock (D. Wollenweber N. Pasture Front))

NE, SW S25 T2N R1W



Map Scale: 1:3,440 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

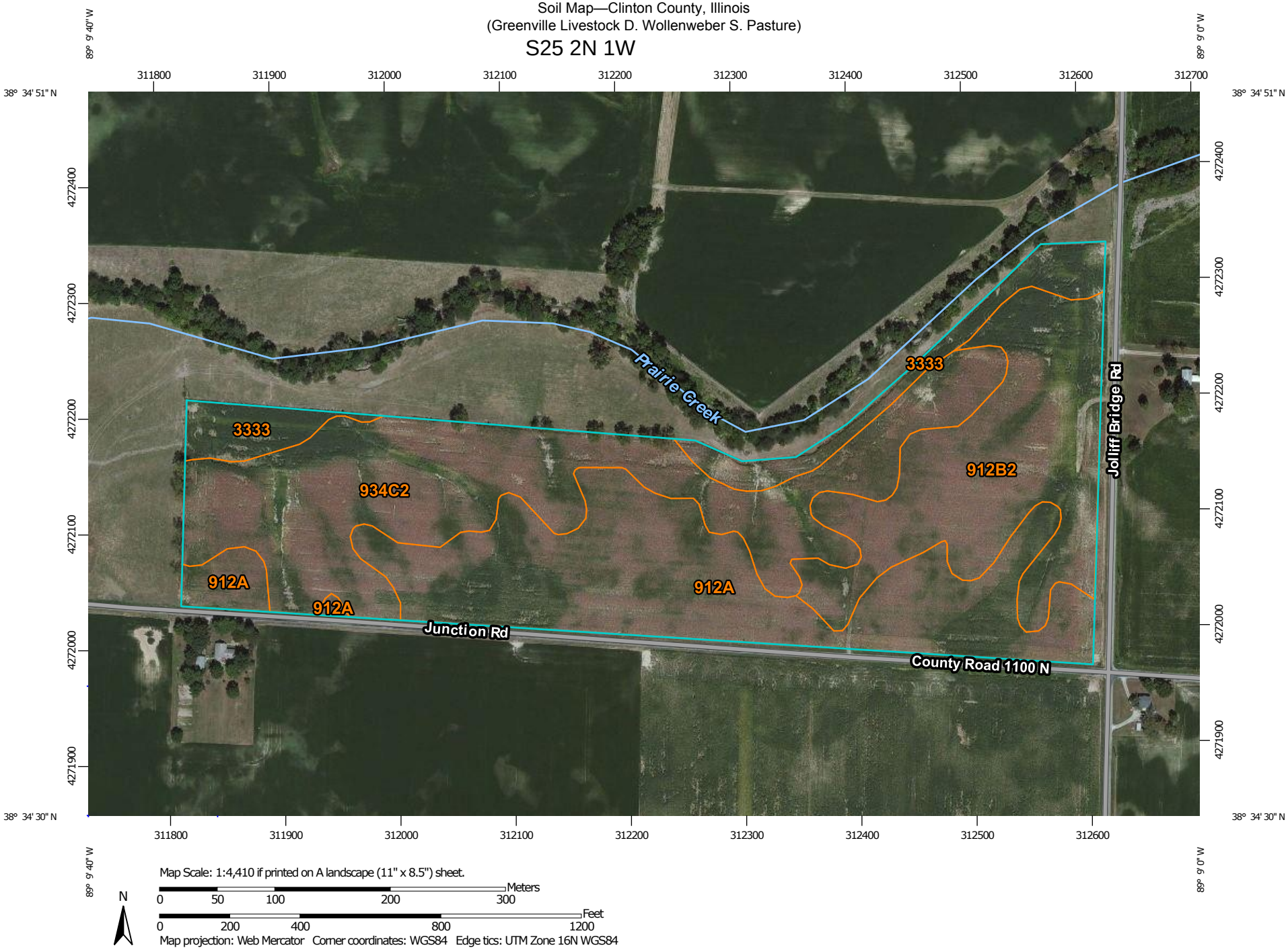
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	8.1	20.0%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	12.0	29.8%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	13.3	33.0%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	0.0	0.0%
3333	Wakeland silt loam, frequently flooded	7.0	17.2%
Totals for Area of Interest		**40.4**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock D. Wollenweber S. Pasture)

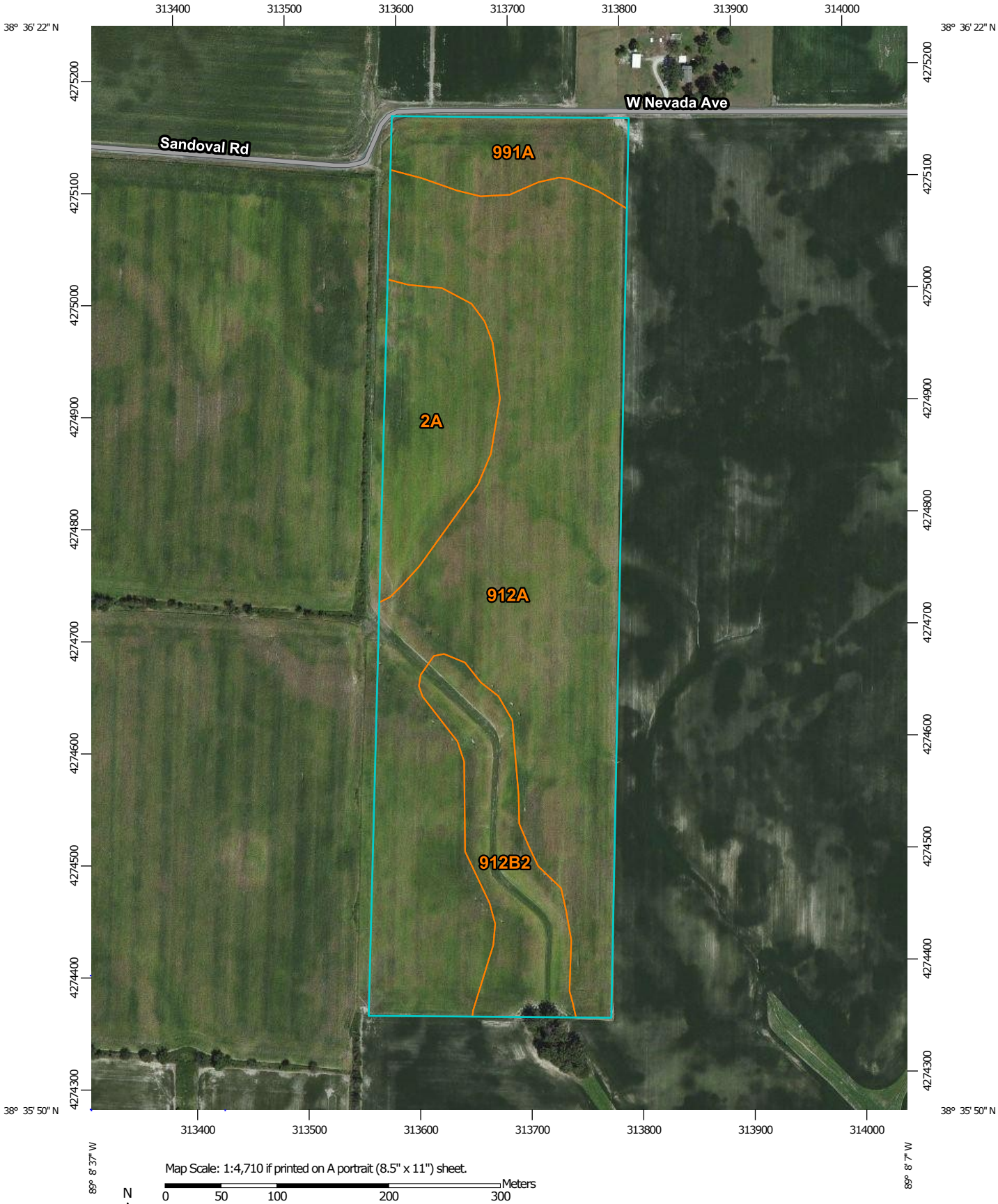
S25 2N 1W



Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	13.7	33.5%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	9.5	23.2%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	14.1	34.7%
3333	Wakeland silt loam, frequently flooded	3.5	8.6%
Totals for Area of Interest		**40.8**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Darrell-Hogpen 2))
19 2N 1E



Map Scale: 1:4,710 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	5.3	12.5%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	29.3	68.5%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	4.9	11.4%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	3.3	7.7%
Totals for Area of Interest		**42.8**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Darrel Home Base))
23 2N 1W

Map Scale: 1:4,830 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
218	Newberry silt loam	1.4	2.6%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	33.3	60.1%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	6.7	12.1%
991	Cisne-Huey complex	14.0	25.2%
Totals for Area of Interest		**55.5**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Darrell North))
19 3N 2E

Map Scale: 1:4,400 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

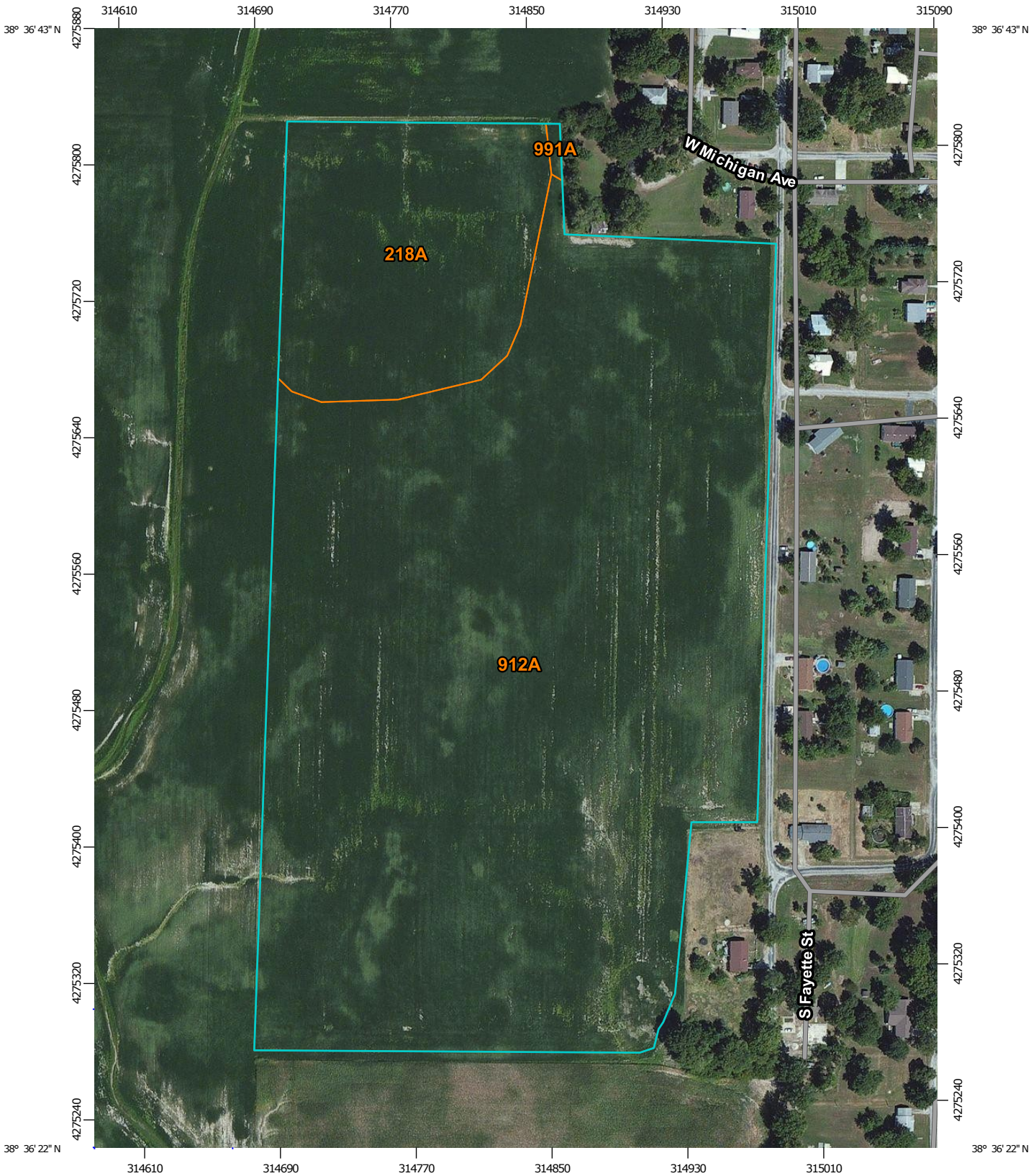
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	49.6	64.3%
13A	Bluford silt loam, 0 to 2 percent slopes	0.1	0.1%
888C2	Passport-Grantfork silt loams, 5 to 10 percent slopes, eroded	0.1	0.1%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	22.2	28.7%
912B	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes	5.1	6.6%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	0.2	0.3%
Totals for Area of Interest		**77.2**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Darrell Scott 36))
18 2N 1E



Map Scale: 1:3,200 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

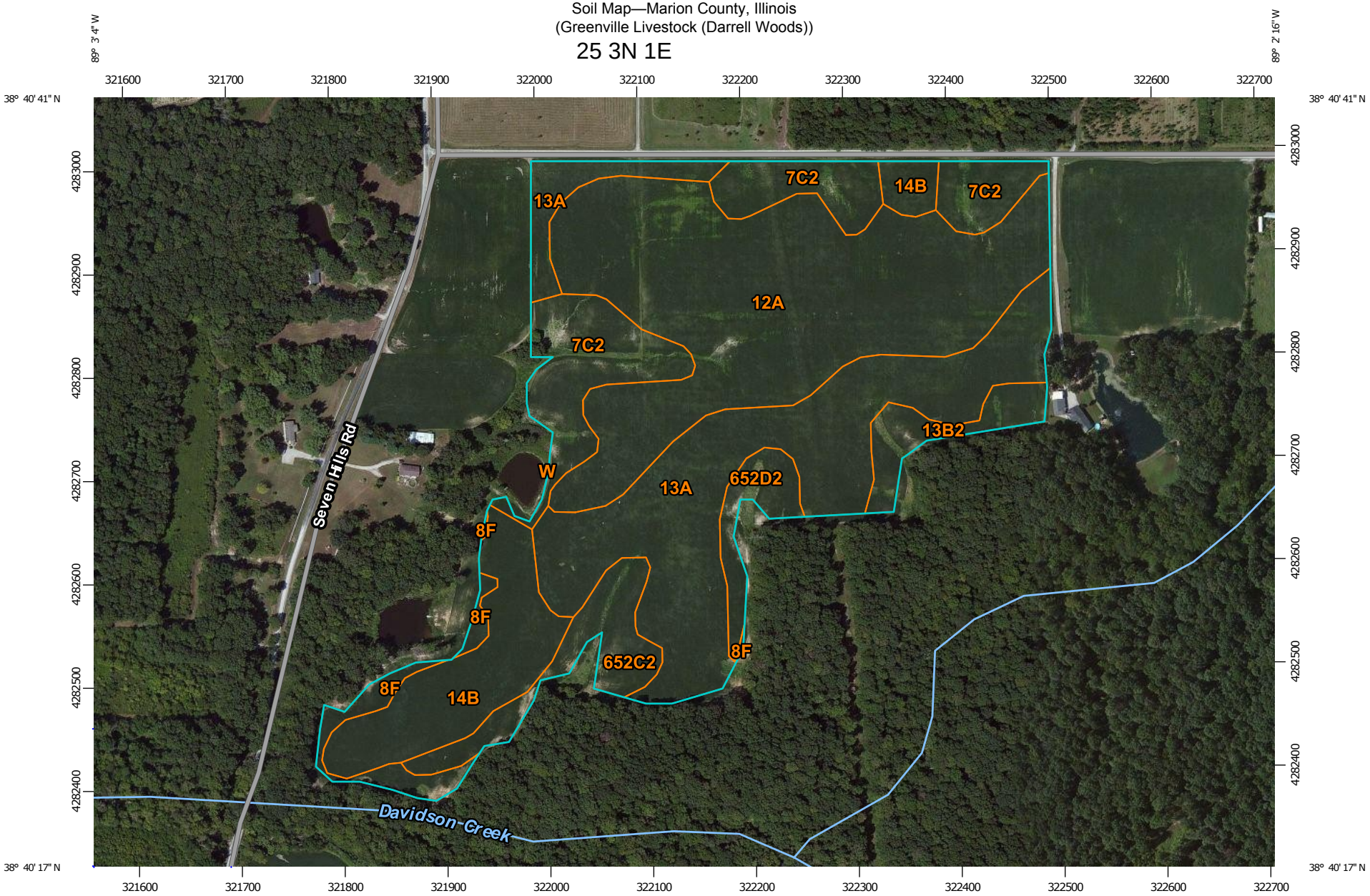
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
218A	Newberry silt loam, 0 to 2 percent slopes	5.8	16.1%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	29.9	83.7%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	0.1	0.2%
Totals for Area of Interest		**35.7**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Darrell Woods))
25 3N 1E



Map Scale: 1:5,250 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

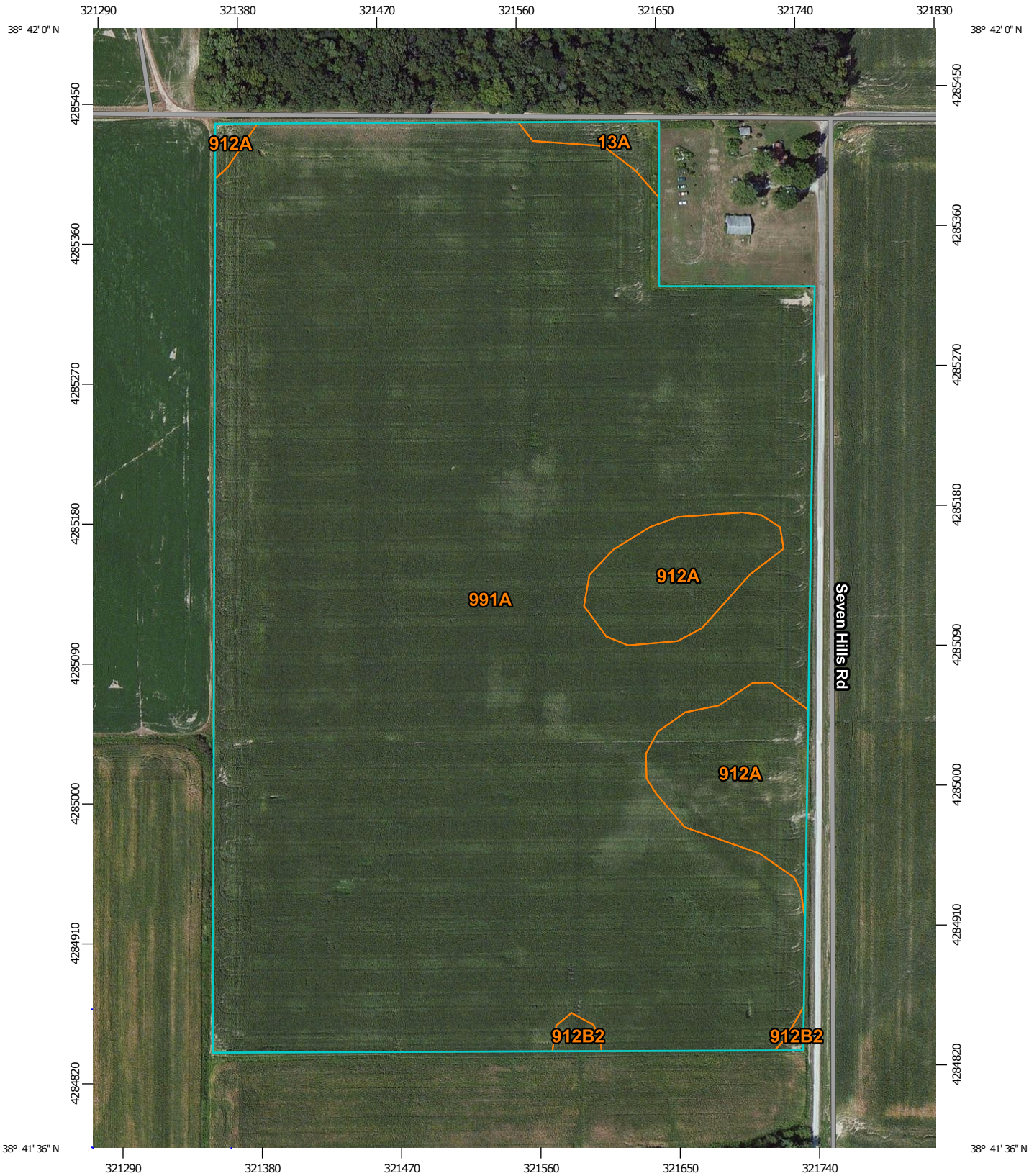
Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	7.1	12.9%
8F	Hickory silt loam, 18 to 35 percent slopes	1.5	2.7%
12A	Wynoose silt loam, 0 to 2 percent slopes	19.8	36.0%
13A	Bluford silt loam, 0 to 2 percent slopes	14.8	26.9%
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	1.7	3.1%
14B	Ava silt loam, 2 to 5 percent slopes	5.9	10.7%
652C2	Passport silt loam, 5 to 10 percent slopes, eroded	2.8	5.0%
652D2	Passport silt loam, 10 to 18 percent slopes, eroded	1.5	2.7%
W	Water	0.0	0.0%
Totals for Area of Interest		**54.9**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Dean Jett))
14 3N 1E



Map Scale: 1:3,510 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

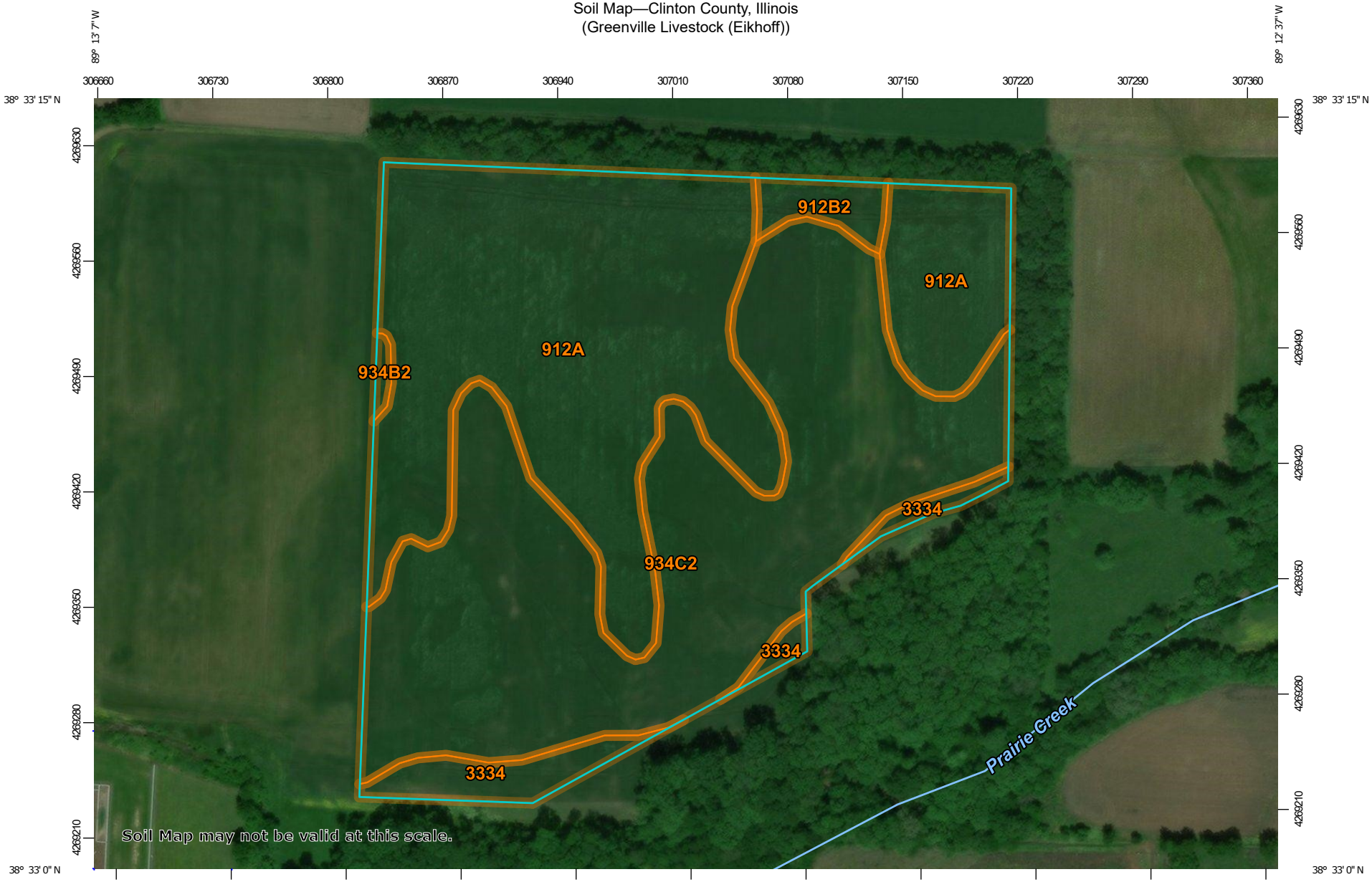
Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13A	Bluford silt loam, 0 to 2 percent slopes	0.4	0.8%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	4.2	7.7%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	0.2	0.4%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	49.6	91.1%
Totals for Area of Interest		**54.4**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Eikhoff))



Map Scale: 1:3,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

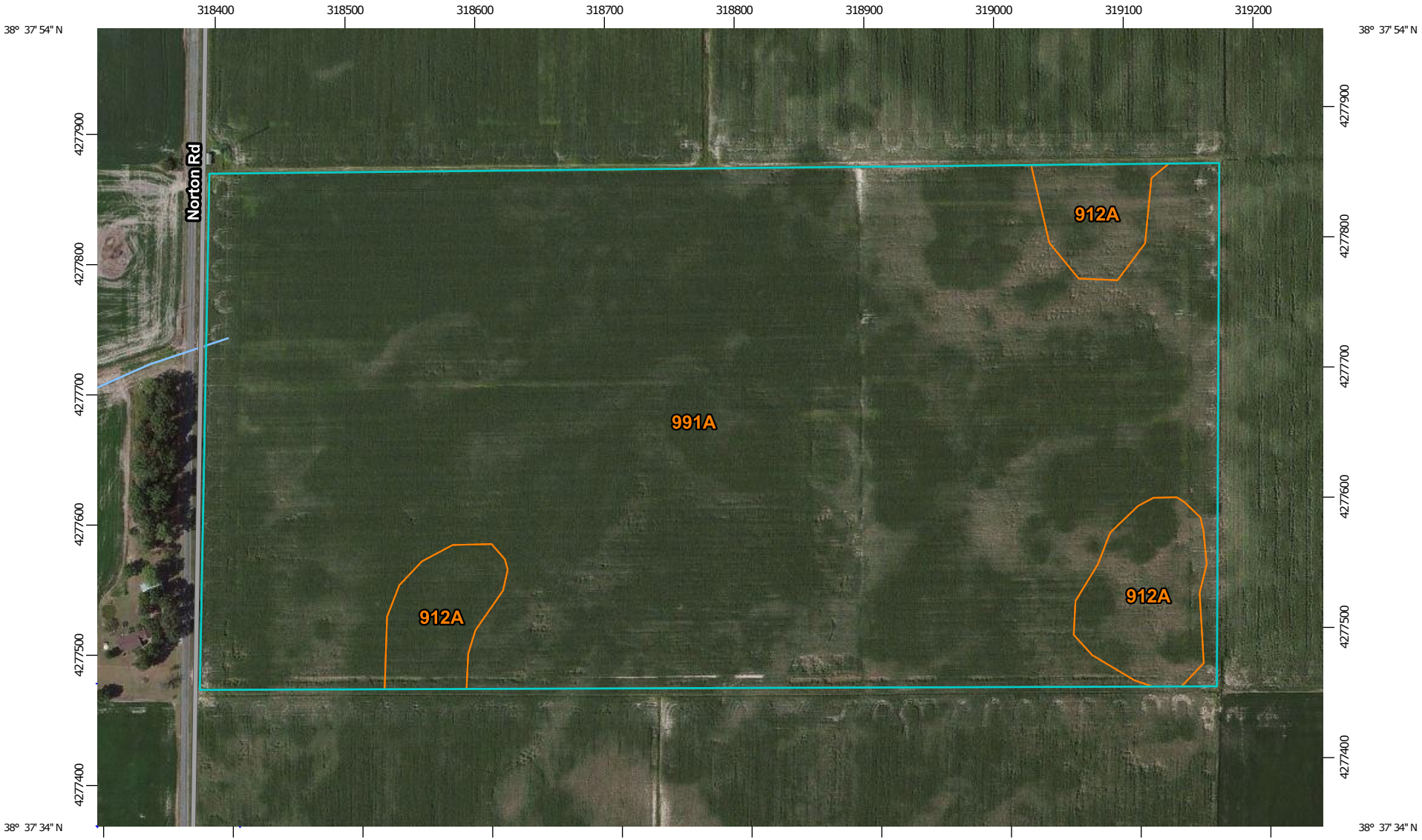
Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	13.5	45.4%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	0.6	2.0%
934B2	Blair-Grantfork complex, 2 to 5 percent slopes, eroded	0.1	0.3%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	14.2	47.8%
3334	Birds silt loam, frequently flooded	1.3	4.4%
Totals for Area of Interest		**29.7**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Forrest1))
S1/2, NW 10 2N 1E



Map Scale: 1:4,320 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	6.3	8.1%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	71.1	91.9%
Totals for Area of Interest		**77.4**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Forrest 2))
NW, SW, 10 2N 1E

Map Scale: 1:2,760 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

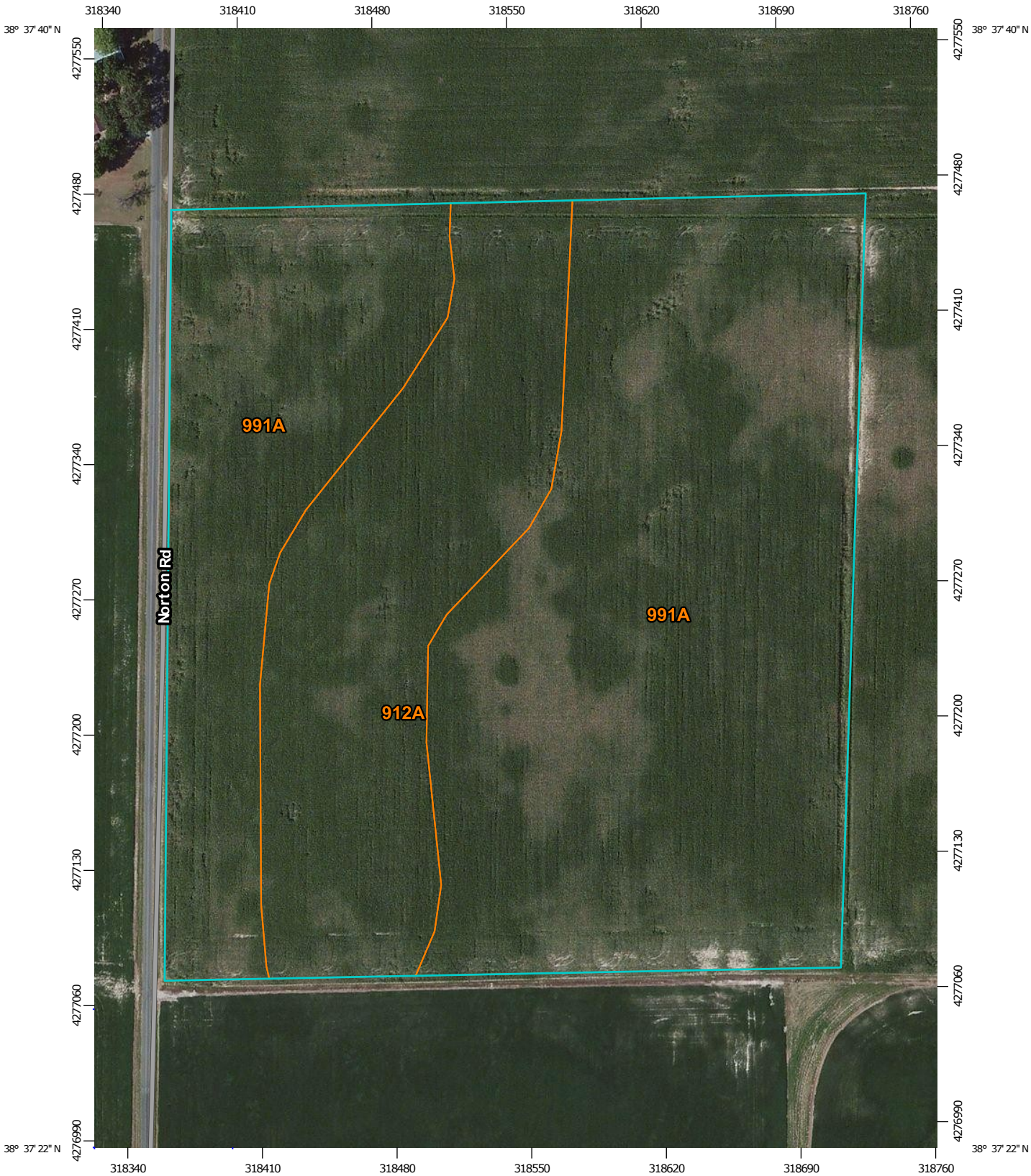
Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	8.8	25.5%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	25.6	74.5%
Totals for Area of Interest		**34.4**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Forrest 3))
NE, SW 10 2N 1E



Map Scale: 1:2,820 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	8.8	25.0%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	26.5	75.0%
Totals for Area of Interest		**35.3**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Forrest 4 Back))
NW, SE 10 2N 1E

Map Scale: 1:3,170 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

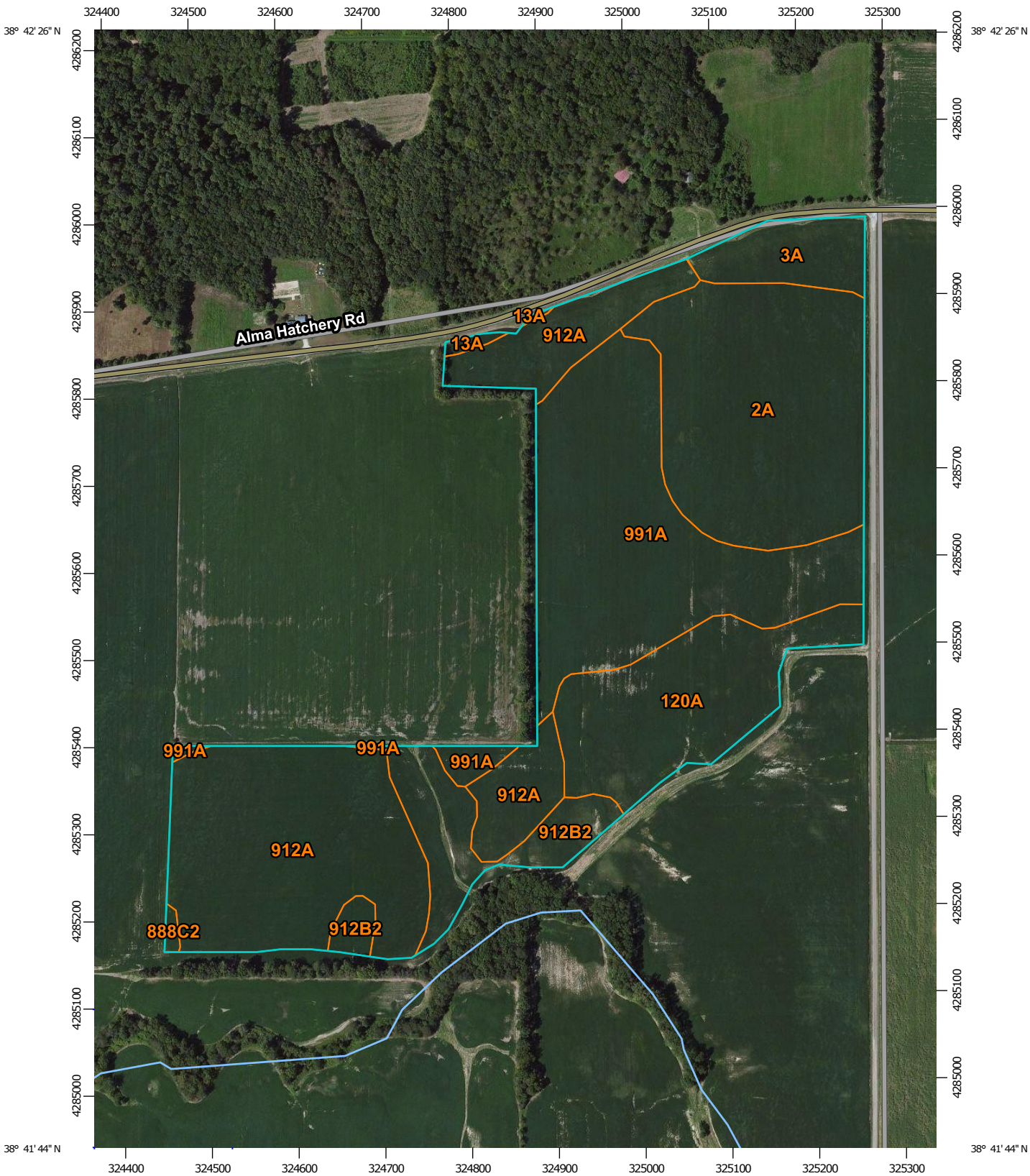
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
888C2	Passport-Grantfork silt loams, 5 to 10 percent slopes, eroded	7.7	19.1%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	16.5	40.8%
912B	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes	1.9	4.8%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	14.2	35.3%
Totals for Area of Interest		**40.3**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Fulton Lane Field))

17 3N 2E
18 3N 2E



Map Scale: 1:6,260 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

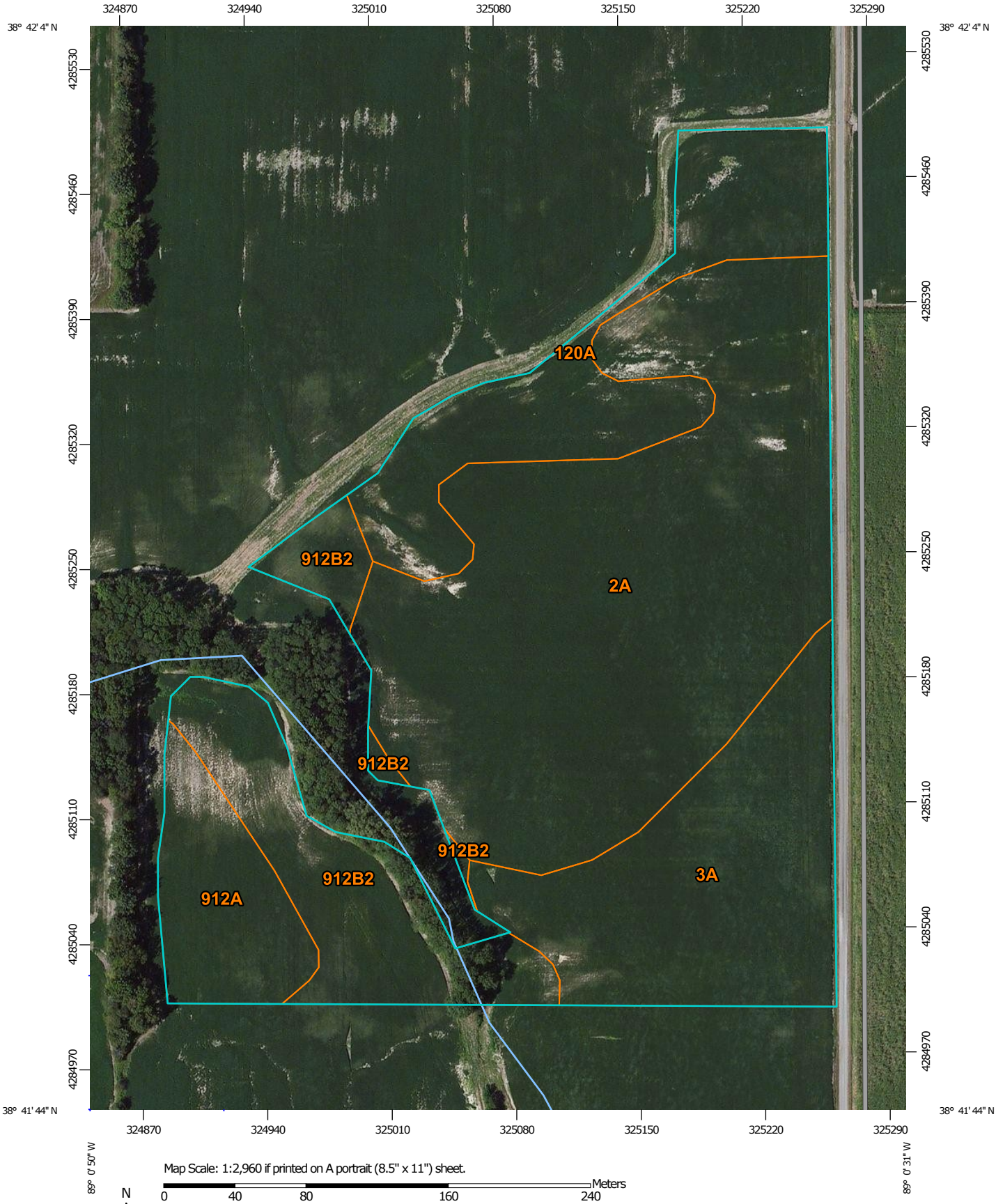
Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	16.9	21.7%
3A	Hoyleton silt loam, 0 to 2 percent slopes	3.3	4.2%
13A	Bluford silt loam, 0 to 2 percent slopes	0.3	0.4%
120A	Huey silt loam, 0 to 2 percent slopes	10.1	13.0%
888C2	Passport-Grantfork silt loams, 5 to 10 percent slopes, eroded	0.2	0.2%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	22.3	28.6%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	5.6	7.1%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	19.5	24.9%
Totals for Area of Interest		**78.2**	**100.0%**

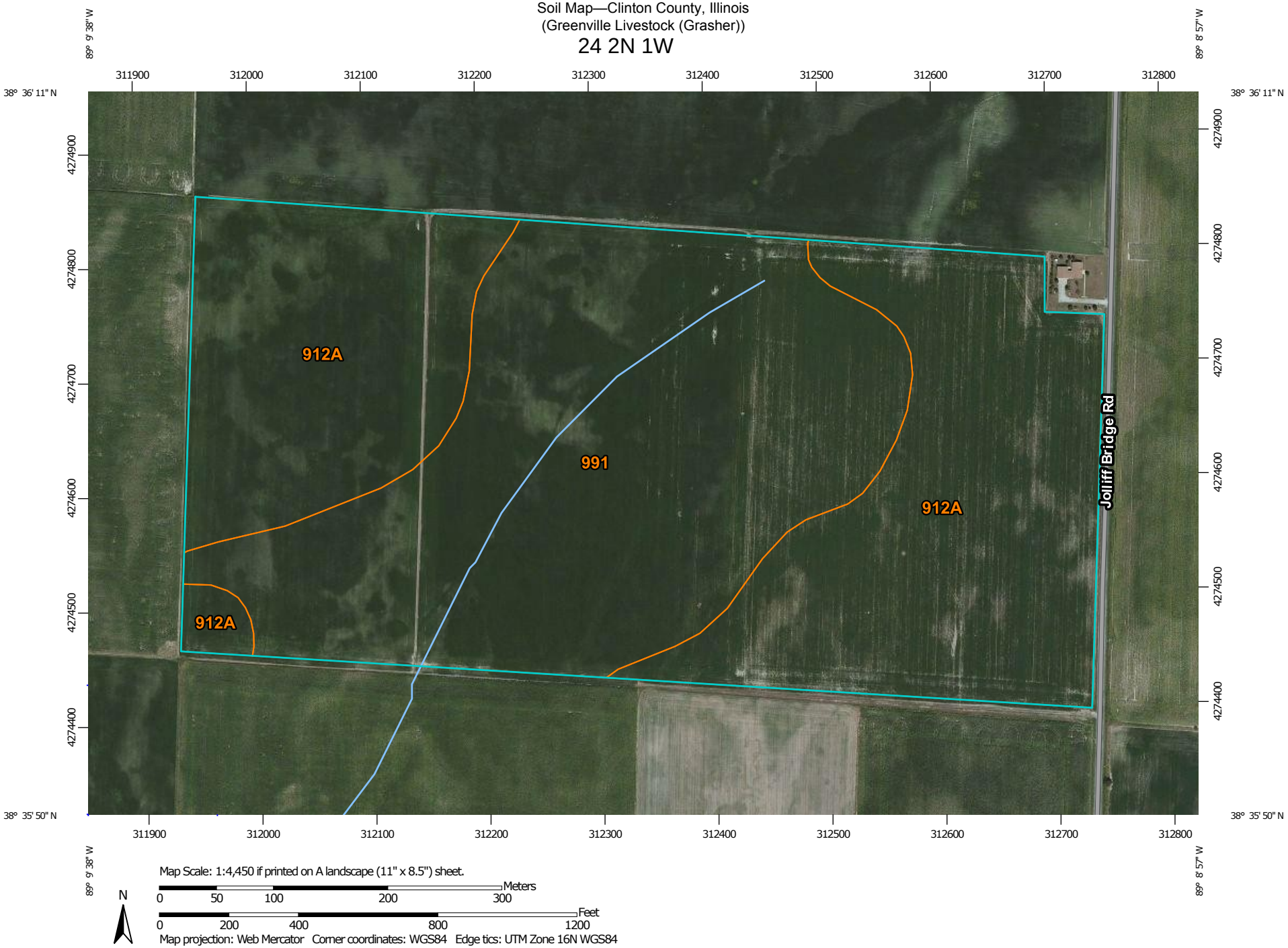
Soil Map—Marion County, Illinois
(Greenville Livestock (Fulton South Field))
W1/2, SW 17 3N 2E



Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	14.0	46.2%
3A	Hoyleton silt loam, 0 to 2 percent slopes	5.7	18.7%
120A	Huey silt loam, 0 to 2 percent slopes	4.4	14.4%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	2.2	7.1%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	4.1	13.5%
Totals for Area of Interest		**30.3**	**100.0%**

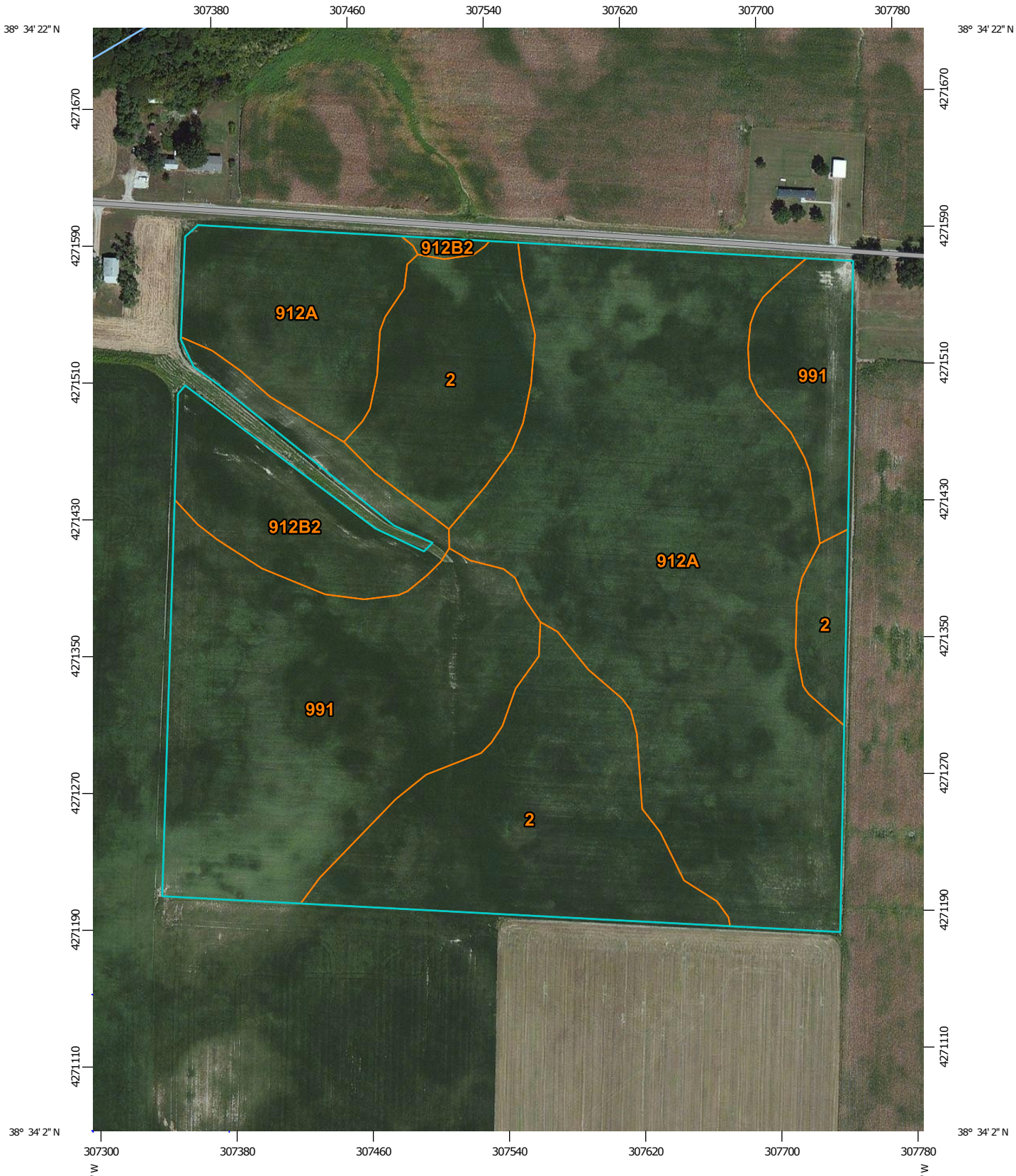
Soil Map—Clinton County, Illinois
(Greenville Livestock (Grasher))
24 2N 1W



Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	40.4	52.0%
991	Cisne-Huey complex	37.2	48.0%
Totals for Area of Interest		**77.6**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Heinrich 40))
33 2N 1W



Map Scale: 1:3,140 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

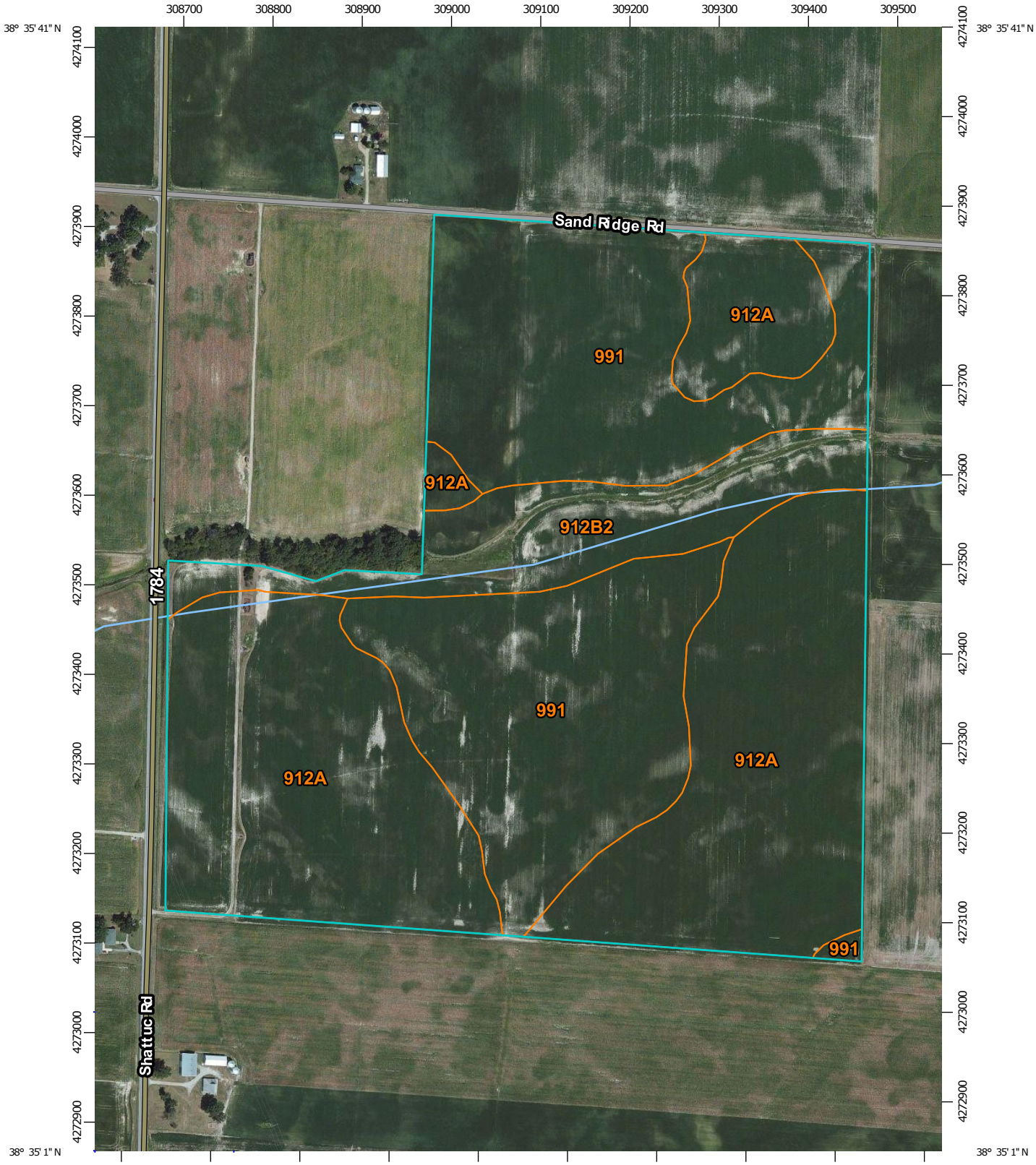
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	8.7	22.9%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	16.6	43.6%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	3.0	7.9%
991	Cisne-Huey complex	9.8	25.6%
Totals for Area of Interest		**38.1**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Heinrich 120))
27 2N 1W



Map Scale: 1:6,120 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

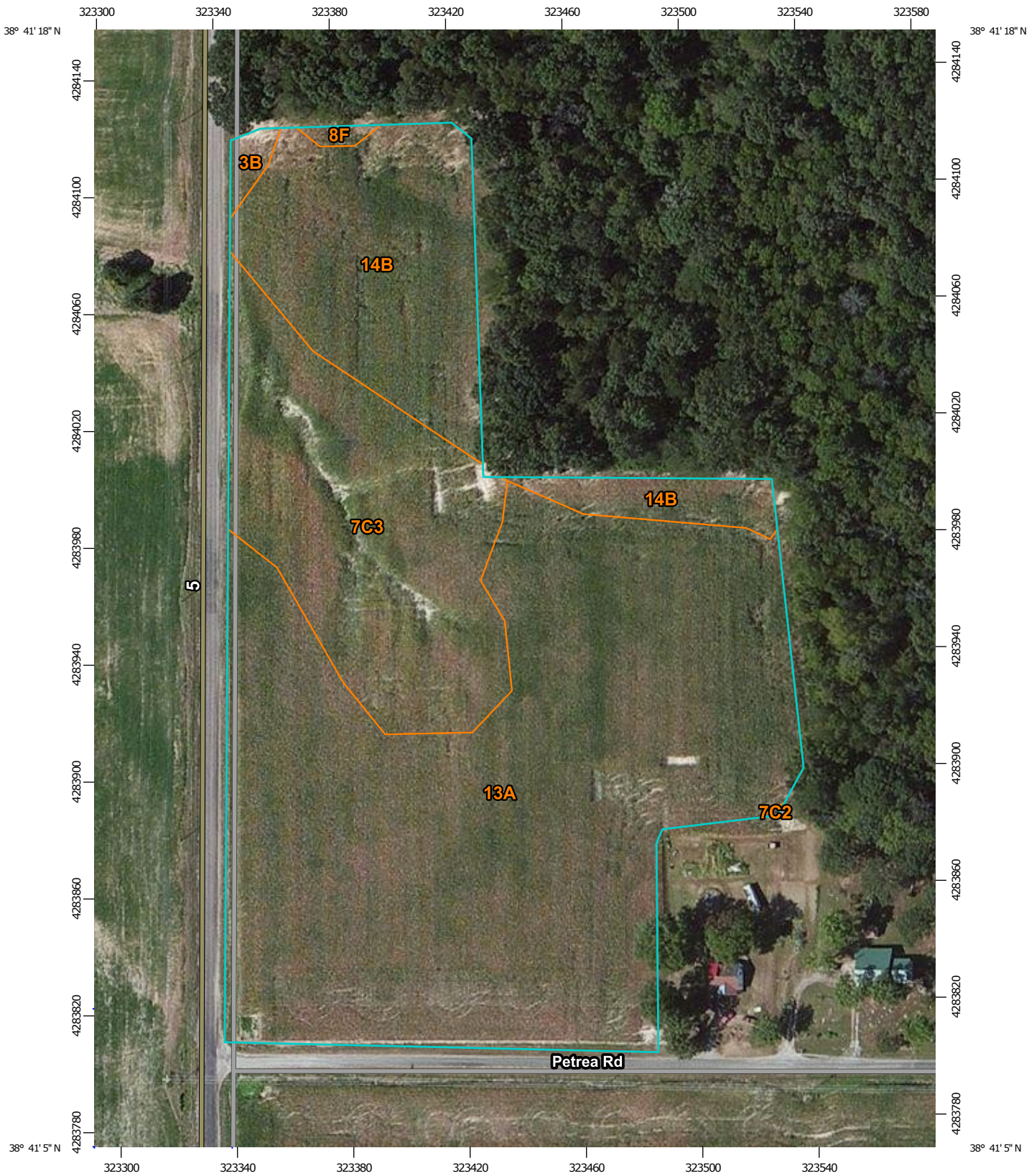
Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	61.1	48.5%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	13.6	10.8%
991	Cisne-Huey complex	51.1	40.6%
Totals for Area of Interest		**125.8**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Henson 10))
19 3N 2E



Map Scale: 1:1,860 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 25 50 100 150

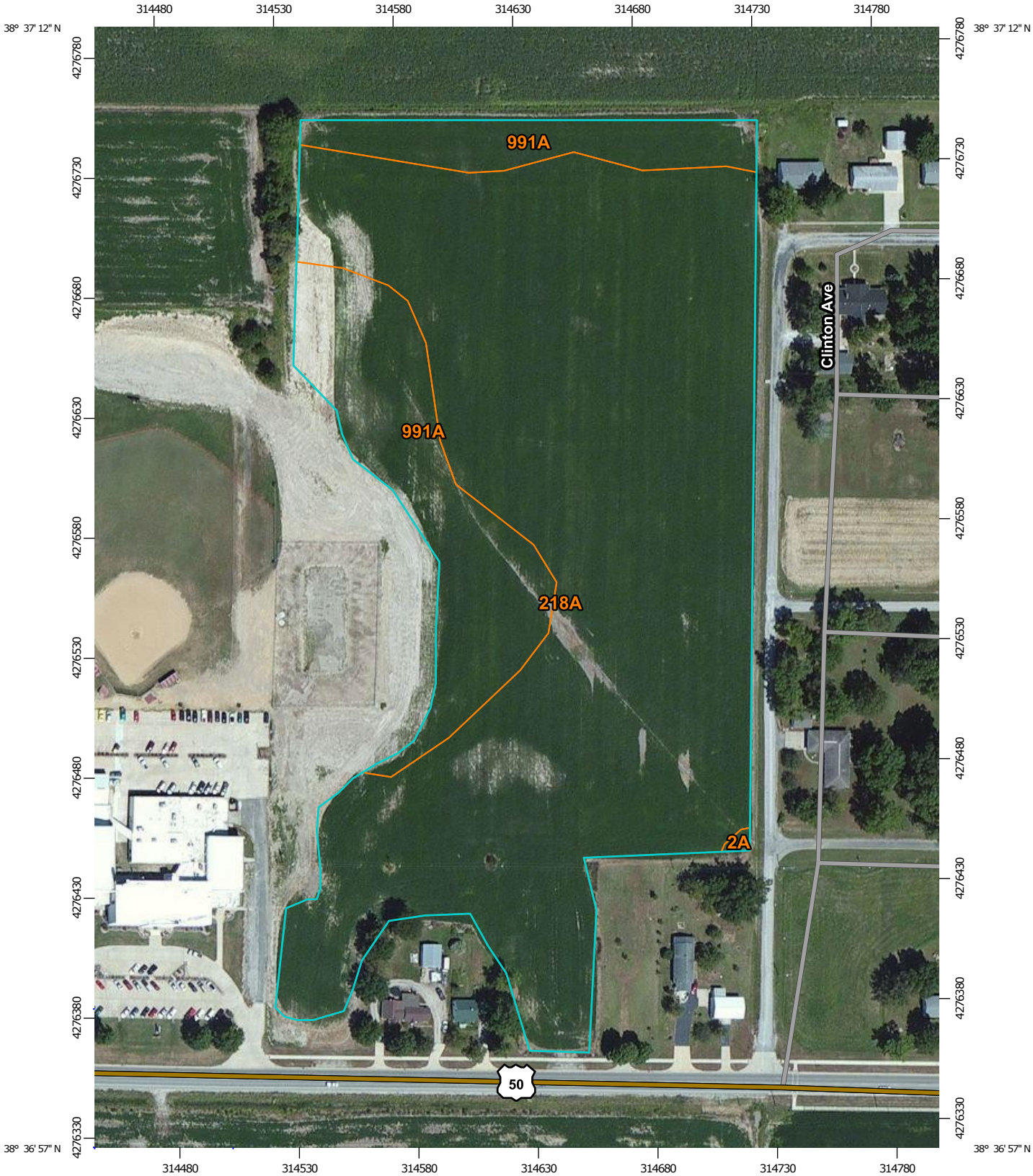
Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3B	Hoyleton silt loam, 2 to 5 percent slopes	0.1	0.6%
7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.0	0.0%
7C3	Atlas silty clay loam, 5 to 10 percent slopes, severely eroded	2.3	20.8%
8F	Hickory silt loam, 18 to 35 percent slopes	0.0	0.3%
13A	Bluford silt loam, 0 to 2 percent slopes	6.7	60.5%
14B	Ava silt loam, 2 to 5 percent slopes	1.9	17.6%
Totals for Area of Interest		**11.0**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (HighSchool))
18 2N 1E



Map Scale: 1:2,280 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

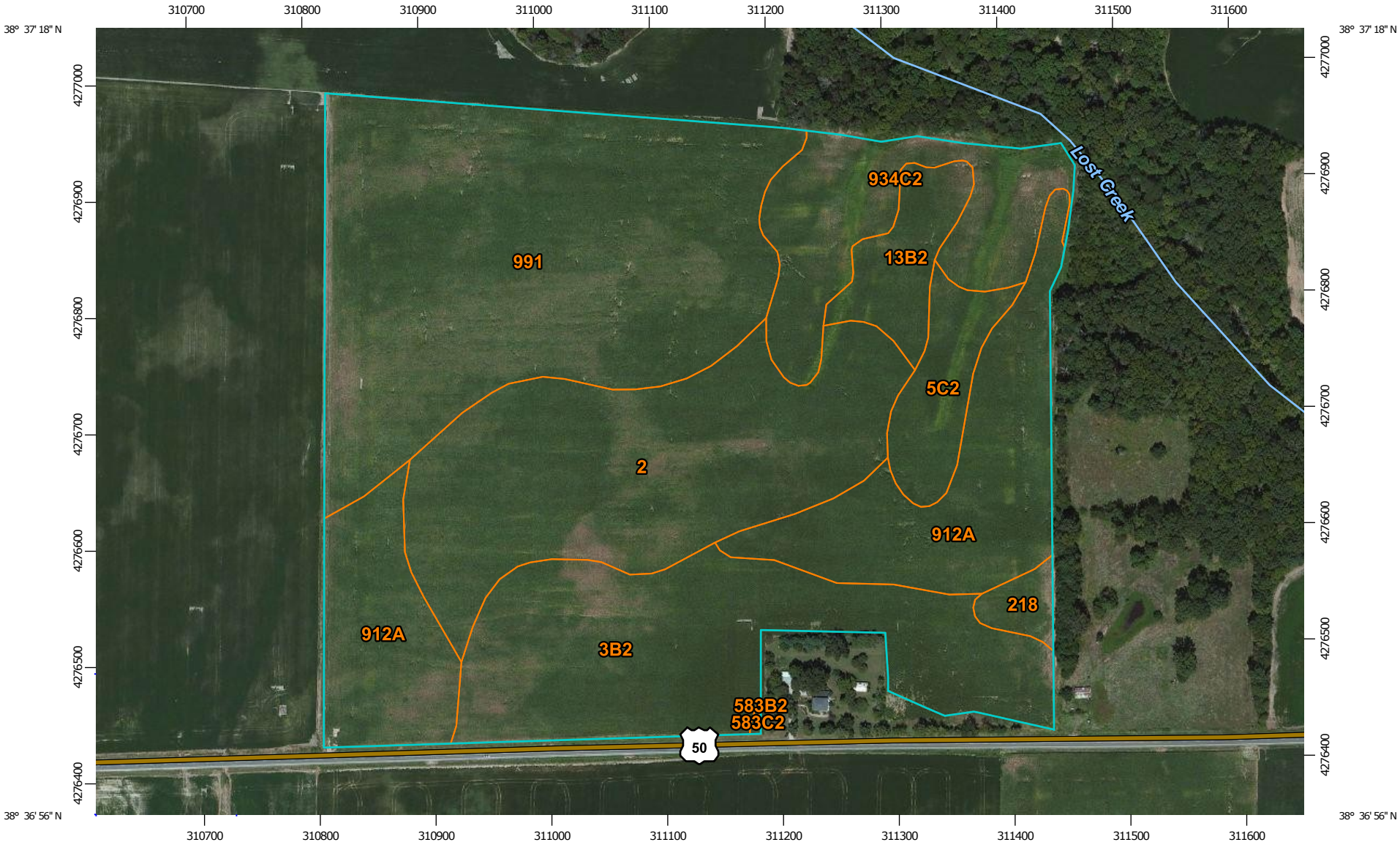
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	0.0	0.1%
218A	Newberry silt loam, 0 to 2 percent slopes	11.3	79.6%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	2.9	20.2%
Totals for Area of Interest		**14.2**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Hill North))

NE, NW 14 2N 1W



Map Scale: 1:4,770 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	15.9	19.8%
3B2	Hoyleton silt loam, 2 to 5 percent slopes, eroded	13.8	17.3%
5C2	Blair silt loam, 5 to 10 percent slopes, eroded	2.7	3.4%
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	2.6	3.2%
218	Newberry silt loam	0.8	1.0%
583B2	Pike silt loam, 2 to 5 percent slopes, eroded	0.0	0.0%
583C2	Pike silt loam, 5 to 10 percent slopes, eroded	0.0	0.1%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	13.1	16.4%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	6.6	8.3%
991	Cisne-Huey complex	24.5	30.6%
Totals for Area of Interest		**80.0**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Hill South))
14 2N 1W

Map Scale: 1:3,480 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

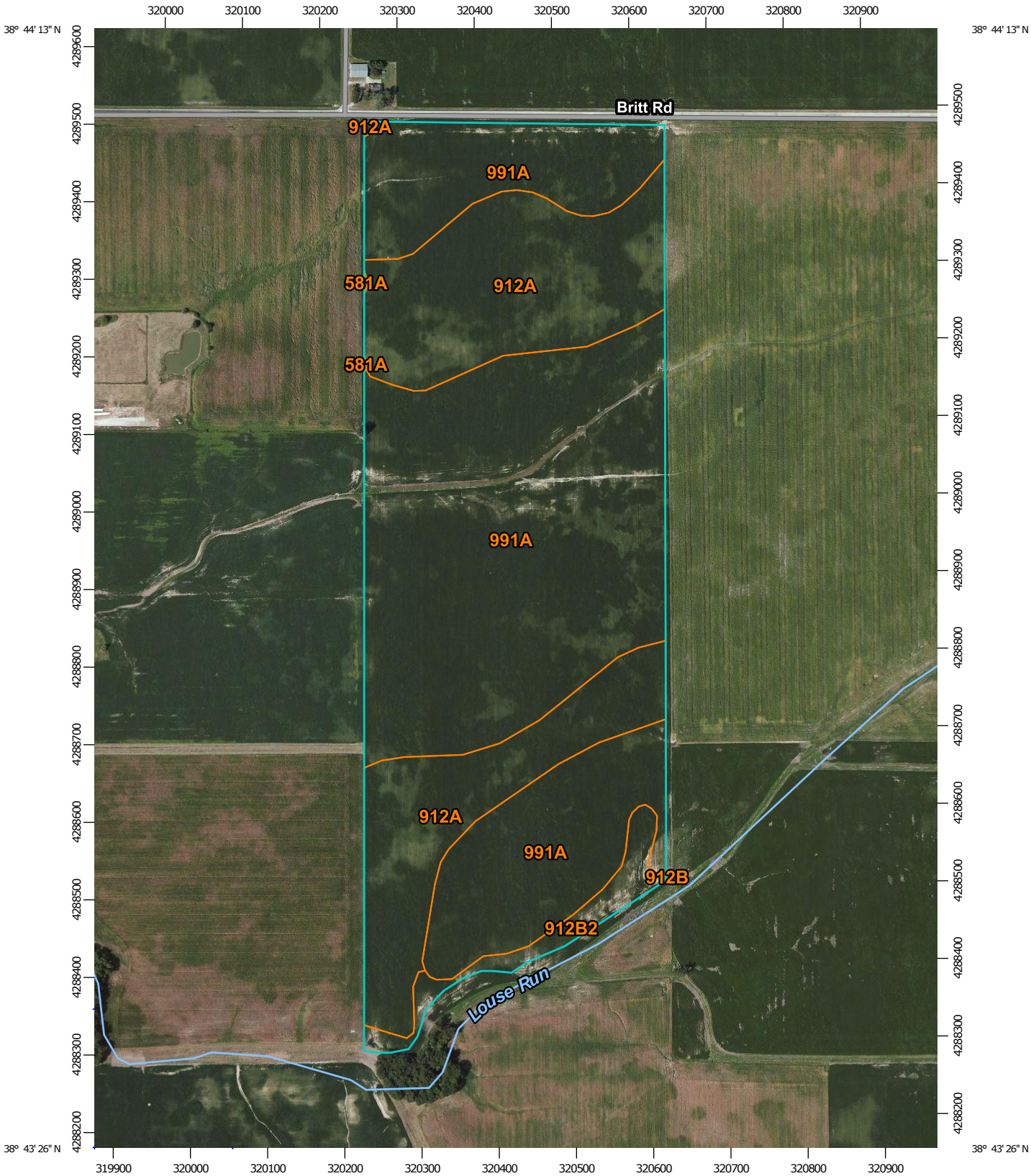
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	8.9	19.5%
3A	Hoyleton silt loam, 0 to 2 percent slopes	24.5	53.6%
3B2	Hoyleton silt loam, 2 to 5 percent slopes, eroded	10.8	23.7%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	0.8	1.7%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	0.7	1.5%
Totals for Area of Interest		**45.7**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Janets 108))
2 3N 1E



Map Scale: 1:7,030 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

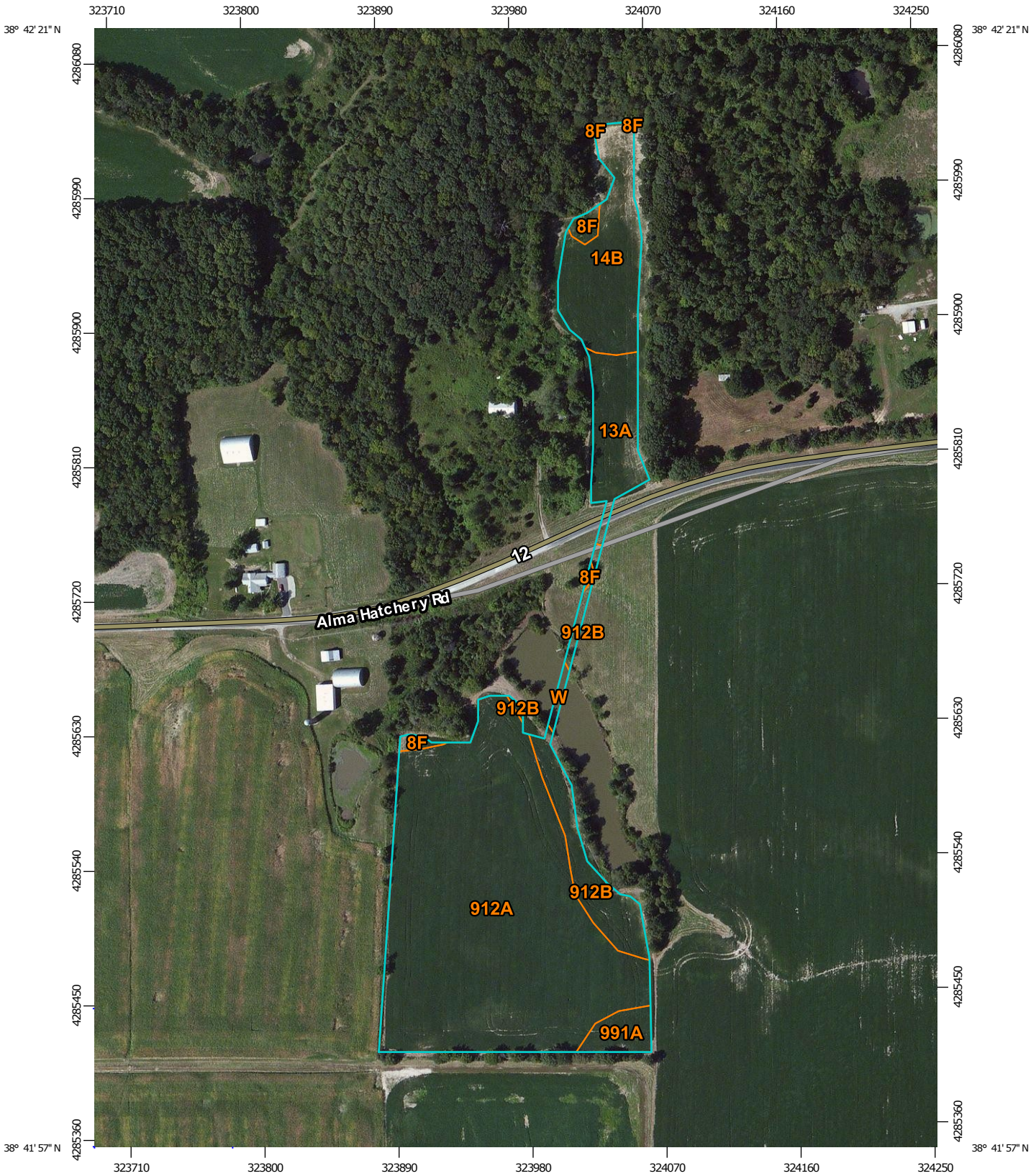
Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
581A	Tamalco silt loam, 0 to 2 percent slopes	0.0	0.0%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	32.0	30.4%
912B	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes	0.0	0.0%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	3.5	3.3%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	69.8	66.3%
Totals for Area of Interest		**105.3**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Janets Across House))
10 3N 1E

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13A	Bluford silt loam, 0 to 2 percent slopes	0.2	0.2%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	50.3	52.8%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	21.1	22.1%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	23.8	25.0%
Totals for Area of Interest		**95.4**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Jett Pond))
18 3N 2E



Map Scale: 1:3,650 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

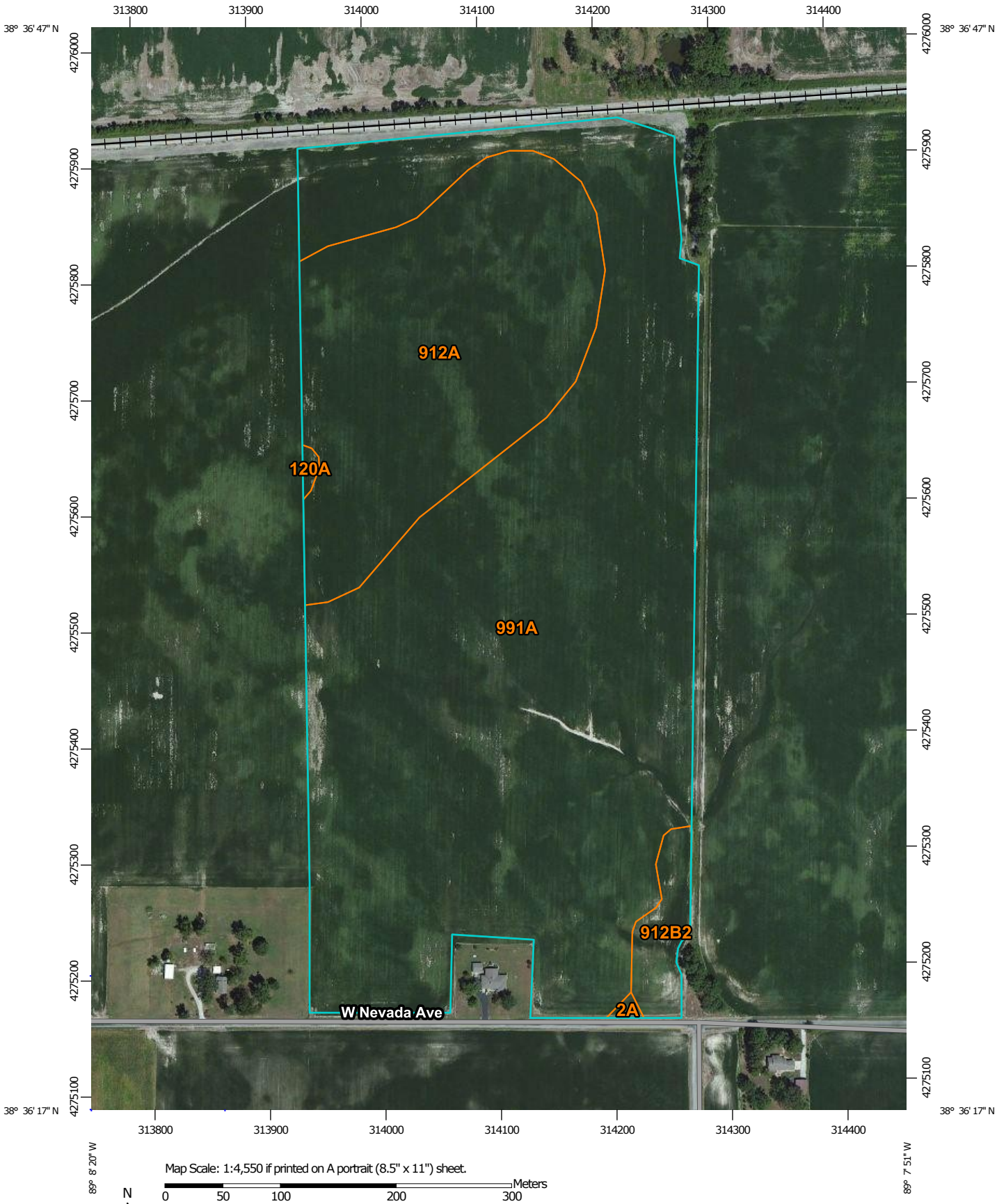
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
8F	Hickory silt loam, 18 to 35 percent slopes	0.2	1.5%
13A	Bluford silt loam, 0 to 2 percent slopes	0.8	7.6%
14B	Ava silt loam, 2 to 5 percent slopes	1.4	13.2%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	7.0	66.7%
912B	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes	0.8	7.8%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	0.3	2.7%
W	Water	0.1	0.5%
Totals for Area of Interest		**10.4**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Joyce 58))
18 2N 1E



Map Scale: 1:4,550 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

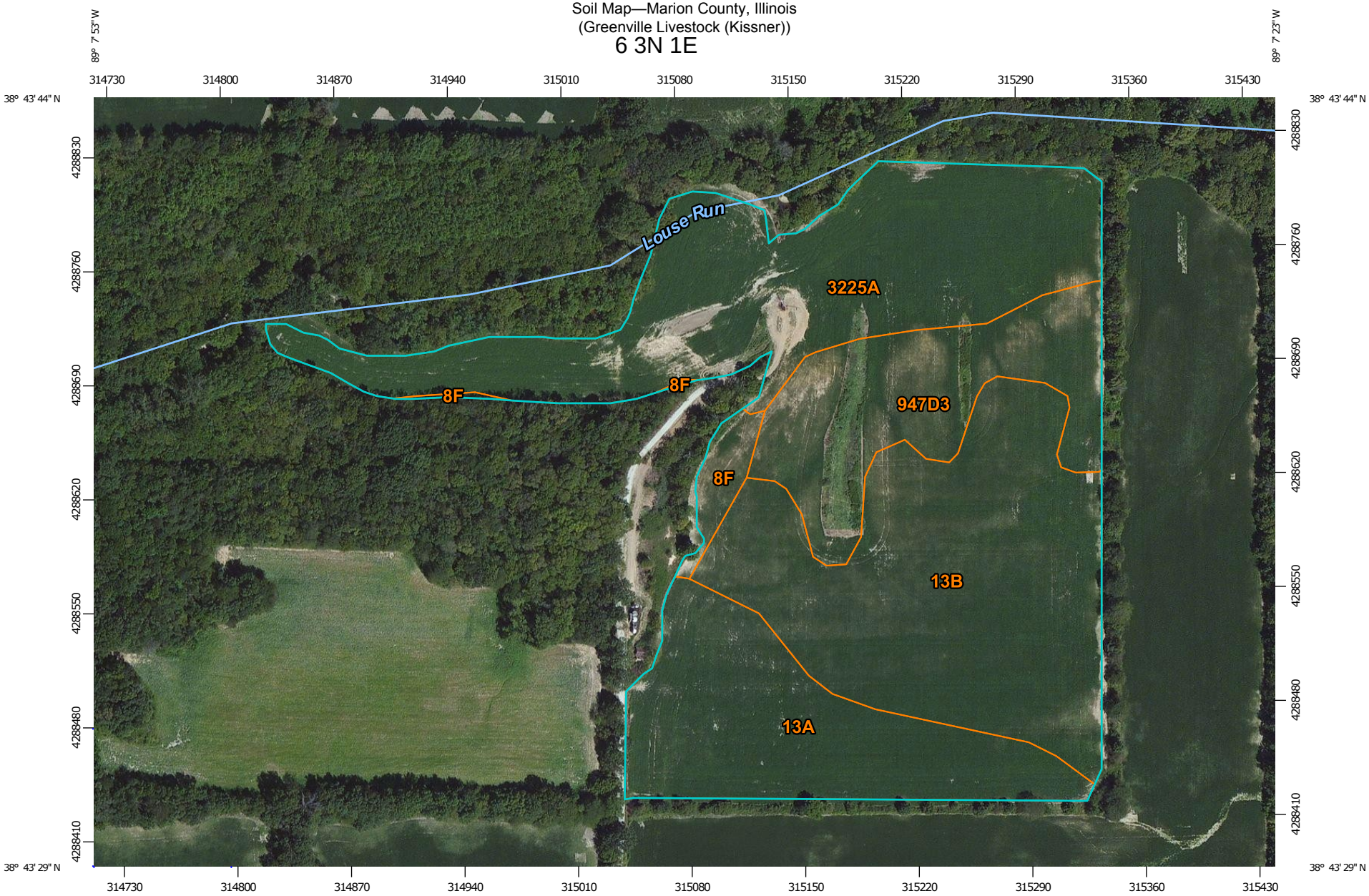
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	0.1	0.1%
120A	Huey silt loam, 0 to 2 percent slopes	0.1	0.2%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	16.2	26.1%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	1.4	2.3%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	44.2	71.2%
Totals for Area of Interest		**62.0**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Kissner))
6 3N 1E



Map Scale: 1:3,330 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

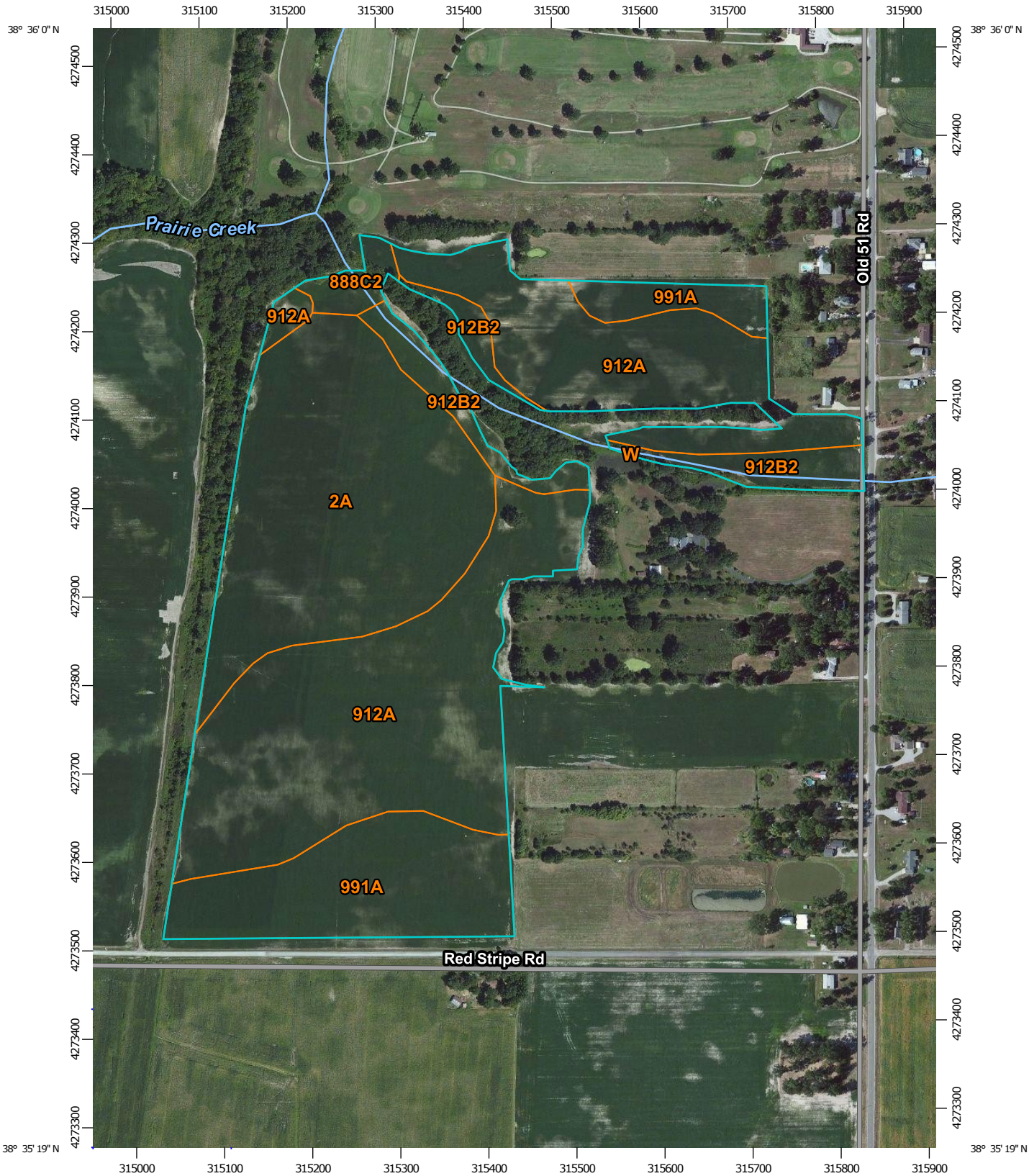
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
8F	Hickory silt loam, 18 to 35 percent slopes	0.5	2.0%
13A	Bluford silt loam, 0 to 2 percent slopes	5.0	18.5%
13B	Bluford silt loam, 2 to 5 percent slopes	8.8	32.6%
947D3	Hickory-Passport clay loams, 10 to 18 percent slopes, severely eroded	4.2	15.5%
3225A	Holton silt loam, 0 to 2 percent slopes, frequently flooded	8.5	31.5%
Totals for Area of Interest		**27.0**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Lyons-Lippert-Cruz))
20 2N 1E



Map Scale: 1:6,170 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	22.5	28.9%
888C2	Passport-Grantfork silt loams, 5 to 10 percent slopes, eroded	1.3	1.7%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	36.2	46.6%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	5.2	6.7%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	12.5	16.1%
W	Water	0.0	0.0%
Totals for Area of Interest		**77.7**	**100.0%**

Soil Map—Clinton County, Illinois, and Marion County, Illinois
(Greenville Livestock (Mary Vogt Back 32))
19 2N 1E

Map Scale: 1:3,500 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

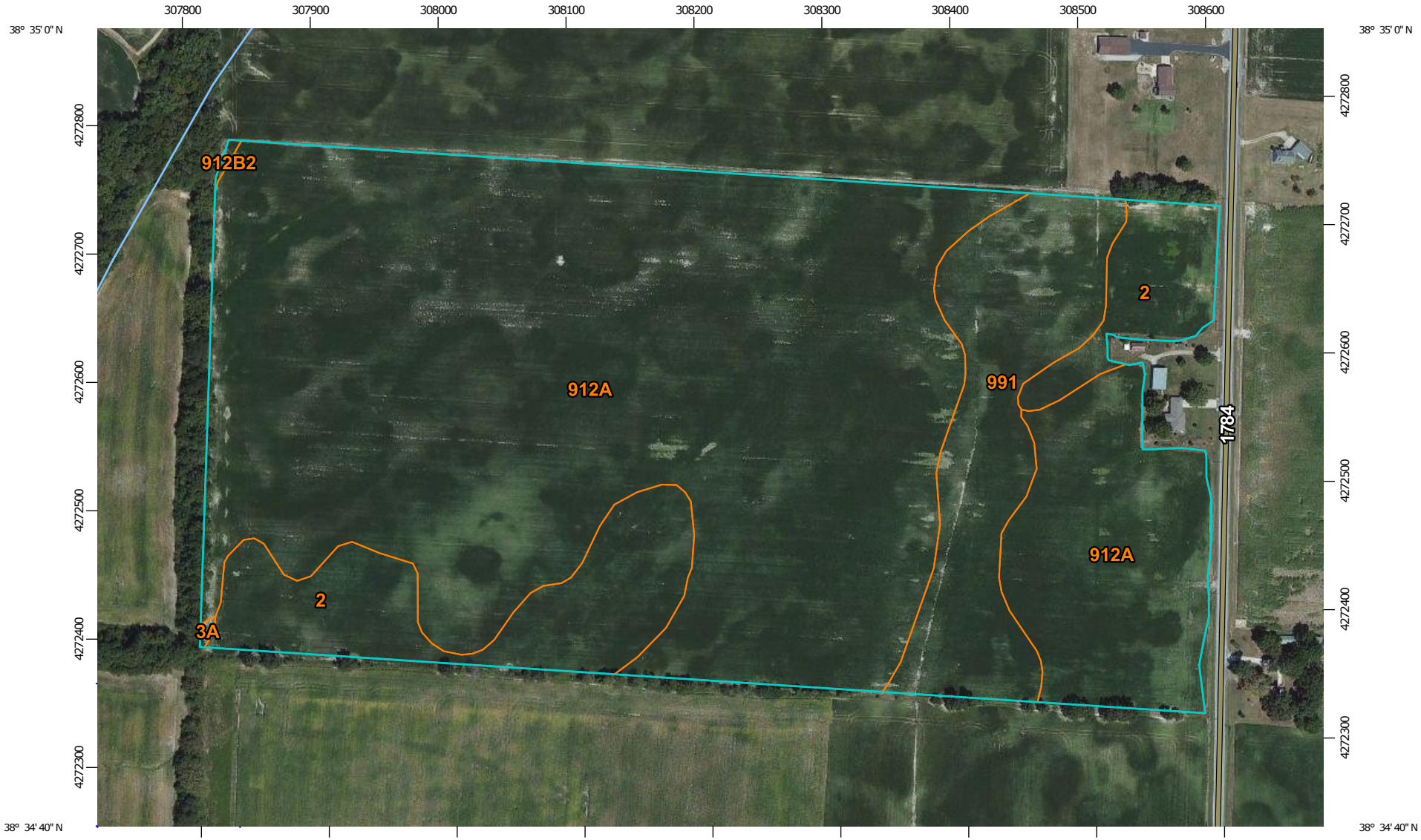
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	0.2	0.6%
Subtotals for Soil Survey Area		**0.2**	**0.6%**
Totals for Area of Interest		**32.6**	**100.0%**

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	25.7	78.8%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	6.7	20.6%
Subtotals for Soil Survey Area		**32.4**	**99.4%**
Totals for Area of Interest		**32.6**	**100.0%**

Soil Map—Clinton County, Illinois
(Melvins 80)
28 2N 1W



Map Scale: 1:4,380 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

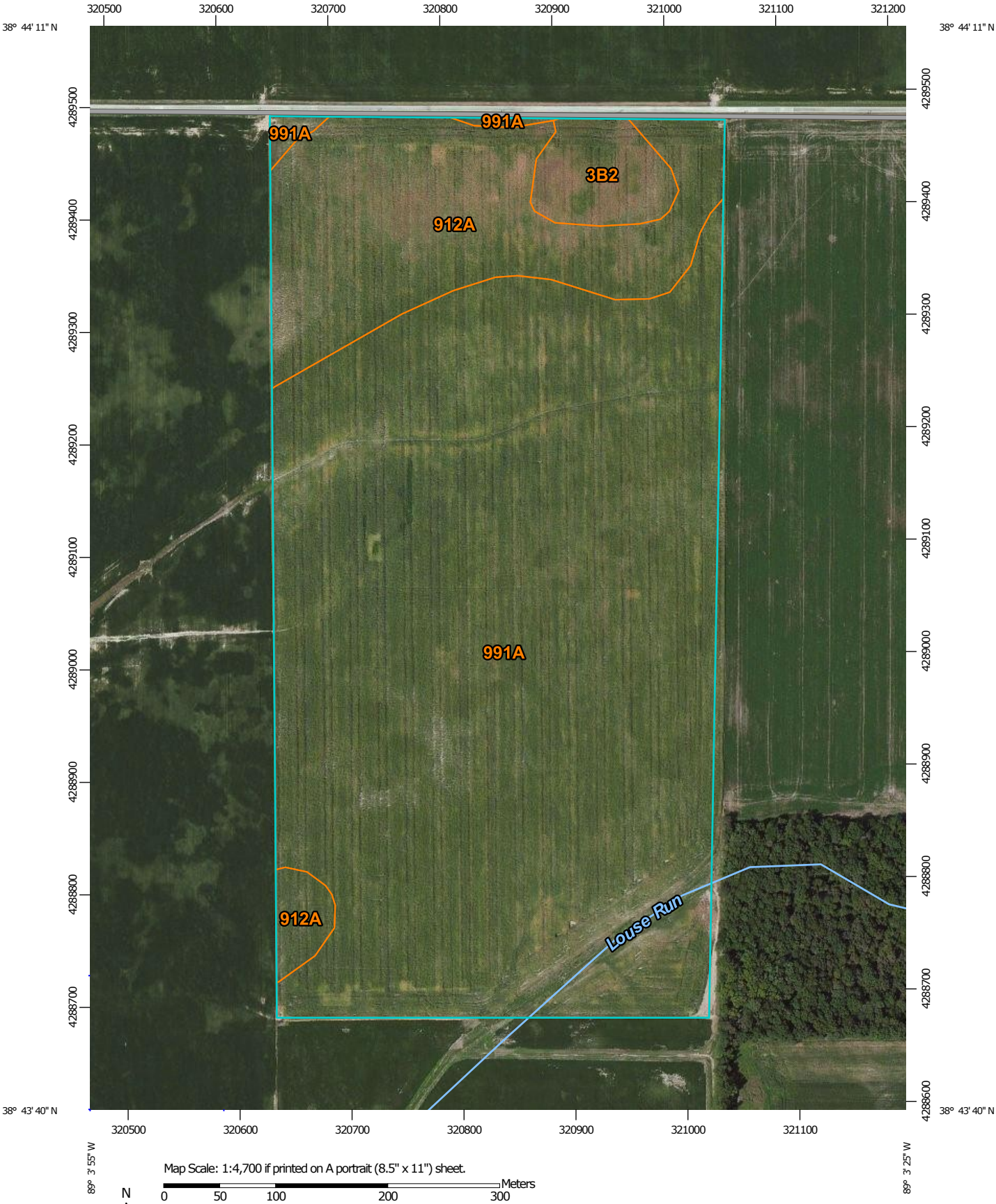
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	9.2	12.1%
3A	Hoyleton silt loam, 0 to 2 percent slopes	0.0	0.1%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	58.1	76.8%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	0.1	0.1%
991	Cisne-Huey complex	8.3	11.0%
Totals for Area of Interest		**75.7**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Myers Hill))
E1/2, NW 2 3N 1E



Map Scale: 1:4,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

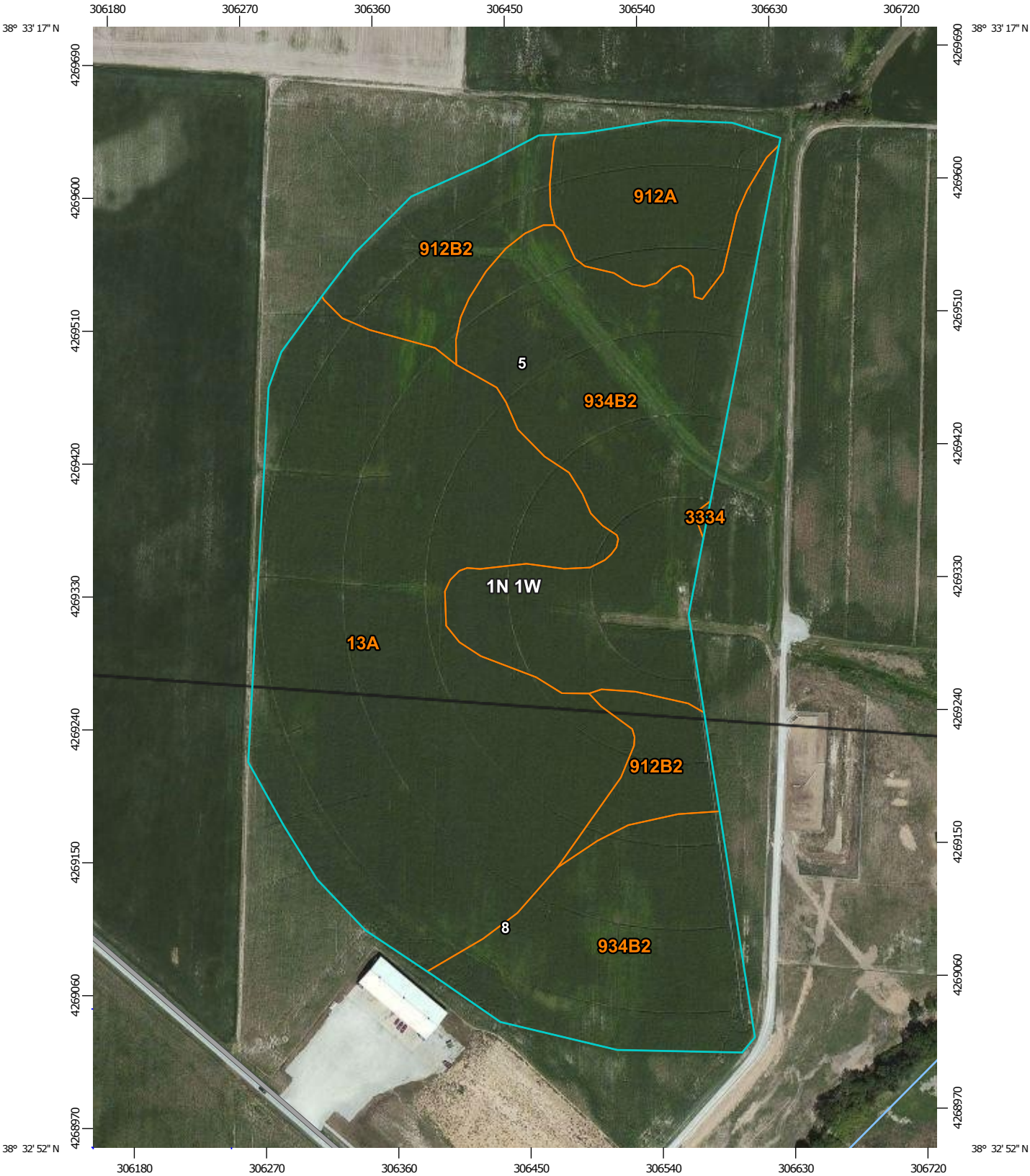
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3B2	Hoyleton silt loam, 2 to 5 percent slopes, eroded	2.5	3.2%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	14.5	18.5%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	61.6	78.3%
Totals for Area of Interest		**78.6**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock, Inc. (North 60 Pivot))



89° 13' 27" W 89° 13' 4" W
38° 33' 17" N 38° 32' 52" N
306180 306270 306360 306450 306540 306630 306720
4269690 4269600 4269510 4269420 4269330 4269240 4269150 4269060 4268970

Map Scale: 1:3,700 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

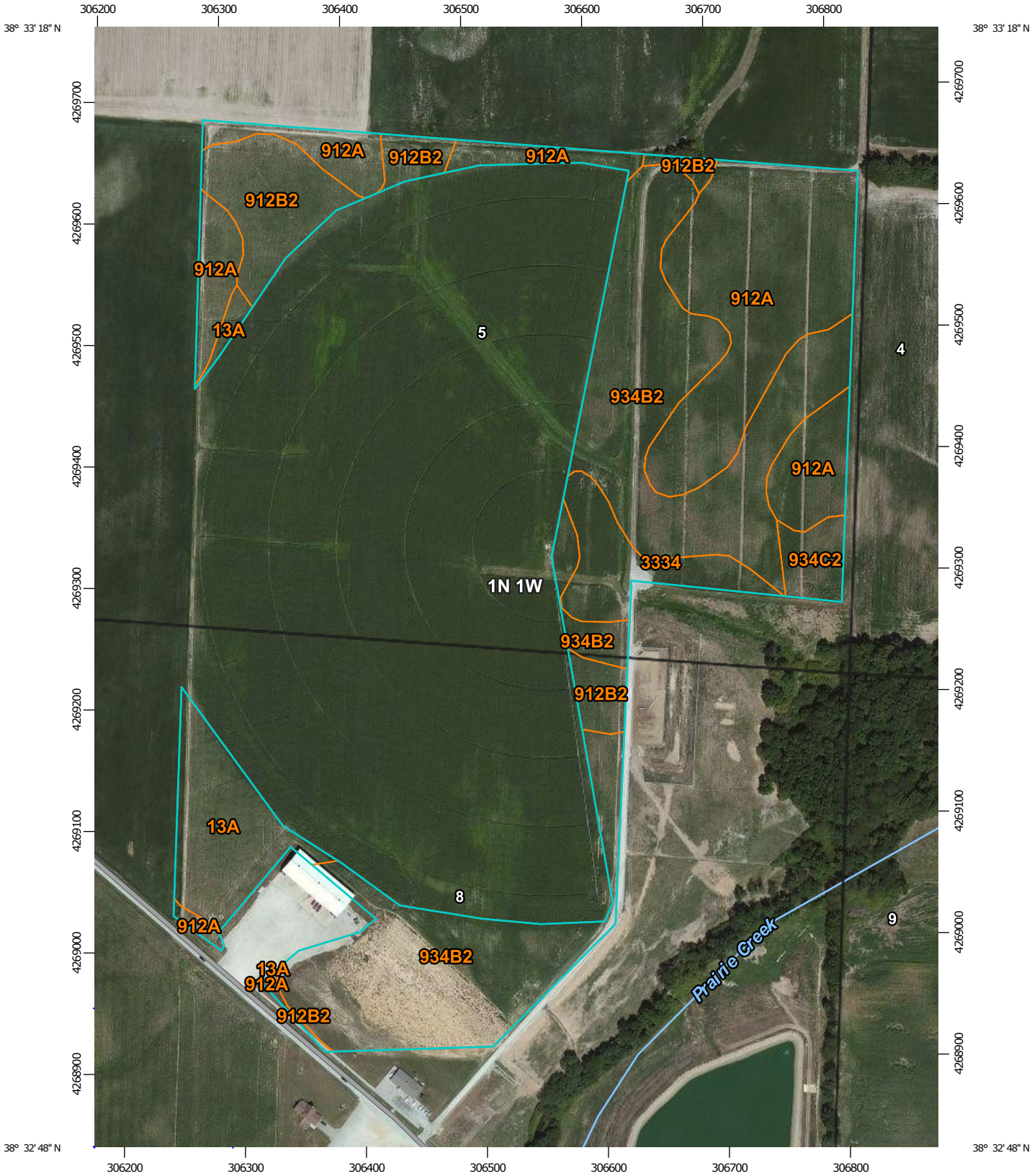
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13A	Bluford silt loam, 0 to 2 percent slopes	18.9	44.2%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	3.2	7.6%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	4.3	9.9%
934B2	Blair-Grantfork complex, 2 to 5 percent slopes, eroded	16.4	38.2%
3334	Birds silt loam, frequently flooded	0.0	0.1%
Totals for Area of Interest		**42.8**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock, Inc. (North 60 VG))



Map Scale: 1:4,490 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13A	Bluford silt loam, 0 to 2 percent slopes	3.0	8.5%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	10.7	30.4%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	3.6	10.3%
934B2	Blair-Grantfork complex, 2 to 5 percent slopes, eroded	15.2	43.0%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	0.8	2.2%
3334	Birds silt loam, frequently flooded	1.9	5.5%
Totals for Area of Interest		**35.3**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock, Inc. (NW 40))

Map Scale: 1:3,230 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

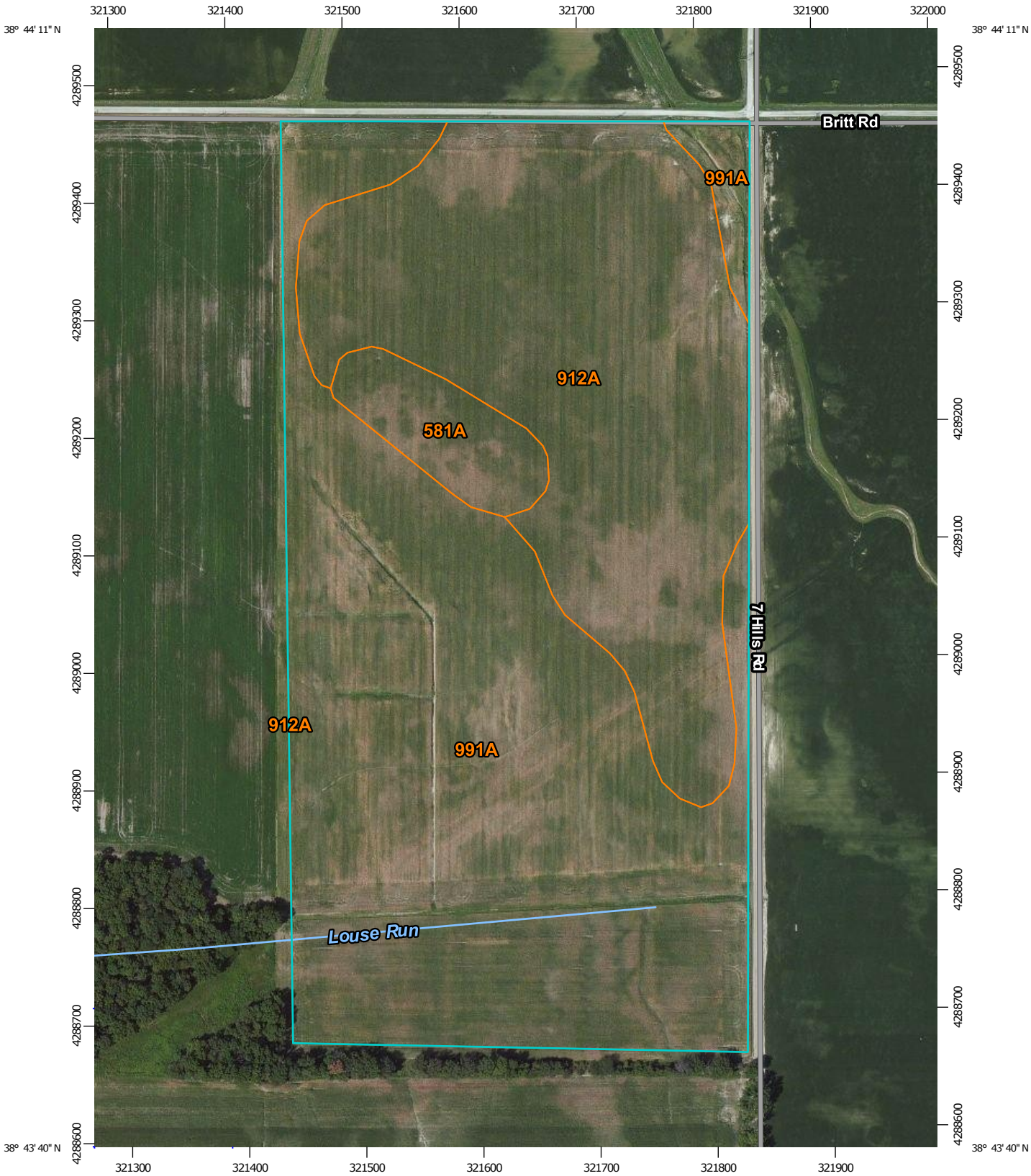
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3A	Hoyleton silt loam, 0 to 2 percent slopes	0.1	0.2%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	40.5	99.8%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	0.0	0.0%
Totals for Area of Interest		**40.6**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Parks 80))
E1/2, NE 2 3N 1E



Map Scale: 1:4,640 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

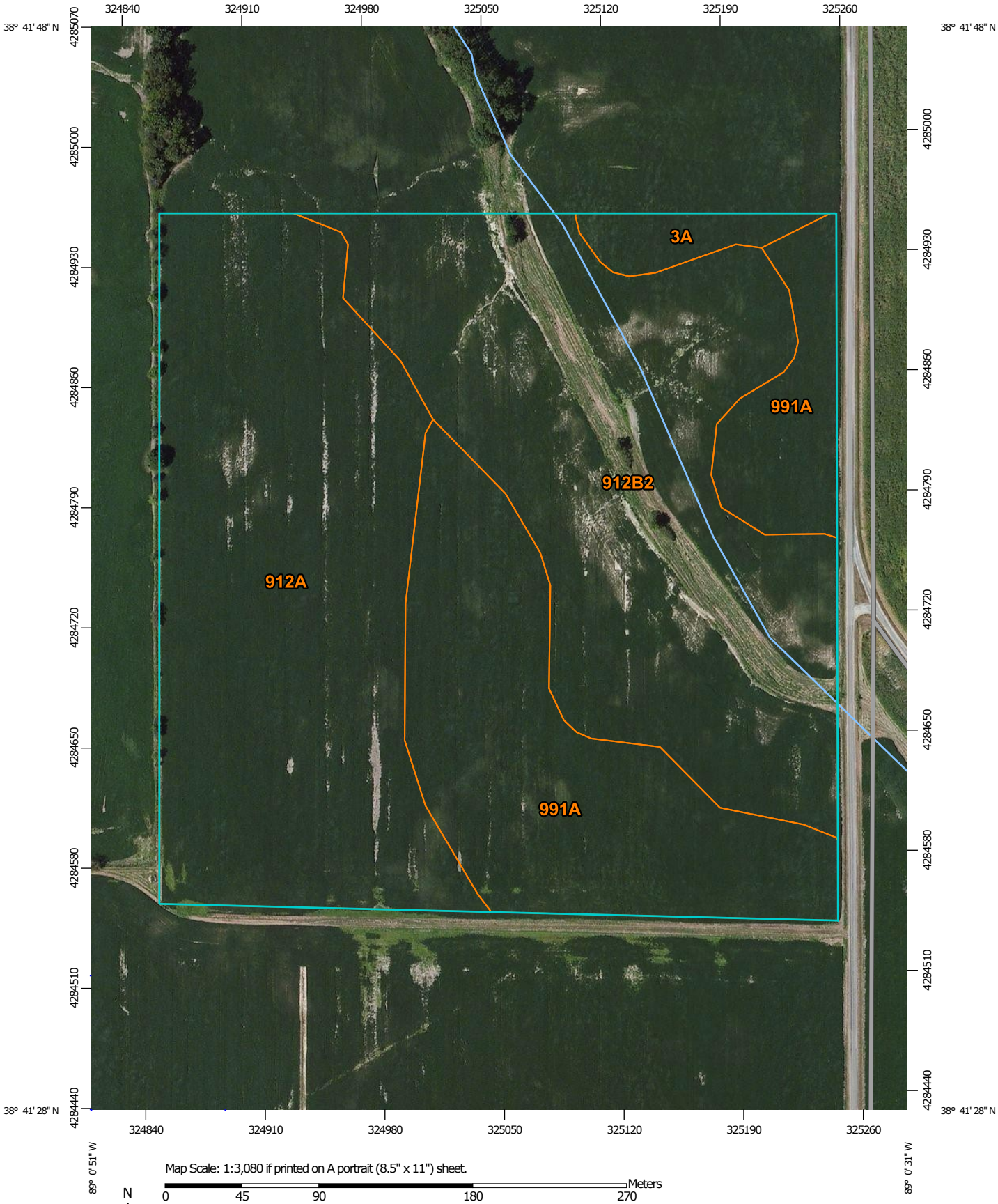
Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
581A	Tamalco silt loam, 0 to 2 percent slopes	3.5	4.5%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	29.8	38.7%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	43.8	56.8%
Totals for Area of Interest		**77.1**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Peggy Bass North)
17 3N 2E



Map Scale: 1:3,080 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

Feet
0 100 200 400 600

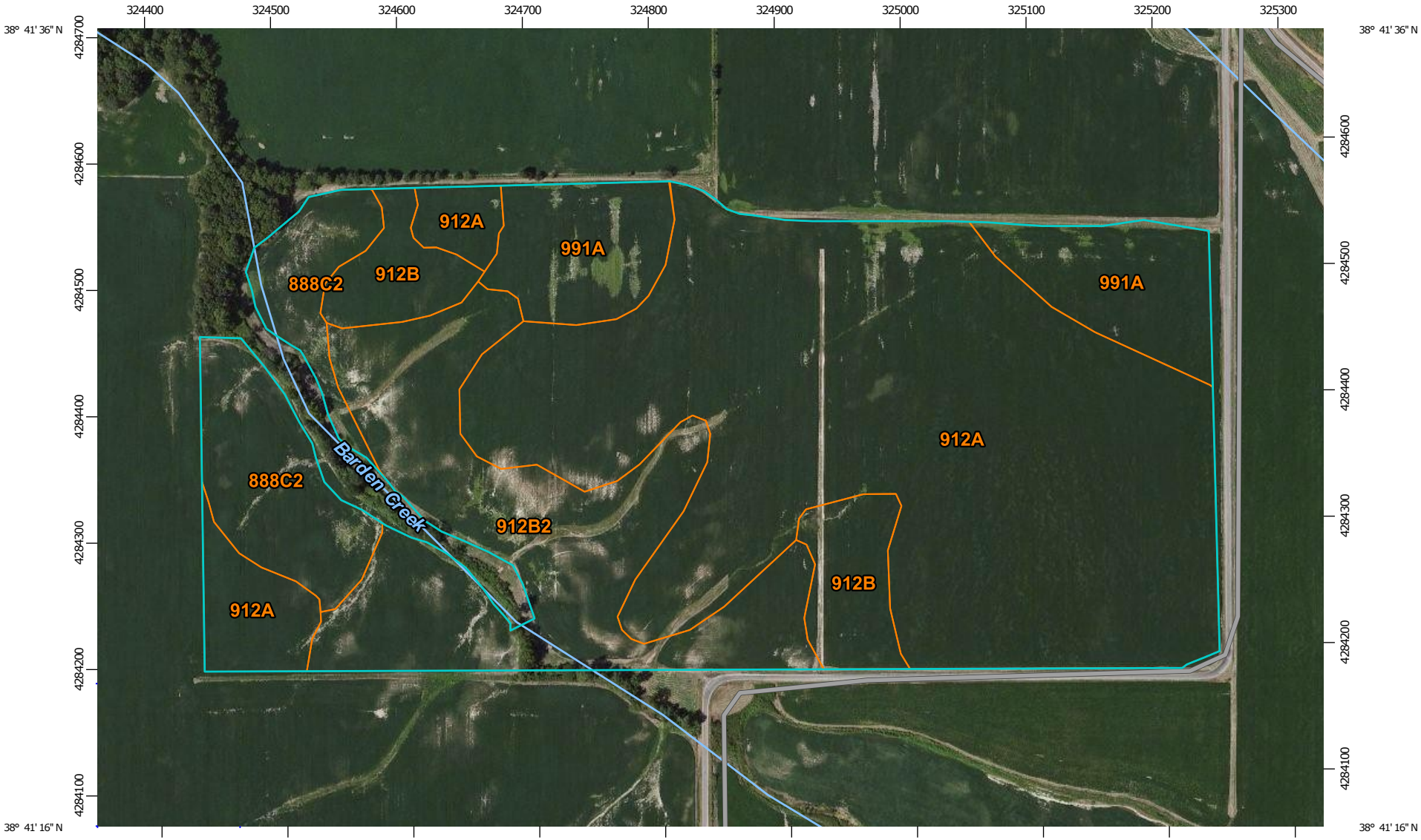
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3A	Hoyleton silt loam, 0 to 2 percent slopes	0.8	2.0%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	14.5	36.2%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	14.6	36.4%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	10.2	25.4%
Totals for Area of Interest		**40.1**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Peggy Bass South of Lane))

19 3N 2E
20 3N 2E



Map Scale: 1:4,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

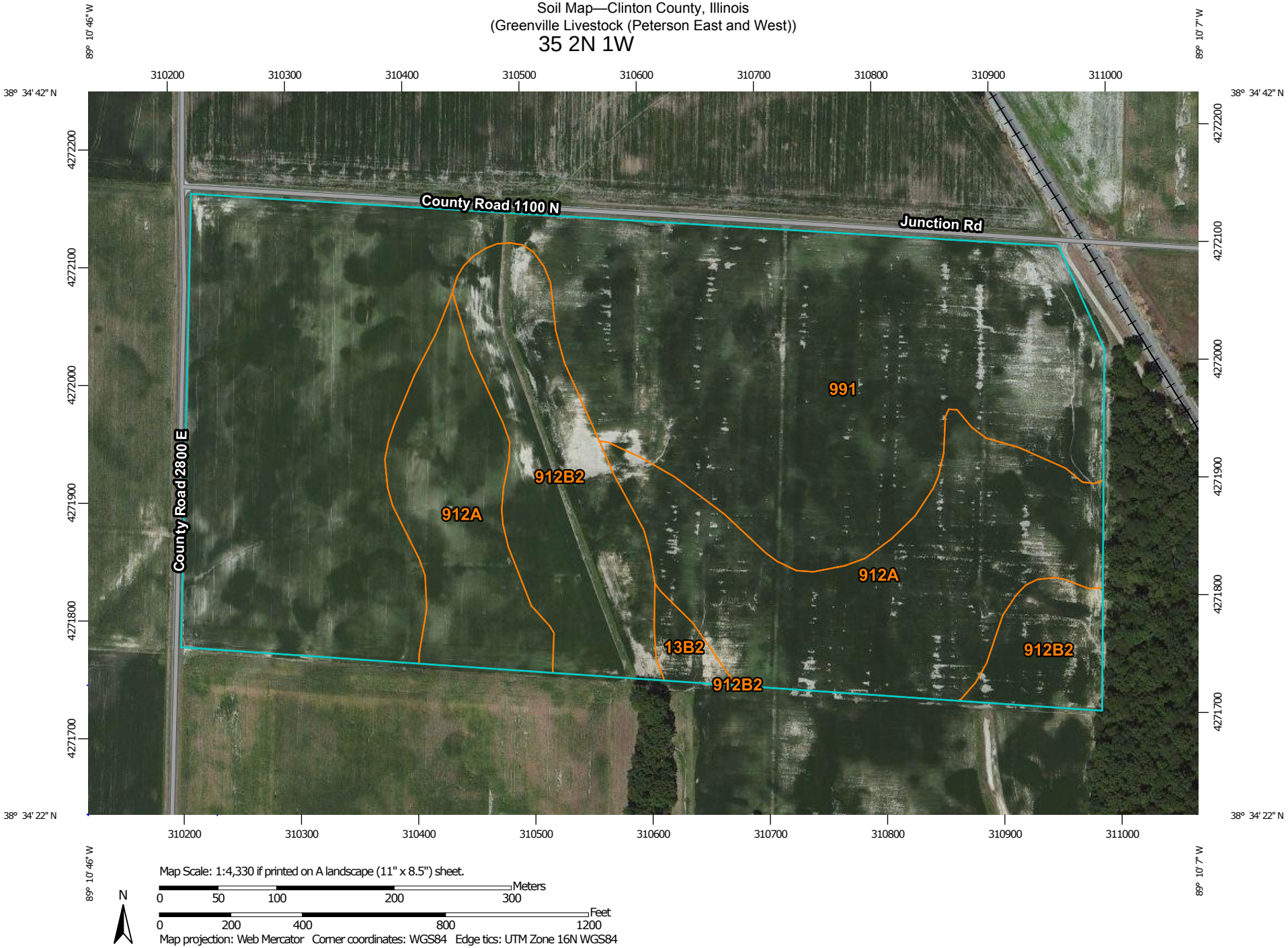
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
888C2	Passport-Grantfork silt loams, 5 to 10 percent slopes, eroded	6.5	9.4%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	38.2	54.6%
912B	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes	4.1	5.9%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	14.0	20.0%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	7.1	10.1%
Totals for Area of Interest		**69.9**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Peterson East and West))
35 2N 1W



Map Scale: 1:4,330 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	0.7	1.0%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	19.0	25.3%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	10.6	14.1%
991	Cisne-Huey complex	44.8	59.6%
Totals for Area of Interest		**75.1**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Petrea))
19 3N 2E

Map Scale: 1:3,220 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

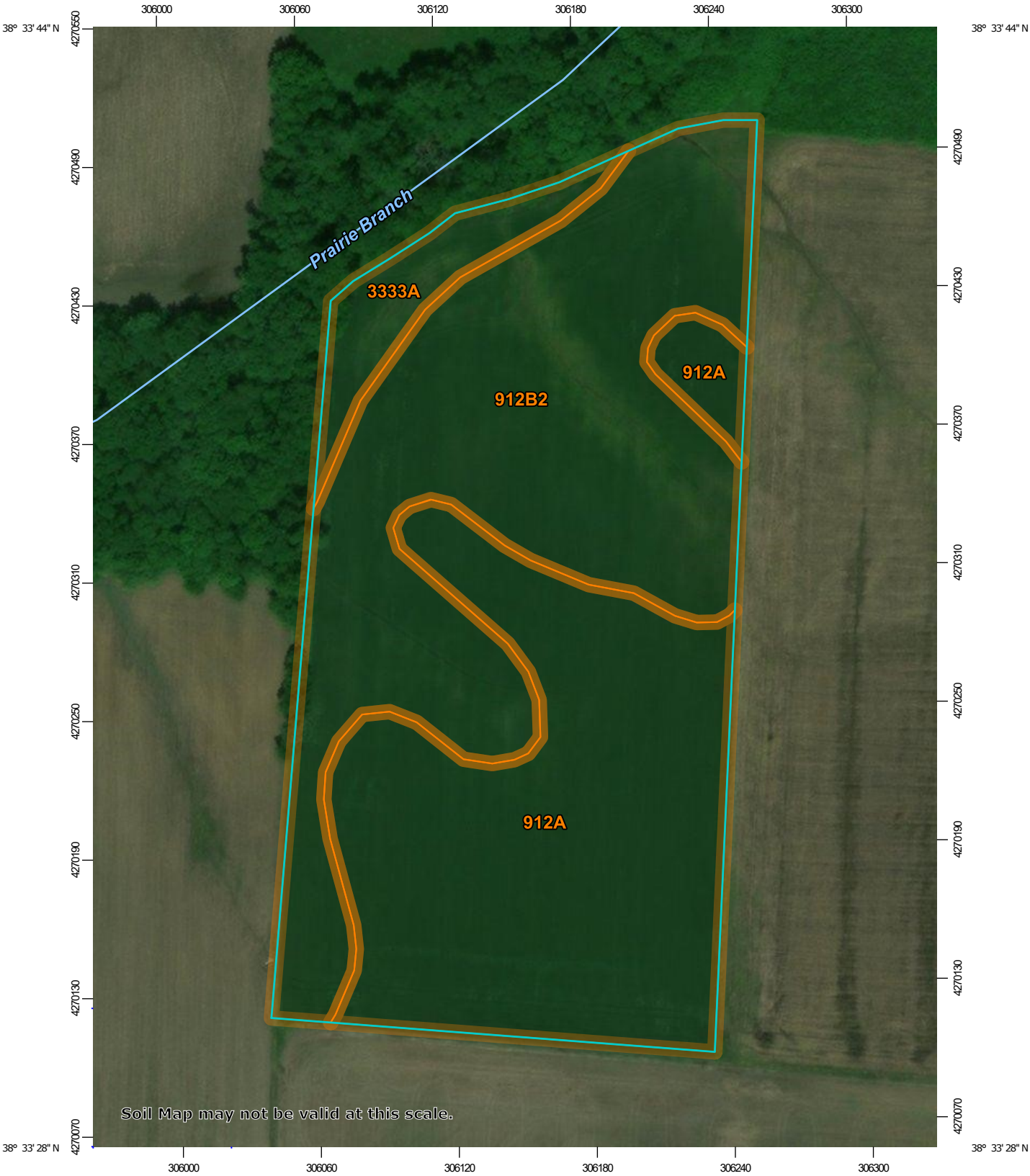
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Cisne silt loam, 0 to 2 percent slopes	3.5	13.2%
7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.3	1.3%
12A	Wynoose silt loam, 0 to 2 percent slopes	6.9	25.7%
13A	Bluford silt loam, 0 to 2 percent slopes	9.3	34.8%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	3.2	11.9%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	3.5	13.0%
Totals for Area of Interest		**26.7**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Promiseland))



Map Scale: 1:2,360 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	7.6	44.6%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	8.4	49.5%
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	1.0	5.9%
Totals for Area of Interest		**17.0**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Robinson 62))
3 2N 1E

Map Scale: 1:4,410 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

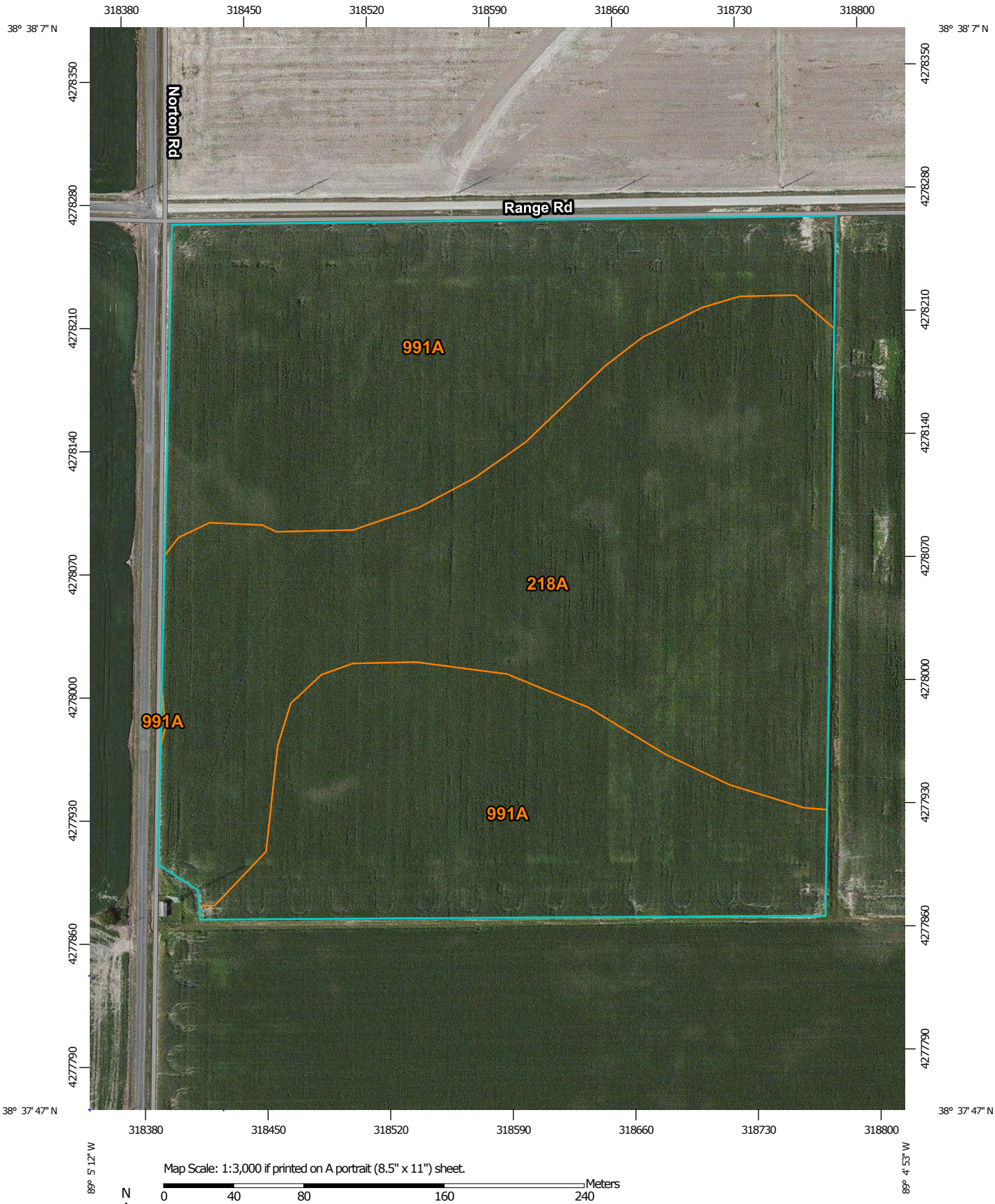
Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
888C2	Passport-Grantfork silt loams, 5 to 10 percent slopes, eroded	9.7	16.0%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	38.8	64.4%
912B	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes	0.0	0.0%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	11.8	19.5%
Totals for Area of Interest		**60.3**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Robinson Tower 40))
10 2N 1E



Map Scale: 1:3,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
218A	Newberry silt loam, 0 to 2 percent slopes	16.8	45.1%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	20.5	54.9%
Totals for Area of Interest		**37.3**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Rosenbaum))
36 2N 1W

Map Scale: 1:4,850 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

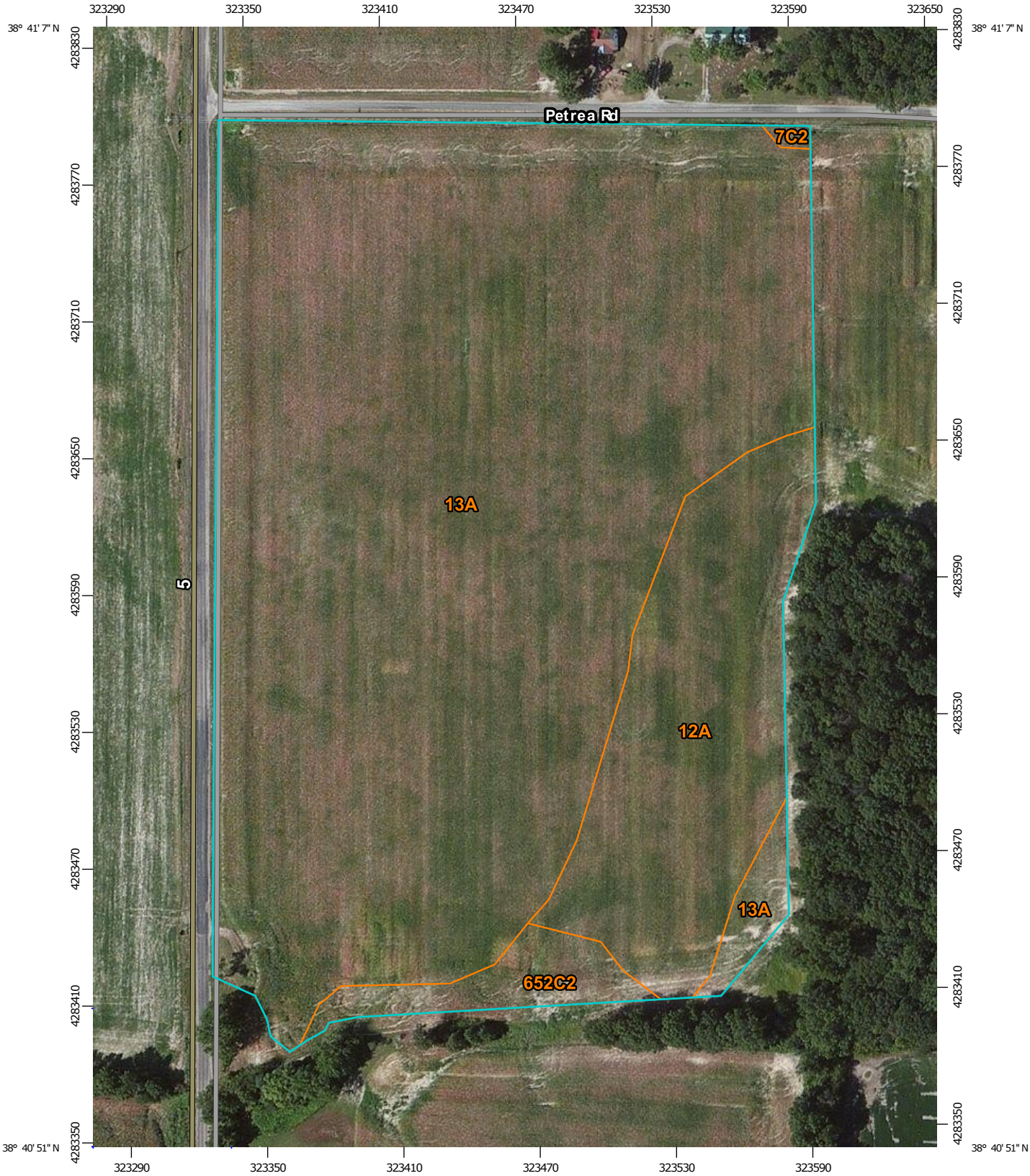
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	8.2	10.4%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	8.9	11.4%
991	Cisne-Huey complex	61.4	78.2%
Totals for Area of Interest		**78.5**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (SmithEast))
19 3N 2E



Map Scale: 1:2,390 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.0	0.2%
12A	Wynoose silt loam, 0 to 2 percent slopes	4.0	16.3%
13A	Bluford silt loam, 0 to 2 percent slopes	19.9	80.7%
652C2	Passport silt loam, 5 to 10 percent slopes, eroded	0.7	2.9%
Totals for Area of Interest		**24.6**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Smith West))
24 3N 1E

Map Scale: 1:4,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3B	Hoyleton silt loam, 2 to 5 percent slopes	1.5	4.6%
7C3	Atlas silty clay loam, 5 to 10 percent slopes, severely eroded	3.9	12.1%
7D2	Atlas silt loam, 10 to 18 percent slopes, eroded	1.3	4.1%
13A	Bluford silt loam, 0 to 2 percent slopes	21.6	67.2%
14B	Ava silt loam, 2 to 5 percent slopes	0.1	0.2%
14C2	Ava silt loam, 5 to 10 percent slopes, eroded	1.8	5.6%
652C2	Passport silt loam, 5 to 10 percent slopes, eroded	2.0	6.2%
Totals for Area of Interest		**32.2**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (South of Tracks))

Map Scale: 1:4,560 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

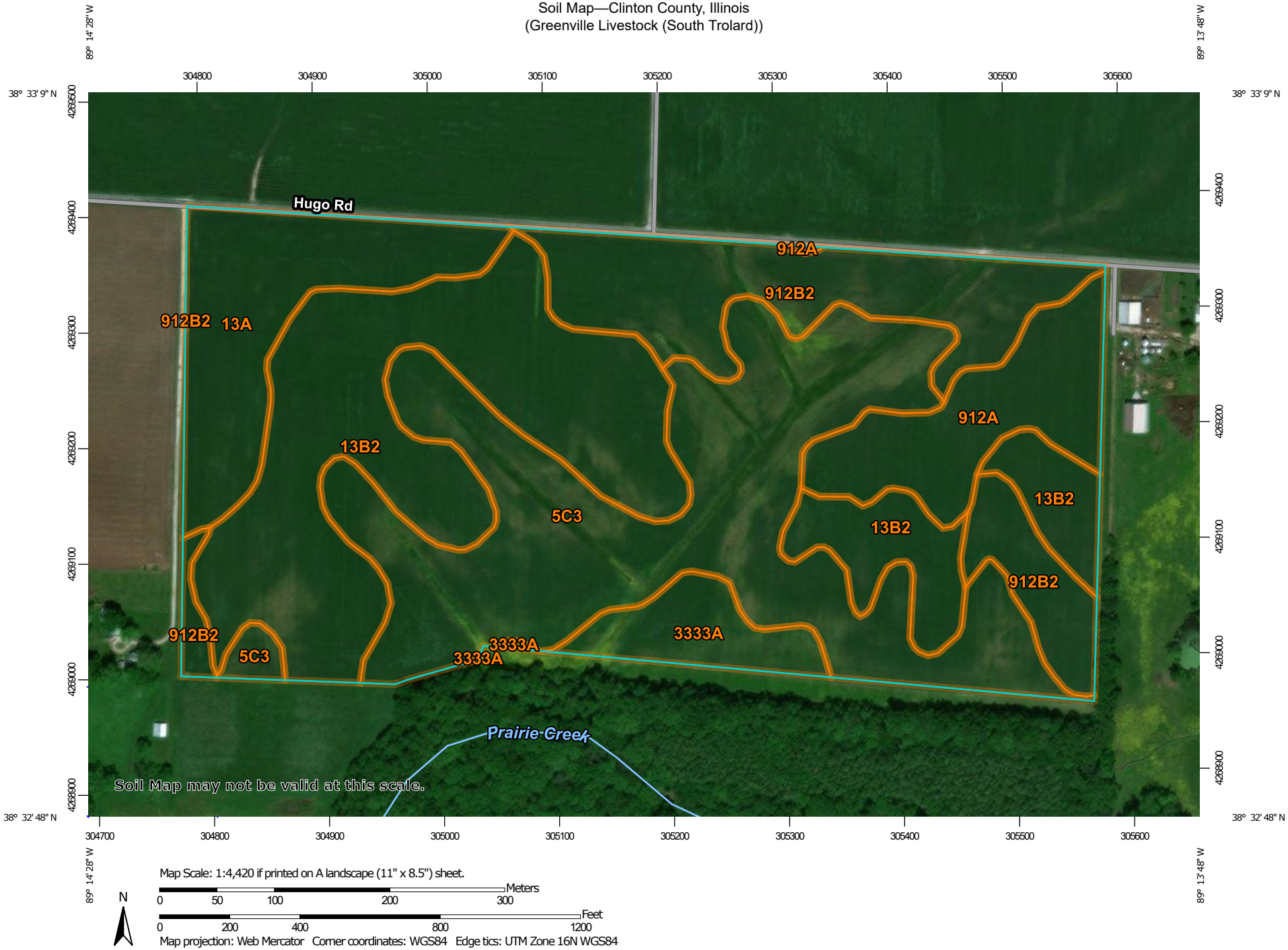
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5C3	Blair silty clay loam, 5 to 10 percent slopes, severely eroded	7.3	9.5%
12A	Wynoose silt loam, 0 to 2 percent slopes	0.0	0.0%
13A	Bluford silt loam, 0 to 2 percent slopes	9.2	12.0%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	34.7	45.3%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	16.7	21.8%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	8.7	11.4%
Totals for Area of Interest		**76.7**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (South Trolard))



Map Scale: 1:4,420 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

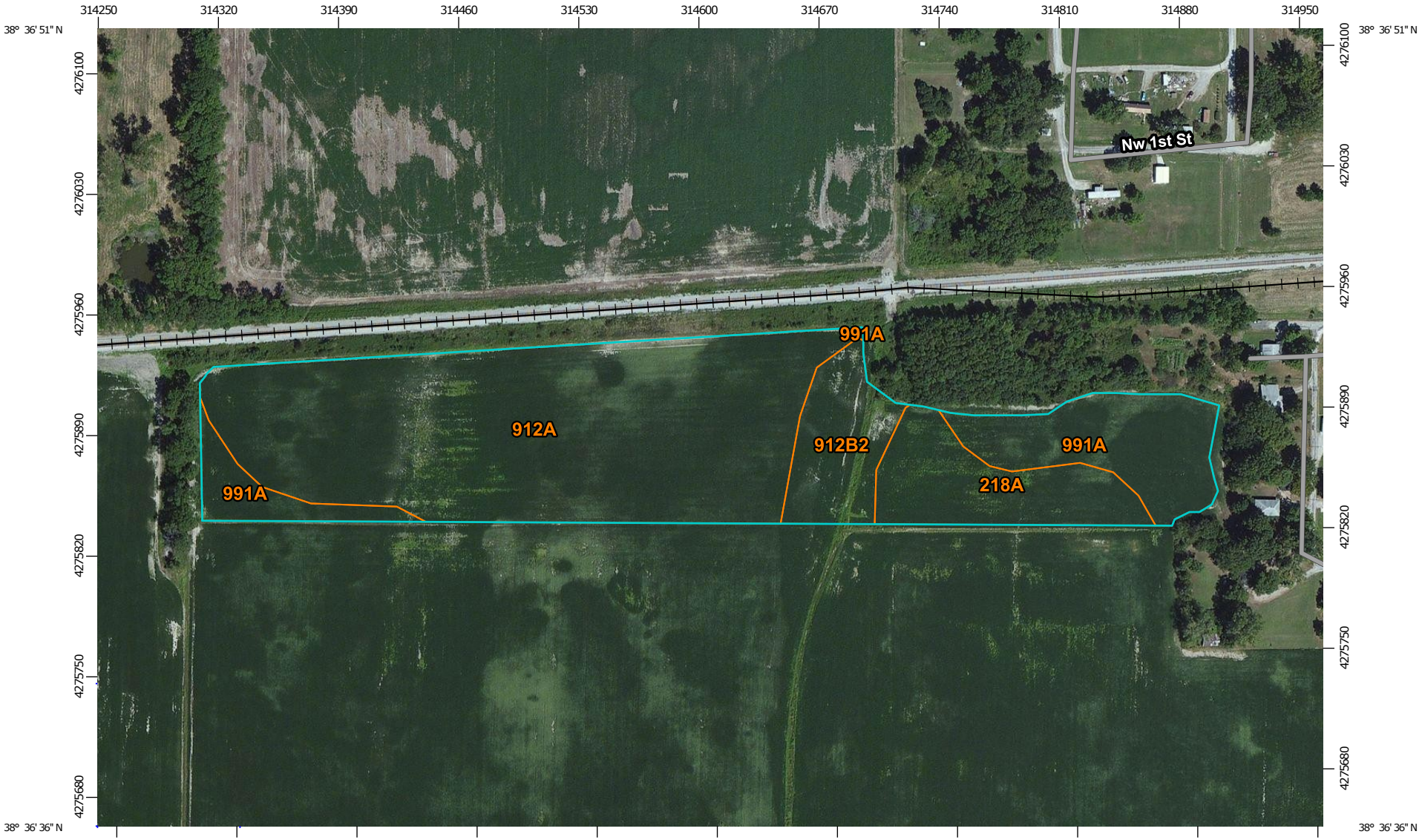
Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5C3	Blair silty clay loam, 5 to 10 percent slopes, severely eroded	23.7	31.5%
13A	Bluford silt loam, 0 to 2 percent slopes	7.8	10.4%
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	23.0	30.6%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	6.0	8.0%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	11.8	15.7%
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	2.8	3.8%
Totals for Area of Interest		**75.1**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Spinner))
18 2N 1E



Map Scale: 1:3,270 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 45 90 180 270

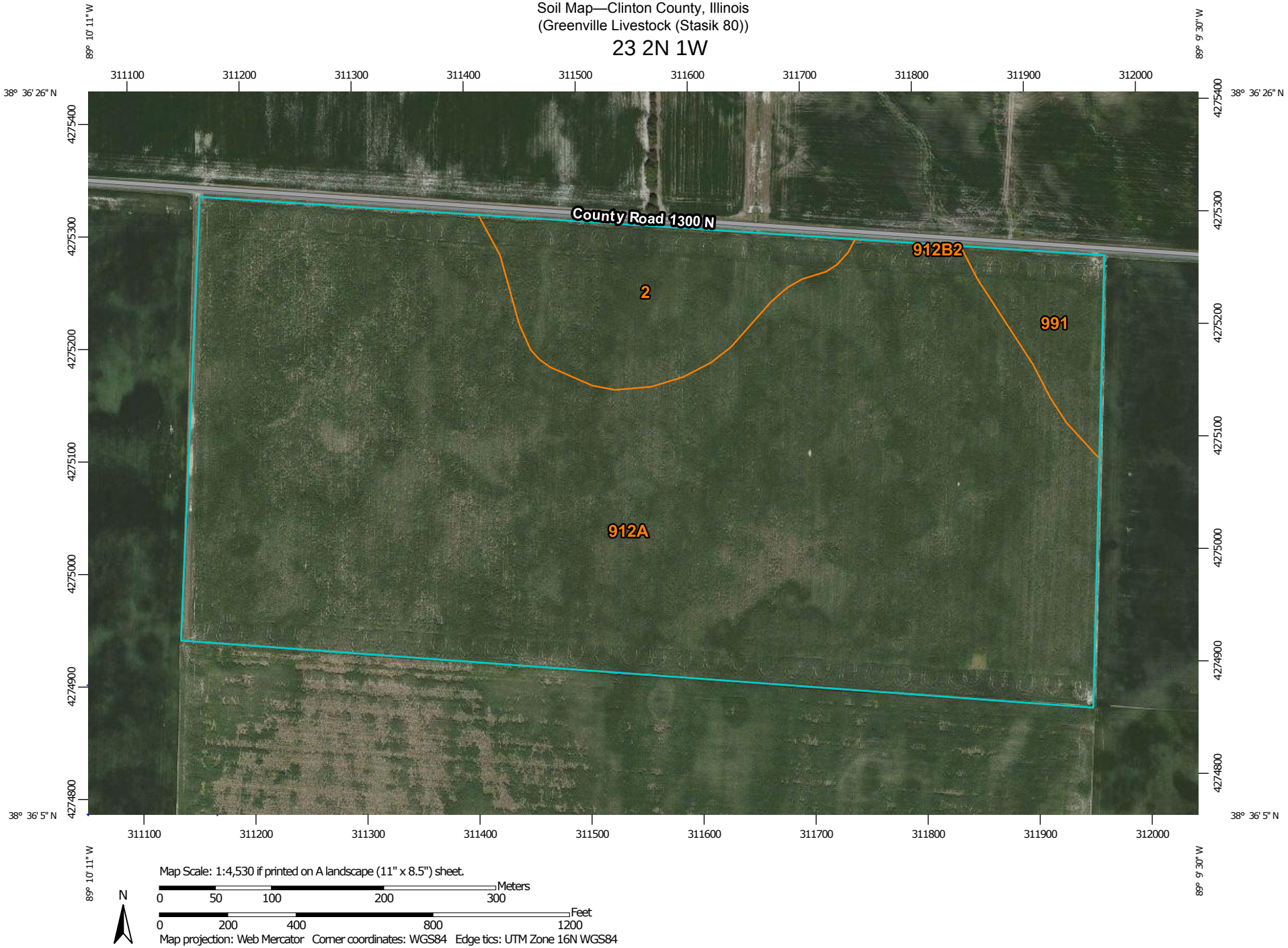
Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
218A	Newberry silt loam, 0 to 2 percent slopes	1.6	12.0%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	8.2	61.6%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	1.2	9.1%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	2.3	17.4%
Totals for Area of Interest		**13.3**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Stasik 80))
23 2N 1W



Map Scale: 1:4,530 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

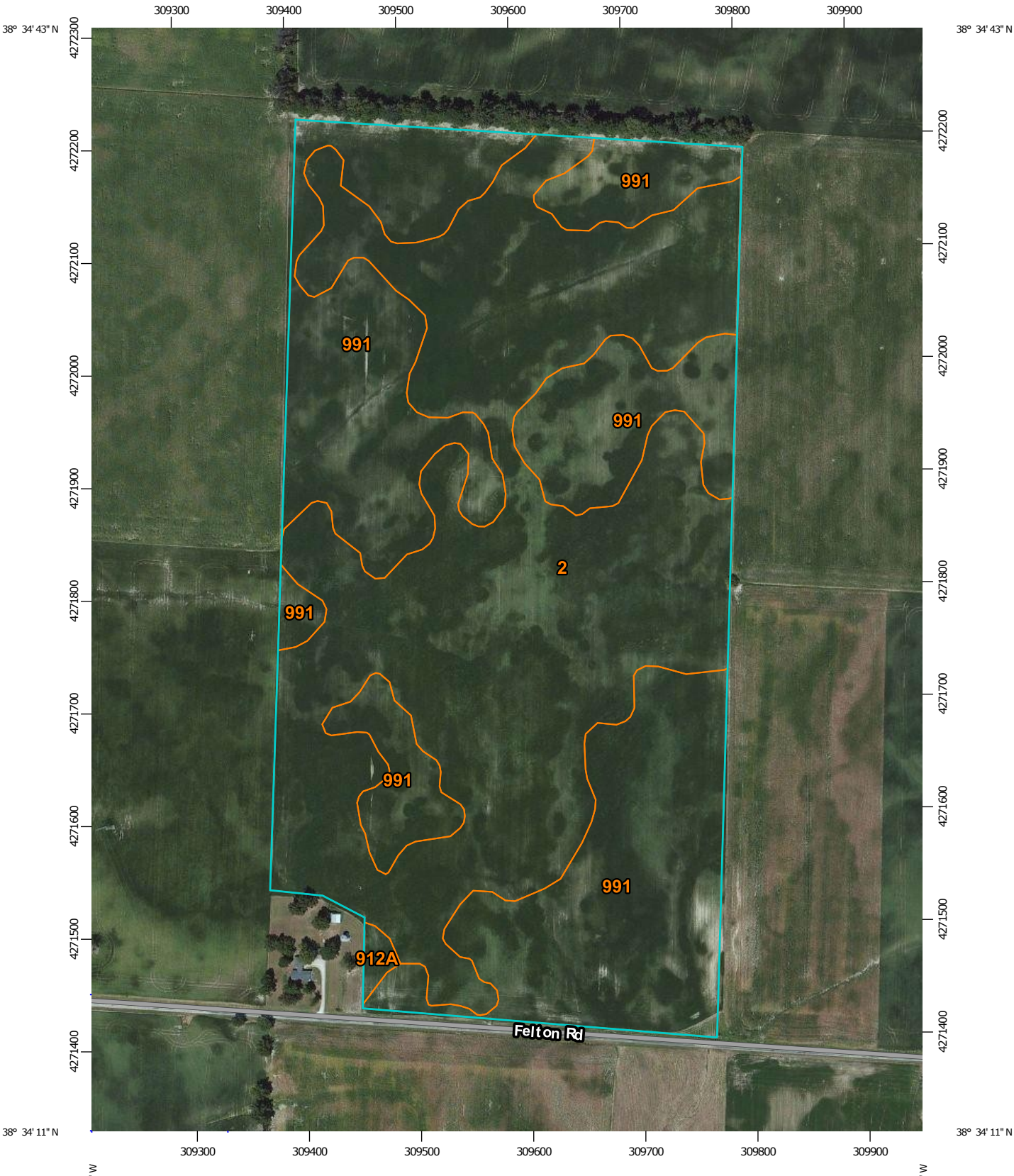
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	8.0	9.9%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	69.2	86.1%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	0.1	0.1%
991	Cisne-Huey complex	3.1	3.9%
Totals for Area of Interest		**80.3**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Terry 80))
34 2N 1W



Map Scale: 1:4,780 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

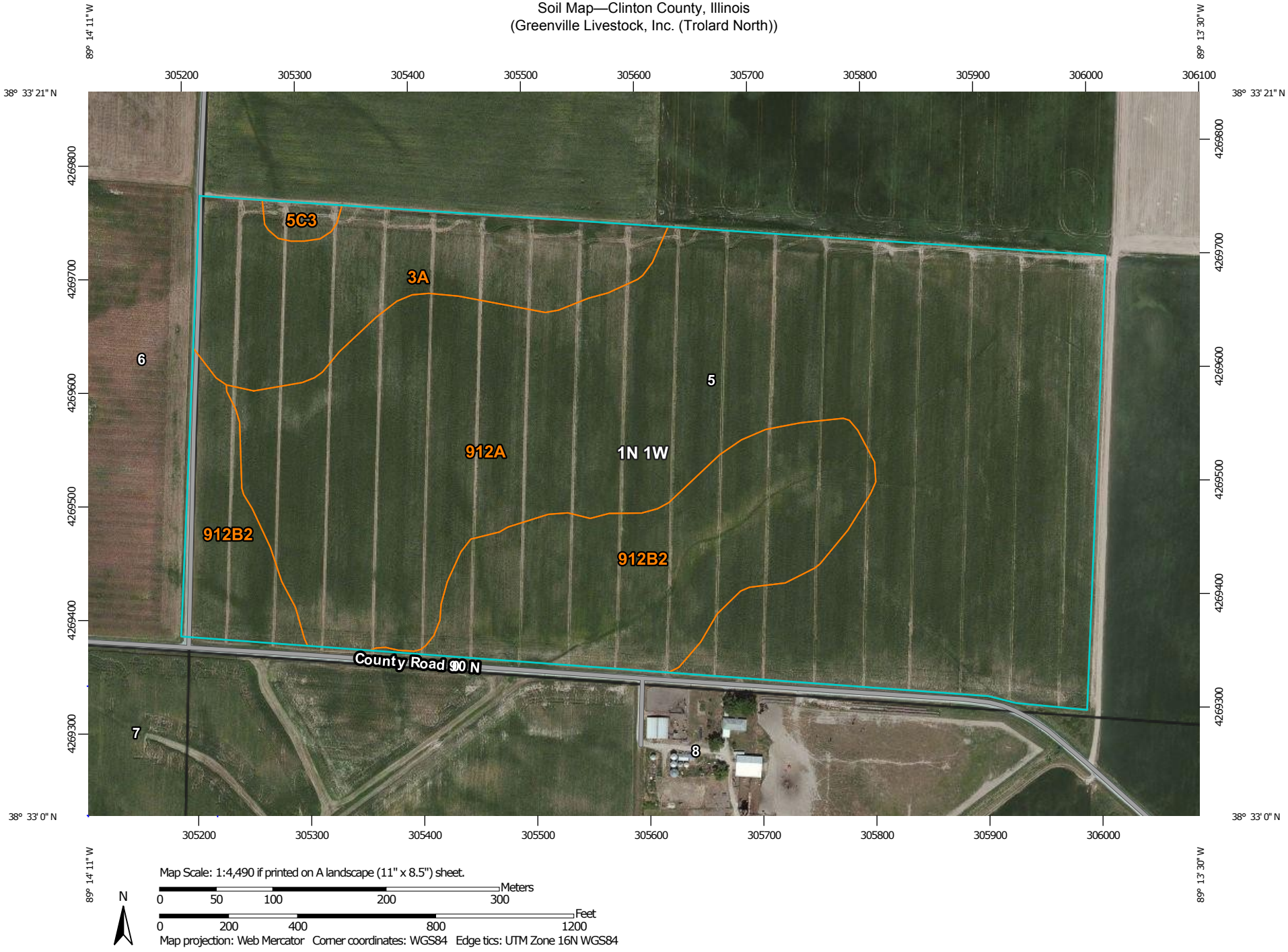
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2	Cisne silt loam, 0 to 2 percent slopes	41.3	54.2%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	0.3	0.4%
991	Cisne-Huey complex	34.6	45.3%
Totals for Area of Interest		**76.3**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock, Inc. (Trolard North))



Map Scale: 1:4,490 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

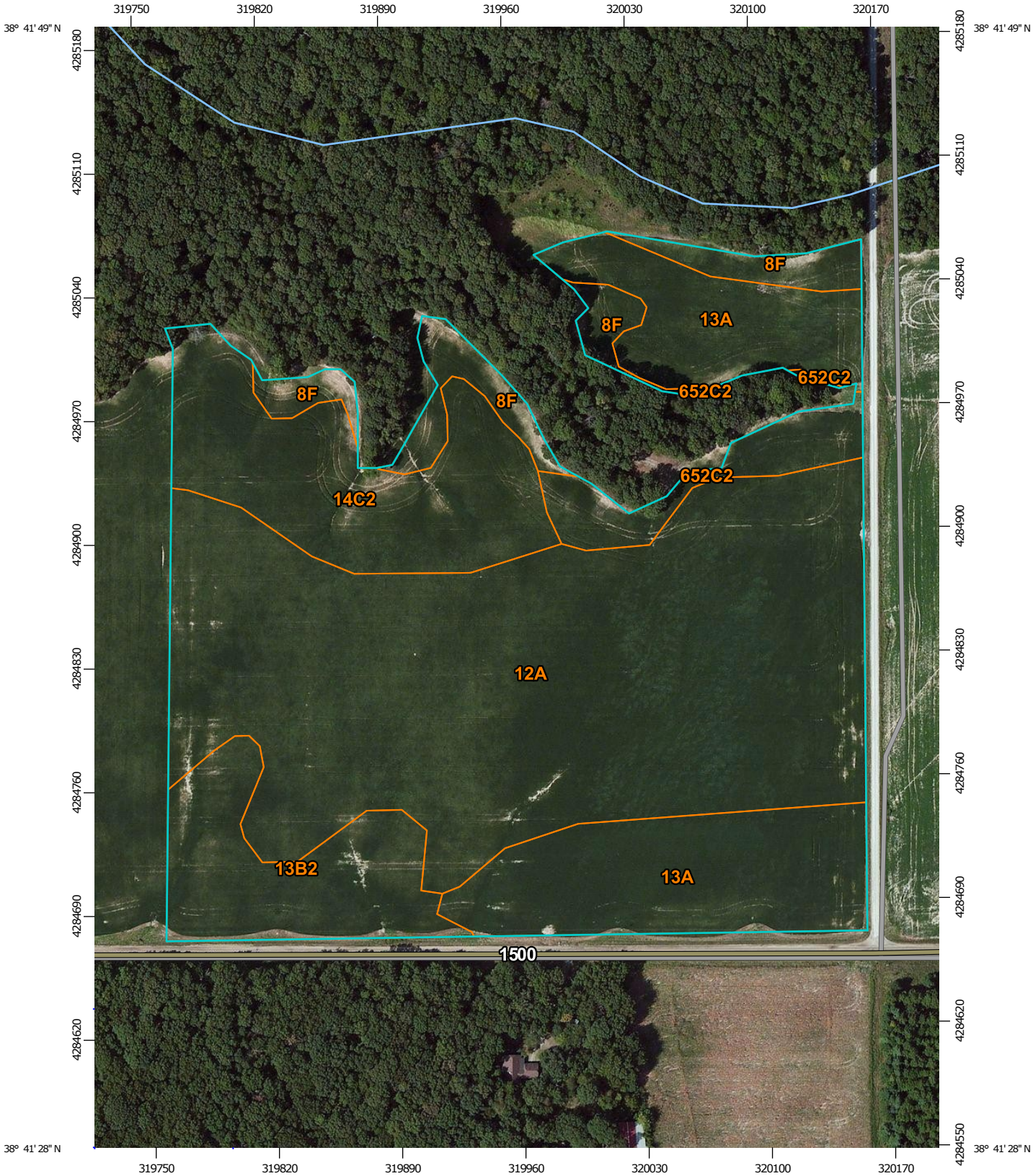
Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
3A	Hoyleton silt loam, 0 to 2 percent slopes	9.8	12.5%
5C3	Blair silty clay loam, 5 to 10 percent slopes, severely eroded	0.5	0.6%
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	52.1	66.7%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	15.7	20.1%
Totals for Area of Interest		**78.1**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Verlin Hilbus))
15 3N 1E



Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
8F	Hickory silt loam, 18 to 35 percent slopes	1.9	5.8%
12A	Wynoose silt loam, 0 to 2 percent slopes	16.3	50.8%
13A	Bluford silt loam, 0 to 2 percent slopes	5.8	18.2%
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	2.8	8.6%
14C2	Ava silt loam, 5 to 10 percent slopes, eroded	4.2	12.9%
652C2	Passport silt loam, 5 to 10 percent slopes, eroded	1.2	3.7%
Totals for Area of Interest		**32.1**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Verlin Hills)
E 1/2, NE 15 3N 1E

Map Scale: 1:2,610 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 35 70 140 210

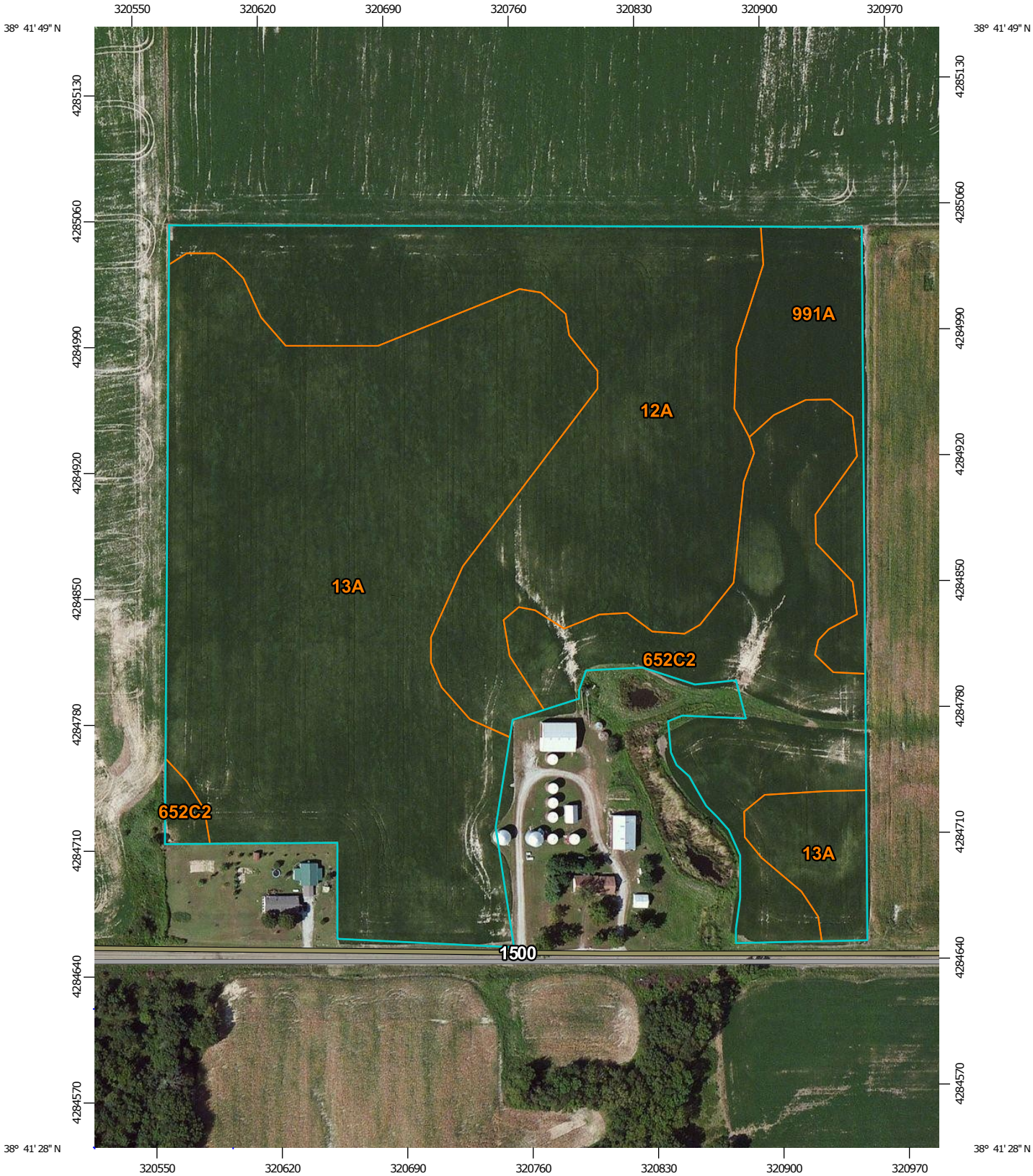
Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
13A	Bluford silt loam, 0 to 2 percent slopes	4.5	32.3%
14B	Ava silt loam, 2 to 5 percent slopes	4.8	34.5%
14C2	Ava silt loam, 5 to 10 percent slopes, eroded	3.1	22.5%
947D2	Hickory-Passport silt loams, 10 to 18 percent slopes, eroded	0.4	3.2%
967F	Hickory-Gosport silt loams, 18 to 35 percent slopes	1.0	7.4%
Totals for Area of Interest		**13.9**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Verlins House))
14 3N 1E



Map Scale: 1:3,040 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 45 90 180 270

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
12A	Wynoose silt loam, 0 to 2 percent slopes	9.5	28.7%
13A	Bluford silt loam, 0 to 2 percent slopes	16.0	48.6%
652C2	Passport silt loam, 5 to 10 percent slopes, eroded	5.3	16.1%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	2.2	6.6%
Totals for Area of Interest		**33.0**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Whyers 10))
25 3N 1E

Map Scale: 1:1,450 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

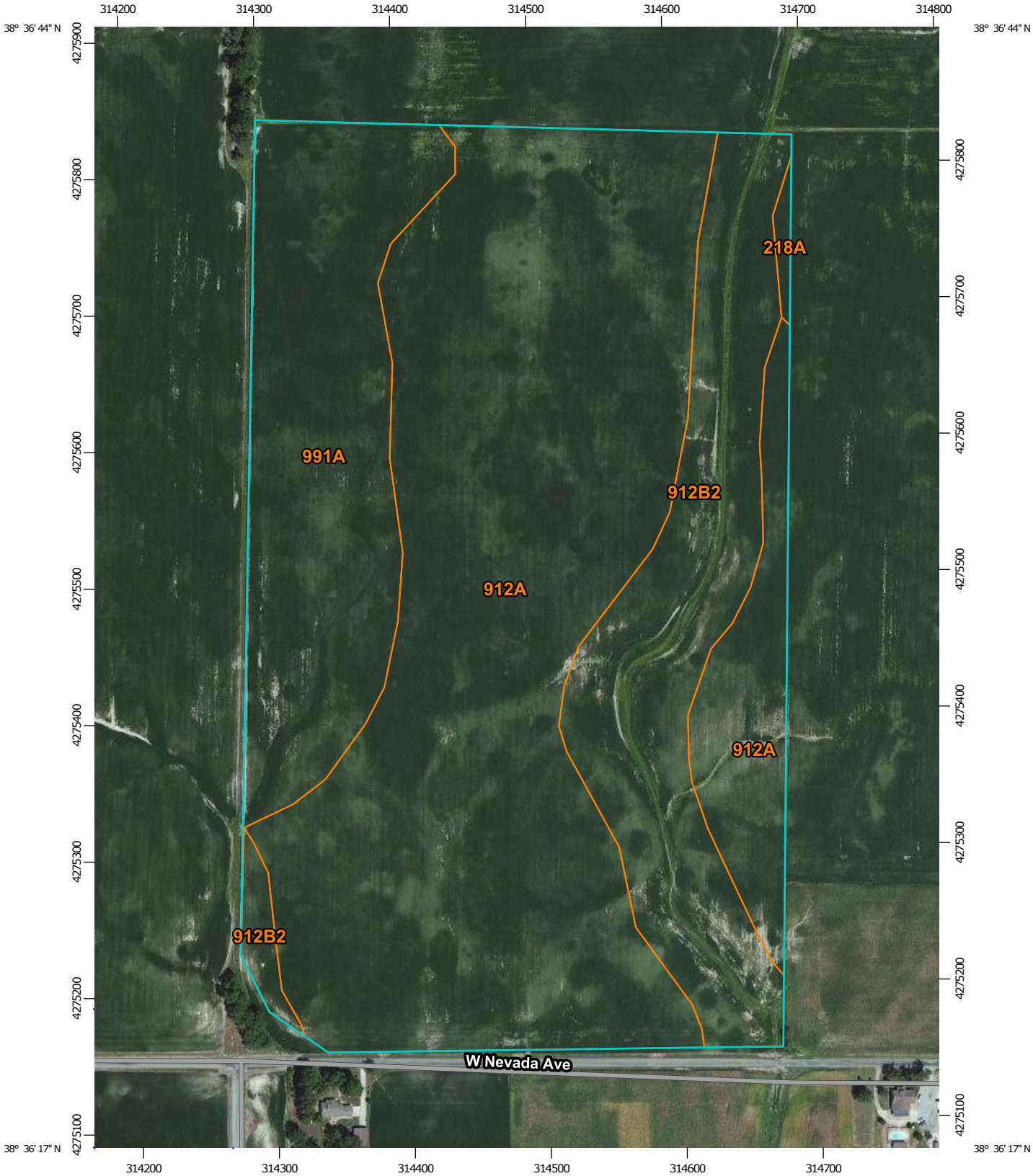
Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
7C2	Atlas silt loam, 5 to 10 percent slopes, eroded	0.1	1.5%
12A	Wynoose silt loam, 0 to 2 percent slopes	0.7	9.4%
13A	Bluford silt loam, 0 to 2 percent slopes	5.3	71.7%
13B2	Bluford silt loam, 2 to 5 percent slopes, eroded	1.3	17.3%
Totals for Area of Interest		**7.3**	**100.0%**

Soil Map—Marion County, Illinois
(Greenville Livestock (Wollenweber Sandoval 70))
SW, SE 18 2N 1E



Map Scale: 1:4,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Marion County, Illinois (IL121)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
218A	Newberry silt loam, 0 to 2 percent slopes	0.3	0.4%
912A	Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes	40.1	60.6%
912B2	Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded	12.8	19.3%
991A	Cisne-Huey silt loams, 0 to 2 percent slopes	13.1	19.8%
Totals for Area of Interest		**66.2**	**100.0%**

Soil Map—Clinton County, Illinois
(Greenville Livestock (Wooters))
NE, NE 35 2N 1W

Map Scale: 1:2,730 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 40 80 160 240

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

Map Unit Legend

Clinton County, Illinois (IL027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
912A	Hoyleton-Darmstadt complex, 0 to 2 percent slopes	2.0	8.9%
912B2	Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded	1.8	8.0%
934C2	Blair-Grantfork complex, 5 to 10 percent slopes, eroded	8.2	37.4%
991	Cisne-Huey complex	5.5	24.8%
3333	Wakeland silt loam, frequently flooded	4.6	20.9%
Totals for Area of Interest		**22.1**	**100.0%**

Appendix D

Rusle2's

RUSLE2 Profile Erosion Calculation Record

Info: AT Back 40

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: AT Home Base

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Arlene Wollenweber North Pasture

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Arlene Wollenweber W. Farm

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Bens

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912B2 Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Bowen Hills

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Bowen Tower

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Bowen

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Brinkman

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Carson

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\991 Cisne-Huey complex\Cisne Silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.2 t/ac/yr
Detachment on slope: 1.2 t/ac/yr
Soil loss for cons. plan: 1.2 t/ac/yr
Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Carter

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\2A Cisne silt loam, 0 to 2 percent slopes\Cisne Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Cooks 60

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: D Wollenweber N Pasture Back

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: D Wollenweber N. Pasture Front

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912B2 Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: D Wollenweber S. Pasture

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912B2 Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Darrell Hogpen 2

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Darrell Home Base

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Darrell North

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\2A Cisne silt loam, 0 to 2 percent slopes\Cisne Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Darrell Scott 36

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Darrell Woods

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\12A Wynoose silt loam, 0 to 2 percent slopes\Wynoose Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Dean Jett

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Eikhoff

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\934C2 Blair-Grantfork complex, 5 to 10 percent slopes, eroded\Blair Silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 1.0 t/ac/yr
Detachment on slope: 1.0 t/ac/yr
Soil loss for cons. plan: 1.0 t/ac/yr
Sediment delivery: 1.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Forrest 1

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Forrest 2

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Forrest 3

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Forrest 4 Black

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Fulton Lane South

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\2A Cisne silt loam, 0 to 2 percent slopes\Cisne Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Fulton Lane

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Grasher

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Heinrich 40

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Heinrich 120

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Henson 10

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Highschool

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\218A Newberry silt loam, 0 to 2 percent slopes\Newberry Silt loam 95%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 1.3 t/ac/yr
Detachment on slope: 1.3 t/ac/yr
Soil loss for cons. plan: 1.3 t/ac/yr
Sediment delivery: 1.3 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Hill North

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\991 Cisne-Huey complex\Cisne Silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.2 t/ac/yr
Detachment on slope: 1.2 t/ac/yr
Soil loss for cons. plan: 1.2 t/ac/yr
Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Hill South

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\3A Hoyleton silt loam, 0 to 2 percent slopes\Hoyleton Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.0 t/ac/yr
Detachment on slope: 1.0 t/ac/yr
Soil loss for cons. plan: 1.0 t/ac/yr
Sediment delivery: 1.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Janets 108

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Janets Across House

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Jett Pond

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Joyce 58

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Kissner

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\13B Bluford silt loam, 2 to 5 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Lyons-Lippert-Cruz

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Melvins 80

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Myers Hill

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: North 40

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: North 60 Pivot

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912B2 Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: North 60 VG

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\934B2 Blair-Grantfork complex, 2 to 5 percent slopes, eroded\Blair Silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 1.0 t/ac/yr
Detachment on slope: 1.0 t/ac/yr
Soil loss for cons. plan: 1.0 t/ac/yr
Sediment delivery: 1.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Parks 80

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Peggy Bass North

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912B2 Hoyleton-Darmstadt silt loams, 2 to 5 percent slopes, eroded\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Peggy Bass South of Lane

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Peterson East & West

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\991 Cisne-Huey complex\Cisne Silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.2 t/ac/yr
Detachment on slope: 1.2 t/ac/yr
Soil loss for cons. plan: 1.2 t/ac/yr
Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Petrea

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Promiseland

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912B2 Hoyleton-Darmstadt complex, 2 to 5 percent slopes, eroded\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Robinson 62

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Robinson Tower 40

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\991A Cisne-Huey silt loams, 0 to 2 percent slopes\Cisne Silt loam 50%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Rosenbaum

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\991 Cisne-Huey complex\Cisne Silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.2 t/ac/yr
Detachment on slope: 1.2 t/ac/yr
Soil loss for cons. plan: 1.2 t/ac/yr
Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Smith East

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Smith West

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: South of Tracks

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: South Trolard

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\5C3 Blair silty clay loam, 5 to 10 percent slopes, severely eroded\Blair Silty clay loam 100%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 4.0 t/ac/yr
Soil loss erod. portion: 1.2 t/ac/yr
Detachment on slope: 1.2 t/ac/yr
Soil loss for cons. plan: 1.2 t/ac/yr
Sediment delivery: 1.2 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Spinner

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Stastik 80

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Terry 80

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\2 Cisne silt loam, 0 to 2 percent slopes\Cisne Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Trolard North

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\912A Hoyleton-Darmstadt complex, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.4 t/ac/yr
Detachment on slope: 1.4 t/ac/yr
Soil loss for cons. plan: 1.4 t/ac/yr
Sediment delivery: 1.4 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Vogt Back 32

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Whyers 10

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\13A Bluford silt loam, 0 to 2 percent slopes\Bluford Silt loam 90%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 3.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Wollenweber Sandvol 70

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Marion County
Soil: Marion County Soils 2014, Illinois\912A Hoyleton-Darmstadt silt loams, 0 to 2 percent slopes\Darmstadt Silt loam 40%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 2.0 t/ac/yr
Soil loss erod. portion: 1.5 t/ac/yr
Detachment on slope: 1.5 t/ac/yr
Soil loss for cons. plan: 1.5 t/ac/yr
Sediment delivery: 1.5 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		54
4/20/0	Manure spreader, solid and semi-solid		50
4/20/0	Fert applic. surface broadcast		50
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

RUSLE2 Profile Erosion Calculation Record

Info: Wooters

File: profiles\CB_zone17

Inputs:
Location: USA\Illinois\Clinton County
Soil: Clinton County Soils 2014, Illinois\934C2 Blair-Grantfork complex, 5 to 10 percent slopes, eroded\Blair Silt loam 45%
Slope length (horiz): 150 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*# yield units, #/ac*
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Corn, grain	bushels	170.00
managements\CMZ 17\c.Other Local Mgt Records\Corn_Soybeans	vegetations\Soybean, mw 7in rows	bu	53.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: (none)
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 1.0 t/ac/yr
Detachment on slope: 1.0 t/ac/yr
Soil loss for cons. plan: 1.0 t/ac/yr
Sediment delivery: 1.0 t/ac/yr

Crit. slope length: 150 ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
4/15/0	Sprayer, kill crop		53
4/20/0	Manure spreader, solid and semi-solid		49
4/20/0	Fert applic. surface broadcast		49
5/1/0	planter, double disk opnr	Corn, grain	43
5/25/0	Sprayer, post emergence and fert. tank mix		38
10/20/0	Harvest, killing crop 50pct standing stubble		83
4/15/1	Disk, tandem secondary op.		62
4/25/1	Cultivator, field 6-12 in sweeps		54
5/1/1	Drill or airseeder, double disk	Soybean, mw 7in rows	51
6/1/1	Sprayer, post emergence		49
10/1/1	Harvest, killing crop 20pct standing stubble		86

*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	1	4	5	7
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	2		4		4		4	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	13.0		15.0		15.0		15.0	
Risk Level:	Low		Low		Low		Low	

*Any individual features with a Very High or High rating should be evaluated and conservation practices applied where possible. No phosphorus should be applied on fields with a STP over 400 lbs/ac.

Practices already applied or to be implemented:

CC = Cover Crops
CF = Contour Farming
CR = Crop Rotation
DS = Drawdown Strategy
FS = Filter Strip/Field Border
GS = Grassed Waterway
IN (F or S) = Incorporation Fall or Spring
IS = Irrigation System Improvement
IWM = Irrigation Water Manageme
MT = Mulch Till
NT = No Till
SB = Application Setback
RB = Riparian Buffer
RR = Reduce Application Rate
TR = Terrace
WSB = Water and Sediment Control Basins
WS = Wetland System

*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	9	10	11	17
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	1		1		4		1	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	12.0		12.0		15.0		12.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	8	12	13	14
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	4		1		1		1	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	15.0		12.0		12.0		12.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	19	23	24	26
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	2		4		1		4	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	13.0		15.0		12.0		15.0	
Risk Level:	Low		Low		Low		Low	

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WS = Wetland System

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	20	21	22	33
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	4		4		4		1	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	15.0		15.0		15.0		12.0	
Risk Level:	Low		Low		Low		Low	

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WSB = Water and Sediment Control Basins
WS = Wetland System

*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	34	36	40	41
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	4		4		2		2	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		5		5	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		2		2		2	
Practices to be implemented								
Total Points:	15.0		16.0		17.0		17.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	28	29	31	47
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	2		1		1		1	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	13.0		12.0		12.0		12.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	42	46	52	65
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	1		1		1		4	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	5		2		5		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	2		1		2		1	
Practices to be implemented								
Total Points:	16.0		12.0		16.0		15.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	**Greenville Livestock**	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	48	51	58	59
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	4		1		1		4	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	15.0		12.0		12.0		15.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	61	62	63	64
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	4		4		4		4	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	15.0		15.0		15.0		15.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	60	66	67	68
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	1		1		1		4	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	12.0		12.0		12.0		15.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	69	70	71	72
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	1		1		4		2	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	12.0		12.0		15.0		13.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	73	74	75	76
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	4		4		4		1	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	15.0		15.0		15.0		12.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	79	83	89	91
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	1		4		4		4	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		5	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	12.0		15.0		15.0		18.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	77	78	82	84
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	2		1		2		1	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	2		2		2		2	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	13.0		12.0		13.0		12.0	
Risk Level:	Low		Low		Low		Low	

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*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Marion
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	85	86	90	
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1			
Ephemeral Erosion	1		1		1			
Leaching Potential	1		1		1			
Distance to H20	4		4		1			
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1			
Fert App Rate	2		2		2			
Fert App Method	2		2		2			
Org App Rate	2		2		2			
Org App Method	1		1		1			
Practices to be implemented								
Total Points:	15.0		15.0		12.0			
Risk Level:	Low		Low		Low			

*Any individual features with a Very High or High rating should be evaluated and conservation practices applied where possible. No phosphorus should be applied on fields with a STP over 400 lbs/ac.

Practices already applied or to be implemented:

CC = Cover Crops
CF = Contour Farming
CR = Crop Rotation
DS = Drawdown Strategy
FS = Filter Strip/Field Border
GS = Grassed Waterway
IN (F or S) = Incorporation Fall or Spring
IS = Irrigation System Improvement
IWM = Irrigation Water Manageme
MT = Mulch Till
NT = No Till
SB = Application Setback
RB = Riparian Buffer
RR = Reduce Application Rate
TR = Terrace
WSB = Water and Sediment Control Basins
WS = Wetland System

*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	92	93	94	95
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1		1		1		1	
Ephemeral Erosion	1		1		1		1	
Leaching Potential	1		1		1		1	
Distance to H20	4		1		1		1	
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1		1		1		1	
Fert App Rate	5		5		5		5	
Fert App Method	2		2		2		2	
Org App Rate	2		2		2		2	
Org App Method	1		1		1		1	
Practices to be implemented								
Total Points:	18.0		15.0		15.0		15.0	
Risk Level:	Low		Low		Low		Low	

*Any individual features with a Very High or High rating should be evaluated and conservation practices applied where possible. No phosphorus should be applied on fields with a STP over 400 lbs/ac.

Practices already applied or to be implemented:

CC = Cover Crops
CF = Contour Farming
CR = Crop Rotation
DS = Drawdown Strategy
FS = Filter Strip/Field Border
GS = Grassed Waterway
IN (F or S) = Incorporation Fall or Spring
IS = Irrigation System Improvement
IWM = Irrigation Water Manageme
MT = Mulch Till
NT = No Till
SB = Application Setback
RB = Riparian Buffer
RR = Reduce Application Rate
TR = Terrace
WSB = Water and Sediment Control Basins
WS = Wetland System

*Illinois Phosphorus Index Worksheet

Landowner:	Greenville Livestock	**County:**	Clinton
Planner:	Settje Agri-Services	**Date:**	4/24/2025

Tract:				
Field:	106			
Site/Source description and/or comments:				

Section 1: Site Characteristics

	Before	After	Before	After	Before	After	Before	After
Sheet&Rill Erosion	1							
Ephemeral Erosion	1							
Leaching Potential	1							
Distance to H20	4							
Practices to be implemented								

Section 2: Source Factors

Soil Test P	1							
Fert App Rate	2							
Fert App Method	2							
Org App Rate	2							
Org App Method	1							
Practices to be implemented								
Total Points:	15.0							
Risk Level:	Low							

*Any individual features with a Very High or High rating should be evaluated and conservation practices applied where possible. No phosphorus should be applied on fields with a STP over 400 lbs/ac.

Practices already applied or to be implemented:

CC = Cover Crops
CF = Contour Farming
CR = Crop Rotation
DS = Drawdown Strategy
FS = Filter Strip/Field Border
GS = Grassed Waterway
IN (F or S) = Incorporation Fall or Spring
IS = Irrigation System Improvement
IWM = Irrigation Water Manageme
MT = Mulch Till
NT = No Till
SB = Application Setback
RB = Riparian Buffer
RR = Reduce Application Rate
TR = Terrace
WSB = Water and Sediment Control Basins
WS = Wetland System

Table 3 - Field Vulnerability for Phosphorus Loss	
Illinois Phosphorus Index	**General Interpretation of Illinois Phosphorus Index**
< 11	**VERY LOW** potential for phosphorus movement from the field. If phosphorus is managed properly, there is little or no probability of an adverse impact to surface or ground water.
11-19	**LOW** potential for phosphorus movement from the field. The chance of organic material and nutrients' getting into surface or groundwater is very small. Buffers, setbacks, erosion control, improved application techniques and improved irrigation practices, alone or in combination will reduce movement. Commercial phosphorus fertilizer can be applied to build up P soil test levels. Manure can be applied at crop nitrogen needs.
20-25	**MEDIUM** potential for phosphorus movement from the field. The chance of organic material and nutrients getting to surface or ground water is very likely. A combination of buffers, setbacks, erosion control practices, irrigation practices, and/or application practices will lower phosphorus movement. Manure must be applied at crop phosphorus needs.
26-41	**HIGH** potential for phosphorus movement from the field and an adverse impact on surface and ground water. Phosphorus should not be applied unless conservation practices are in place. Commercial phosphorus application rates should be limited to starter fertilizer placed below the surface. Manure can be applied at crop phosphorus needs only if a soil test phosphorus draw down strategy is in place.
> 41	**VERY HIGH** potential for phosphorus movment from the field and an adverse impact on surface and ground water. Very high parameters should be addressed individually. Do not apply phosphorus until conservation practices are in place. Commercial phosphorus application rates should be reduced or eliminated. Manure should not be applied until soil test levels are reduced and conservation practices are in place. No phosphorus should be applied on fields with a STP over 400 lbs/ac.

Table 1: Site Characteristics & Source Factors

Site Characteristics	Low	Medium	High		Very High
Sheet & Rill Erosion tons acre/year[1]	<6	6-8	8-13		>13
Ephemeral Gully Erosion Control	Ephemeral gully erosion is controlled by terraces, WASCOB's, and/or grassed waterways or ephemeral gully erosion is not present	N/A	N/A		Ephemeral gully erosion is present and not treated
Points:	**1**	**2**	**5**		**9**
Leaching Potential	Not Tile Drained	N/A	N/A		Tile Drained[2]
Points:	**1**				**4**
Distance to Surface Water	>500 feet	251-500 feet	< 250 ft w/setback or buffer present or applied[3]	< 250 ft w/no setback/buffer present or applied	Downstream edge of field adjacent to water (w/in 20 feet)
Points:	**1**	**2**	**4**	**6**	**9**
Source Factors	**Low**	**Medium**	**High**		**Very High**
Median Soil Test P Bray P_1 or Mehlich-3 lbs. P/acre	< 70	70-150	151-300		> 300
Fertilizer P Application Rate - lbs P_2O_5/acre/year[4]	1-40	41-90	91-180		> 180
Fertilizer P Application Method	Placed with planter at least 2 inches or injected below the soil	Surface applied and incorporated	Surface applied in the fall and unincorporated		Surface applied in the spring and unincorporated
Organic P Source Application Rate - lbs P_20_5/acre/year[4]	1-40	41-90	91-180		> 180
Organic P Source Application Method	Applied with manure injection equipment, surface applied and incorporated within 24 hours, or through in-season irrigation	Surface applied in late summer or early fall, unincorporated, with a cover crop or winter small grain	Surface applied in the late summer or early fall, unincorporated, without a cover crop or winter small grain		Surface applied in the spring and unincorporated
Points:	**1**	**2**	**5**		**9**

**Individual high and very high risk factors should first be evaluated and conservation practices applied where possible.

1. The erosion rate is the average annual erosion rate from Rusle2.
2. Fields with > 50% of the field acreage served by tile are considered tile drained.
3. Manure is applied according to an appropriate setback as shown in table 2. Where vegetative buffers (i.e. filter strips, field borders, or riparian buffers) are installed or present, setbacks are not needed. Setback distances are from the edge of the field. Applications subject to a CAFO NPDES permit or state or federal regulations must meet the requirements outlined in the permit or regulations. Organic by-products and biosolids must meet setback requirements as outlined in State Operating permits.
4. Average annual application rate. For multiple year phosphorus applications, divide the total single application rate by the application interval.

%Slope	Table 2 - Setback/Buffer Width	
	Application Setback Distance in Feet	**Buffer Width in Feet in Lieu of Setbacks**
0.5	200	36-72
1	200	54-108
2	200	72-144
3	200	90-180
4	200	108-216
>5	200	117-234

Nitrogen Risk For Individual Fields					
Field	County	Hgih Risk Soils Make up > 50% of Field	Field Tile Drained	Timing/Method of Fertilizer or Manure Application	N Risk Factor
1	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
4	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
5	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
7	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
8	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
9	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
10	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
11	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
12	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
13	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
14	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
17	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
19	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
20	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
21	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
22	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
23	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
24	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
26	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
28	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
29	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
31	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
33	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
34	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
36	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
40	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
41	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
42	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
46	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
47	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
48	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
51	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
52	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
58	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
59	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
60	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
61	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
62	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
63	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
64	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
65	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
66	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
67	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
68	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
69	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
70	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
71	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
72	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
73	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
74	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
75	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
76	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
77	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
78	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low

Nitrogen Risk For Individual Fields					
Field	County	Hgih Risk Soils Make up > 50% of Field	Field Tile Drained	Timing/Method of Fertilizer or Manure Application	N Risk Factor
79	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
82	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
83	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
84	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
85	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
86	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
89	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
90	Marion	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
91	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
92	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
93	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
94	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
95	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low
106	Clinton	No	No	no tile drainage, no > 50% high risk soil, N Risk Matrix not required	Low

Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

NUTRIENT MANAGEMENT

CODE 590

(ac)

DEFINITION

Manage rate, source, placement, and timing of plant nutrients and soil amendments while reducing environmental impacts.

PURPOSE

This practice is used to accomplish one or more of the following purposes:

- Improve plant health and productivity
- Reduce excess nutrients in surface and ground water
- Reduce emissions of objectionable odors
- Reduce emissions of particulate matter (PM) and PM precursors
- Reduce emissions of greenhouse gases (GHG)
- Reduce emissions of ozone precursors
- Reduce the risk of potential pathogens from manure, biosolids, or compost application from reaching surface and ground water
- Improve or maintain soil organic matter

CONDITIONS WHERE PRACTICE APPLIES

All fields where plant nutrients and soil amendments are applied. Does not apply to one-time nutrient applications at establishment of permanent vegetation.

CRITERIA

General Criteria Applicable to All Purposes

Develop a nutrient management plan for nitrogen (N), phosphorus (P), and potassium (K), which accounts for all known measurable sources and removal of these nutrients.

Sources of nutrients include, but are not limited to, commercial fertilizers (including starter and in-furrow starter/pop-up fertilizer), animal manures, legume fixation credits, green manures, plant or crop residues, compost, organic by-products, municipal and industrial biosolids, wastewater, organic materials, estimated plant available soil nutrients, and irrigation water.

When irrigating, apply irrigation water in a manner that reduces the risk of nutrient loss to surface and ground water.

Follow all applicable State requirements and regulations when applying nutrients near areas prone to contamination, such as designated water quality sensitive areas, (e.g., lakes, ponds, rivers and streams,

sinkholes, wellheads, classic gullies, ditches, or surface inlets) that run unmitigated to surface or groundwater.

Soil and tissue testing and analysis
Base the nutrient management plan on current soil test results in accordance with land grant university (LGU) guidance, or industry practice when recognized by the University of Illinois. Use soil tests no older than 2 years when developing new nutrient management plans. Use tissue testing, when applicable, for monitoring or adjusting the nutrient management plan in accordance with University of Illinois guidance, industry practice when recognized by the University of Illinois, and Illinois Agronomy Technical Note No. 23 “Soil Sampling Guidelines for Immobile Plant Nutrients” .

For nutrient management plan revisions and maintenance, take soil tests on an interval recommended by the University of Illinois or as required by local rules and regulations.

Collect, prepare, store, and ship all soil and tissue samples following University of Illinois guidance or industry practice. The test analyses must include pertinent information for monitoring or amending the annual nutrient plan. Follow University of Illinois guidelines regarding required analyses and test interpretations.

Soil test analyses must be performed by laboratories successfully meeting the requirements and performance standards of the Illinois Soil Testing Association Lab Accreditation Program (ISTA-LAP) http://www.soiltesting.org/ or the North American Proficiency Testing Program-Performance Assessment Program (NAPT-PAP) http://www.naptprogram.org/pap , or other NRCS-approved programs that consider laboratory performance and proficiency to assure accuracy of soil test results.

Maintain soil pH within ranges which enhance the adequate level for plant or crop nutrient availability and utilization. Refer to State University of Illinois documentation for guidance. The soil and tissue tests must include analyses pertinent to monitoring or amending the annual nutrient budget, e.g., pH(water), phosphorus (Bray P1 or Mehlich III colorimetrically analyzed), potassium (Ammonimim acetate or Mehlich III colorimetrically analyzed) . Testing for CEC, organic matter, and/or nitrogen is optional.

Manure, organic by-product, and biosolids testing and analysis
Collect, prepare, store, and ship all manure, organic by-products, and biosolids following University of Illinois guidance,industry practice when recognized by the University of Illinois, and/or the testing laboratory’s guidelines. In the absence of such guidance, test at least annually, or more frequently if needed to account for operational changes (e.g., feed management, animal type, manure handling strategy, etc.) impacting manure nutrient concentrations. When planning for new or modified livestock operations, acceptable “book values” may be obtained from: the NRCS Agricultural Waste Management Field Handbook, Livestock Facilities Handbook, MWPS-18.Section 1.

Manure tests results from the previous year may be used for initial plan preparation unless there has been a change in the operation that would be expected to cause significant changes to the manure chemistry such as changes in feed management, storage methods, livestock type or animal production phase. The running average manure nutrient content test values can be used to calculate the appropriate manure rates to meet the nutrient requirements specified for the current year. Prior to establishing stable nutrient content averages, sampling will occur at a frequency based on the designed storage period. For example, manure storage facilities designed for 6 months storage will sample twice yearly. Storage facilities designed for 9 months storage will be sampled every 9 months.

Storage facilities designed with 12 or months of storage will be sampled at least annually. Over the course of the plan implementation, if no operational changes occur, less frequent manure testing is allowable where operations can document a stable level of nutrient concentrations for the preceding three consecutive years, unless federal or state regulations require more frequent testing.

Manure analyses must include, at minimum, total Kjeldahl Nitrogen (N), ammonium Nitrogen, total phosphorus (P) or P2O5, total potassium (K) or K2O, and percent solids. Plant available Nitrogen from the

organic fraction of the manure will be estimated based on animal species, animal production phase, storage and application method. Nitrogen will be credited to the nutrient budget at 50, 25, and 12.5 percent of the estimated year of application plant available organic nitrogen respectively for subsequent years 1, 2, and 3.

When planning for new or modified livestock operations, acceptable “book values” may be obtained from: the NRCS Agricultural Waste Management Field Handbook, Livestock Facilities Handbook, MWPS-18.Section 1.

Manure testing analyses must be performed by laboratories successfully meeting the requirements and performance standards of the Manure Testing Laboratory Certification program (MTLCP) under the auspices of the Minnesota Department of Agriculture.
http://www2.mda.state.mn.us/webapp/lis/manurelabs.jsp

For nutrient management plans developed as a component of a comprehensive nutrient management plan for an animal feeding operation (AFO) follow policy in NRCS directive General Manual (GM) 190, Part 405, “Comprehensive Nutrient Management Plans.” These plans must include documentation of all nutrient imports, exports, and on-farm transfers.

Nutrient loss risk assessments
Use current NRCS-approved nitrogen, phosphorus, and soil erosion risk assessment tools to assess the site-specific risk of nutrient and soil loss.

Complete an NRCS-approved nutrient risk assessment for N on all fields where nutrient management is planned unless the State NRCS, in cooperation with State water quality control authorities, has determined specific conditions where N leaching is not a risk to water quality, including drinking water.

For purposes of implementing the 590 Nutrient Management Practice Standard and Assessments, a field will be considered tile drained when at least 50 percent of the field acreage is drained via subsurface drains. The Illinois Drainage Guide will be used to determine the extent of drainage.

Fields that are tile drained and/or contain soils that have high risk characteristics for nitrogen leaching will achieve a Medium risk for nitrogen as outlined in the Illinois NRCS Nitrogen Management Guidelines.

Complete an NRCS-approved nutrient risk assessment for P when any of the following conditions are met—

- P application rate exceeds University of Illinois fertility rate guidelines for the planned crop(s).
- The planned area is within or contributes to a HUC 12 watershed impaired for phosphorus or algae as designated by Illinois Environmental Protection Agency (i.e. water bodies with total phosphorus or aquatic algae listed as a cause of impairment according to the most recent 305(b) assessment report.)
- Fields not meeting these conditions will not be required to use the Illinois Phosphorus Index unless otherwise required under other criteria of the standard.

Any fields excluded from a P risk assessment must have a documented agronomic need for P, based on soil test P and University of Illinois nutrient recommendations.

For fields receiving manure, where P risk assessment results equate to—

- LOW risk.—Manure can be applied at rates to supply P at greater than crop requirement not to exceed the N requirement for the succeeding crop.
- MODERATE risk.—Manure can be applied at rates not to exceed crop P removal rate or the soil test P recommended rate for the planned crops in rotation.
- HIGH risk.—Manure can be applied at rates not to exceed crop P removal rate if the following requirements are met:

- A soil P drawdown strategy has been developed, documented, and implemented for the crop rotation.
- Implementation of all mitigation practices determined to be needed by site-specific assessments for nutrients and soil loss to protect water quality.
- Any deviation from these high-risk requirements that would increase the risk of P runoff requires the approval of the Chief of the NRCS.

The 4Rs of nutrient stewardship
Manage nutrients based on the 4Rs of nutrient stewardship—apply the right nutrient source at the right rate at the right time in the right place—to improve nutrient use efficiency by the crop and to reduce nutrient losses to surface and groundwater and to the atmosphere.

Nutrient source
Choose nutrient sources compatible with application timing, tillage and planting system, soil properties, crop, crop rotation, soil organic content, and local climate to minimize risk to the environment.

Determine nutrient values of all nutrient sources (e.g. commercial fertilizers, manure, organic by-products, biosolids) prior to land application.

Determine nutrient contribution of cover crops, previous crop residues, and soil organic matter.

For operations following USDA's National Organic Program, apply and manage nutrient sources according to program regulations.

Enhanced efficiency fertilizers, used in Illinois must be defined by the Association of American Plant Food Control Officials (AAPFCO) (Illinois Department of Agriculture) and be registered for use by the Illinois Department of Agriculture.

In areas where salinity is a concern, select nutrient sources that limit the buildup of soil salts. When manures are applied, and soil salinity is a concern, monitor salt concentrations to prevent potential plant or crop damage and reduced soil quality.

Apply manure or organic by-products on legumes at rates no greater than the University of Illinois or other applicable region-releveant publications estimated N removal rates in harvested plant biomass, not to exceed P risk assessment limitations.

For any single application of nutrients applied as liquid (e.g., liquid manure, nutrients in irrigation water, fertigation)—

- Do not exceed the soil's infiltration rate or water holding capacity.
- Apply so that nutrients move no deeper than the current crop rooting depth.
- Avoid runoff or loss to subsurface tile drains.

Nutrient rate
Plan nutrient application rates for N, P, and K using University of Illinois recommendations or industry practices when recognized by theUniversity of Illinois . Nutrient application rates may deviate from standard University of Illinois recommendations if appropriate adaptive management techniques and procedures are implemented. Refer to Illinois NRCS Adaptive Nitrogen Management Guidelines. Lower-than-recommended nutrient application rates are permissible if the client's objectives are met.

At a minimum, determine the rate based on crop/cropping sequence, current soil test results, and NRCS-approved nutrient risk assessments. Where applicable, use realistic yield goals.

For new crops or varieties where University of Illinois guidance is unavailable, relevant information from adjacent LGU's, or industry-demonstrated yield and nutrient uptake information may be used.

Estimate realistic yield potentials or realistic yield goals using University of Illinois procedures or based on historical yield or growth data, soil productivity information, climatic conditions, nutrient test results, level of management, and/or local research results considering comparable management and production conditions.

Average crop yields for each crop may be determined using one of the following methods:

- Average of five years for each crop based on producer records, excluding individual years where the yield varied plus or minus 25% of the five year average. Multiply the average by 1.05.
- Crop insurance yields, Farm Services Agency yields, or county average yields.
- Weighted average of the yields based on soil type and yields from the University of Illinois “Average Crop, Pasture, and Forestry Productivity Ratings for Illinois Soils: Bulletin No. 810 or Optimum Crop Productivity Ratings for Illinois Soils: Bulletin No. 811”.

Crop nutrients provided by the application of biosolids, starter fertilizers, or pop-up fertilizers must be accounted for in the nutrient budget.

Estimate legume-nitrogen credits from guidelines provided in the Illinois Agronomy Handbook.

On fields where the median soil test Bray P1 or Mehlich 3 exceeds 70 /acre, dual carrier fertilizers such as, but not limited to, 10-34-0, 18-46-0, or 11-52-0 may be applied pre-plant to late summer/fall seeded small grains or forages. The rate of the dual carrier product will not be applied to exceed 30 lbs. N/acre.

Nutrient application timing and placement

Consider the nutrient source, management and production system limitations, soil properties, weather conditions, drainage system, soil biology, and nutrient risk assessment to develop optimal timing of nutrients. For N, time the application as closely as practical with plant and crop uptake. For P, time planned surface application when runoff potential is low. Time the application of all nutrients to minimize potential for soil compaction.

For crop rotations or multiple crops grown in one year, do not apply additional P if it was already added in an amount sufficient to supply all crop nutrient needs.

To avoid salt damage, follow University of Illinois recommendations for the timing, placement, and rate of applied N and K in starter fertilizer or follow industry practice recognized by the University of Illinois .

Starter fertilizer applications containing phosphorus may be applied on phosphorus restricted fields where the:

- fertilizer is placed below the soil surface
- Soil loss is managed

Unincorporated, surface-applied nutrients must not be applied if nutrient losses offsite are likely. This includes spreading of manure, urea, UAN solutions, ammonium sulfate, and/or ammoniated phosphates:

- Soils are frozen.
- Soils are snow-covered.
- The top 2 inches of soil are saturated.

Exceptions for the above criteria related to surface-applied nutrients when there is a risk of runoff can be made when specified conditions are met and adequate conservation measures are installed to prevent the offsite delivery of nutrients. NRCS, in cooperation with the State water quality control authority, will define

adequate treatment levels and specified conditions for applications of manure if soils are frozen and/or snow covered or the top 2 inches of soil are saturated. At a minimum, must consider the following site and management factors:

-
-
-
-
-
-
-
-
-
- Exceptions for the above criteria can be made for surface-applied nutrients:
- when adequate conservation measures are in place such as and not limited to, Conservation Crop Rotation (328), Residue and Tillage Management (329, and 345,), Contour Farming (330),
- Stripcropping (585), Cover Crop (340), Field Border (386), and Filter Strip (393).
- when adequate ephemeral erosion control practices are installed to prevent the offsite delivery of nutrients such as and not limited to Terraces (600), Water and Sediment Control Basins (638), and Grassed Waterways, (412).
- when top dressing fertilizers for small grains or pastures on frozen soils prior to green up, or when frost seeding legumes mixed with fertilizer and,
- adequate treatment must achieve a **Medium** Phosphorus Index rating.

Additional Criteria to Minimize Agricultural Nonpoint Source Pollution of Surface and Groundwater

Apply conservation practices to avoid nutrient loss and control and trap nutrients before they can leave the field(s) by surface, leaching, or subsurface drainage (e.g., tile, karst) when there is a significant risk of transport of nutrients.

Manure application(s) must meet all applicable state and federal regulations such as the Livestock Management Facilities Act (LMFA), Illinois Environmental Protection Act, and Federal Clean Water Act.

The total single application of liquid manure applied through an irrigation system:

- must not exceed the soil infiltration rate and water holding capacity
- be based on crop rooting depth

The total single application of injected liquid manure must be applied in such a manner as to avoid runoff or loss to subsurface tile drains.

Crop production activities and nutrient use efficiency technologies must be coordinated to take advantage of mineralized plant-available nitrogen to minimize the potential for nitrogen losses due to denitrification or ammonia volatilization.

Manure will not be applied to the following areas:

- On slopes >15% unless incorporated or injected.
- Within ¼ mile of a residence other than the operator's unless injected or incorporated within 24 hours.
- Within 200 feet of surface water unless upgrade or there is adequate diking.
- Within 150 feet of potable water supply wells.

- Within 10-year flood plains unless injected or incorporation methods are used. Surface applied manure will be injected or surface applied and incorporated within 24 hours of application.
- Organic soils with a seasonal water table within 1 foot of the soil surface.
- Grassed waterways unless incidental to liquid manure applied through irrigation systems and:
    - there is no runoff from the irrigation and,
    - the distance to surface water is greater than 200 feet and,
    - the distance to potable water is greater than 150 feet and,
    - the distance to a non-potable well, abandoned or plugged well, drainage well, or injection well is greater than 100 feet and,
    - precipitation is not expected within 24 hours.

Manure may be surface applied to fields with permanent vegetation without injection or incorporation on slopes up to 15%. Manure may not be applied:

- Within 150 feet of potable water supplies.
- Organic soils with a seasonal water table within 1 foot of the soil surface.
- Within 15 feet of either side of the centerline of intermittent drainage way within the pasture unless incidental to liquid manure applied through irrigation systems.
- Within 35 feet of either side of a drainage ditch or open surface inlet to a tile drain or open sinkhole (karst).

Liquid manure may not be applied to fields or areas within fields where soil depth to fractured bedrock, sand or gravel is less than 24 inches.

Fields targeted for manure application after small grain or corn silage harvest that meet the high risk conditions outlined in the Nitrogen Management Guidelines will be planted to a double crop grain, annual forage, or cover crop.

For fields receiving manure, where phosphorus risk assessment results equate to **LOW** risk, additional phosphorus can be applied at rates greater than crop removal rate not to exceed the nitrogen requirement for the succeeding crop.

For fields receiving manure, where phosphorus risk assessment results equate to **MEDIUM** risk, additional phosphorus may be applied at a phosphorus crop removal rate for the planned crops in the rotation.

When phosphorus risk assessment results equate to **HIGH** risk, additional phosphorus may be applied at phosphorus crop removal rates if the following requirements are met:

- a soil phosphorus drawdown strategy has been implemented, and
- a site assessment for nutrients and soil loss has been conducted to determine if mitigation practices are required to protect water quality.
- any deviation from these high risk requirements must have the approval of the Chief of the NRCS.

Manure may be applied on legumes at rates equal to the estimated removal of nitrogen in harvested plant biomass.

Manure may be applied at a rate equal to the recommended phosphorus application, or estimated phosphorus removal in harvested plant biomass for the crop rotation, or multiple years in the crop sequence at one time. When such applications are made, the application must not exceed the recommended nitrogen application rate during the year of application or harvest cycle, and no additional phosphorus must be applied in the current year and any additional years for which the single application of phosphorus is supplying nutrients.

Multiple year applications will not be applied on fields that exceed Bray P1 or Mehlich 3 median test values of 300 lbs. P/ac. No phosphorus will be applied to fields that exceed median test values 400 lbs. P/ac.

Application of organic by-products and biosolids must meet all state and federal regulations and strictly follow the conditions outlined in the appropriate NPDES permit and/or State Operating Permit as issued by the IEPA.

Fields receiving organic by products and/or biosolids must be monitored for the accumulation of heavy metals and phosphorus in accordance with applicable Federal and State law.

Additional Criteria to Reduce the Risk of Potential Pathogens From Manure, Biosolids, or Compost Application From Reaching Surface and Groundwater

When applicable, follow proper biosecurity measures as provided in NRCS directives GM-130, Part 403, Subpart H, “Biosecurity Preparedness and Response.”

Follow all applicable Federal, Tribal, State, and local laws and policies concerning the application of manure, biosolids, or compost in the production of fresh, edible crops.

Apply manure, biosolids, or compost with minimal soil disturbance or by injection into the soil unless it is being applied to an actively growing crop, a minimum of 30 percent residue exists, or there is a living cover that has a fibrous root system with 75 percent or more cover. Do not surface apply manure if a storm event is forecast within 24 hours.

Additional Criteria to Reduce Emissions of Objectionable Odors, PM and PM Precursors, and GHG and Ozone Precursors

To address air quality concerns caused by odor, N, sulfur, and particulate emissions; adjust the source, timing, amount, and placement of nutrients to reduce the negative impact of these emissions on the environment and human health.

One or more of the following may be used:

- slow or controlled release fertilizers
- nitrification inhibitors
- urease inhibitors
- nutrient enhancement technologies
- incorporation
- injection
- stabilized nitrogen fertilizers
- residue and tillage management
- no-till or strip-till
- other technologies that minimize the impact of these emissions

Do not surface apply solid nutrient sources, including commercial fertilizers, manure, or organic by-products of similar dryness/density when there is a high probability that wind will blow the material and emissions offsite. Do not surface apply liquid nutrient sources when there is a high probability that wind will blow the liquid droplets applied from sprinklers or other applicable methods offsite.

Reduce the potential for volatilization by applying sources subject to volatilization during cooler, higher humidity conditions or by placement that minimizes vulnerability to volatilization.

Additional Criteria to Improve or Maintain Organic Matter

Design the plant or crop management systems so the soil conditioning index (SCI) organic matter subfactor is positive.

Apply manure, compost, or other organic nutrient sources at a rate and with minimal disturbance that will improve soil organic matter without exceeding acceptable risk of N or P loss.

For low residue plant or cropping systems, apply adequate nutrients to optimize plant or crop residue production to maintain or increase soil organic matter.

CONSIDERATIONS

General Considerations

Consider development of nutrient management plans by conservation management unit (CMU). A CMU is a field, group of fields, or other land units of the same land use and having similar treatment needs and planned management. A CMU is a grouping by the planner to simplify planning activities and facilitate development of conservation management systems. A CMU has definitive boundaries such as fencing, drainage, vegetation, topography, or soil lines.

Develop site-specific yield maps using a yield monitoring system, multispectral imagery or other methods. Use the data to further delineate low- and high-yield areas, or zones, and make the necessary management changes. Use variable rate nutrient application based on site-specific factor variability. See NRCS directive Agronomy Technical Note (TN) 190, AGR.3, “Precision Nutrient Management Planning.”

Use the adaptive nutrient management learning process to improve nutrient use efficiency on farms as outlined in NRCS’ national nutrient policy in GM-190, Part 402, “Nutrient Management.” Consider using an adaptive approach to adjust nutrient rate, timing, form, and placement as soil biologic functions and soil organic matter changes over time. See NRCS directive Agronomy Technical Note (TN) 190, AGR.7, “Adaptive Nutrient Management Process.”

When developing new nutrient management plans, consider using soil test information no older than 1 year rather than 2 years.

Develop a whole farm nutrient budget (nutrient mass balance), including all imported and exported nutrients. Imports may include feed, fertilizer, animals and bedding, while exports may include crop removal, animal products, animal sales, manure, and compost.

Modify animal feed diets to reduce the nutrient content of manure following guidance contained in Conservation Practice Standard (CPS) Feed Management (Code 592).

Provide a nutrient analysis of all nutrient source exports (manure or other materials).

Excessive levels of some nutrients can cause induced deficiencies of other nutrients, (e.g., high soil test P levels can result in zinc deficiency in corn).

Use soil tests, plant tissue analyses, and field observations to check for secondary plant nutrient deficiencies or toxicity that may impact plant growth or availability of the primary nutrients.

Do not apply K in situations where an excess (greater than soil test K recommendation) causes nutrient imbalances in crops or forages.

Use bioreactors and multistage drainage strategies to mitigate nutrient loss pathways, as applicable.

Use legume crops and cover crops to provide N through biological fixation. Cover crops with a carbon to nitrogen ratio below 20:1 can release a large amount of soluble N after being plowed or tilled into the soil when an actively growing crop is not present to take up nutrients, leading to increased risks of nitrate movement and nitrous oxide emissions. The nitrous oxide emissions often occur in high soil moisture

conditions, such as when a legume cover crop is plowed down in fall or early spring. To avoid these losses, use grass-legume or grass-legume-forbs mixtures with a more balanced carbon to nitrogen ratio.

Use winter hardy grass cover crops to take up excess N after the cash crop growing season and promote contribution of the nitrogen to next plant or crop.

Use conservation practices that slow runoff, reduce erosion, and increase infiltration (e.g., filter strip, contour farming, or contour buffer strips).

Use application methods, timing, technologies or strategies to reduce the risk of nutrient movement or loss, such as—

- Split nutrient applications.
- Banded applications.
- Injection of nutrients below the soil surface.
- Incorporate surface-applied nutrient sources when precipitation capable of producing runoff or erosion is forecast within the time of a planned application.
- High-efficiency irrigation systems and technology.
- Enhanced efficiency fertilizers
    - Slow or controlled release fertilizers
    - Nitrification inhibitors
    - Urease inhibitors.
- Drainage water management.
- Tissue testing, chlorophyll meters, or real-time sensors.
- Pathogen management considerations.

When a recycled product (e.g., compost) is to be used as a nutrient source on food crops or as food for humans or animals, make sure that pathogen levels have been reduced to acceptable levels (reference the Food and Drug Administration's Food Safety Modernization Act). www.fda.gov/FSMA When the recycled product has come from another farming operation, implement biosecurity measures and evaluate the risk of pathogen transfer that could cause plant or animal diseases.

Use manure treatment systems that reduce pathogen content from manure.

Implementing a soil health management system that reduces tillage or other soil disturbance, includes a diverse rotation of crops and cover crops, keeps roots growing throughout the year, and keeps the soils covered to reduce nutrient losses, and improves—

- Nutrient use efficiency, rooting depth, and availability of nutrients.
- Soil organic matter levels.
- Availability of nutrients from organic sources.
- Aggregate stability and soil structure.
- Infiltration, drainage, and aeration of the soil profile.
- Soil biological activity.
- Water use efficiency and available moisture.

Use targeted or prescribed livestock grazing to enhance nutrient cycling and improve soil nutrient cycling functions.

Elevated soil test P levels may lead to reduced mycorrhizal fungal associations and immobilize some micronutrients, such as iron, zinc, and copper.

Apply manure, compost, or other nutrient sources with minimal soil disturbance and at a rate that will improve soil organic matter without exceeding acceptable risk of N or P loss.

PLANS AND SPECIFICATIONS

In the nutrient management plan, document—

- Aerial site photograph(s), imagery, topography, or site map(s).
- Soil survey map of the site.
- Soil information including: soil type, surface texture, drainage class, permeability, available water capacity, depth to water table, restrictive features, and flooding and ponding frequency.
- Location of designated sensitive areas and the associated nutrient application restrictions and setbacks.
- Location of nearby residences, or other locations where humans may be present on a regular basis, that may be impacted if odors or PM are transported to those locations.
- Results of approved risk assessment tools for N, P, and erosion losses.
- Documentation establishing the application site presents a low risk for P transport to local water if P is applied in excess of crop requirement.
- Current and planned plant production sequence or crop rotation.
- All available test results (e.g. soil, water, compost, manure, organic by-product, and plant tissue sample analyses) upon which the nutrient budget and management plan are based.
- When soil P levels are increasing above an agronomic level, include a discussion of the risk associated with P accumulation and a proposed P draw-down strategy.
- Realistic yield goals for the crops (where applicable for developing the nutrient management plan).
- Nutrient recommendations for N, P, and K for the entire plant production sequence or crop rotation.
- Listing, quantification, application method and timing for all nutrient sources (including all enhanced efficiency fertilizer products) that are planned for use and documentation of all nutrient imports, exports, and onsite transfers.
- Guidance for implementation, operation and maintenance, and recordkeeping.

For variable rate nutrient management plans, also include—

- Geo-referenced field boundary and data collected that was processed and analyzed as a GIS layer or layers to generate nutrient or soil amendment recommendations per management zone. Must include site-specific yield maps using soils data, current soil test results, and a yield monitoring system with GPS receiver to correlate field location with yield.
- Nutrient recommendation guidance and recommendation equations used to convert the GIS base data layer or layers to a nutrient source material recommendation GIS layer or layers.
- After implementation, provide application records per management zone or as applied map within individual field boundaries (or electronic records) documenting source, timing, method, and rate of all nutrient or soil amendment applications.

If increases in soil P levels are expected above an agronomic level (i.e., when N-based rates are used), document—

- Soil P levels at which it is desirable to convert to P-based planning.
- A long-term strategy and proposed implementation timeline for soil test P drawdown from the production and harvesting of crops.
- Management activities or techniques used to reduce the potential for P transport and loss.
- For AFOs, a quantification of manure produced in excess of crop nutrient requirements.

OPERATION AND MAINTENANCE

Review or revise plans periodically to determine if adjustments or modifications are needed. At a minimum, review and revise plans as needed with each soil test cycle, changes in manure management, volume or analysis, plants and crops, or plant and crop management.

Monitor fields receiving animal manures and biosolids for the accumulation of heavy metals and P in accordance with LGU guidance and State law.

For animal feeding operation, significant changes in animal numbers, management, and feed management will necessitate additional manure analyses to establish a revised average nutrient content.

Calibrate application equipment to ensure accurate distribution of material at planned rates. For products too dangerous to calibrate, follow LGU or equipment manufacturer guidance on proper equipment design, plumbing, and maintenance.

Document the nutrient application rate. When the applied rate differs from the planned rate, provide appropriate documentation to explain the difference.

Protect workers from and avoid unnecessary contact with nutrient sources. Take extra caution when handling anhydrous ammonia or when managing organic wastes stored in unventilated tanks, impoundments, or other enclosures.

Use material generated from cleaning nutrient application equipment in an environmentally safe manner. Collect, store, or field apply excess material in an appropriate manner.

Recycle or dispose of nutrient containers in compliance with State and local guidelines or regulations.

Maintain records for at least 5 years to document plan implementation and maintenance. Records must include—

- All test results (soil, water, compost, manure, organic by-product, and plant tissue sample analyses) upon which the nutrient management plan is based.
- Listing and quantification of all nutrient sources (including all enhanced efficiency fertilizer products) that are planned for use and documentation of all nutrient imports, exports and onsite transfers.
- Date(s), method(s), and location(s) of all nutrient applications.
- Weather conditions and soil moisture at the time of application, elapsed time from manure application to rainfall or irrigation event(s).
- Plants and crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and plant or crop residues removed.
- Dates of plan review, name of reviewer, and recommended adjustments resulting from the review.

For variable rate nutrient management plans, also include—

- Maps identifying the variable application location, source, timing, amount, and placement of all plant and crop nutrients applied.
- GPS-based yield maps for crops where yields can be digitally collected.

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Natural Resources Conservation Service

CONSERVATION PRACTICE STANDARD

WASTE RECYCLING

Code 633

(No.)

DEFINITION

The on-farm agricultural use of nonagricultural waste by-products, or the off-farm nonagricultural use of agricultural waste by-products.

PURPOSE

This practice is applied to—

- Improve soil health.
- Reduce contamination of surface and ground water resources.
- Reduce emissions of air pollutants.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where waste by-products can be reused to prevent a resource problem and provide a conservation benefit. Where the intended waste recycling activity is to be used on-farm, this practice should be included in the nutrient management plan.

Waste recycling applies where there is a need to protect and improve the quality of natural resources and the environment by properly using nonagricultural waste by-product material that would otherwise be discarded, and will instead be imported into a farm operation. Proper marketing for the export of agricultural waste by-products off-farm, leads to the responsible utilization and reuse of by-products to protect natural resources.

This practice does not apply to the on-farm agricultural use of manure or waste generated by-products that are produced on that farm. For on-farm reuse of farm generated waste, use Conservation Practice Standard (CPS) Nutrient Management (Code 590).

CRITERIA

Comply with all Federal, State, Territorial, Commonwealth, Tribal, and local laws, rules, and regulations.

The owner or operator must secure all required permits or approvals related to the waste recycling operation, and maintain components and equipment in accordance with applicable laws and regulations.

Perform at least one sample analysis of the waste by-product annually, or more frequently if needed to account for operational changes, to determine the characteristics that are critical to its use. Base the use of the waste on the analysis. Perform further analysis as needed as the waste is processed or undergoes changes. Use a laboratory certified by a State-recognized program that considers laboratory performance and proficiency to assure accuracy of testing results.

When composting is required for processing nonagricultural waste by-products for on-farm use, use the CPS criteria for Composting Facility (Code 317) and criteria for Animal Mortality Facility (Code 316) if appropriate.

Use the criteria from Conservation Practice Standard (CPS) Nutrient Management (Code 590) for any materials imported to provide plant nutrients. Sample tests must include analyses pertinent to monitoring or amending the annual nutrient budget, e.g., pH, electrical conductivity (EC) and sodicity where salts are a concern, soil organic matter, phosphorus, potassium, or other nutrients and test for nitrogen where applicable. Follow land-grant university guidelines regarding required analyses.

When nonagricultural by-product wastes are used on-farm for animal feed, use the criteria in CPS Feed Management (Code 592).

Manage residuals generated by waste processing and reuse activities in a manner that prevents degradation of natural resources and the environment.

CONSIDERATIONS

Consider alternatives to handling agricultural waste by-products to make a product that adds value for an accessible off-farm market. One example would be biodegradable seed starter pots.

Consider recycling used containers by returning them to the suppliers or manufacturers that have a recycling program.

Consider using off-farm organic by-product wastes for bedding, feed, mulch, energy production, or soil quality improvement. Criteria in CPSs Composting Facility (Code 317), Mulch (Code 484), Anaerobic Digester (Code 366), or other practices may apply.

Consider pathogen management. If the recycled product is to be used on food crops or as food for humans or animals, make sure that pathogen levels have been reduced to acceptable levels (reference Food and Drug Administration (FDA) Food Safety Modernization Act at www.fda.gov/FSMA). If the recycled product has come from another farming operation, consider biosecurity measures and the possibility of pathogen transfer that could cause plant or animal diseases.

PLANS AND SPECIFICATIONS

Prepare plans and specifications that describe the requirements for applying the practice to achieve the intended purpose. Account for the use or disposal of all by-products produced or received by the agricultural operation. For additional requirements for plans and specifications refer to the appropriate associated conservation practice standard.

OPERATION AND MAINTENANCE

Keep records for a period of at least 5 years, and include, when appropriate—

- The dates and quantities of by-product material imported to, or exported from, the agricultural production system.
- Analysis of by-product material and test results for critical characteristics.
- A description of how the by-product materials are reused and the conservation benefit achieved.
- Include the dates of periodic inspections and maintenance of equipment and facilities required for the utilization of the by-product material. List the specific equipment to be inspected or maintained and a general time frame for preventive maintenance.