



# FRONTIER-SERVCO FS

222 East Puerner Street, Jefferson WI (920)-674-7000 or 2311 Clermont St. Antigo, WI (715)-627-4844

## **BADGERWOOD, LLC 243 NMP (NEW FACILITY)**

**1020 PEMBROKE AVE, PO Box 150, LAWLER, IA 52154**



***Provided By:***

Nikki Wagner, CCA, TSP  
CAFO Nutrient Management Specialist  
Frontier-Servco FS  
PO Box 359  
Jefferson, WI 53549  
(608) 574-1417





## **243 Nutrient Management Plan (NMP)**

Badgerwood, LLC  
1020 Pembroke Ave  
PO Box 150  
Lawler, IA 52154

- |                   |  |
|-------------------|--|
| <b>Section 1:</b> | 243 (Form 3400-025B) & 590 Checklists  |
| <b>Section 2:</b> | 243 NMP Narrative <ul style="list-style-type: none"><li>2A. Facility Map</li><li>2B. Manure Production Estimator Report</li><li>2C. DNR Guidance on Shallow Groundwater</li><li>2D. Field and Map Verification Log</li><li>2E. Field Proximity to Impaired or Outstanding/Exceptional Waters</li><li>2F. Record Keeping Forms</li><li>2G. Animal Units Calculation Worksheet</li></ul> |
| <b>Section 3:</b> | Maps (Farm, Soils, 243, Emergency Liquid)  |
| <b>Section 4:</b> | Snap-Plus Reports  |
| <b>Section 5:</b> | Soil Tests & Manure Nutrient Estimation  |
| <b>Section 6:</b> | Emergency Response Procedures  |
| <b>Section 7:</b> | Soil Features  |
| <b>Section 8:</b> | Manure Storage Capacity Calculations   |



## **Section 1: Checklists**



# Nutrient Management Plan Checklist Livestock/Poultry Operation WPDES Permit Application

Form 3400-025B (R 3/12)

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**Notice:** Pursuant to ch. NR 243, Wis. Adm. Code and s. 283.53(3), Wis. Stats., this form is required to be submitted, along with Form 3400\_025A and all other required application materials, by the owner or operator of a concentrated animal feeding operation (CAFO). The Department will not consider your application unless you provide and submit complete information. Penalties for failure to submit a completed form are established in ss. 283.89 and 283.91, Wis. Stats. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.)

## I. Operation Information

Operation Badgerwood, LLC		Contact Gene Noem	WPDES Permit No New Facility	
Location Address-Street, Route or Box 1020 Pembroke Ave, PO Box 150		City Lawler	State IA	ZIP Code 52154
Phone Number (inc area code) (641) 364-7843 x 241	Cell Phone Number (712) 229-8915	Fax Number (641) 364-2029	Email Address gnoem@reicksview.com	

## II. Preparer Information

Name of Crop Consultant Nikki Wagner, CCA		Company/Title Frontier-Servco FS		
Mailing Address-Street, Route or Box PO Box 359		City Jefferson	State WI	ZIP Code 53549
Phone Number (inc area code) (920) 674-7000	Cell Phone Number (608) 574-1417	Fax Number (920) 674-7019	Email Address nwagner@frontierservcofs.com	

1. Plan Type: (select one) <input checked="" type="checkbox"/> Initial Plan <input type="checkbox"/> Annual Update <input type="checkbox"/> Permit Renewal		Applicable growing season	
2. Total acres covered by NMP: <u>884.6</u> acres		Total spreadable acreage: <u>880</u> acres	
Cropland acres, owned: <u>0</u> acres		Agreement or Rented Acres: <u>884.6</u> acres	
3. Total acreage used for land application in previous 12 months: <u>NA</u>		Total animals at facility in previous 12 months: <u>NA</u>	

## III. NR 243 CAFO Nutrient Management Plan (NMP) Checklist

Check yes or no and provide the location (section) of the item in the NMP. Failure to provide item location may delay review of the NMP by the DNR and/or require resubmittal of the checklist with this information.

	Yes	No	Section
1. Does plan meet Wisconsin's NRCS 590 Nutrient Management Standard nutrient budgeting, soil test recommendations, selecting dominant critical soil unit criteria and establishing perennial vegetation in all areas of concentrated flow resulting in reoccurring gullies? (NRCS soil unit criteria: <a href="http://www.wi.nrcs.usda.gov/technical/consplan/rusle.html">http://www.wi.nrcs.usda.gov/technical/consplan/rusle.html</a> )	<input checked="" type="radio"/>	<input type="radio"/>	1
2. Does plan contain fields with high potential for N leaching to groundwater?	<input type="radio"/>	<input checked="" type="radio"/>	2
If yes, do these fields meet NRCS 590 soil temperature, application rate and timing restrictions?	<input type="radio"/>	<input type="radio"/>	
3. Does plan contain NRCS 590 response procedures for manures, organic byproducts and fertilizer applications that cause drainage to subsurface tiles, ponding or runoff? (NOTE: Such procedures must include methods to prevent offsite movement of nutrients - via subsurface tile discharge or surface runoff - to waterways and notify DNR of spills or accidental release)	<input checked="" type="radio"/>	<input type="radio"/>	2
4. Does plan contain a copy of NRCS 590 checklist?	<input checked="" type="radio"/>	<input type="radio"/>	1
5. Does plan have a narrative that describes:	<input checked="" type="radio"/>	<input type="radio"/>	2
a. Expected numbers of animal units on site at end of first year of permit coverage and also expected numbers for remaining permit term (next 4 yrs). - NR 243.12(2)(6), Wis. Adm. Code.	<input checked="" type="radio"/>	<input type="radio"/>	2
b. Expected amounts and types of manure and process wastewater produced on annual basis.	<input checked="" type="radio"/>	<input type="radio"/>	2
c. Amount of manure and process wastewater to be land applied.	<input checked="" type="radio"/>	<input type="radio"/>	2
d. Anticipated frequency and method(s) of land application.	<input checked="" type="radio"/>	<input type="radio"/>	2
e. Other methods of use, disposal, distribution or treatment of manure or process wastewater.	<input checked="" type="radio"/>	<input type="radio"/>	2
f. Tillage and crop rotation information for all fields owned or rented or in `agreements'.	<input checked="" type="radio"/>	<input type="radio"/>	2
g. Total acreage available (by landowner) for land application owned, rented or in `agreements'.	<input checked="" type="radio"/>	<input type="radio"/>	2



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	Yes	No	Section
h. General manure and process wastewater application requirements - NR 243.14(2)(b)(1-13) & (c-f), Wis. Adm. Code AND methods explaining how they will be met on all fields in plan (e.g., field and map verification procedures, applicable best management practices and recordkeeping procedures to track actions taken).	<input checked="" type="radio"/>	<input type="radio"/>	2
i. Nutrient crediting requirements - NR 243.14(3), Wis. Adm. Code- and how they will be met.	<input checked="" type="radio"/>	<input type="radio"/>	2,4
j. SWQMA application restriction option for each field AND methods explaining how restriction(s) will be met - NR 243.14(4), Wis. Adm. Code.	<input checked="" type="radio"/>	<input type="radio"/>	2
k. Phosphorus delivery method (P Index or Soil Test P) for each field AND management strategy for fields with soil test P above 100 ppm and 200 ppm - NR 243.14(5), Wis. Adm. Code.	<input checked="" type="radio"/>	<input type="radio"/>	2
l. Fields adjacent to or with high potential to drain to impaired or outstanding/exceptional waters (see DNR impaired waters map tool: <a href="http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer">http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer</a> ).	<input checked="" type="radio"/>	<input type="radio"/>	2
m. Identification of sites for winter (frozen or snow covered ground) applications that meet criteria in tables 4 and 5 for manure - NR 243.14(6-8) - AND methods explaining how they will be met. (NOTE: Fields selected for winter application <u>must have</u> the lowest risk of pollutant delivery to waters of the state and have winter acute loss index value of 4 or less using the Wisconsin Phosphorus Index).	<input checked="" type="radio"/>	<input type="radio"/>	3
n. Documentation of adequate storage (180 days) and methods of maintaining adequate storage - NR 243.14(9) and NR 243.17(3), Wis. Adm. Code.	<input checked="" type="radio"/>	<input type="radio"/>	8
<b>Are the following field features identified as restricted or high risk areas on spreading maps:</b>			
6. (NOTE: Checking yes requires plan narrative to describe methods or procedures to identify, avoid, eliminate or minimize the surface or ground water quality risk each feature represents).			3
a. Private, non-community drinking water well (100ft setback).	<input checked="" type="radio"/>	<input type="radio"/>	3
b. Community drinking water well (1,000ft setback).	<input checked="" type="radio"/>	<input type="radio"/>	3
c. Soils within 24 inches of apparent water table or bedrock at time of application (NOTE: water table depth may vary over time and requires field investigation to determine actual depth to groundwater before application).	<input type="radio"/>	<input checked="" type="radio"/>	NA
d. Fields over 200 ppm soil test phosphorus (manure spreading prohibited unless department approval).	<input type="radio"/>	<input checked="" type="radio"/>	NA
e. Direct conduits to groundwater (100ft setback).	<input checked="" type="radio"/>	<input type="radio"/>	3
f. SWQMA areas and 100ft prohibition, or equivalent. (NOTE: maps must identify <u>all conduits to navigable waters</u> . These include: ditches, concentrated flow channels, sinkholes, agricultural well heads, open tile line intake structures or open vent pipes in fields that discharge to navigable waters and <b>grassed waterways that drain directly</b> to a navigable water). See DNR navigable waters fact sheet: <a href="http://www.dnr.state.wi.us/org/water/fhnp/waterway/factsheets/index.html">http://www.dnr.state.wi.us/org/water/fhnp/waterway/factsheets/index.html</a> .	<input checked="" type="radio"/>	<input type="radio"/>	3
g. Wetlands and 25ft setback OR start of the SWQMA if connected to navigable water - NR 243.14 (4)(a) (2), Wis. Adm. Code. See DNR wetlands map tool: <a href="http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer.wetlands">http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer.wetlands</a> .	<input checked="" type="radio"/>	<input type="radio"/>	3
h. Fields adjacent to or with high potential to drain to impaired or outstanding/exceptional waters (see DNR impaired waters map tool: <a href="http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer">http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer</a> ).	<input checked="" type="radio"/>	<input type="radio"/>	3
i. Soils with: (1) High Permeability; (2) Within 20 inches to bedrock; or (3) Within 12 inches to apparent water table. (see Appendix 1, WI Tech Note WI-1 <a href="http://www.wi.nrcs.usda.gov/technical/technotes.html">http://www.wi.nrcs.usda.gov/technical/technotes.html</a> ).	<input type="radio"/>	<input checked="" type="radio"/>	NA
j. Fields with ephemeral erosion, reoccurring gullies or concentrated flow channels. (NOTE: fields with such soil erosion features <u>do not meet</u> NRCS 590 and need to be stabilized with perennial vegetation or other runoff reducing practices. Once established, manure cannot be applied within vegetated flow channels/grassed waterways. If detected, describe in narrative how and when such areas will be stabilized <u>before</u> any manure is applied on fields where gullies exist.)	<input type="radio"/>	<input checked="" type="radio"/>	NA
k. Fields exceeding T - tolerable soil loss - over the crop rotation.	<input type="radio"/>	<input checked="" type="radio"/>	NA
l. Subsurface drainage systems (e.g., drain tiles and their outlets).	<input type="radio"/>	<input checked="" type="radio"/>	NA
7. Does field size and planned manure spreading to all fields reflect acreage lost to SWQMA or other required setbacks?	<input checked="" type="radio"/>	<input type="radio"/>	3



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	Yes	No	Section
<b>8. Is phosphorus being correctly managed:</b>	<input checked="" type="radio"/>	<input type="radio"/>	4
a. Fields 50-100ppm P: Balance P needs over a maximum 8 year rotation?	<input checked="" type="radio"/>	<input type="radio"/>	4
b. Fields 100-200ppm P: Drawdown P by 50% cumulative crop removal over a maximum 4 year rotation AND P Index ≤ 6?	<input type="radio"/>	<input checked="" type="radio"/>	NA
c. Is commercial P above 20lbs in starter being added to fields over 50 ppm P?	<input type="radio"/>	<input checked="" type="radio"/>	NA
<b>Are manure analyses being taken, at least annually, for every sample point in the permit and being used to develop the plan?</b> If not completed yet, provide schedule when manure testing will be completed in narrative when plan will be updated with this information.	<input type="radio"/>	<input checked="" type="radio"/>	NA
<b>Is all manure produced by the farm allocated over the entire rotation or five year permit term?</b> 10. (NOTE: A rotation may be longer or shorter than a five year permit term. If shorter than 5-years, the rotation must repeat or be amended to reflect, at least, the 5 year permit term).	<input checked="" type="radio"/>	<input type="radio"/>	4
<b>11. Are all commercial fertilizers and off-farm nutrients included for every year of rotation?</b>	<input checked="" type="radio"/>	<input type="radio"/>	4
<b>Are all fields owned, rented or in agreements with farm that have, or are planned to, receive manure or process wastewater included in plan?</b> (NOTE: Once a field is included in the plan it must remain so regardless of use/status for the 5-year permit term or rotation - this includes fields used only once during permit term or a rotation. For such fields, projecting what nutrients may be applied is required.)	<input checked="" type="radio"/>	<input type="radio"/>	3,4
<b>Are all fields in plan managed for the entire rotation? Managed for the entire rotation means:</b> 13. Planning for the sequence of crops, tillage, budgeting and application of nutrients for up to an 8-year period in order to determine field rotational soil loss, rotation avg. P Index, and applicable manure or legume credits for each rotation year.	<input checked="" type="radio"/>	<input type="radio"/>	4
<b>14. If any fields in plan do not receive manure during the rotation, do they follow UW A2809 crop recommendations for other applied nutrients?</b>	<input checked="" type="radio"/>	<input type="radio"/>	4
<b>15. Are calibrations provided in plan for all manure hauling equipment (including equipment not owned by the farm)?</b> If no, provide schedule when calibrations will be completed in narrative.	<input type="radio"/>	<input checked="" type="radio"/>	NA
<b>Does plan include copies of soil testing for all NMP fields and manure testing results?</b> If not completed yet, provide in narrative a schedule when testing for soil for specific fields or manure will be completed and when plan will be updated with this information.	<input checked="" type="radio"/>	<input type="radio"/>	4,5
<b>17. If available, have prior year(s) records (e.g., crop, tillage, nutrients applied) been included in NMP calculations to reflect what actually happened on each field vs. what was planned?</b>	<input checked="" type="radio"/>	<input type="radio"/>	4
<b>18. Are any fields receiving over-applications of nitrogen based on UW Publication A2809?</b>	<input type="radio"/>	<input checked="" type="radio"/>	4

## IV. Certification

I certify that the CAFO Nutrient Management Plan criteria listed above is:

(1) in compliance with all NR 243.14, Wis. Adm. Code, and applicable NRCS 590 criteria, and

(2) all plan requirements have been reviewed by farm operator/owner

I understand that pursuant to s. 283.91(4), Wis. Stats., any person who knowingly makes any false statement representation or certification in a document filed with the DNR may be punished by a fine of not more than \$10,000 or by imprisonment for not more than 6 months or both.

Signature of Official Farm Representative <div style="text-align: center; margin-top: 10px;"> </div>	Date 1/28/15
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Wisconsin Department of Agriculture, Trade & Consumer Protection  
Division of Agricultural Resource Management  
Bureau of Land and Water Resources  
PO Box 8911, Madison WI 53708-8911, Phone: 608-224-4605

# Nutrient Management Plan Checklist

Sec. 92.05(3)(k), Wis. Stats.  
ATCP 50.04(3) Wis. Admin. Code

Use this form to check nutrient management (NM) plans for compliance with the WI NRCS 590 Standard (Sept. 2005).

County name: **Bayfield**  
Township (**T.47N.**) – (**R.5W**)

Date Plan Submitted: **1/28/15**  
Initial Plan or Updated Plan (circle one)

Growing season year NM plan is written for **2016**  
(from harvest to harvest)

Name of qualified nutrient management planner <b>Nicole Wagner</b>		Planner's business name, address, phone: <b>Frontier-Servco FS, PO Box 359, Jefferson, WI 53549 (608) 776-4600</b>
Circle the planner's qualification: 1. NAICG-CPCG 2. <u>ASA-CCA #341384</u> 3. <del>ASA-Professional Agronomist</del> 4. SSSA-Soil Scientist 5. DATCP approved training course 6. Other credentials approved by DATCP	Cropland Acres (owned & rented) <b>884.6 ac</b>	Name of farm operator receiving nutrient management plan: <b>Badgerwood, LLC</b>
Rented farm(s) landowner name(s) and acreage: <b>Reicks View Family Farms (415.4), Patrick McGinty (41.6), William Franzel (132.3), George Bailen (23.1), Harlan Miller (67), Karen Jelinek (30.9), Keith Grubisic (42.5), Brad Larson (22.5), Dave Gutsch (37.8), Rodney Dymesich (43.6), John Galligan (28)</b>		
Circle relevant program requirement or regulation the plan was developed for: Ordinance, USDA, DATCP, DNR, NR 243 – NOD or WPDES		

Yes No NA

<b>1. Are the following field features identified on maps or aerial photos in the plan?</b>			
a. Field location, soil survey map unit(s), field boundary, acres and field identification number	X		
b. Areas prohibited from receiving nutrient applications: Surface water, established concentrated flow channels with perennial cover, permanent non-harvested vegetative buffer, non-farmed wetlands, sinkholes, lands where established vegetation is not removed, nonmetallic mines, and fields eroding at a rate exceeding tolerable soil loss (T)	X		
c. Areas within 50 feet of a potable drinking water well where mechanically-applied manure is prohibited	X		
d. Areas prohibited from receiving winter nutrient applications: Slopes > 9% (12% if contour-cropped); Surface Water Quality Management Area (SWQMA) defined as land within 1,000 ft of lakes and ponds or within 300 ft of perennial streams draining to these waters, unless manure is deposited through winter gleaning/pasturing of plant residue and not exceeding the N and P requirements of this standard; Additional areas identified within a conservation plan as contributing runoff to surface or groundwater	X		
e. Areas where winter applications are restricted unless effectively incorporated within 72 hours: Land contributing runoff within 200 feet upslope of direct conduits to groundwater such as a well, sinkhole, fractured bedrock at the surface, tile inlet, or nonmetallic mine	X		
f. Sites vulnerable to N leaching: Areas within 1,000 feet of a municipal well, and soils listed in Appendix 1 of the Conservation Planning Technical Note WI-1	X		
<b>2. Are erosion controls implemented so the crop rotation will not exceed T on fields that receive nutrients according to the conservation plan or WI P Index model?</b>	X		
<b>3. Were soil samples collected and analyzed within the last 4 years according to UW Publication A2100 recommendations?</b>	X		
<b>4. Using the field's predominant soil series and realistic yield goals, are planned nutrient application rates, timing, and methods of all forms of N, P, and K listed in the plan and consistent with UW Publication A 2809, Soil Test Recommendations for Field, Vegetable and Fruit Crops, and the 590 standard?</b>	X		
<b>5. Do manure production and collection estimates correspond to the acreage needed in the plan? Are manure application rates realistic for the calibrated equipment used?</b>	X		
<b>6. Is a single phosphorus (P) assessment of either the P Index or soil test P management strategy uniformly applied to all fields within a tract?</b>	X		
<b>7. Are areas of concentrated flow, resulting in reoccurring gullies, planned to be protected with perennial vegetative cover?</b>	X		
<b>8. Will nutrient applications on non-frozen soil within the SWQMA comply with the following?</b>			
a. Unincorporated liquid manure on unsaturated soils will be applied according to Table 1 of the 590 standard to minimize runoff	X		
b. One or more of the following practices will be used: 1) Install/maintain permanent vegetative buffers, or 2) Maintain greater than 30% crop residue or vegetative coverage on the surface after nutrient application, or 3) Incorporate nutrients leaving adequate residue to meet tolerable soil loss, or 4) Establish fall cover crops promptly following application	X		

I certify that the nutrient management plan represented by this checklist complies with Wisconsin's NRCS 590 nutrient management standard.  
Signature of qualified nutrient management planner



## Section 2: Narrative

### Wisconsin NR 243 Requirements

#### WPDES permit re-issuance criteria

##### Expected numbers of animal units for first year of permit and remaining permit term (next 4 yrs).

The following table provides the current animal numbers on farm, and expected animal numbers on the farm over the permit term. Please be advised that future years are an estimate and actual animal numbers may vary from these values. Badgerwood, LLC actual animal numbers will be described in Badgerwood, LLC annual NMP updates and Badgerwood, LLC NMP annual reports. A facility map is included in Appendix 2A.

Year	Total Herd Size (Swine)	Total Animal Units
2016	7,500 (Sows) + 100 (Boars + 5,250 (Growing Pigs) + 13,500 (Nursery Pigs)	6163
2017	7,500 (Sows) + 100 (Boars + 5,250 (Growing Pigs) + 13,500 (Nursery Pigs)	6163
2018	7,500 (Sows) + 100 (Boars + 5,250 (Growing Pigs) + 13,500 (Nursery Pigs)	6163
2019	7,500 (Sows) + 100 (Boars + 5,250 (Growing Pigs) + 13,500 (Nursery Pigs)	6163
2020	7,500 (Sows) + 100 (Boars + 5,250 (Growing Pigs) + 13,500 (Nursery Pigs)	6163

##### Expected amounts and types of manure and process wastewater produced on annual basis

Please refer to Appendix 2B of this narrative for calculations/analysis for table values.

Year	Total Liquids
2016	6,800,000 gallons
2017	6,800,000 gallons
2018	6,800,000 gallons
2019	6,800,000 gallons
2020	6,800,000 gallons

##### Amount of manure and process wastewater to be land applied

Please refer to Section 4 of plan for calculations/analysis for table value and Section 4 of plan for land application schedules for specific fields.

Year	Total Liquids Created	Total Liquids Applied
2016	6,800,000 gallons	6,938,875 gallons
2017	6,800,000 gallons	7,066,900 gallons
2018	6,800,000 gallons	6,916,275 gallons
2019	6,800,000 gallons	6,892,950 gallons
2020	6,800,000 gallons	6,859,400 gallons



**Other sources of nutrients to be land applied (NRCS 590 requirement)**

Please refer to Section 4 of plan for calculations/analysis for table value and Section 4 of plan for land application schedules for specific fields.

**Anticipated frequency and method(s) of land application**

Badgerwood, LLC anticipates applying manure according to the following schedule: approximately twice per month for 3-4 day periods in August, September, October, and November. Spreading will occur in summer of alfalfa, and in fall for corn, soybeans, and new seeding. Manure is never applied in the winter. Please refer to Section 4 of plan for land application schedules for specific fields. Please also refer to Section 3 of plan for restriction maps that will be used to ensure NR 243 or NRCS 590 setback requirements are followed.

Badgerwood, LLC anticipates using the following equipment to spread liquid manure on fields in NMP: drag-line hose with injection system. For alfalfa fields manure will be surface applied, but a majority of the manure applied will be injected. There are a number of acres available to be added to the NMP that is farther away from the facility, which is currently rented or owned by the operation. These fields are not currently planned for application due to the cost of trucking the manure, and are not included for that reason.

**Other methods of use, disposal, distribution or treatment of manure or process wastewater**

Badgerwood, LLC does plan to use other methods of use, disposal, or distribution of manure or process wastewater.

**Total acreage available (by landowner) for land application owned, rented or in 'agreements'.**

The table below summarizes this information. Please refer to Section 4 of plan for more information related to landbase documentation. The farm has a total of approximately 880 acres available after various restricted areas have been accounted for (including fields over 200 ppm).

**Total land application acres available – 884.6**

**Acres owned – 0; Acres Rented–581.5 Acres with Manure Contracts – 303.1**

Land Owner Name	Field Name	Acres	Rental or Agreement Length	Length	Shared Land* Y/N	Additional Field Info
Reicks View Family Fams	T175-1E, 1W, 3, 6, 10, 13; T176-1; T3907-2, 3, 4; T4009-9, 10, 11, 12, 13, 25; T4399-2; T4574-1; T4926-3	415.4	5 year	Written	Y	Receives manure and commercial fertilizer
Reicks View Family Farms & Patrick McGinty	T4007-4, 7	41.6	5 year	Written	Y	Receives manure and commercial fertilizer
Reicks View Family Farms & William Franzel	T4575-2	28.3	5 year	Written	Y	Receives manure and commercial fertilizer
George Bailen	T5072-1	23.1	5 year	Written	Y	Receives manure and commercial fertilizer



Harlan Miller	T4037-1	67	5 year	Written	Y	Receives manure and commercial fertilizer
Karen Jelinek	T170-2	30.9	5 year	Written	Y	Receives manure and commercial fertilizer
Keith Grubisic	T175-7, 14; T4009-8	42.5	5 year	Written	Y	Receives manure and commercial fertilizer
Brad Larson	T4354-3	22.5	5 year	Written	Y	Receives manure and commercial fertilizer
Dave Gutsch	T4116-2	37.8	5 year	Written	Y	Receives manure and commercial fertilizer
William Franzel	T4745-1	104	5 year	Written	Y	Receives manure and commercial fertilizer
Rodney Dymesich	T4364-1	43.6	5 year	Written	Y	Receives manure and commercial fertilizer
John Galligan	T167-1	28	5 year	Written	Y	Receives manure and commercial fertilizer

**NOTE:** Shared land means fields that receive nutrients from more than one farm or nutrient source (e.g., manure, industrial wastewater, commercial fertilizer, septage, etc). These fields must be carefully tracked within the NMP.

#### **Tillage and crop rotation information for all fields owned or rented or in 'agreements'**

Please refer to Section 4 of plan for tillage, crop rotation and land application schedules for specific fields.

#### **Nutrient crediting requirements - NR 243.14(3)**

When selecting manure and process wastewater application rates for all fields, Badgerwood, LLC has taken into account:

1. soil nutrient levels prior to land spreading
2. known nutrient applications from other sources, including:
  - a. commercial fertilizers
  - b. bio-solids
  - c. **first and second year** manure and legume credits
  - d. other sources of nutrients that are expected to be applied or have already been applied to fields.

Adjustments will be made to assumed nutrient credits based upon actual crop yields.

#### **SWQMA application restriction option for each field AND procedures- NR 243.14(4)**

For most fields, Badgerwood, LLC will follow SWQMA option 1 - No application of manure or process wastewater within 25 feet of navigable water, conduit to navigable water or wetland; and inject or immediately incorporate manure and process wastewater in all other areas within the SWQMA. For long term no-till ground (at least 3 years of



no-till), Badgerwood, LLC will follow SWQMA option 2 - No application of manure or process wastewater within 25 feet of navigable water, conduit to navigable water or wetland; and surface apply manure and process wastewater in all other areas within the SWQMA provided that all of the following conditions are met:

- a. The application is on long-term no-till ground.
- b. The ground has at least 30% crop residue at the time of application.
- c. The hydraulic application rate is limited to that specified in Table 3 of NR243.14

For short term no-till ground, Badgerwood, LLC will follow SWQMA option 3 - No application within 100 feet of navigable water, conduit to navigable water or wetland; and surface apply manure and process wastewater in all other areas within the SWQMA.

#### **Phosphorus delivery method (Soil Test P or P Index) and P management procedures for each field- NR 243.14(5)**

Badgerwood, LLC will use the P Index for all fields within the NMP. Please refer to Section 4 of plan for this information. Badgerwood, LLC will follow the P Management procedures listed below when applying manure and process wastewater to fields to demonstrate compliance with NR 243.14(5)(b) and applicable NRCS 590 requirements:

##### **Fields with less than 50 ppm:**

- Rotational average PI values for each field shall be 6 or lower. PI is calculated using up to 8 year rotation using current Wisconsin P Index calculations. P applications on fields with PI > 6 may be made only if additional P is needed according to UWEX soil fertility recommendations.

##### **Fields with soil test P between 50-100 ppm:**

- Rotational average PI values for each field shall be 6 or lower. PI is calculated using up to 8 year rotation using current Wisconsin P Index calculations. P applications on fields with PI > 6 may be made only if additional P is needed according to UWEX soil fertility recommendations.

##### **Fields with soil test P between 100-200 ppm:**

- The rotational average P Index value for the crop rotation or for the next 4 year period, whichever time period is less, will be calculated.
- When P Index is > 6, manure application(s) to field are prohibited.
- When P index is < 6, manure applications allowed with P drawdown by 50% cumulative crop removal over a maximum 4 year rotation will be implemented.

##### **Fields with soil test P greater than 200 ppm:**

- P applications from manure and process wastewater prohibited, unless approved by DNR.
- The planned average WI P Index value for the crop rotation or for the next 4 year period, whichever time period is less, will be calculated.
- P drawdown by 50% cumulative crop removal over a maximum 4 year rotation will be implemented.

#### **Field proximity to nutrient impaired or outstanding/ exceptional waters - NR 243.14(5)**

Please refer to Appendix 2E of plan for maps showing locations of fields in proximity to these types of waters. The land base for Badgerwood, LLC is located in the Fish Creek and White River watersheds. White River is an ERW and an ASNRI Endangered Threatened or Special Concern Area. It is classified as a Cold Class II trout stream. Fish



Creek is also an ASNRI Endangered Threatened or Special Concern Area. The following tools were used to complete the maps showing the following features:

DNR 2008 impaired waters list:

<http://dnr.wi.gov/org/water/wm/wqs/303d/2008/2008Updates.htm>

DNR surface water map tool – used to ID impaired or outstanding or exceptional waters:

<http://dnrmapping.wisconsin.gov/imf/imf.jsp?site=SurfaceWaterViewer>).

**Identification of sites for winter (frozen or snow covered ground) spreading – NR 243.14(8)**

Badgerwood, LLC does not plan to spread manure onto fields during winter (frozen or snow covered ground) conditions. There is more than sufficient manure storage capacity, but if there is a need in case of emergency, the following fields meet the requirements of NR 243.14(8) near the facility: T170-2, T176-1, and T5072-1. Restriction maps are located in Section 3.

**Manure Stacking – NR 243.141**

Badgerwood, LLC does not practice manure stacking, and does not have solid manure.

**Documentation of 180 days storage and methods for maintaining storage - NR 243.14(9) and NR 243.17(3)**

Please refer to Section 8 of plan for manure storage capacity calculations. Please refer to Section 4 of plan for land application schedules for specific fields.

**General Manure and process wastewater application requirements – NR 243.14(2)(b)(1-13)&(c-f)**

Badgerwood, LLC will take several actions to ensure all manure and process wastewater is land applied in compliance following general landspreading requirements of NR 243.14:

- No ponding on application site
- During dry weather, no runoff from the application site, nor discharge to waters of the state through subsurface drains
- No causing fecal contamination of water in a well
- Unless rain event is greater than 25 yr/24 hr event and farm complies with NMP and WPDES permit, no runoff from the application site, nor discharge to waters of the state through subsurface drains due to precipitation or snowmelt
- No application on saturated soils
- Maximize use of available nutrients, prevent delivery of manure and process wastewater to waters of the state, and minimize the loss of nutrients and other contaminants to waters of the state to prevent exceedances of groundwater and surface water quality standards and to prevent impairment of wetland functional values
- Retain nutrients in the soil with minimal movement
- No application within 100 feet of direct conduits to groundwater
- No applications within 100 feet of private well and 1000 feet of commercial well
- No application on fields with soils that are 60 inch thick or less over fractured bedrock when ground is frozen or where snow is present.
- No application when snow is actively melting such that water is flowing off a field.



Please refer to Section 3 of plan for spreading maps that visually describe how the farm will meet many of these general spreading requirements.

To demonstrate compliance with the NR 243.14 general land application requirements above, Badgerwood, LLC will complete, on an ongoing basis, map and field verification procedures (listed below) to ensure spreading maps are accurate (including soil types, slopes and slope lengths), SWQMA or well setback distances are followed and prohibited conditions/features on fields are identified and avoided when spreading manure or process wastewater to NMP fields. The procedures demonstrate how land application activities will be in compliance with NR 243.14 or NRCS 590 restrictions throughout the permit term.

The prohibited conditions/features that Badgerwood, LLC will evaluate for on each field include: ephemeral erosion or concentrated flow channels, saturated soils, intermittent and perennial streams, grassed waterways, wetlands, lakes, drinking wells, areas of field with bedrock or groundwater within 24 inches of field surface, wells and other direct conduits to groundwater - NR 243.14(2)(b)(3),(5),(6), (7-12). These areas have been inventoried and marked on restriction maps (see Section 3 of plan).

Badgerwood, LLC will maintain written and/or visual records of ongoing field and map verification actions to demonstrate compliance with NR 243.14 requirements. Please refer to Appendix 2D of plan for this information.

#### **Field and Map Verification Procedures**

Prior to spreading manure onto fields, John Thomas of Badgerwood, LLC will complete the following map and field verification procedures to ensure all manure spreading will be in compliance with NR 243 and 590 criteria:

- Spreading maps will be reviewed by John Thomas, and Nikki Wagner of Frontier-Servco FS to identify all restricted or prohibited features and setback distances on field. Restrictions will be mapped via GPS.
- Fields will be inspected for restricted or prohibited features; any new conditions/features will be identified.
- Once identified, prohibited field features will be avoided and setback distances (as depicted on spreading maps or in NR 243 or NRCS 590) will be measured and followed during manure spreading.
- Spreading maps will be updated with any new prohibited/restricted field features or conditions.
- A log will be kept at the facility to track the map and field verification procedures listed above. The log will track (Appendix 2D):
  - (a) date(s) review took place
  - (b) person(s) involved
  - (c) fields verified
  - (d) any new field features or conditions identified on fields
  - (e) photos or other documentation of field features or conditions reviewed

#### **Avoiding manure or process wastewater field runoff or ponding– NR 243.14(2)(b)(1), (2)&(6).**

Please refer to field and map verification procedures and NRCS 590 requirements for runoff and ponding.

#### **Surface applications & precipitation forecast for runoff within 24 hours – NR 243.14(2)(b)(13)**



For this NMP, **surface** applications of manure will not be completed when rain events capable of producing runoff are forecasted within 24 hours of the time of planned applications. Surface application means manure that is applied and left on the surface of the field. Surface application does not mean manure that is surface applied and then incorporated into the soil.

Prior to manure applications, weather forecasts will be used to determine the risk for forecasted precipitation to cause run-off from the fields. Weather data will be recorded on daily logs (Appendix 2F).

**Drain tile fields & tile discharges to surface waters -NR 243.14(2)(b)(2),(4)&(6) and NRCS 590 (V.A.1.k)**

Drain tile discharges from fields to surface waters are not allowed under NR 243. The fields in the NMP do not have any known subsurface drainage systems. In the event that a field does contain a tile line the following procedures will apply.

**Prior to spreading manure onto fields with drain tiles:**

- UW extension Guidelines for Preferential Flow of Manure in Tile Drainage will be reviewed by Badgerwood, LLC:  
[http://www.extension.org/pages/Preferential\\_Flow\\_of\\_Manure\\_in\\_Tile\\_Drainage](http://www.extension.org/pages/Preferential_Flow_of_Manure_in_Tile_Drainage)
- The following UW Discovery Farm Drain Tiles documents will be reviewed by Badgerwood, LLC:  
Understanding and Locating Drain Tiles  
<http://www.uwdiscoveryfarms.org/pdf/pubsnewsres/DF-TD1.pdf>  
Tile Talk With Discovery Farms, Third Edition, Pages 4-5  
<http://www.uwdiscoveryfarms.org/pdf/pubsnewsres/newsltr1006.pdf>
- Spreading maps will be reviewed to identify known drain tile locations
- Fields will be inspected for drain tile presence or outlets; any new tile outlets/subsurface drainage systems will be identified
- All tile outlets will be visually checked for flow and water conditions (e.g., clear, colored, foam, odor, etc).
- Results of all visual tile monitoring will be tracked – using DNR form- and kept with NMP
- Planned manure spreading (rates and locations) on fields will be evaluated and then limited or adjusted, as necessary, according to the following criteria:
  1. Available water holding capacity of the soil
  2. Depth of injection
  3. Clay soil considerations
  4. Concentration of Application from spreading equipment type used
  5. Are known tile drains flowing?
  6. Shallow tillage (3 to 5 inch depth) used or not used prior to application to disrupt the continuity of worm holes, macropores and root channels (preferential pathways) to reduce the risk of manure reaching drain lines.
  7. Perennial Crop and No Till precautions

**During and after manure spreading on fields with drain tiles, best management practices will be followed:**

- Visual inspection of tile outlets for flow and water conditions (e.g., clear, colored, foam, odor, etc.)
- Containing manure or process wastewater tile discharges from release into waterway(s)
- Notifying DNR of any spills/discharges to waterways from tiles
- Reducing application rates or delaying application(s) to tiled fields
- Setbacks from tiled areas
- Immediate tillage/ incorporation of applied manure
- Use of other manure application equipment (e.g., sweeps)
- Update NMP spreading maps or narrative



- Results of visual inspections of tiles will be tracked and kept with NMP.

Please also refer to NRCS 590 requirements for field runoff, ponding and drainage to subsurface tiles.

#### **Manure applications to areas of fields with shallow groundwater or bedrock – NR 243.14(2)(b)(7).**

NR 243 prohibits manure applications on areas of fields that have groundwater or bedrock within 24 inches of the field surface at time of application. The NMP does not have soils that have groundwater or bedrock within 24 inches. In the event that a field is identified with these features, Badgerwood, LLC will demonstrate compliance with this prohibition by:

- Implementing DNR guidance, dated March 2009. Please refer to Appendix 2C of this narrative for the DNR guidance.
- Field verifying areas that are less than 24 inches to bedrock using GPS. Using farm equipment, the ground will be probed to verify 24 inches of separation on soils that are flagged on the 243 restriction maps. The areas found to have less than 24 inches will be well documented using pictures, and GPS. The GPS restrictions will be included in 243 restriction maps. The Department and LCD will be notified prior to field checking, and will be included throughout the process.

#### **Daily Spreading Log and Annual Reports for DNR – NR 243.19**

Badgerwood, LLC will maintain daily spreading log for all manure or process wastewater applications to NMP fields for compliance with NR 243.19. The daily spreading log will also be used to complete required annual reports for DNR. Badgerwood, LLC recognizes the daily spreading log and annual reports are essential to document actual management practices used by Badgerwood, LLC and the resulting soil erosion and water quality impacts on specific fields. Badgerwood, LLC will use their own forms or those which are provided in Appendix 2F.

Please also refer to NRCS 590 requirements for Annual Updates to NMP.

#### **Manure spreading equipment calibration and Manure concentration testing – NR 243.19**

Badgerwood, LLC shall conduct or require periodic inspections and ongoing calibration of landspreading equipment to detect leaks and ensure accurate application rates for manure and process wastewater. Initial calibrations shall be followed by additional calibration after any equipment modification or after changes in manure or process wastewater consistency and/or source. At a minimum, calibration of all manure spreading equipment used by Badgerwood, LLC shall be completed annually. Information regarding manure hauling equipment calibration at Badgerwood, LLC, will be provided in Section 6 (when information is available) as well as the Emergency Response Plan. Badgerwood, LLC will follow UW extension web page guidance for Calibration of Manure Application Equipment:

[http://www.extension.org/pages/Calibration\\_of\\_Manure\\_Application\\_Equipment](http://www.extension.org/pages/Calibration_of_Manure_Application_Equipment)

Badgerwood, LLC shall analyze manure and process wastewater applied to fields in accordance with WPDES permit conditions. Sampling shall be completed for all sources of manure and process wastewater. All sources of manure and process wastewater shall be analyzed on at least an annual basis for Nitrogen, Phosphorus, and percent solids in years where manure and process wastewater is applied. Samples collected shall be representative of the manure or process wastewater applied to fields. Badgerwood, LLC will follow sampling methods found in UW publication A3769, Recommended Methods of Manure Analysis: <http://learningstore.uwex.edu/Assets/pdfs/A3769.pdf>. Future manure analyzes and current soil tests are included in Section 5.



## Wisconsin NRCS 590 Requirements

### Dominant Critical Soil

Each field in this NMP is managed to meet NRCS dominant critical soil criteria:

<http://www.datcp.state.wi.us/arm/agriculture/land-water/conservation/nutrient-mngmt/pdf/ChoosingCriticalSoilType.pdf>

The dominant critical soil is the most erosive soil that covers at least 10% of the field area. The dominant critical soil type was selected for all fields listed in the NMP to ensure corresponding rotational T – tolerable soil loss - values for each field are accurate for compliance with NRCS 590 requirements. Please refer to Section 4 of plan for this information.

### T – Tolerable soil loss

Each field in this NMP is managed to meet T – tolerable soil loss - over the crop rotation. T values were calculated using NRCS RUSLE 2 model. No nutrient applications (manure, fertilizer) are allowed on fields that fail to meet T. Erosion controls shall be implemented so that tolerable soil loss (T) over crop rotation will not be exceeded on fields that receive nutrients. Please refer to Section 4 of plan for information showing each field's tolerable and actual soil loss.

### Soil Testing

Each field in the NMP is managed for compliance with NRCS A2100 soil testing criteria:

<http://www.datcp.state.wi.us/arm/agriculture/land-water/conservation/nutrient-mngmt/pdf/uwex-a2100.pdf>

Accordingly, all fields in this NMP either meet or are managed to meet A2100 criteria over time. Please refer to Section 4 and 5 of plan for this information. For fields in this NMP that do not currently meet A2100, one of the following management options will be implemented by Badgerwood, LLC until soil testing can be completed:

1. Manure will not be applied to field;
2. Field will be managed as if P levels are greater than 100 ppm P according to NR 243.14(5) criteria for all manure applications to field.
3. For fields that do not have the required amount of soil samples a 101 ppm placeholder for P will be used on fields close to 100 ppm.

### Application and budgeting of nutrients – consistent with NRCS 590 standard and soil fertility recommendations found in A2809.

Each field in the NMP is managed to address the source, rate, timing, form and method of application and budgeting **of all** nutrient sources (i.e., including soil reserves, commercial fertilizer, manure, organic byproducts –animal mortality and composting materials - legume crops and crop residues) generated or accepted by the farm and applied to fields. Please refer to Section 4 of plan for this information.

### Other sources of nutrients to be land applied (NRCS 590 requirement)

Please refer to Section 4 of plan for calculations/analysis for table values and specific fields land application amounts and schedules (e.g., spring, summer or fall).



Year	Total Liquid Manure
2016	6,938,875 gallons
2017	7,066,900 gallons
2018	6,916,275 gallons
2019	6,892,950 gallons
2020	6,859,400 gallons

### **Crop Yield Goals**

Each field in the NMP is managed according to yield goals that are attainable by the farm under average growing conditions and established using multi year documented yields kept by the farm. Farm yield goals in this NMP shall not be set higher than 15% above the previous 3-5 year average. Absent field/farm specific yield goals data, yield goals in this NM plan will be set using Wisconsin county average crop yields found at National Agricultural Statistics Service: [http://www.nass.usda.gov/Data\\_and\\_Statistics/index.asp](http://www.nass.usda.gov/Data_and_Statistics/index.asp). Please refer to Section 4 of plan for this information.

### **Records of soil and manure testing results**

Badgerwood, LLC has completed and retained records showing recent soil testing. Manure testing records will be kept when manure is available to test. Please refer to Section 5 of plan for this information. Badgerwood, LLC will follow the following schedule to ensure manure analysis or soil testing for fields will be completed and then the NMP will be updated with this information.

Manure sampling shall be done by John Thomas. The sampling requirements of liquid manure are 2 representative samples per month during land spreading.

### **Fields with concentrated flow channels resulting in reoccurring gullies or ephemeral erosion**

Badgerwood, LLC will evaluate fields on an ongoing basis each year for presence or flow channels or other types of ephemeral soil erosion. If fields show evidence of concentrated flow channels resulting in re-occurring gullies or ephemeral erosion, the following actions will be taken by the farm:

- Spreading maps will be updated to reflect areas with concentrated flow channels;
- Manure will not be spread on fields with concentrated flow channels, until perennial vegetative cover is established in all areas of concentrated flow;
- A schedule for establishing perennial vegetative cover in all areas of concentrated flow as well as implementation dates will be recorded and kept with this NMP.
- One or more NRCS 590 runoff reducing practices for crop fields with ephemeral erosion will be selected and implemented. Practices selected and implementation dates will be recorded and kept with this NMP.

Once vegetated flow channels/grassed waterways established within fields, such areas will be maintained to perform their intended function and manure will not be applied within these areas.

Grassed waterways will be inspected in April and will be seeded and fertilized to meet NRCS Critical Area Planting 342 if necessary.



### **Fields with high potential for N leaching to groundwater - soil temperature, application rate and timing restrictions**

Fields in this NMP have been evaluated for soils with high potential for N leaching to groundwater for compliance with NRCS 590 requirements. Please refer to Section 3 and 4 of plan for this information. There are no fields with these soil features in the NMP. When manure is applied fields with soils classified as having a high potential for N leaching to groundwater and the soils are > 50 degrees F, the potential exists for rapid N mineralization. The risk for N mineralization and loss (via leaching to groundwater) is a concern the farm will manage for. The farm will follow the following procedures for compliance with NRCS 590 soil temperature, application rate and timing restrictions:

- If any fields are found to be > 50 degrees F, Badgerwood, LLC will strictly follow section V, B, 2 of NRCS 590 standard.
- If any fields are found to be < 50 degrees F, Badgerwood, LLC will strictly follow section V, B, 3 of NRCS 590 standard.

### **Field Inspection and Response Procedures for manure ponding, runoff from fields or drainage to subsurface tiles.**

Badgerwood, LLC will evaluate field and weather conditions prior to and during mechanical applications of **manures, organic byproducts and fertilizer** to ensure that applied material(s) do not cause ponding, runoff, or drainage to subsurface tiles.

The following response procedures will be followed by Badgerwood, LLC if/when ponding, runoff or drainage to subsurface tiles occurs during and/or after applications to fields:

1. Stop application immediately (if field application not finished)
2. Containment measures (e.g., earth berms, pumps, temporary pits, tillage, and incorporation) will be implemented immediately to prevent off-site movement from field.
3. Changes in application rate, method, depth of injection or timing to the field shall be implemented during any future application to eliminate ponding, runoff or drainage to subsurface tiles.
4. Farm shall notify DNR of any spills or accidental release to comply with Ag Spill Law (289.11) or term of WPDES permit.

### **Annual Updates**

This NMP will be updated annually. Each NMP annual update for Badgerwood, LLC shall include records/documentation of all soil or manure analyses as well as crops, tillage, nutrient application rates, and methods actually implemented on each field that receives nutrients. Annual updates are essential to document actual management practices and resulting soil erosion and water quality impacts on specific fields.



## **Appendix 2A:** Facility Map



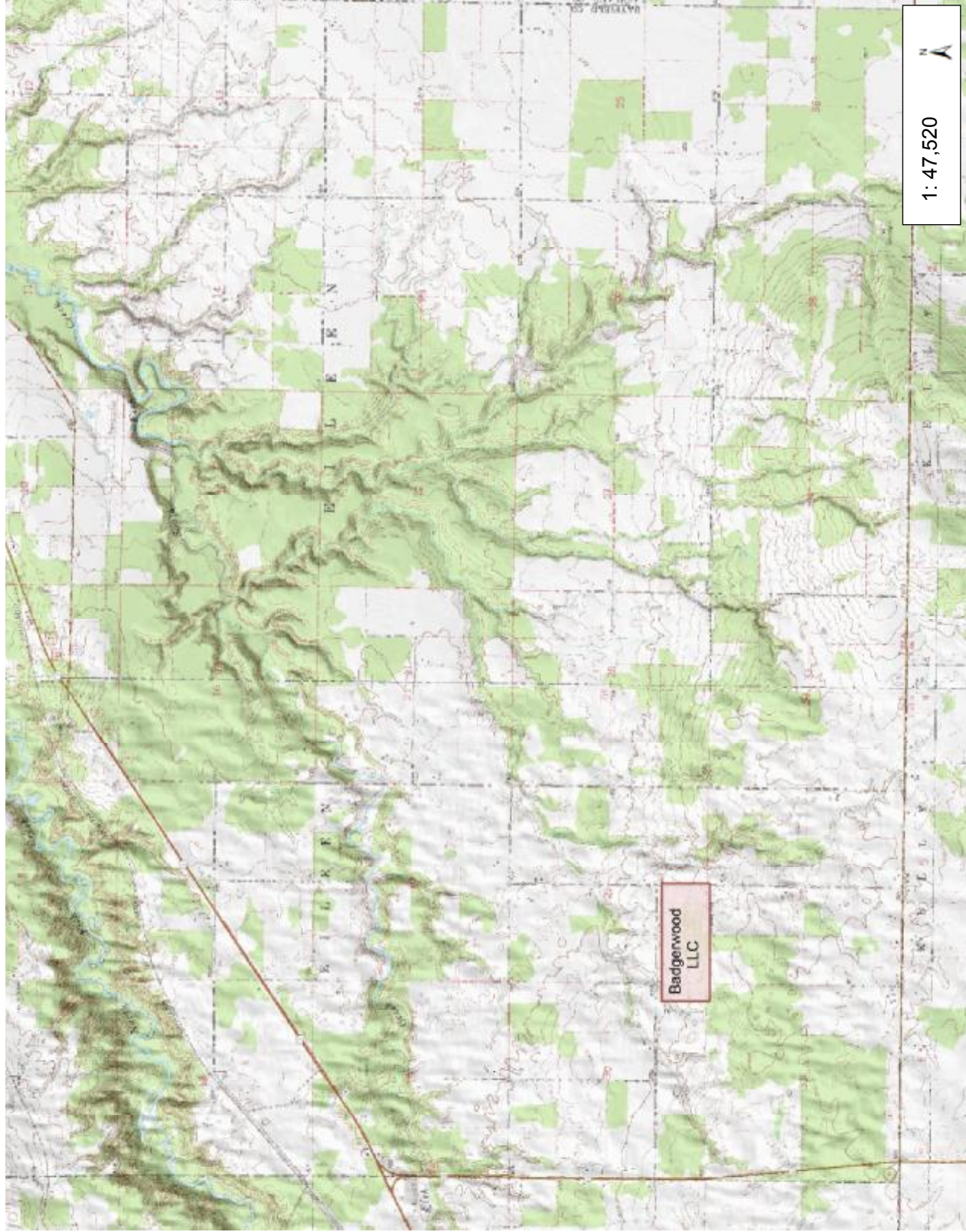


## Badgerwood LLC: Site Vicinity Map



Legend

Notes



1: 47,520



1.5 Miles

0 0.75

1.5

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/org/legal/>

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## **Appendix 2B: Manure Production Estimator Report**



## SnapPlus Manure Production Estimator Report

Crop Year	2016
Reported For	Badgerwood LLC
Printed	2015-01-28
Plan Completion/Update Date	2015-01-28
SnapPlus Version	14.1 built on 2014-12-20
C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb	

**Prepared for:**  
Badgerwood LLC  
attn:John Thomas  
27190 Cherryville Rd  
Ashland, 54806

**Prepared by:** Frontier-Servco FS  
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### Nutrient Source Summary for 2016

		Values are for First Year Available Nutrients in lb/ton or lb/1000 gallons								Volumes are in Tons or Gallons						Value of Applied Nutrients in \$ (based on commerical fertilizer costs in \$/lb)			
Source Name	Type	N	N Inc	N Inj	P	K	S	DM	Volume	Volume Applied	Volume Remain	Fall	Winter	Spring	Summer	N	P2O5	K2O	S
Planned Swine Manure	Swine, liquid, farrow-nursery, indoor pit	8.0	10.0	14.0	6.0	10.0	0.6	2	6,800,000	6,938,875	-138,875	6,938,875	0	0	0	0	0	0	0
<b>Total Solid:</b>									0	0	0	<b>Total Values</b>				0	0	0	0
<b>Total Liquid:</b>									6,800,000	6,938,875	-138,875								

### Estimated Livestock Manure Production

Animal Type	# Of animals	Total No. Of Days	% Collected As Solid	% Collected As Liquid	Yearly Tons	Yearly Gallons
Swine Sow 275 lbs	7,500	365	0	100	0	2,737,500
Swine Grow-Finish Pig 150 lbs	5,250	365	0	100	0	2,299,500
Swine Nursery Pig 25 lbs	13,500	365	0	100	0	1,478,250
Swine Boar 350 lbs	100	365	0	100	0	36,500
				<b>Farm Totals</b>	0	6,551,750

### Manure Storage Pits



No Pits Found

Spreaders

No Spreaders Found



## Appendix 2C: DNR Guidance on Shallow Groundwater Soils



### BUREAU OF WATERSHED MANAGEMENT

#### INTERIM GUIDANCE

#### NUTRIENT MANAGEMENT - CAFO APPLICATIONS ON SHALLOW GROUNDWATER SOILS

**March 2009**

**Description:** Ch. NR 243, Wis. Adm. Code, restrictions CAFO manure and process wastewater applications to fields that have less than 24 inches of soil over groundwater or bedrock.

This guidance describes how permittees and their consultants can identify and determine whether to use these fields as well as how Department staff can review fields for compliance with this requirement.

*This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations, and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.*

#### Background

NR 243.14(2)(b)(7) requires CAFO manure or process wastewater applications may not be applied on areas of a field with a depth to groundwater or bedrock of less than 24 inches.

This restriction applies only to those portions of field that have less than 24 inches of separation to groundwater. If portions of a field have at least 24" of soil, these portions of the field are not subject to the prohibition (i.e., there is no de minimus amount of field that falls into/out of a prohibition area that would allow the entire field to be determined to not meet/meet the restriction).

#### NRCS Conservation Planning Technical Note WI-1

This document (Appendix 1) identifies soils with high potential for groundwater contamination. It places restrictions on 'w' type soils. The 'w' symbol indicates the soil is very poorly and poorly drained has an apparent water table that is less than 12 inches from the surface for any duration at any time of the year. Accordingly, 'w' soils indicate, by definition, where the depth to groundwater may also be within 24 inches of the field surface for any duration at any time of the year.

**Tech Note WI-1 link (Sept 2007):** <http://www.wi.nrcs.usda.gov/technical/technotes.html>

#### NRCS Soil Description for 'w' soils

NRCS soil descriptions provide more detailed information for individual soils, including 'w' soils. Each description contains a category entitled DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY. This category describes the depth to water table (groundwater) for specific time periods. Here are two examples:



Example 1 - Poorly drained. An apparent seasonal high water table is at 15 cm (0.5 foot) above the surface to 31 cm (1.0 foot) below the surface at some time during spring in most years.

Example 2 - Very poorly drained. Depth to the seasonal high water table ranges from 2 foot above the surface in ponded phases to 1 foot below the surface from September to June.

**For specific NRCS soil descriptions, use NRCS Soil Description Search link (click on soil series name search):** <http://soils.usda.gov/technical/classification/osd/index.html>

### **NRCS soil description, groundwater depth factors and NR 243 compliance**

The NRCS soil descriptions, however, are not regulatory. They are general guidance provided by NRCS for general nutrient management purposes. *The actual depth to groundwater on a specific day or under specific conditions may vary from the NRCS narrative soil descriptions.*

The following factors influence groundwater depth:

- Soil type(s) and moisture content.
- Field topography.
- Weather patterns (wet or dry seasons).
- Drainage systems (ditches and drain tiles).
- Crop and Tillage types.

NR 243.14 requires manure applications to fields meet the depth to groundwater requirement **on a field by field basis at the time of application**. The steps described below provide permitted CAFO farms some methods to demonstrate compliance with the NR243 depth to groundwater requirement. **Please note, this guidance does not preclude a CAFO farm from submitting or implementing alternative methods to this guidance\*.**

\* = Alternative methods do not become effective until the department has reviewed and approved the method.

### **Interim guidance for shallow groundwater soils**

- (1) For each field listed in farm's Nutrient Management Plan (NMP), identify and map all 'w' soil units using tools below. Keep with NMP.**

Web Soil Survey - <http://websoilsurvey.nrcs.usda.gov/app/>

Tech Note WI-1 (Appx 1)- <http://www.wi.nrcs.usda.gov/technical/technotes.html>

- (2) For each field, document the NRCS Soil Series description for all 'w' soil units using link below. Keep with NMP.** Use DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY description to determine depth to water table time period(s).

NRCS Soil Description - <http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi>

- (3) If possible, avoid applying manure or process wastewater to areas of fields with 'w' soils during shallow groundwater time periods listed in NRCS soil description(s). If avoidance is not possible, follow steps 4-6 below.**

- (4) Before any application, inspect the 'w' soil section(s) of the field and answer the following question: Are 'w' soil sections of field 'idle' - Y or N?**

For purposes of this guidance, "idle" means: the 'w' soil section(s) of field show evidence of hydric soils and exhibit: (1) Wetland vegetation (woody vegetation, shrubs, grasses) or (2) Abandoned condition (e.g., no crops or evidence of recent crops for at least two years).



- i. If Y – no application; locate alternative acreage.
- ii. If N – go to Step 5.

**(5) Before any application, demonstrate 'w' soil sections of field do not have a groundwater depth of less than 24 inches.**

- i. If Y– apply manure and follow all other NR243.14 manure spreading requirements.
- ii. If N– no application; locate alternative acreage; or apply at time when groundwater depth is greater than 24 inches.

**For purposes of this guidance, 'demonstrate' means one of the following options:**

- (1) Locate drain tile(s) on the field with 'w' soils units. Determine drain tile(s) are functioning and tile depth is 24 inches or greater from the surface of the field. If drain tile(s) meet criteria above, complete application and follow all other NR243 spreading requirements (e.g., preventing drain tile discharges to surface waters).
- (2) Excavate at least two "representative" soil pits within at least one 'w' soil area on the field that is five acres or less in size\* (using mechanical soil auger or manual hand tools) to a depth of at least 30 inches. After at least one hour, observe if the water table is below 24 inches of surface. If both pits (for each five acre area) meet the criteria above, refill each pit, complete application and follow all other NR243 spreading requirements.

\*= When 'w' soil area on field is greater than five acres in size, excavate additional soil pits so a ratio of two pits for each 5 acre sized 'w' soil unit is met.

For purposes of this guidance, "representative" means choosing locations within a 'w' soil area of field that reflects the overall structure and characteristics of the 'w' soil unit.

**(6) Document steps taken at each field with 'w' soil units in WPDES permit daily and annual spreading reports.**



## Appendix 2D: Field and Map Verification Log

[illegible]



## **Appendix 2E: Field Proximity to Impaired or Outstanding/Exceptional Waters**





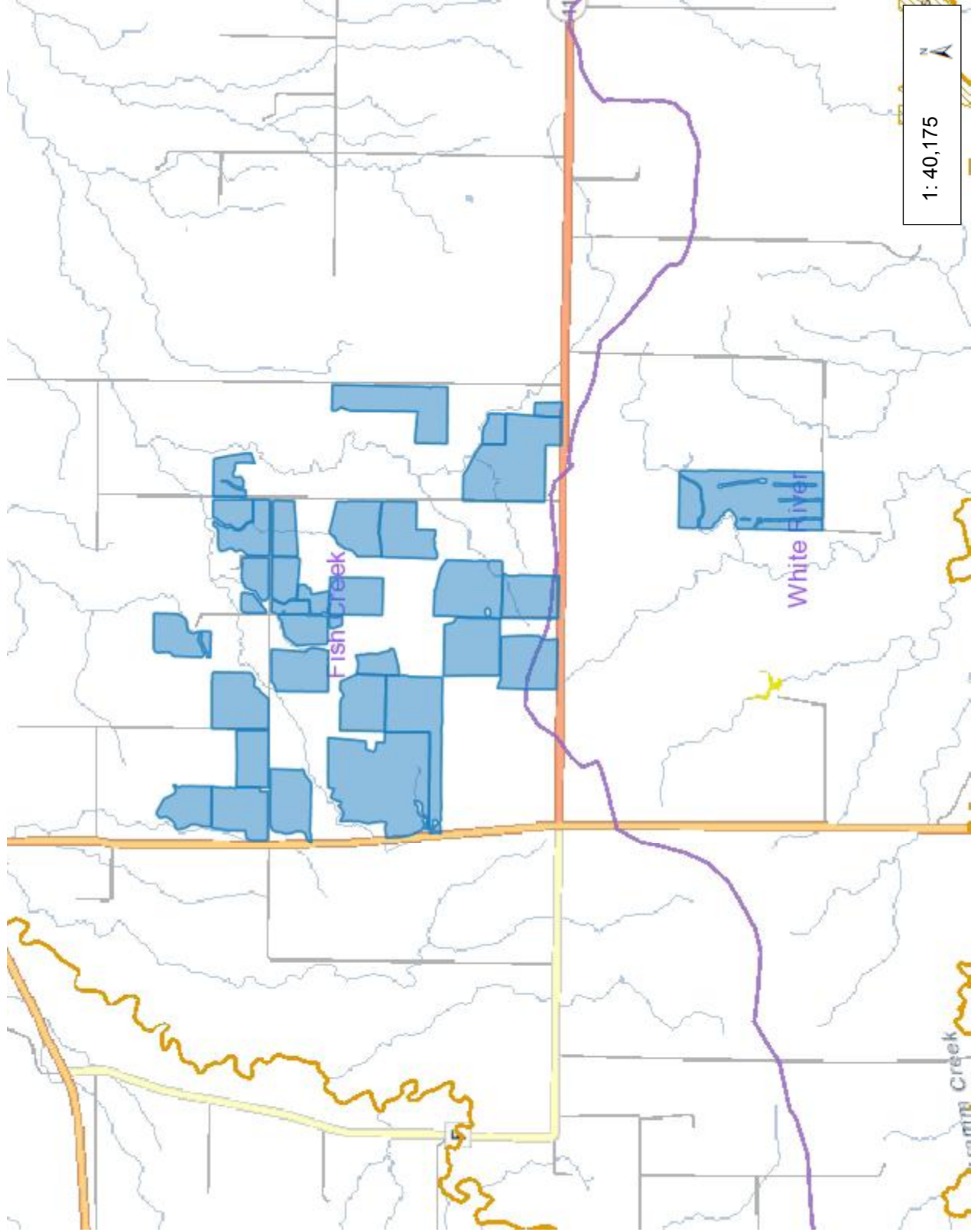
# Badgerwood, LLC Designated Waters



## Legend

- Impaired Rivers and Streams
- Impaired Lakes
- PRF Sensitive Areas of Lakes
- PRF Other Public Rights Feat
- ASNRI Wild and Scenic Rivers
- ASNRI Outstanding and Excep
- ASNRI Trout Streams
- ASNRI Wild Rice Streams
- ASNRI Quality Wetland Stream
- ASNRI Endangered Threatene
- Concern Streams
- ASNRI Outstanding and Excep
- ASNRI Quality Wetland Areas
- ASNRI Wild Rice Areas
- ASNRI Trout Spring Ponds
- ASNRI Endangered Threatene
- Concern Areas
- ASNRI State Natural Areas
- PNW Musky Streams
- PNW Sturgeon Streams
- PNW Musky Areas
- PNW Sturgeon Areas
- PNW Walleye Areas
- PNW Lakes Less Than 50 Acr
- Watersheds
- Rivers and Streams
- Open Water

## Notes



1: 40,175

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/org/legal/>

1.3 Miles

0.63

0

1.3

NAD\_1983\_HARN\_Wisconsin\_TM  
© Latitude Geographics Group Ltd.



## **Appendix 2F: Record Keeping Forms**



OPERATION NAME: \_\_\_\_\_

Record-keeping requirements may vary according to permit. See your permit for specific record-keeping requirements that apply to your operation.

**Notice:** Collection of this information is authorized under Ch. NR 243, Wis. Admin. Code and s. 283.55, Wis. Stats. Failure to submit the requested information may result in penalties pursuant to ss. 283.89 and 283.91, Wis. Stats. These records shall be maintained onsite for a period of at least 5 years from the date they are created. Failure to retain the requested information may result in penalties pursuant to ss. 283.89 and 283.91, Wis. Stats.

Application Date	Driver	Field ID	Acres Applied	Manure/Process Wastewater Source	Spreader Volume	# Loads	Soil Conditions* (saturated, non-sat., frozen, snow)	Weather** During Application (temp & precipitation)	Application (Inject, Incorp, or Surface)

\* If your permit requires reporting on soil conditions, see Ch. NR 243.03, Wis. Admin. Code for soil condition definitions (saturated, frozen, snow-covered). If snow-covered, indicate inches of snow present.

\*\* Your permit may require that you keep records of weather conditions 24 hours before and after application. This information should be recorded in a separate Weather Log.



## DNR CAFO Annual Spreading Report

<b>Crop Year</b>	<b>2016</b>
<b>Reported For</b>	<b>Badgerwood LLC</b>
<b>Printed</b>	<b>2015-01-28</b>
<b>Plan Completion/Update Date</b>	<b>2015-01-28</b>
<b>SnapPlus Version 14.1 built on 2014-12-20</b>	
<b>C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb</b>	

### Prepared for:

Badgerwood LLC  
attn:John Thomas  
27190 Cherryville Rd  
Ashland, 54806

### Prepared by: Frontier-Servco FS

PO Box 359  
Jefferson, 53549  
(920) 674-7000 X 157, (608) 574-1417,  
[nwagner@frontierservcofs.com](mailto:nwagner@frontierservcofs.com)

### Instructions:

Before running this report update SnapPlus from what was planned to happen during this cropping year, to what actually happened for all parameters (e.g., crop, tillage, nutrients applied). Add rows as needed and fill in the three columns (Date of Application, Acres Applied, Soil Condition) either manually or use Daily log. Attach other necessary reports and lab results to document compliance with:

Tolerable Soil Loss (Field Data and 590 Assessment)

Soil testing (Soil Test Report)

Manure testing (CAFO Nutrient Sources)

Test methods and other information for sampling manure and soil required under Ch. NR 243.19, Wis. Admin. Code shall be retained for 5 years. Record-keeping requirements may vary according to permit.

See your permit for specific record-keeping requirements that apply to your operation. If your permit requires reporting on soil conditions\*, see Ch. NR 243.03, Wis. Admin. Code for soil condition definitions (saturated, frozen, snow-covered). If snow-covered, indicate inches of snow present.

Field Name	Slp %	Prior Crop	2016 Crop	UW Crop Nutrient Recs		Total Nutrients Applied + Credits From Legumes, Manure Credits, Fertilizer				Manure/Process Wastewater Application							Manure Applied Nutrients	
				N lb/ac	P2O5 lb/ac	N lb/ac	P2O5 lb/ac	Exc.N lb/ac	Comments	Date of Applic	Acres Appld	Manure/Process Wastewater Source	Manure Analysis lb avail/ton or 1000 gal. (Ns/Ni-P-K)	Manure Appl. Rate tons-gals/ac	Spread Method	Soil Condition (sat, non-sat, frozen, snow)	N lb/ac	P2O5 lb/ac
T167-01	2	Oat-Pea Forage w/ Alfalfa Seeding Spring	Alfalfa	0	80	11	0	0										
T170-02	2	Corn grain	Corn grain	145	95	140	60	0				Planned Swine Manure 8/10-6-10	8/10-6-10	10,000	Injected		140	60
T175-01E	2	Corn grain	Corn grain	145	0	140	60	0				Planned Swine Manure 8/10-6-10	8/10-6-10	10,000	Injected		140	60



## **Appendix 2G: Animal Units Calculation Worksheet**



## SnapPlus Animal Units Calculator Report

Crop Year	2016
Reported For	Badgerwood LLC
Printed	2015-01-28
Plan Completion/Update Date	2015-01-28
C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb	

**Prepared for:**  
 Badgerwood LLC  
 attn:John Thomas  
 27190 Cherryville Rd  
 Ashland, 54806

**Prepared by:** Frontier-Servco FS  
 PO Box 359  
 Jefferson, 53549  
 (920) 674-7000 X 157,(608) 574-1417,  
[nwagner@frontierservcofs.com](mailto:nwagner@frontierservcofs.com)

Animal Type		I. Mixed Animal Units (current NR 243 equivalencies)			II. Non-Mixed Animal Units (federal equivalencies)		
		b. Equiv. factor	c. Number of Animals	d. Equivalent Animal Units	e. Equiv. factor	f. Number of Animals	g. Equivalent Animal Units
<b>Example- Broilers (non-liquid manure):</b>		0.005	150,000	750	0.008	150,000	1,200
					Fed. numbers in this column comply with 40 CFRs. 122.23		
Dairy Cattle	Dairy/Beef Calves (under 400 lbs)	0.2	0	0	0	0	0
	Milking and Dry Cows	1.4	0	0	1.43	0	0
	Heifers (800 to 1200 lbs)	1.1	0	0	1	0	0
	Heifers (400 to 800 lbs)	0.6	0	0	1	0	0
Beef	Steers or Cows (400 lbs to market)	1	0	0	1	0	0
	Bulls (each)	1.4	0	0	1	0	0
	Veal Calves (each)	0.5	0	0	1	0	0
Swine	Pigs (Up to 55 lbs)	0.1	14,625	1,463	0.1	14,625	1,463
	Pigs (55 lbs to market)	0.4	4,125	1,650	0.4	11,725	1,650
	Sows (each)	0.4	7,500	3,000	0.4	11,725	3,000
	Boars (each)	0.5	100	50	0.4	11,725	50
Chickens	Layers (each)-non-liquid system	0.01	0	0	0.0123	0	0
	Broilers/Pullets (each)-non-liquid system	0.005	0	0	0.008	0	0
	Layers or Broilers-liquid system	0.033	0	0	0.0333	0	0
Ducks	Ducks (each)-liquid system	0.2	0	0	0.2	0	0
	Ducks (each)-non-liquid system	0.01	0	0	0.0333	0	0
Other	Turkeys (each)	0.018	0	0	0.018	0	0
	Sheep (each)	0.1	0	0	0.1	0	0
	Horses (each)	2	0	0	2	0	0
	Goats (each)	0.1	0	0	0.1	0	0
Total	Animal Units		Mixed AU=	6,163		Non-Mixed AU=	4,690



### Section 3: Farm, Soils, 243 Restriction Maps

The following restrictions or high risk areas are identified on the 243 Restriction Maps:

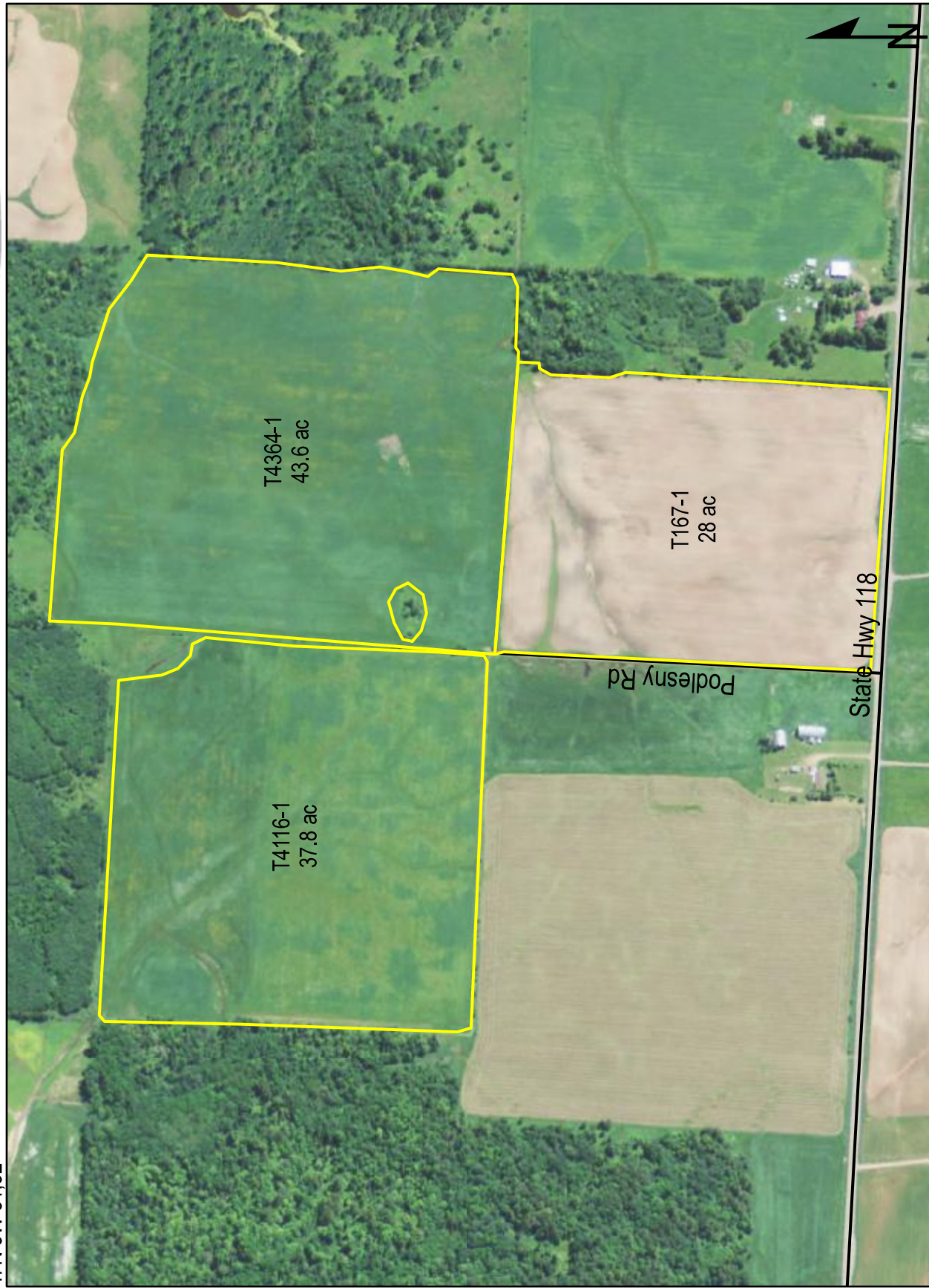
- A. 100 ft setback to private, non-community drinking water wells.
- B. 1,000 ft setback to community drinking water wells.
- C. Soils within 24 inches of apparent water table or bedrock at time of application. **(NA)**
- D. Fields over 200 ppm soil test phosphorus. **(NA)**
- E. 100 ft setback to direct conduits to groundwater.
- F. SWQMA areas and equivalent 100 ft prohibition: *25 ft setback to a navigable water, conduit to a navigable water or wetland; and inject or immediately incorporate manure and PW in all other areas within the SWQMA.*
- G. 25 ft setback to wetlands or the start of SWQMA if connected to navigable water.
- H. Fields adjacent to or with high potential to drain to impaired or outstanding/exceptional waters. **(NA)**
- I. Soils with: (1) high permeability; (2) within 20 inches to bedrock; or (3) within 12 inches to apparent water table. **(NA)**
- J. Fields with ephemeral erosion, reoccurring gullies or concentrated flow channels. **(NA)**
- K. Fields exceeding T over the crop rotation. **(NA)**
- L. Subsurface drainage systems. **(NA)**

243 Restriction Maps are as accurate as the tools available to define restrictions listed above. As better tools become available and as time allows for more field verification of features, maps will be updated accordingly.



Bayfield County  
Eileen  
47N 5W 31,32

**Badgerwood, LLC**  
T167, T4116, T4364

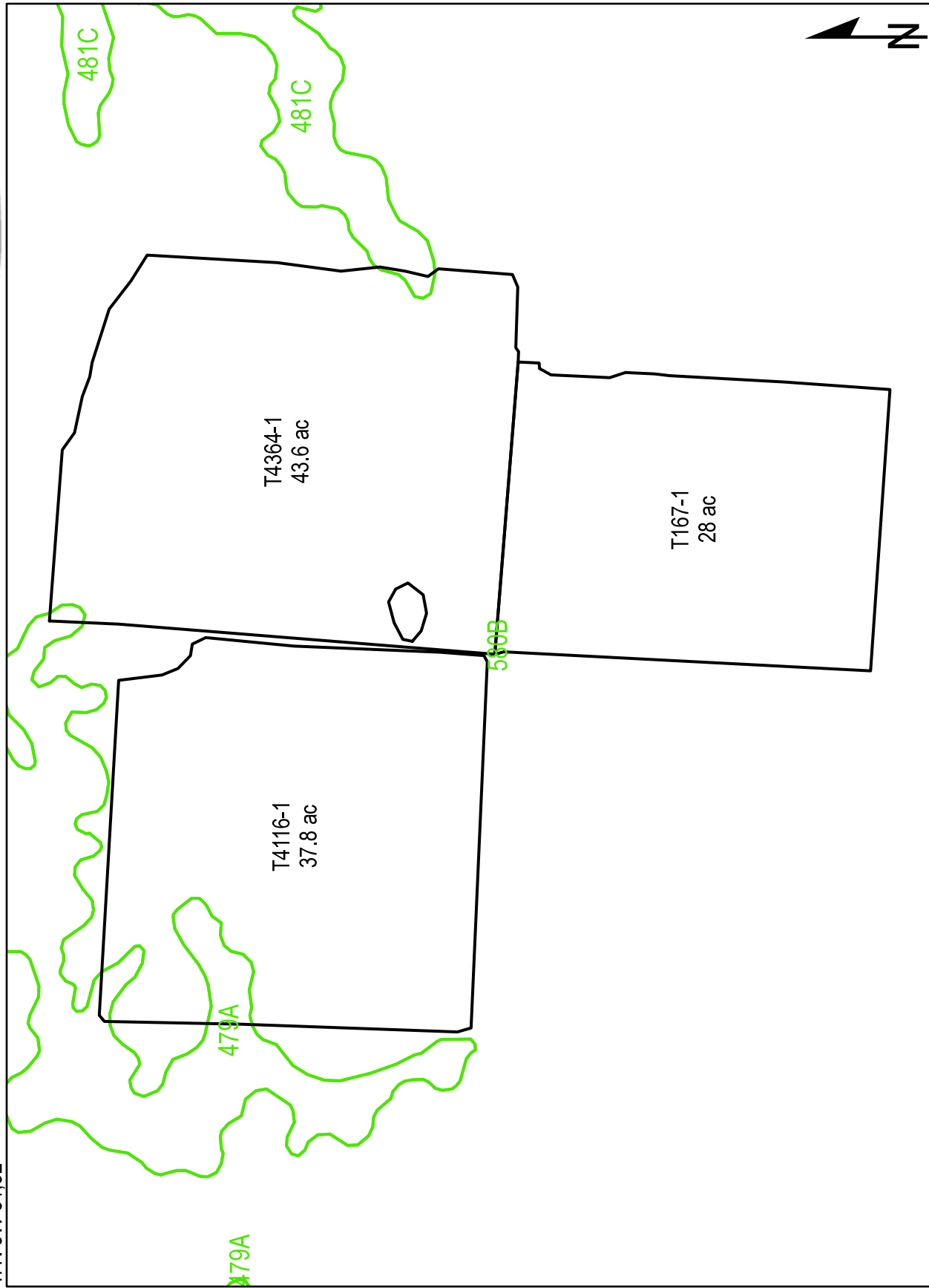


Date: 1/30/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 31,32

**Badgerwood, LLC**  
T167, T4116, T4364

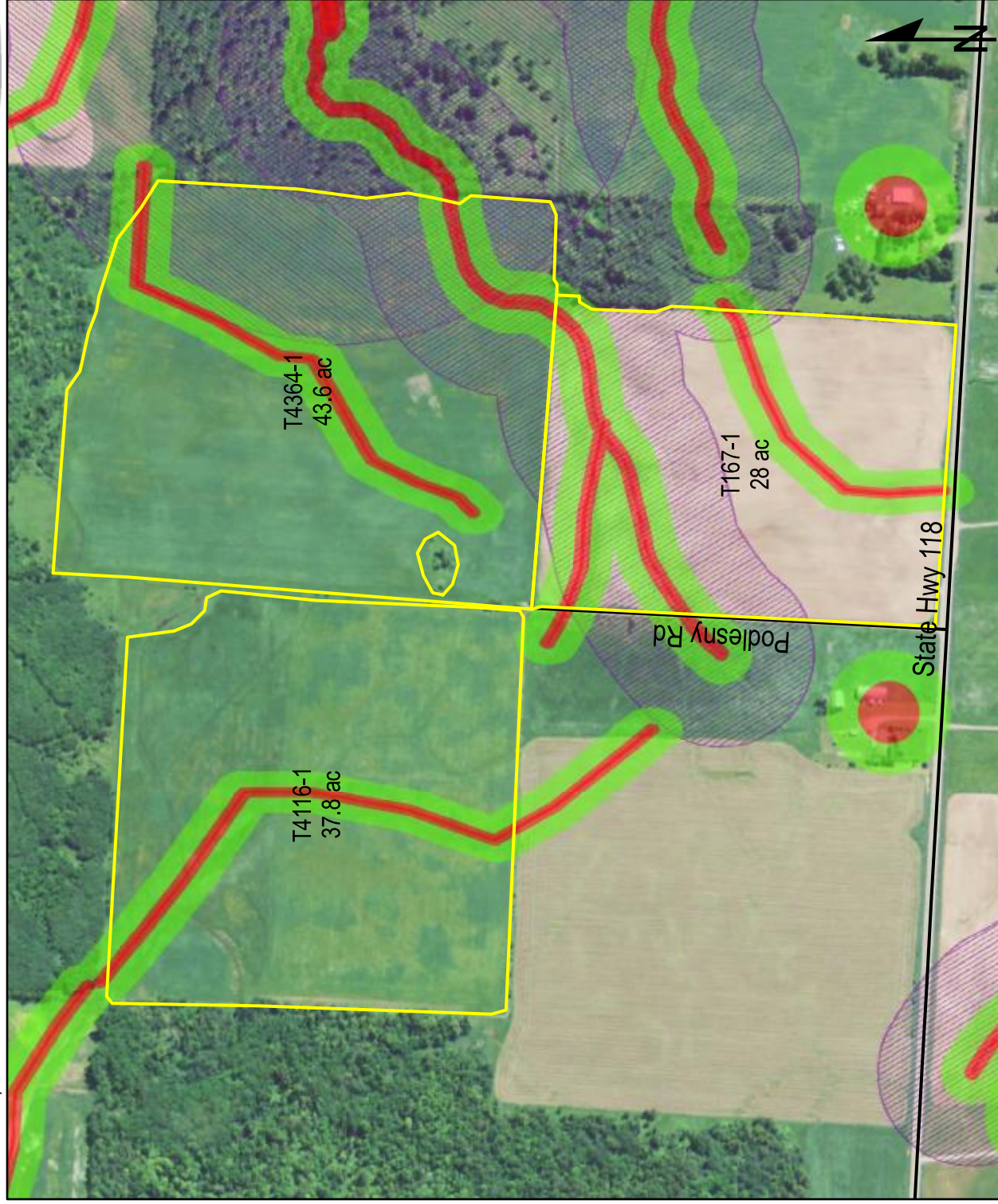


Date: 1/30/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 31,32

# Badgerwood, LLC T167, T4116, T4364



## 243 Restrictions

See NR 243.14 or Narrative

	Field Boundary
	Water
	Roads
	CAFO SWQMA*
	No Spreading
	Incorporate
	<24" to BR**
	<24" to GW**
	P Soils**

\*For all nutrient applications within the SWQMA one or more of the following practices must be used:

1. Install/maintain permanent vegetative buffers.
2. Maintain greater than 30% crop residue or vegetative cover on the soil surface after nutrient application.
3. Incorporate nutrients within 48 hours leaving adequate residue to meet T.
4. Establish cover crops promptly following application.

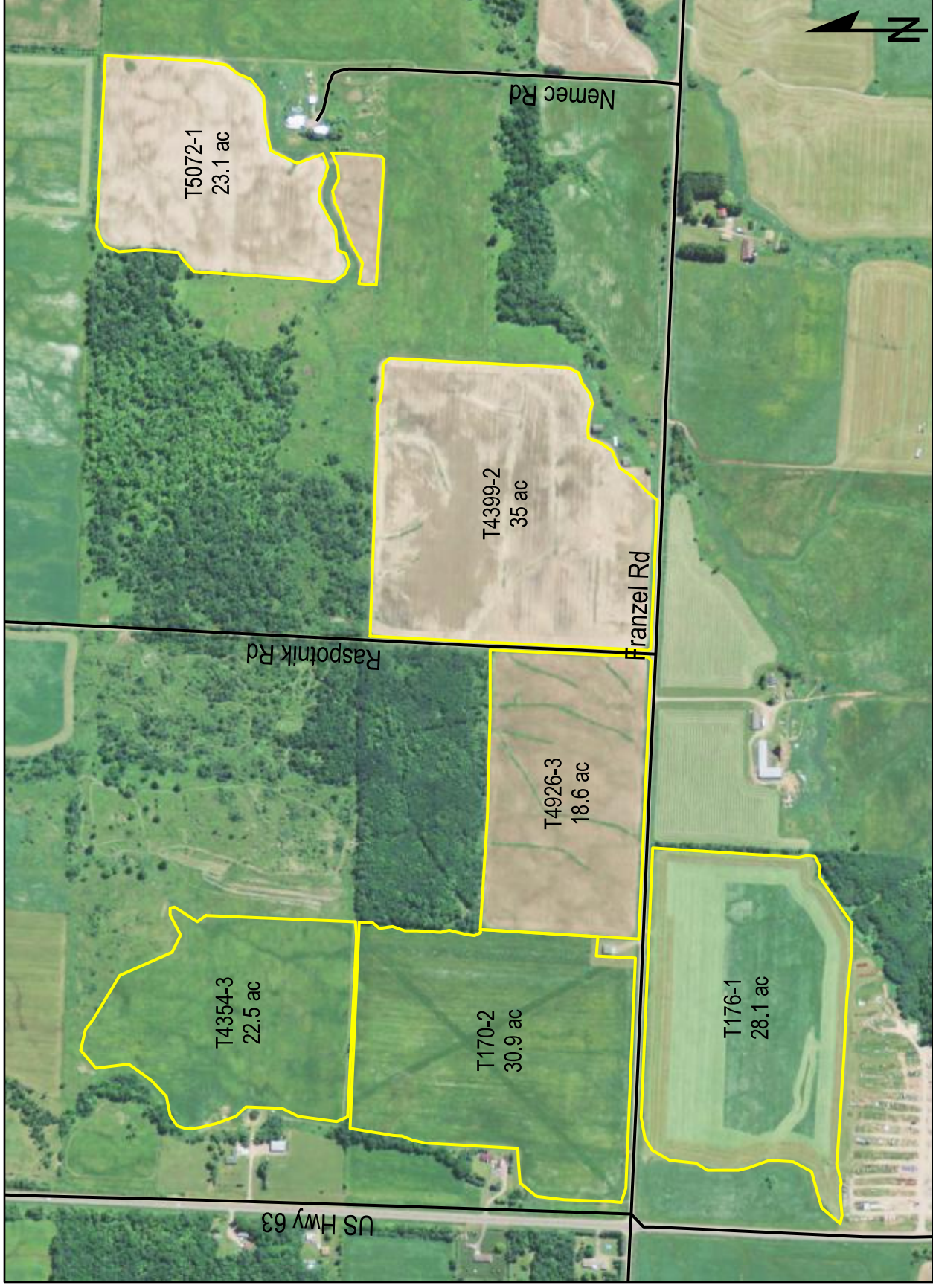
\*\*For fall manure applications N application shall not exceed 120 lbs N per acre or the crop N requirement whichever is less.

Date: 1/30/2015  
Author: NMW



**Badgerwood, LLC**  
T170, T176, T4354, T4399, T4926, T5072

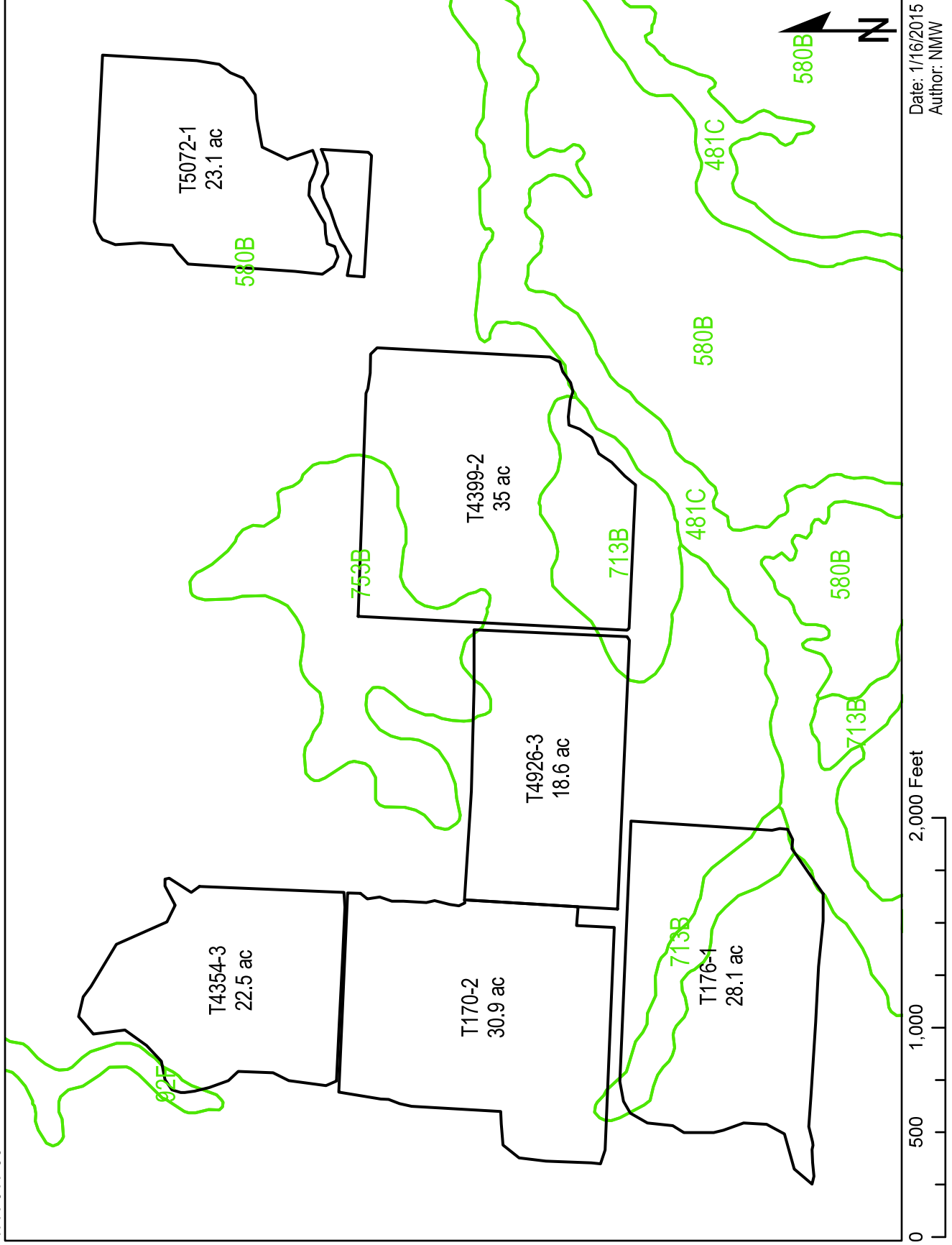
Bayfield County  
Eileen  
47N 5W 30





Bayfield County  
Eileen  
47N 5W 30

**Badgerwood, LLC**  
T170, T176, T4354, T4399, T4926, T5072

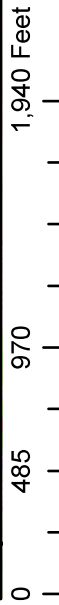
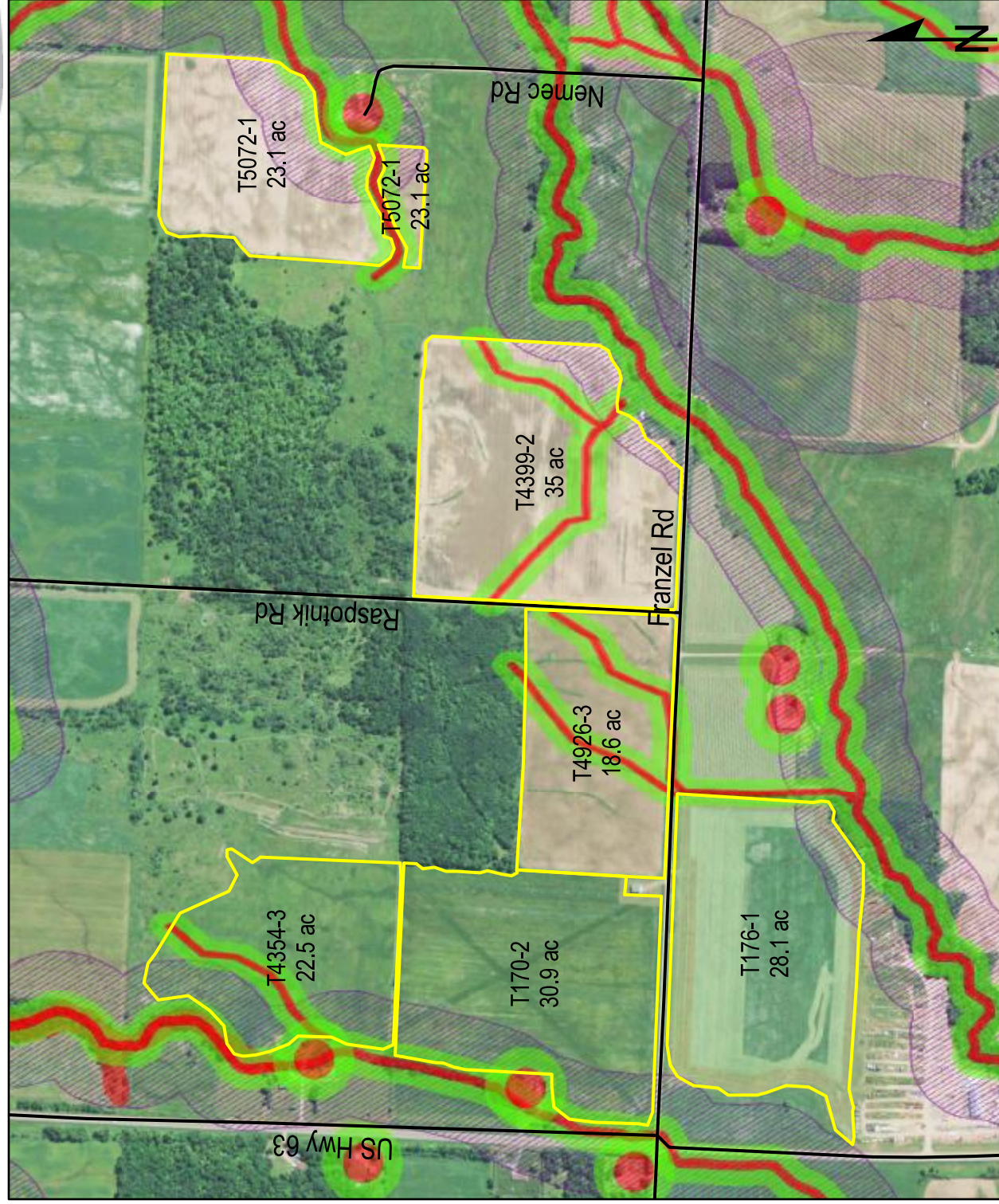


Date: 1/16/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 30

**Badgerwood, LLC**  
T1170, T1176, T4354, T4399, T4926, T5072



Date: 1/21/2015  
Author: NMW

### 243 Restrictions

See NR 243.14 or Narrative

	Field Boundary
	Water
	Roads
	CAFO SWQMA*
	No Spreading
	Incorporate
	<24" to BR**
	<24" to GW**
	P Soils**

\*For all nutrient applications within the SWQMA one or more of the following practices must be used:

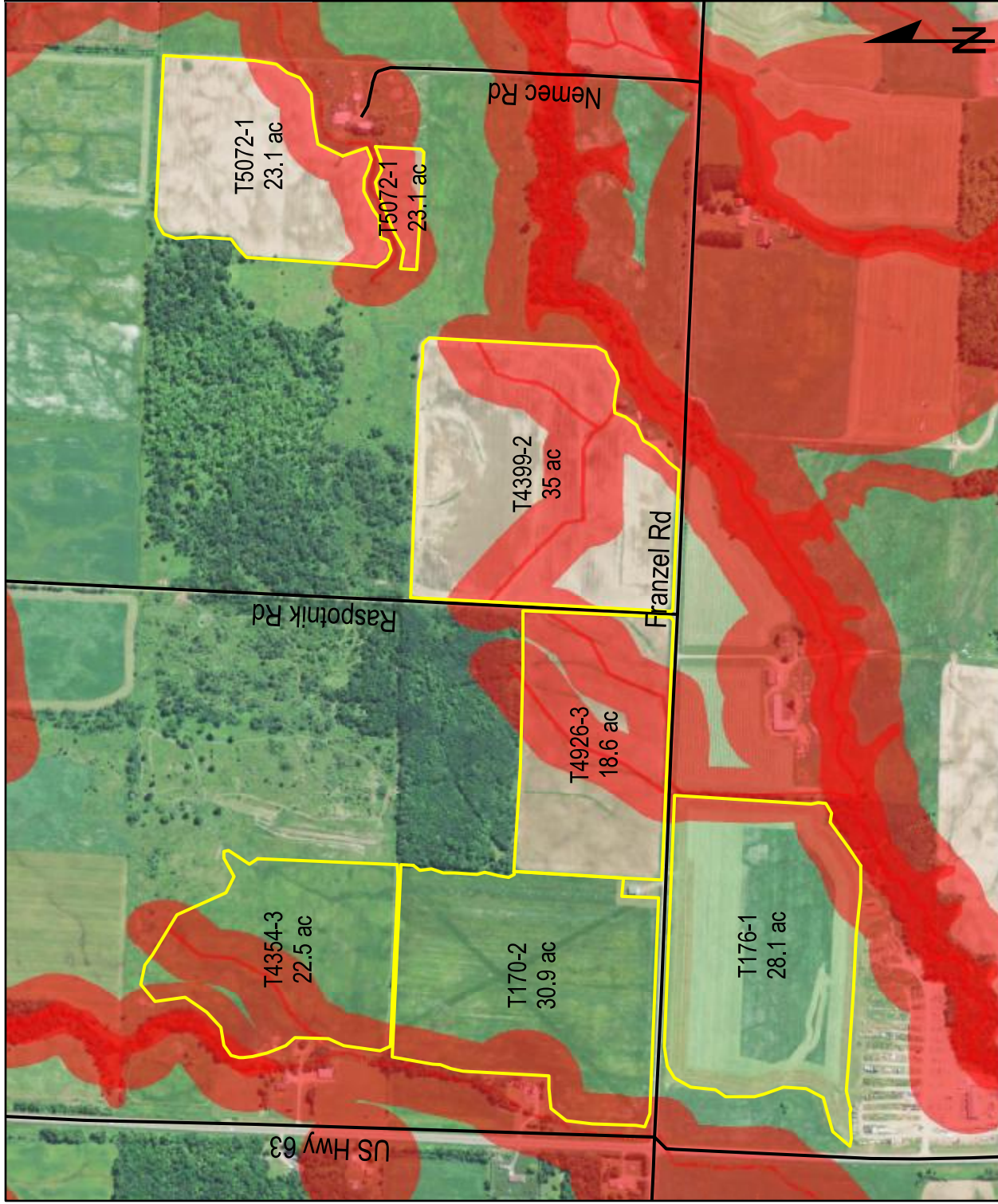
1. Install/maintain permanent vegetative buffers.
2. Maintain greater than 30% crop residue or vegetative cover on the soil surface after nutrient application.
3. Incorporate nutrients within 48 hours leaving adequate residue to meet T.
4. Establish cover crops promptly following application.

\*\*For fall manure applications N application shall not exceed 120 lbs N per acre or the crop N requirement whichever is less.



Bayfield County  
Eileen  
47N 5W 30

**Badgerwood, LLC**  
T170, T176, T4354, T4399, T4926, T5072



**243 Restrictions**

See NR 243.14 or Narrative  
See Table 5, Restrictions  
for >2-6 % slopes

	Field Boundary
	Water
	Roads
	No Spreading

1. Maximum application volume of 3,500 gal/ac per winter season, not to exceed 30 lbs. P205.
2. 200 ft. setback from channelized flow, vegetated buffers, and wetlands
3. 300 ft. setback from direct conduits to groundwater.

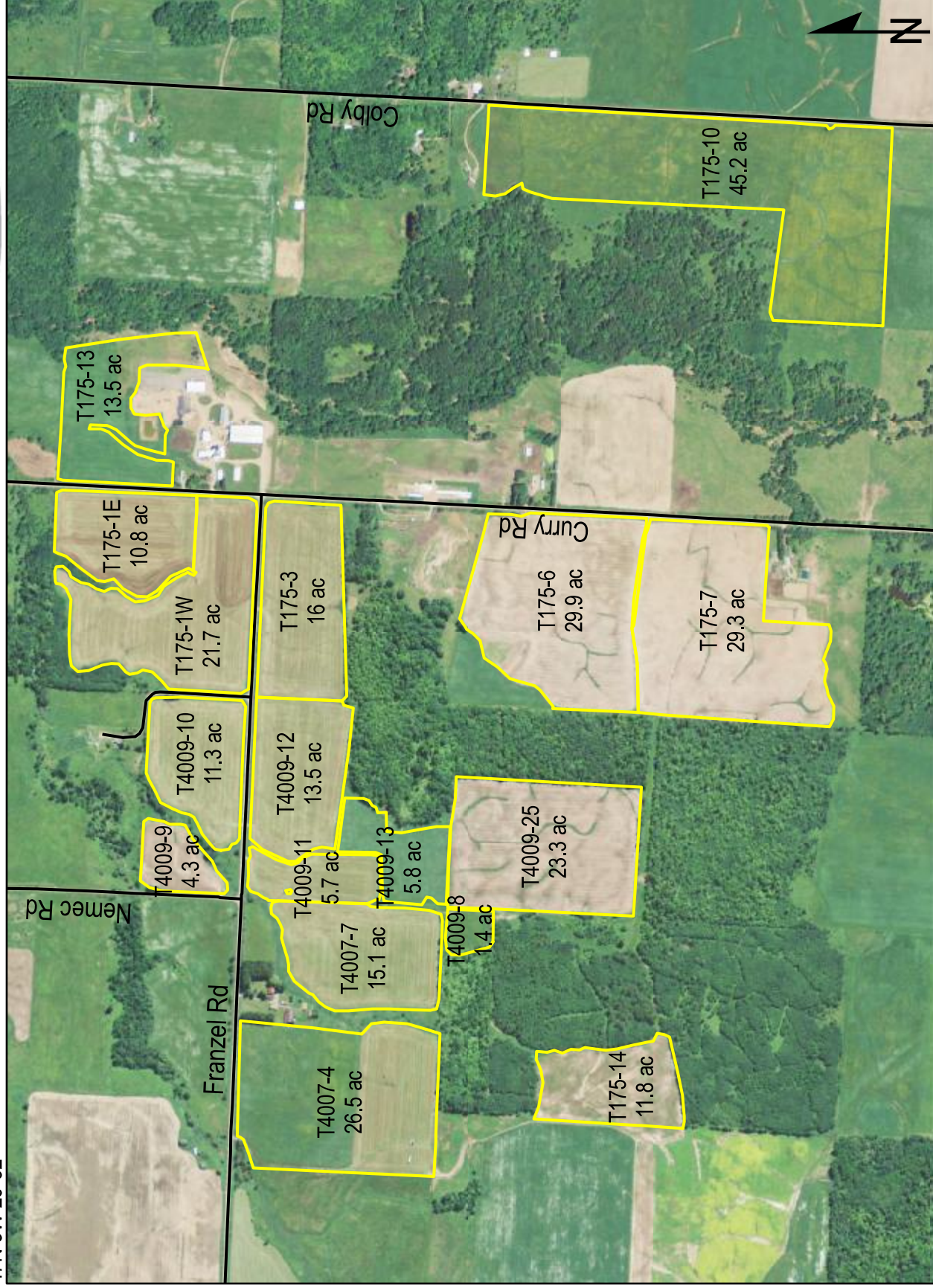


Date: 1/28/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 29-32

# Badgerwood, LLC T175, T4007, T4009

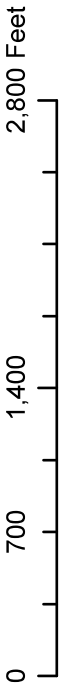
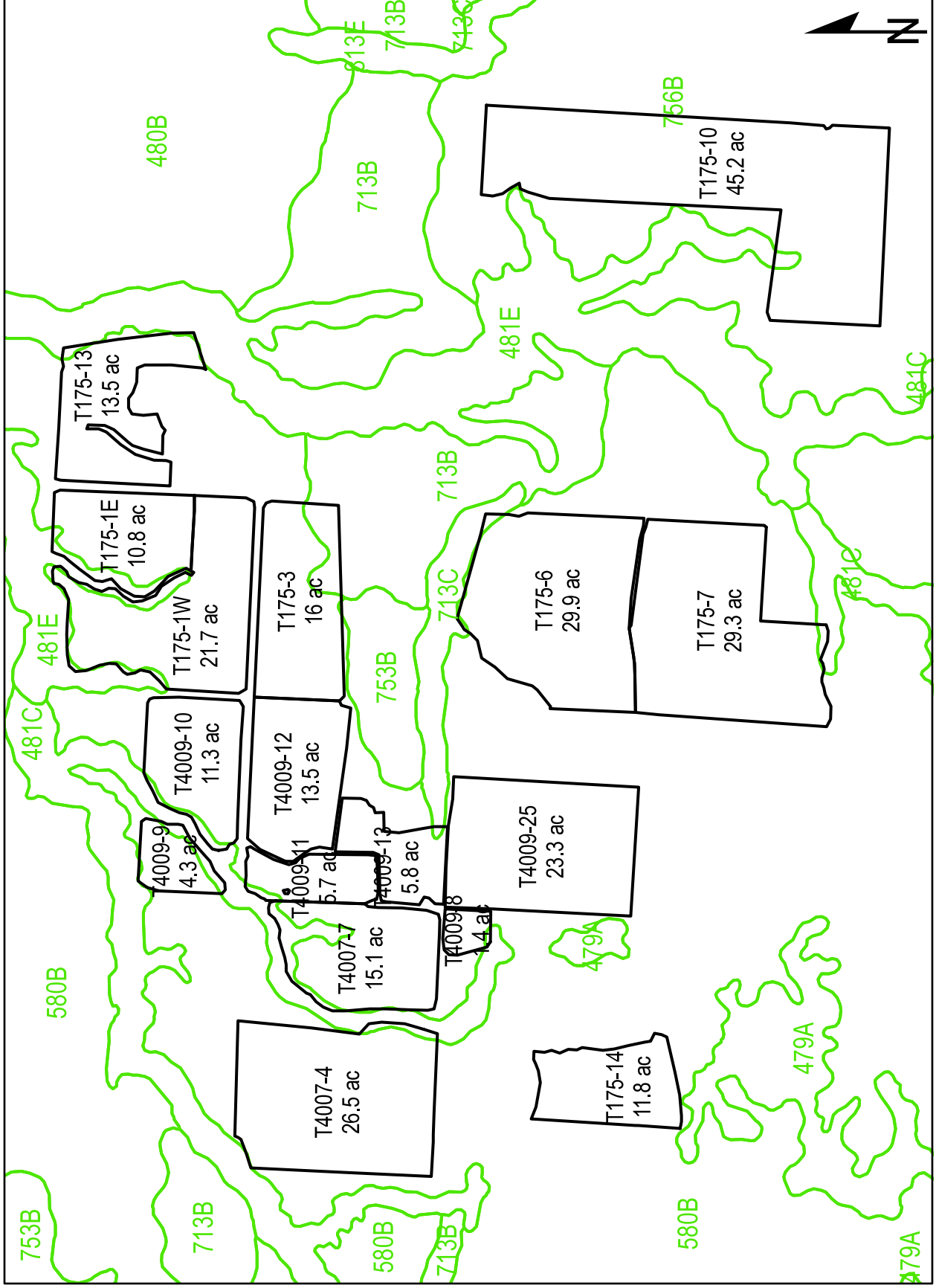


Date: 1/16/2015  
Author: NMW



**Badgerwood, LLC**  
**T175, T4007, T4009**

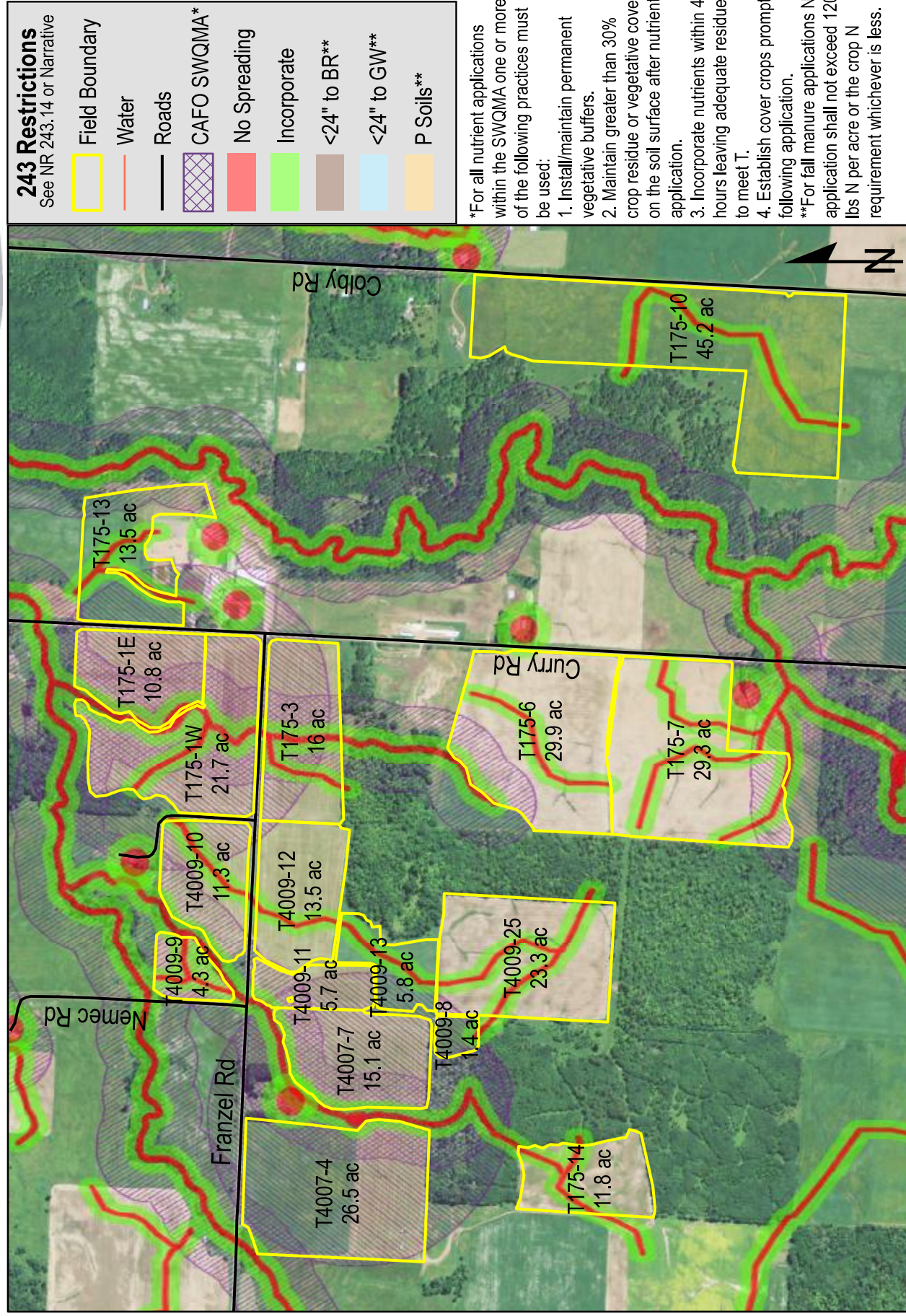
Bayfield County  
 Eileen  
 47N 5W 29-32





Bayfield County  
Eileen  
47N 5W 29-32

# Badgerwood, LLC T175, T4007, T4009

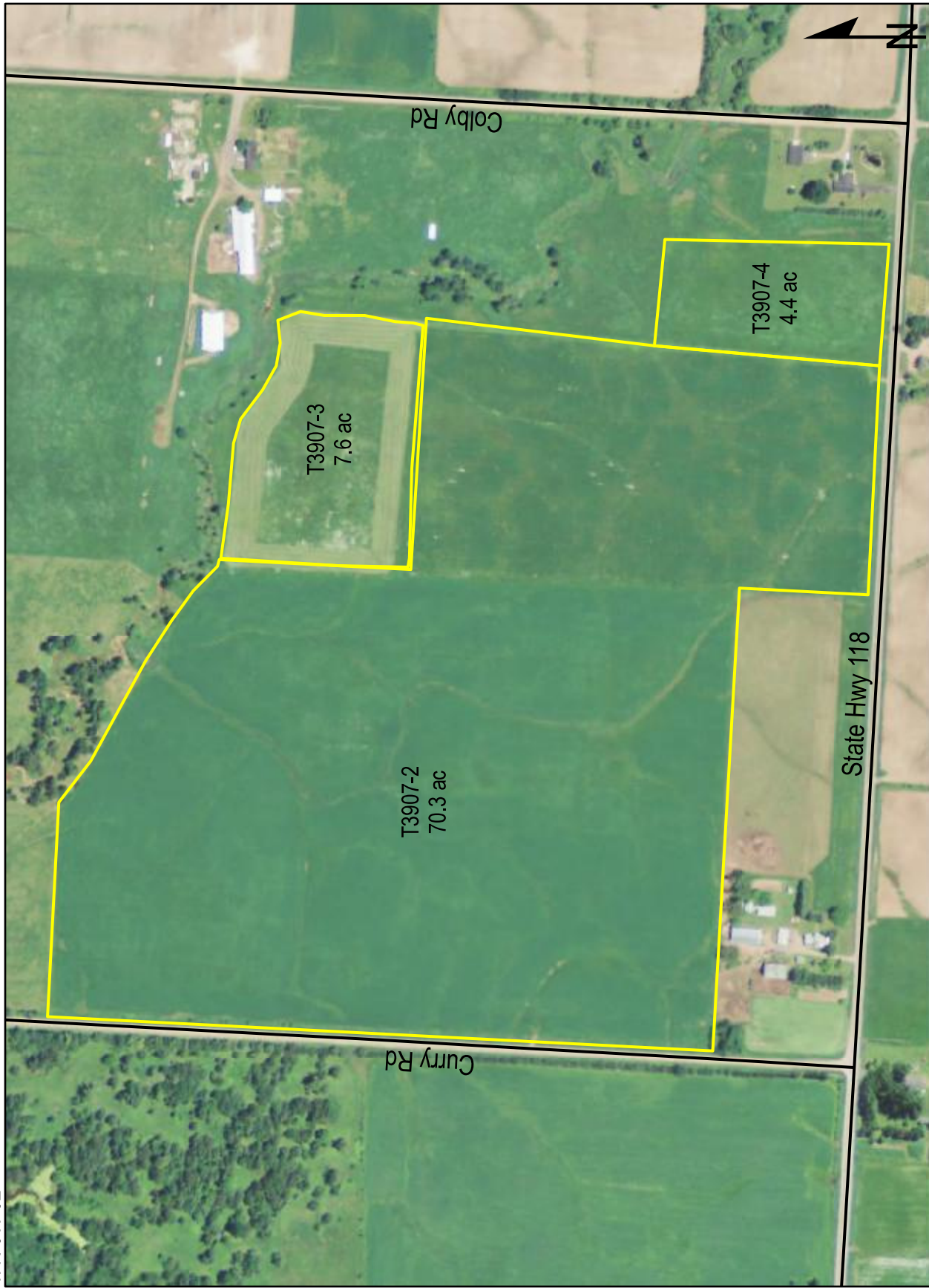


Date: 1/21/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 32

# Badgerwood, LLC T3907

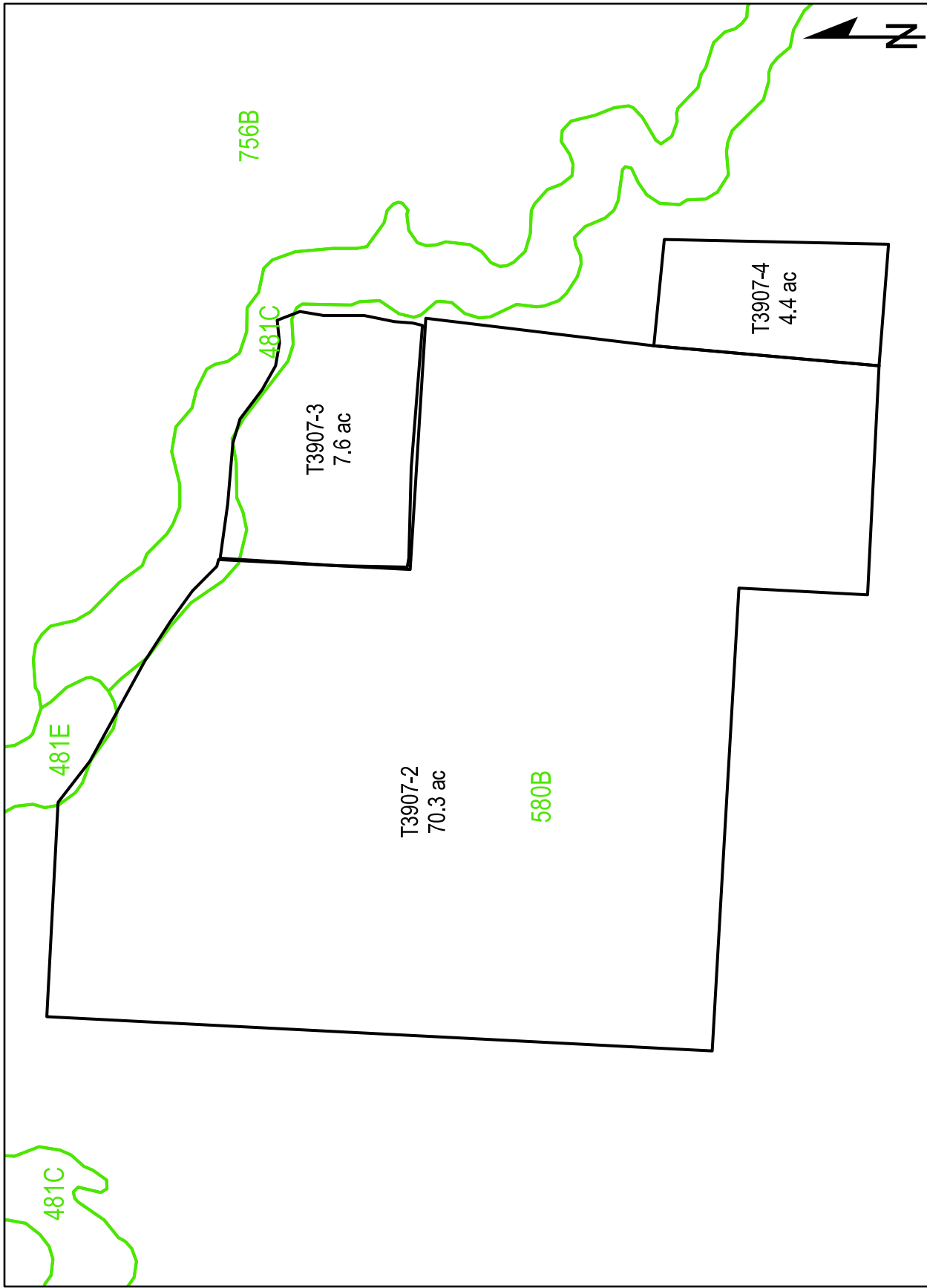


Date: 1/16/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 32

# Badgerwood, LLC T3907



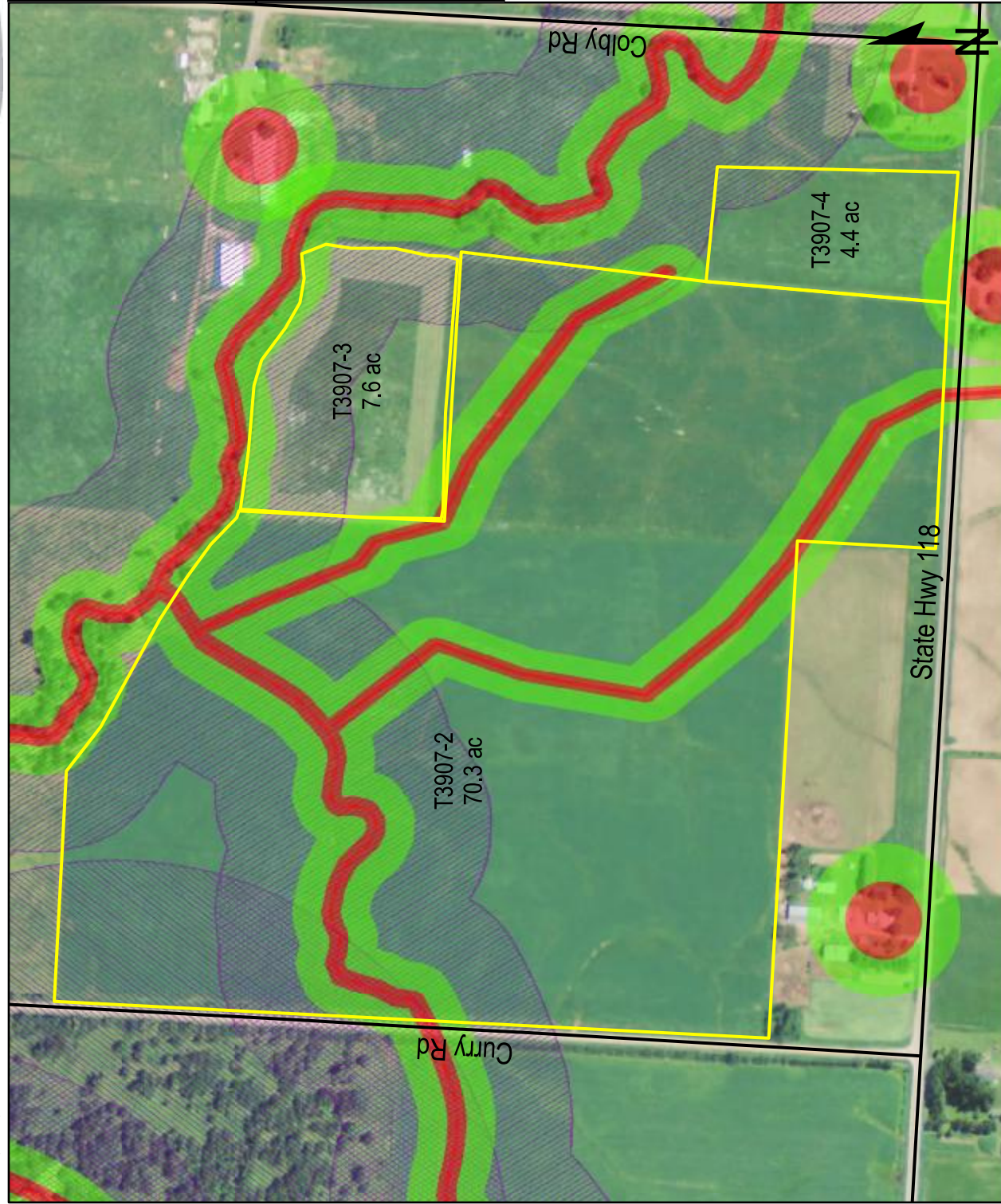
0 305 610 1,220 Feet

Date: 1/16/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 32

# Badgerwood, LLC T3907



**243 Restrictions**  
See NR 243.14 or Narrative

	Field Boundary
	Water
	Roads
	CAFO SWQMA*
	No Spreading
	Incorporate
	<24" to BR**
	<24" to GW**
	P Soils**

\*For all nutrient applications within the SWQMA one or more of the following practices must be used:

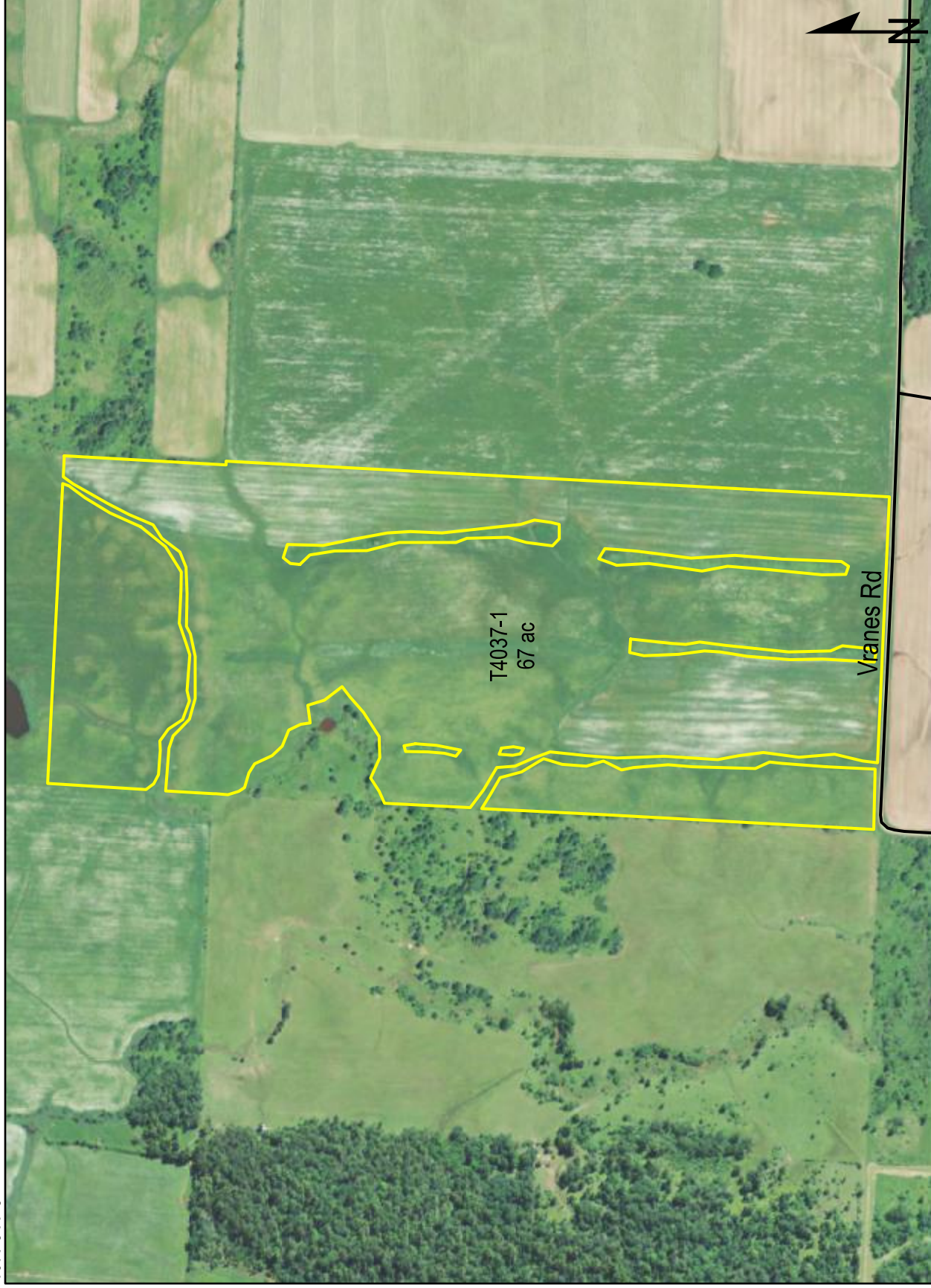
1. Install/maintain permanent vegetative buffers.
2. Maintain greater than 30% crop residue or vegetative cover on the soil surface after nutrient application.
3. Incorporate nutrients within 48 hours leaving adequate residue to meet T.
4. Establish cover crops promptly following application.

\*\*For fall manure applications N application shall not exceed 120 lbs N per acre or the crop N requirement whichever is less.



Bayfield County  
Kelly  
46N 5W 5

Badgerwood, LLC  
T4037

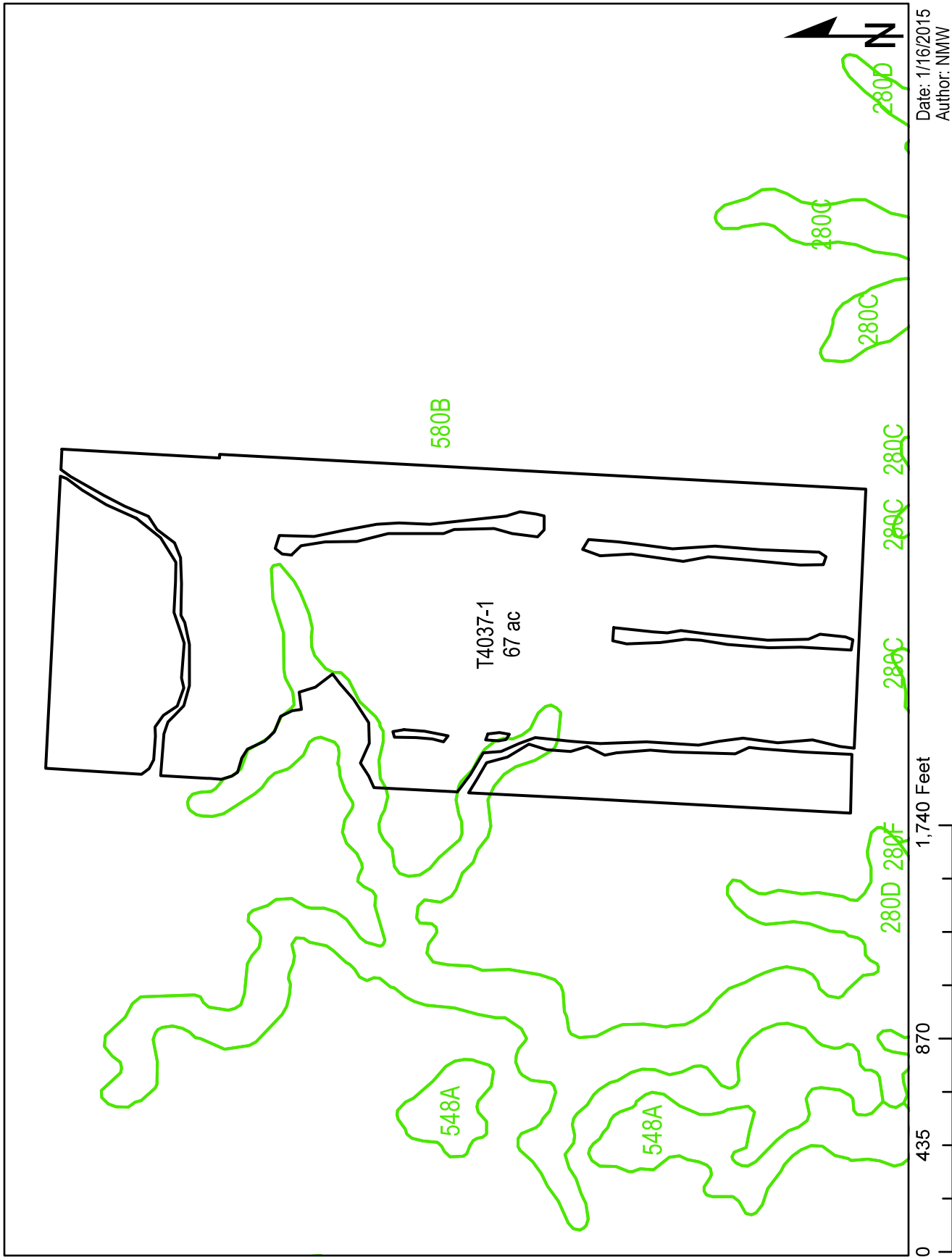


Date: 1/16/2015  
Author: NMW



Bayfield County  
Kelly  
46N 5W 5

# Badgerwood, LLC T4037

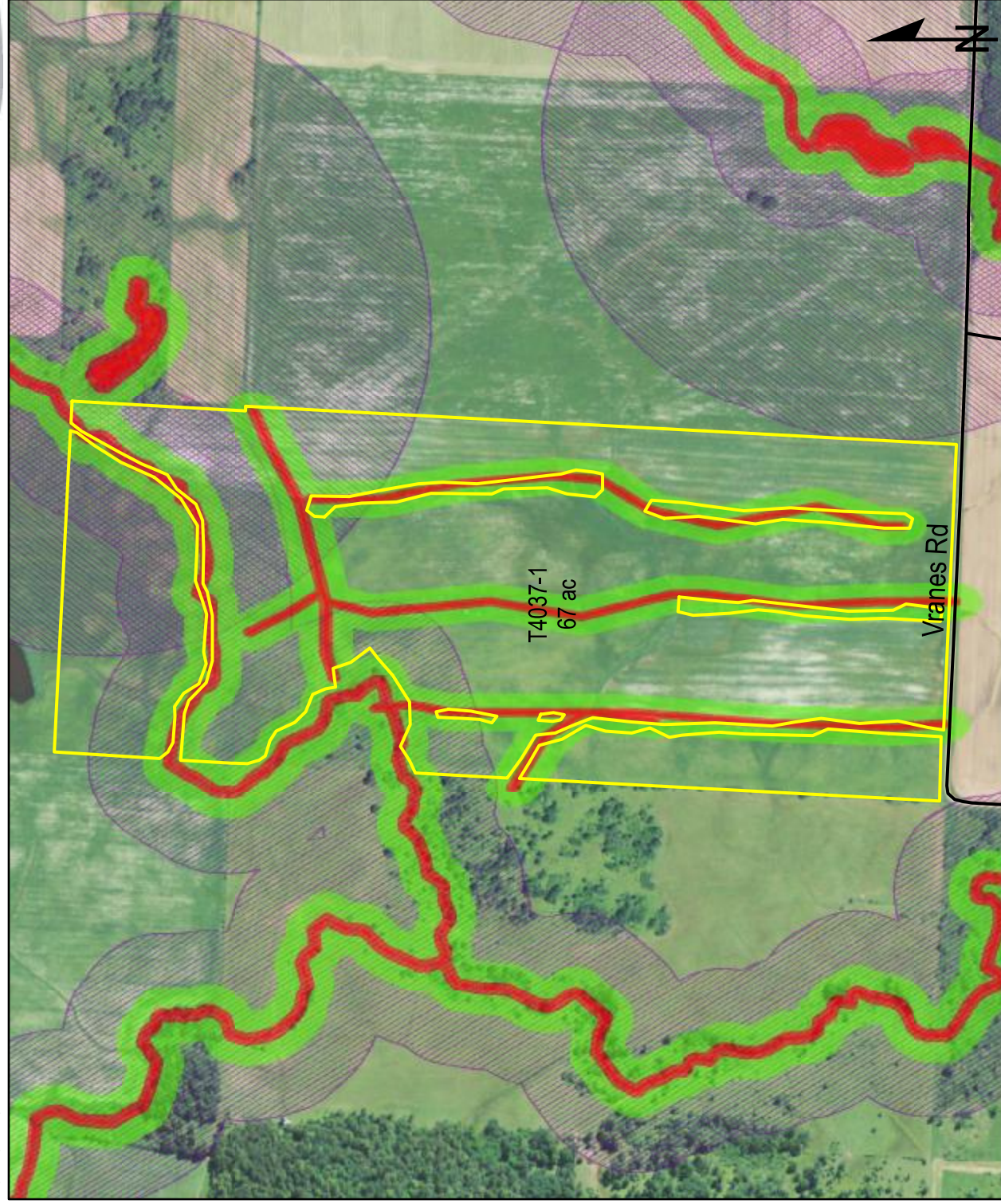


Date: 1/16/2015  
Author: NMW



Bayfield County  
Kelly  
46N 5W 5

# Badgerwood, LLC T4037



## 243 Restrictions

See NR 243.14 or Narrative

	Field Boundary
	Water
	Roads
	CAFO SWQMA*
	No Spreading
	Incorporate
	<24" to BR**
	<24" to GW**
	P Soils**

\*For all nutrient applications within the SWQMA one or more of the following practices must be used:

1. Install/maintain permanent vegetative buffers.
2. Maintain greater than 30% crop residue or vegetative cover on the soil surface after nutrient application.
3. Incorporate nutrients within 48 hours leaving adequate residue to meet T.
4. Establish cover crops promptly following application.

\*\*For fall manure applications N application shall not exceed 120 lbs N per acre or the crop N requirement whichever is less.

Date: 1/21/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 31

**Badgerwood, LLC**  
T4574, T4575, T4745

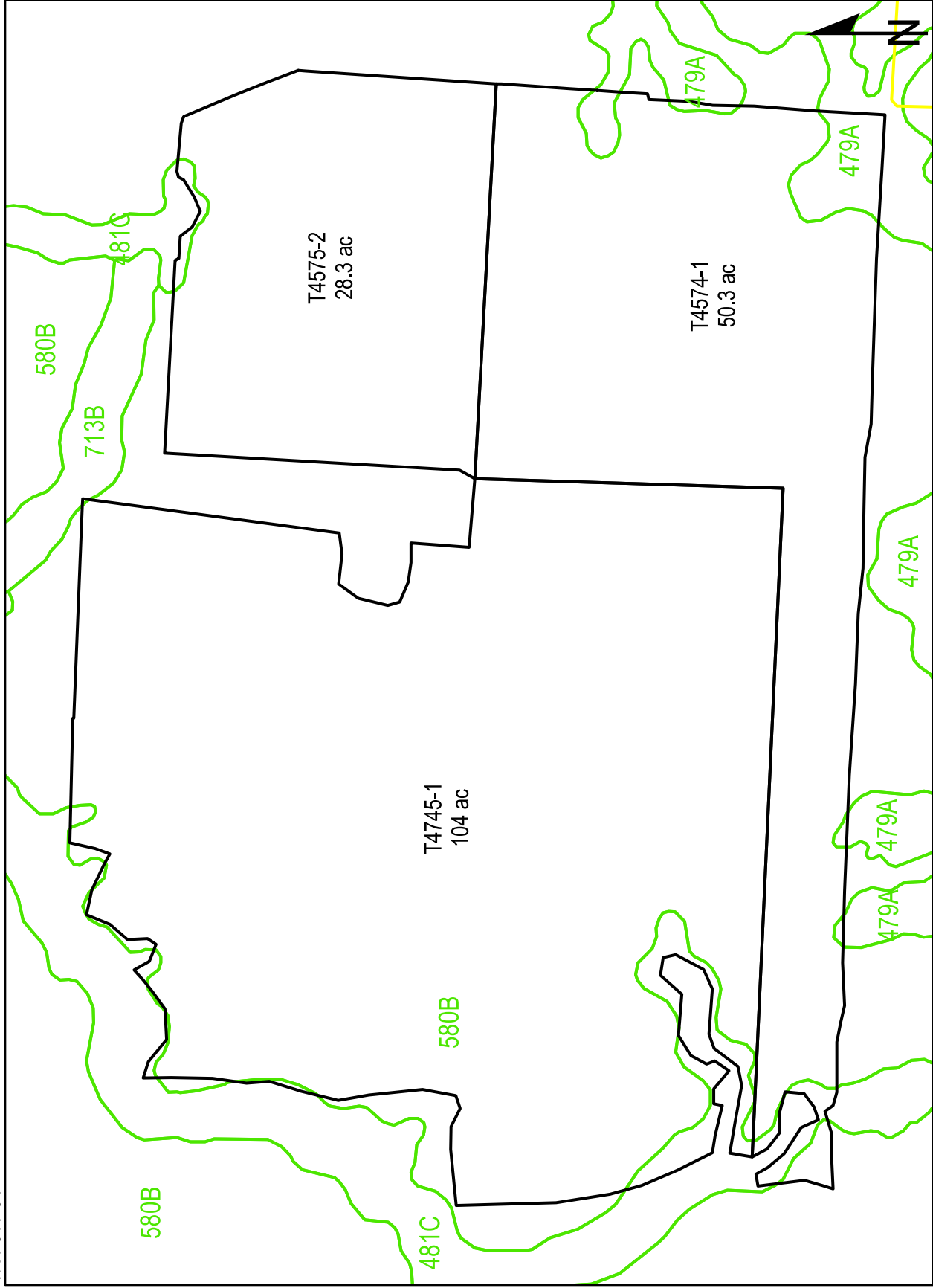


Date: 1/16/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 31

**Badgerwood, LLC**  
T4574, T4575, T4745

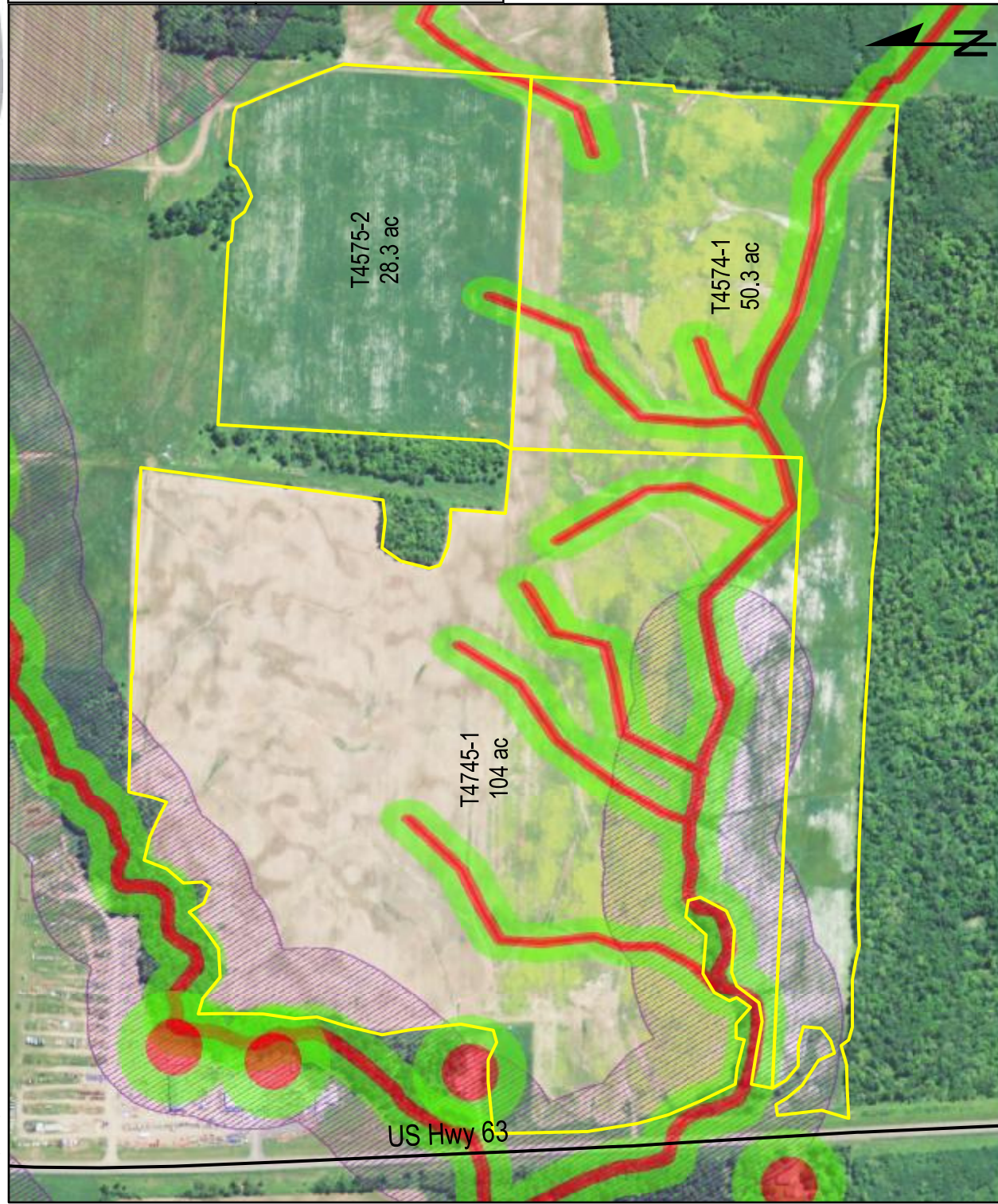


Date: 1/16/2015  
Author: NMW



Bayfield County  
Eileen  
47N 5W 31

# Badgerwood, LLC T4574, T4575, T4745



## 243 Restrictions

See NR 243.14 or Narrative

	Field Boundary
	Water
	Roads
	CAFO SWQMA*
	No Spreading
	Incorporate
	<24" to BR**
	<24" to GW**
	P Soils**

\*For all nutrient applications within the SWQMA one or more of the following practices must be used:

1. Install/maintain permanent vegetative buffers.
2. Maintain greater than 30% crop residue or vegetative cover on the soil surface after nutrient application.
3. Incorporate nutrients within 48 hours leaving adequate residue to meet T.
4. Establish cover crops promptly following application.

\*\*For fall manure applications N application shall not exceed 120 lbs N per acre or the crop N requirement whichever is less.

Date: 1/22/2015  
Author: NMW



## Section 4: Snap-Plus Reports

**Soil Test Report:** Provides a summary of all current soil samples included in the NMP. The oldest samples taken are from the fall/summer of 2014 and are not due for re-sampling until fall of 2018.

**Field Data and 590 Assessment Plan:** Provides information regarding compliance with NRCS 590. All rotations have been included in Snap-Plus, and for rotations less than 5 years have been amended to reflect the 5 year permit term. The report shows that P needs are balanced over the rotation on fields less than 100 ppm.

**Snap-Plus Nutrient Mass Balance Report:** Report shows that all **planned** nutrients are being accounted for on all fields over the entire permit term including: manure, PW, and commercial fertilizer applications.

**2016 Spreading and NM Sorted by Crop:** Report shows a snap-shot of the 2016 NMP, when there would be manure available to land spread.

**Snap-Plus Application Restriction Compliance Check:** Report shows rotational and application restriction problems.



## SnapPlus Soil Test Report

<b>Reported For</b>	<b>Badgerwood LLC</b>
<b>Printed</b>	<b>2015-01-28</b>
<b>Plan Completion/Update Date</b>	<b>2015-01-28</b>
<b>SnapPlus Version 14.1 built on 2014-12-20</b>	
<b>C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb</b>	

**Prepared for:**  
 Badgerwood LLC  
 attn:John Thomas  
 27190 Cherryville Rd  
 Ashland, 54806

**Prepared by:** Frontier-Servco FS  
 PO Box 359  
 Jefferson, 53549  
 (920) 674-7000 X 157,(608) 574-1417,  
[nwagner@frontierservcofs.com](mailto:nwagner@frontierservcofs.com)

### WPDES Permitted Farm

			Predominant					Samples				in ppm			
Field Name	Subfarm	Acres	Soil Map Symbol	Soil Name	Soil Test Date	Soil Test Lab	Lab Number	Rec. #	Actual #	pH	OM%	P	K	S	CEC
T167-01		28	580B	SANBORG	2014-12-15	AgSource	754208	6	6	6.8	4.3	14	90	0	0
T170-02		30.9	580B	SANBORG	2014-07-24	AgSource	746329	6	7	5.9	3.7	4	42	0	0
T175-01E		10.8	580B	SANBORG	2014-08-25	AgSource	746917	2	3	6.8	3.5	58	135	0	0
T175-01W		21.7	580B	SANBORG	2014-08-25	AgSource	746917	4	5	6.8	4.0	41	65	0	0
T175-03		16	580B	SANBORG	2014-12-15	AgSource	754208	3	4	7.0	2.5	27	36	0	0
T175-06		29.9	580B	SANBORG	2014-07-24	AgSource	746329	6	8	6.8	3.1	39	122	0	0
T175-07		29.3	580B	SANBORG	2014-07-24	AgSource	746329	6	8	6.5	3.0	13	64	0	0
T175-10		45.2	756B	SEDGWICK	2014-08-25	AgSource	746917	9	10	6.3	3.7	5	48	0	0
T175-13		13.5	580B	SANBORG	2014-12-15	AgSource	754208	3	3	6.6	3.0	12	78	0	0
T175-14		11.8	580B	SANBORG	2014-07-24	AgSource	746329	2	2	6.4	3.2	27	116	0	0
T176-01		28.1	580B	SANBORG	2014-07-24	AgSource	746329	6	7	6.3	3.6	12	51	0	0
T3907-02		70.3	580B	SANBORG	2014-08-25	AgSource	746917	14	17	6.6	4.1	8	87	0	0
T3907-03		7.6	580B	SANBORG	2014-08-25	AgSource	746917	2	2	6.6	4.1	5	76	0	0
T3907-04		4.4	580B	SANBORG	2014-08-25	AgSource	746917	1	1	6.8	4.2	4	82	0	0



			Predominant					Samples				in ppm			
Field Name	Subfarm	Acres	Soil Map Symbol	Soil Name	Soil Test Date	Soil Test Lab	Lab Number	Rec. #	Actual #	pH	OM%	P	K	S	CEC
T4007-04		26.5	580B	SANBORG	2014-07-24	AgSource	746329	5	6	6.4	4.0	10	35	0	0
T4007-07		15.1	580B	SANBORG	2014-07-24	AgSource	746329	3	3	6.3	2.5	19	37	0	0
T4009-08		1.4	580B	SANBORG	2014-07-24	AgSource	746329	1	1	6.3	5.0	35	79	0	0
T4009-09		4.3	580B	SANBORG	2014-12-15	AgSource	754208	1	1	7.0	2.6	38	75	0	0
T4009-10		11.3	580B	SANBORG	2014-08-25	AgSource	746917	2	3	6.8	4.5	50	59	0	0
T4009-11		5.7	580B	SANBORG	2014-12-15	AgSource	754208	1	2	7.1	2.1	34	30	0	0
T4009-12		13.5	580B	SANBORG	2014-12-15	AgSource	754208	3	3	7.1	3.2	65	63	0	0
T4009-13		5.8	580B	SANBORG	2014-07-24	AgSource	746329	1	2	6.5	4.3	16	109	0	0
T4009-25		23.3	580B	SANBORG	2014-12-15	AgSource	754208	5	6	6.6	2.8	18	81	0	0
T4037-01		67	580B	SANBORG	2014-12-15	AgSource	754208	13	14	5.9	4.2	5	106	0	0
T4116-02		37.8	580B	SANBORG	2014-12-15	AgSource	754208	8	9	6.8	4.1	5	82	0	0
T4354-03		22.45	580B	SANBORG	2014-12-15	AgSource	754208	4	4	6.0	2.6	6	49	0	0
T4364-01		43.6	580B	SANBORG	2014-12-15	AgSource	754208	9	9	6.6	4.6	7	73	0	0
T4399-02		35	580B	SANBORG	2014-12-15	AgSource	754208	7	8	7.2	3.2	23	95	0	0
T4574-01		50.3	580B	SANBORG	2014-12-15	AgSource	754208	10	11	6.7	3.6	16	87	0	0
T4575-02		28.3	580B	SANBORG	2014-07-24	AgSource	746329	6	6	6.1	2.6	9	58	0	0
T4745-01		104	580B	SANBORG	2014-12-15	AgSource	754208	21	21	7.5	3.9	18	94	0	0
T4926-03		18.6	580B	SANBORG	2014-12-15	AgSource	754208	4	4	7.0	5.4	22	107	0	0
T5072-01		23.1	580B	SANBORG	2014-12-15	AgSource	754208	5	5	6.5	2.3	11	71	0	0

## Year Soil Test Needed

Field Name	Soil Test Date	2014	2015	2016	2017	2018	2019	2020
T167-01	2014-12-15						X	
T170-02	2014-07-24						X	



Field Name	Soil Test Date	2014	2015	2016	2017	2018	2019	2020
T175-01E	2014-08-25						X	
T175-01W	2014-08-25						X	
T175-03	2014-12-15						X	
T175-06	2014-07-24						X	
T175-07	2014-07-24						X	
T175-10	2014-08-25						X	
T175-13	2014-12-15						X	
T175-14	2014-07-24						X	
T176-01	2014-07-24						X	
T3907-02	2014-08-25						X	
T3907-03	2014-08-25						X	
T3907-04	2014-08-25						X	
T4007-04	2014-07-24						X	
T4007-07	2014-07-24						X	
T4009-08	2014-07-24						X	
T4009-09	2014-12-15						X	
T4009-10	2014-08-25						X	
T4009-11	2014-12-15						X	
T4009-12	2014-12-15						X	
T4009-13	2014-07-24						X	
T4009-25	2014-12-15						X	
T4037-01	2014-12-15							
T4116-02	2014-12-15						X	
T4354-03	2014-12-15						X	
T4364-01	2014-12-15						X	
T4399-02	2014-12-15						X	



SnapPlus Soil Test Report

Field Name	Soil Test Date	2014	2015	2016	2017	2018	2019	2020
T4574-01	2014-12-15							
T4575-02	2014-07-24						X	
T4745-01	2014-12-15						X	
T4926-03	2014-12-15						X	
T5072-01	2014-12-15							



## SnapPlus Field Data and 590 Assessment Plan

<b>Reported For</b>	<b>Badgerwood LLC</b>
<b>Printed</b>	<b>2015-01-28</b>
<b>Plan Completion/Update Date</b>	<b>2015-01-28</b>
<b>SnapPlus Version 14.1 built on 2014-12-20</b>	
<b>C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb</b>	

### Prepared for:

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## WPDES Permitted Farm

**Field Data: 885 Total Acres Reported.**

Field Name	F. Grp	FSA Trct	FSA Fld	Ac.	County	Soil Series & Map Symbol (Critical)	F. Slip %	F.Slp Len ft	Below Field Slope To Water %	Dist.To Water ft	N/Fld Res	Contour/ Filters	Irrig	Tiled	Rotation	Tillage	Report Period	Field "T" t/ac	Rot Avg Soil Loss t/ac	SCI	Rot Avg PI	Soil Test P ppm	Rot P2O5 Bal lb/ac	P2O5 Bal Target lb/ac
T167-01				28	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000		No / No	No	No	A-A-A-Cg-Sg7-Cg-Sg7-OPfAs	None-None-None-FCD-FCD-FCD-FCD-FCD	2016-2023	5	0.8	0.5	1	14	-70	-
T170-02				30.9	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000		No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	4	28	-
T175-01E				10.8	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	58	28	0
T175-01W				21.7	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	41	28	-
T175-03				16	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	27	28	-
T175-06				29.9	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000		No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	39	28	-



Field Name	F. Grp	FSA Trct	FSA Fld	Ac.	County	Soil Series & Map Symbol (Critical)	F. Slp %	F.Slp Len ft	Below Field Slope To Water %	Dist.To Water ft	N/Fld Res	Contour/ Filters	Irrig	Tiled	Rotation	Tillage	Report Period	Field "T" t/ac	Rot Avg Soil Loss t/ac	SCI	Rot Avg PI	Soil Test P ppm	Rot P205 Bal lb/ac	P205 Bal Target lb/ac
T175-07				29.3	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	13	28	-
T175-10				45.2	Bayfield	SEDGWICK (756B)	3	200	0 - 2	1001 - 5000		No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	3	0.4	0.5	0	5	13	-
T175-13				13.5	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	12	28	-
T175-14				11.8	Bayfield	SANBOR G(580B)	2	250	0 - 2	1001 - 5000		No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	27	28	-
T176-01				28.1	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	12	28	-
T3907-02				70.3	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	8	28	-
T3907-03				7.6	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	5	28	-
T3907-04				4.4	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	4	28	-
T4007-04				26.5	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	10	28	-
T4007-07				15.1	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	19	28	-
T4009-08				1.4	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	35	28	-
T4009-09				4.3	Bayfield	CORNU COPIA (481C)	11	150	6.1 - 12	301 - 1000	S %	No / No	No	No	Cg-Cg-Cg-Cg-Cg	SFC-SFC-SFC-SFC-SFC	2015-2020	5	3.4	0.6	3	38	-27	-
T4009-10				11.3	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	50	28	-



Field Name	F. Grp	FSA Trct	FSA Fld	Ac.	County	Soil Series & Map Symbol (Critical)	F. Slp %	F.Slp Len ft	Below Field Slope To Water %	Dist.To Water ft	N/Fld Res	Contour/ Filters	Irrig	Tiled	Rotation	Tillage	Report Period	Field "T" t/ac	Rot Avg Soil Loss t/ac	SCI	Rot Avg PI	Soil Test P ppm	Rot P205 Bal lb/ac	P205 Bal Target lb/ac
T4009-11				5.7	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	34	28	-
T4009-12				13.5	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	65	28	0
T4009-13				5.8	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	16	28	-
T4009-25				23.3	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	18	28	-
T4037-01				67	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	Cg-Cg-Cg	FCD-FCD-FCD	2016-2018	5	0.7	0.8	1	5	15	-
T4116-02				37.8	Bayfield	SANBOR G(580B)	2	250	0 - 2	1001 - 5000		No / No	No	No	Sg7-Cg-Sg7-OPfAs-A-A-A-Cg	FCD-FCD-FCD-FCD-None-None-None-FCD	2016-2023	5	0.8	0.5	1	5	-16	-
T4354-03				22.4	Bayfield	SANBOR G(580B)	2	250	0 - 2	1001 - 5000		No / No	No	No	Sg7-Cg-Sg7-OPfAs-A-A-A-Cg	FCD-FCD-FCD-FCD-None-None-None-FCD	2016-2023	5	0.8	0.5	1	6	-16	-
T4364-01				43.6	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000	S	No / No	No	No	A-A-A-Cg-Sg7-Cg-Sg7-OPfAs	None-None-None-FCD-FCD-FCD-FCD	2016-2023	5	0.8	0.5	1	7	-70	-
T4399-02				35	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	23	28	-
T4574-01				50.3	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000		No / No	No	No	Cg-Cg-Cg	FCD-FCD-FCD	2016-2018	5	0.7	0.8	1	16	15	-
T4575-02				28.3	Bayfield	SANBOR G(580B)	2	250	0 - 2	1001 - 5000		No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	9	28	-
T4745-01				104	Bayfield	SANBOR G(580B)	2	250	0 - 2	0 - 300	S	No / No	No	No	A-A-A-Cg-Sg7-Cg-Sg7-OPfAs	None-None-None-FCD-FCD-FCD-FCD	2016-2023	5	0.8	0.5	1	18	-70	-



Field Name	F. Grp	FSA Trct	FSA Fld	Ac.	County	Soil Series & Map Symbol (Critical)	F. Slp %	F.Slp Len ft	Below Field Slope To Water %	Dist.To Water ft	N/Fld Res	Contour/ Filters	Irrig	Tiled	Rotation	Tillage	Report Period	Field "T" t/ac	Rot Avg Soil Loss t/ac	SCI	Rot Avg PI	Soil Test P ppm	Rot P205 Bal lb/ac	P205 Bal Target lb/ac
T4926-03				18.6	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000		No / No	No	No	Cg-Cg-Cg-Cg-Cg	FCD-FCD-FCD-FCD-FCD	2016-2020	5	0.7	0.8	1	22	28	-
T5072-01				23.1	Bayfield	SANBOR G(580B)	2	250	0 - 2	301 - 1000		No / No	No	No	Cg-Cg-Cg	FCD-FCD-FCD	2016-2018	5	0.7	0.8	0	11	15	-

Field	Notes
T167-01	Field in CAFO SWQMA.
T170-02	Field in CAFO SWQMA.
T175-01E	Field in SWQMA.
T175-01W	Field in SWQMA.
T175-03	Field in SWQMA.
T175-06	Field in CAFO SWQMA.
T175-07	Field in SWQMA.
T175-13	Field in SWQMA.
T176-01	Field in SWQMA.
T3907-02	Field in SWQMA.
T3907-03	Field in SWQMA.
T3907-04	Field in SWQMA.
T4007-04	Field in SWQMA.
T4007-07	Field in SWQMA.
T4009-08	Field in SWQMA.
T4009-09	Field in SWQMA.
T4009-10	Field in SWQMA.
T4009-11	Field in SWQMA.



T4009-12	Field in SWQMA.
T4009-13	Field in SWQMA.
T4009-25	Field in SWQMA.
T4037-01	Field in SWQMA.
T4354-03	Field in CAFO SWQMA.
T4364-01	Field in SWQMA.
T4399-02	Field in SWQMA.
T4574-01	Field in CAFO SWQMA.
T4745-01	Field in SWQMA.
T5072-01	Field in CAFO SWQMA.

**Crop Abbreviations**

Abbreviation	Crop
A	Alfalfa
Cg	Corn grain
OPfAs	Oat-Pea Forage w/ Alfalfa Seeding Spring
Sg7	Soybeans 7-10 inch row

**Tillage Abbreviations**

Abbreviation	Tillage
FCD	Fall Chisel, disked
None	None
SFC	Spring Cultivation

**Restriction Legend**

Code	Description of Code
P	High permeability N restricted soils
R	N restricted soils with less than 20 inches to bedrock
W	N restricted soils with less than 12 inches to apparent water table
+	This map unit may have any of the N restrictive features, however an on-site investigation is needed to identify which restrictions may actually be present.
S	Field is in SWQMA
D	Drinking water well within 50 feet of field.
C	Conduit to groundwater within 200 feet upslope of field.
L	Local restrictions on nutrient applications.
%	Slope restriction for winter applications



## SnapPlus Nutrient Mass Balance Report

Starting Year	2016
Reported For	Badgerwood LLC
Printed	2015-01-28
Plan Completion/Update Date:	2015-01-28
SnapPlus Version 14.1 built on 2014-12-20	
C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb	

**Prepared for:**  
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Acres/ Crop Year	2016	2017	2018	2019	2020
Acres in plan	884.6	884.6	884.6	744.2	744.2
Acres receiving manure	709.0	709.0	709.0	744.2	744.2

### Nutrient Source Summary for 2016

		First Year Available Nutrients in lb/ton or lb/1000 gallons							Volumes are in tons or gallons						
SourceName	Type	N	N Inc.	N Inj	P	K	S	DM %	Volume	Amount Applied	Amount Remaining	Fall	Winter	Spring	Summer
Planned Swine Manure	Swine, liquid, farrow-nursery, indoor pit	8.0	10.0	14.0	6.0	10.0	0.6	2	6,800,000	6,938,875	-138,875	6,938,875	0	0	0
<b>Total Solid:</b>									0	0	0				
<b>Total Liquid:</b>									6,800,000	6,938,875	-138,875				



### Annual Pounds of Available N, P2O5 and K2O Applied from Manure and Fertilizer

		2016	2017	2018	2019	2020
Produced from Manure (lb)	N inj	95,200	95,200	95,200	95,200	95,200
	P2O5	40,800	40,800	40,800	40,800	40,800
	K2O	68,000	68,000	68,000	68,000	68,000
Total Available Manure Nutrients Applied (lb)	N	97,144	98,937	96,828	96,501	93,140
	P2O5	41,633	42,401	41,498	41,358	41,156
	K2O	69,389	70,669	69,163	68,930	68,594
Total Fertilizer Nutrients Applied (lb)	N	1,932	2,293	1,932	1,054	663
	P2O5	0	1,205	0	3,512	0
	K2O	21,423	21,423	21,423	0	7,351
Total Crop Removal (lb)	P2O5	46,266	47,772	46,266	39,422	36,237
	K2O	71,406	70,502	71,406	34,586	44,450
Nutrient Balance (Applied - Crop removal, lb)	P2O5	-4,633	-4,166	-4,768	5,448	4,919
	K2O	19,406	21,590	19,180	34,344	31,495

### Annual Manure Production and Use by Source

Total Value = \$ Value of all nutrients, incorporated including S.

Source		2016	2017	2018	2019	2020
Planned Swine Manure	Production (Gallons)	6,800,000	6,800,000	6,800,000	6,800,000	6,800,000
	Used (Gallons)	6,938,875	7,066,900	6,916,275	6,892,950	6,859,400
	Analysis Date	-	-	-	-	-
	Analysis (N/Ninc/Ninj-P2O5-K2O)	8/10/14-6-10	8/10/14-6-10	8/10/14-6-10	8/10/14-6-10	8/10/14-6-10
	Dry Matter (%)	2	2	2	2	2
	Total Value	0.00	0.00	0.00	0.00	0.00

### Estimated Livestock Manure Production for 2016

Animal Type	# of animals	Total No. of days	% Collected as Solid	% Collected as Liquid	Yearly Tons	Yearly Gallons
Swine Sow 275 lbs	7,500	365	0	100	0	2,737,500
Swine Grow-Finish Pig 150 lbs	5,250	365	0	100	0	2,299,500
Swine Nursery Pig 25 lbs	13,500	365	0	100	0	1,478,250
Swine Boar 350 lbs	100	365	0	100	0	36,500
				<b>Farm Totals</b>	0	6,551,750



**Manure Storage Pits for 2016**

No Rows Found

**Spreaders for 2016**

No Rows Found



## SnapPlus Spreading and Nutrient Management Sorted By Crop Report

<b>Crop Year</b>	<b>2016</b>
<b>Reported For</b>	<b>Badgerwood LLC</b>
<b>Printed</b>	<b>2015-01-28</b>
<b>Plan Completion/Update Date</b>	<b>2015-01-28</b>
<b>SnapPlus Version 14.1 built on 2014-12-20</b>	
<b>C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb</b>	

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[nwagner@frontierservcofs.com](mailto:nwagner@frontierservcofs.com)

Alfalfa Fields				Crop Removal						Soil Test ppm		Adjusted Recs lb/ac		Planned Applications and Credits lb/ac			Over(+) Under(-) Adj. UW Recs lb/ac			Applications				
Name	Ac.	Slp %	Soil Series, Map Syml & N Res	Prior Crop	2016 Crop	Yield Goal	P205	K20	Tillage	Avg P	Avg K	N	P205	K20	N	P205	K20	N	P205	K20	Product Name and Analysis	ApplN Rate and Method	N-P205-K20 credit	Total Amt
T167-01	28	2	580B	Oat-Pea Forage w/ Alfalfa Seeding Spring	Alfalfa	3.6-4.5	50	240	None	14	90	0	80	280	11	0	122	11	-80	-158	Ammonium sulfate (AMS) 21-0-0	50 lb Summer Unincorp	11-0-0	1400 lb
																					Potassium chloride 0-0-61	200 lb Summer Unincorp	0-0-122	5600 lb
T4364-01	43.6	2	580B	Oat-Pea Forage w/ Alfalfa Seeding Spring	Alfalfa	3.6-4.5	50	240	None	7	73	0	90	295	11	0	122	11	-90	-173	Ammonium sulfate (AMS) 21-0-0	50 lb Summer Unincorp	11-0-0	2180 lb
																					Potassium chloride 0-0-61	200 lb Summer Unincorp	0-0-122	8720 lb
T4745-01	104	2	580B	Oat-Pea Forage w/ Alfalfa Seeding Spring	Alfalfa	3.6-4.5	50	240	None	18	94	0	50	280	11	0	122	11	-50	-158	Ammonium sulfate (AMS) 21-0-0	50 lb Summer Unincorp	11-0-0	5200 lb
																					Potassium chloride 0-0-61	200 lb Summer Unincorp	0-0-122	20800 lb

175.6 planned Alfalfa acres

8,780 planned lb Ammonium sulfate (AMS)



## SnapPlus Spreading and Nutrient Management Sorted By Crop Report

35,120 planned lb Potassium chloride

Corn on Corn Fields						Crop Removal				Soil Test ppm		Adjusted Recs lb/ac			Planned Applications and Credits lb/ac			Over(+) Under(-) Adj. UW Recs lb/ac			Applications			
Name	Ac.	Slp%	Soil Map Syml N Res	Prior Crop	2016 Crop	Yield Goal	P205	K20	Tillage	Avg P	Avg K	N	P205	K20	N	P205	K20	N	P205	K20	Product Name and Analysis	Appln Rate and Method	N-P205-K20 credit	Total Amt
T170-02	30.9	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	4	42	145	95	85	140	60	100	-5	-35	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	309000 gal
T175-01E	10.8	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	58	135	145	0	20	140	60	100	-5	60	80	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	108000 gal
T175-01W	21.7	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	41	65	145	0	85	140	60	100	-5	60	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	217000 gal
T175-03	16	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	27	36	145	30	85	140	60	100	-5	30	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	160000 gal
T175-06	29.9	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	39	122	145	0	40	140	60	100	-5	60	60	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	299000 gal
T175-07	29.3	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	13	64	145	85	85	140	60	100	-5	-25	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	293000 gal
T175-10	45.2	3	756B	Corn grain	Corn grain	131-150	55	40	FCD	5	48	140	95	70	140	60	100	0	-35	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	452000 gal
T175-13	13.5	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	12	78	145	85	70	140	60	100	-5	-25	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	135000 gal
T175-14	11.8	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	27	116	145	30	40	140	60	100	-5	30	60	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	118000 gal



## SnapPlus Spreading and Nutrient Management Sorted By Crop Report

Corn on Corn Fields							Crop Removal			Soil Test ppm		Adjusted Recs lb/ac			Planned Applications and Credits lb/ac			Over(+) Under(-) Adj. UW Recs lb/ac			Applications			
Name	Ac.	Slp%	Soil Map Syml N Res	Prior Crop	2016 Crop	Yield Goal	P205	K2O	Tillage	Avg P	Avg K	N	P205	K2O	N	P205	K2O	N	P205	K2O	Product Name and Analysis	Appln Rate and Method	N-P205-K2O credit	Total Amt
T176-01	28.1	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	12	51	145	85	85	140	60	100	-5	-25	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	281000 gal
T3907-02	70.3	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	8	87	145	95	70	140	60	100	-5	-35	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	703000 gal
T3907-03	7.6	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	5	76	145	95	70	140	60	100	-5	-35	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	76000 gal
T3907-04	4.4	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	4	82	145	95	70	140	60	100	-5	-35	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	44000 gal
T4007-04	26.5	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	10	35	145	85	85	140	60	100	-5	-25	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	265000 gal
T4007-07	15.1	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	19	37	145	55	85	140	60	100	-5	5	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	151000 gal
T4009-08	1.4	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	35	79	145	0	70	140	60	100	-5	60	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	14000 gal
T4009-09	4.3	11	580B	Corn grain	Corn grain	131-150	55	40	SFC	38	75	145	0	70	140	60	100	-5	60	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	43000 gal
T4009-10	11.3	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	50	59	145	0	85	140	60	100	-5	60	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	113000 gal
T4009-11	5.7	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	34	30	145	0	85	140	60	100	-5	60	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	57000 gal



## SnapPlus Spreading and Nutrient Management Sorted By Crop Report

Corn on Corn Fields							Crop Removal			Soil Test ppm		Adjusted Recs lb/ac			Planned Applications and Credits lb/ac			Over(+) Under(-) Adj. UW Recs lb/ac			Applications			
Name	Ac.	Slp%	Soil Map Sybl N Res	Prior Crop	2016 Crop	Yield Goal	P205	K2O	Tillage	Avg P	Avg K	N	P205	K2O	N	P205	K2O	N	P205	K2O	Product Name and Analysis	Appln Rate and Method	N-P205-K2O credit	Total Amt
T4009-12	13.5	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	65	63	145	0	85	140	60	100	-5	60	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	135000 gal
T4009-13	5.8	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	16	109	145	55	40	140	60	100	-5	5	60	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	58000 gal
T4009-25	23.3	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	18	81	145	55	70	140	60	100	-5	5	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	233000 gal
T4037-01	67	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	5	106	145	95	40	140	60	100	-5	-35	60	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	670000 gal
T4399-02	35	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	23	95	145	30	70	140	60	100	-5	30	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	350000 gal
T4574-01	50.3	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	16	87	145	55	70	140	60	100	-5	5	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	503000 gal
T4575-02	28.3	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	9	58	145	95	85	140	60	100	-5	-35	15	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	283000 gal
T4926-03	18.6	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	22	107	145	30	40	140	60	100	-5	30	60	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	186000 gal
T5072-01	23.1	2	580B	Corn grain	Corn grain	131-150	55	40	FCD	11	71	145	85	70	140	60	100	-5	-25	30	Planned Swine Manure 14-6-10	10000 gal Fall Subsurface	140-60-100	231000 gal

648.7 planned Corn on Corn acres      6,487,000 planned gal Planned Swine Manure



Soybean Fields					Crop Removal					Soil Test		Adjusted Recs lb/ac			Planned Applications and Credits lb/ac			Over(+) Under(-) Adj. UW Recs lb/ac			Applications			
Name	Ac.	Slp %	Soil Map Syml & N Res	Prior Crop	2016 Crop	Yield Goal	P205	K20	Tillage	Avg P	Avg K	N	P205	K20	N	P205	K20	N	P205	K20	Product Name and Analysis	Appln Rate and Method	N-P205-K20 credit	Total Amt
T4116-02	37.8	2	580B	Corn grain	Soybeans 7-10 inch row	36-45	30	55	FCD	5	82	0	70	100	105	45	75	105	-25	-25	Planned Swine Manure 14-6-10	7500 gal Fall Subsurfa ce	105-45-75	283500 gal
T4354-03	22.5	2	580B	Corn grain	Soybeans 7-10 inch row	36-45	30	55	FCD	6	49	0	70	100	105	45	75	105	-25	-25	Planned Swine Manure 14-6-10	7500 gal Fall Subsurfa ce	105-45-75	168375 gal

60.3 planned Soybean acres

451,875 planned gal Planned Swine Manure

885 total planned acres

Total Manure Volume	Manure App Plan	Remaining Manure
0 tons	0	0
6800000 gals	6,938,875	-138,875

Total Planned to be Applied

8,780 planned lb Ammonium sulfate (AMS)

6,938,875 planned gal Planned Swine Manure

35,120 planned lb Potassium chloride

Tillage Abbreviations	
Abbreviation	Tillage
FCD	Fall Chisel, disked
None	None
SFC	Spring Cultivation



## SnapPlus Application Restriction Compliance Check Report

<b>For Years</b>	<b>2016 - 2020</b>
<b>Plan Year</b>	<b>2016</b>
<b>Reported For</b>	<b>Badgerwood LLC</b>
<b>Printed</b>	<b>2015-01-28</b>
<b>Plan Completion/Update Date</b>	<b>2015-01-28</b>
<b>SnapPlus Version 14.1 built on 2014-12-20</b>	
<b>C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb</b>	

### Prepared for:

Badgerwood LLC  
attn:John Thomas  
27190 Cherryville Rd  
Ashland, 54806

### Prepared by:

Frontier-Servco FS  
PO Box 359  
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[nwagner@frontierservcofs.com](mailto:nwagner@frontierservcofs.com)

## WPDES Permitted Farm

Manure Credits: 2nd Year

Strategy for applying manure adjacent to navigable water, conduits to navigable water or wetlands:

Annual crops: No applications within 25 ft; inject or immediately incorporate in rest of SWQMA

Perennial crops: No applications within 100 ft.

### Manure will be applied to the following fields with SWQMA and W soil restrictions:

#### For fields with W soil restrictions:

CAFO field areas that may have groundwater within 2 feet of surface at time of manure application will be verified prior to application for

(1) groundwater depth or

(2) presence of functioning drain tiles within all wet field areas to ensure groundwater depth is below 2 feet of surface.

These fields will have specific records of these investigations, including methods used, which will be maintained within the NMP.

Field Name / Crop Year	In SWQMA	Has W Soils	W Soil Acknowledged	2016	2017	2018	2019	2020	2021	2022	2023
T167-01	Yes	No	NA				X	X	X	X	X
T170-02	Yes	No	NA	X	X	X	X	X			
T175-01E	Yes	No	NA	X	X	X	X	X			
T175-01W	Yes	No	NA	X	X	X	X	X			
T175-03	Yes	No	NA	X	X	X	X	X			



Field Name / Crop Year	In SWQMA	Has W Soils	W Soil Acknowledged	2016	2017	2018	2019	2020	2021	2022	2023
T175-06	Yes	No	NA	X	X	X	X	X			
T175-07	Yes	No	NA	X	X	X	X	X			
T175-13	Yes	No	NA	X	X	X	X	X			
T176-01	Yes	No	NA	X	X	X	X	X			
T3907-02	Yes	No	NA	X	X	X	X	X			
T3907-03	Yes	No	NA	X	X	X	X	X			
T3907-04	Yes	No	NA	X	X	X	X	X			
T4007-04	Yes	No	NA	X	X	X	X	X			
T4007-07	Yes	No	NA	X	X	X	X	X			
T4009-08	Yes	No	NA	X	X	X	X	X			
T4009-09	Yes	No	NA	X	X	X	X	X			
T4009-10	Yes	No	NA	X	X	X	X	X			
T4009-11	Yes	No	NA	X	X	X	X	X			
T4009-12	Yes	No	NA	X	X	X	X	X			
T4009-13	Yes	No	NA	X	X	X	X	X			
T4009-25	Yes	No	NA	X	X	X	X	X			
T4037-01	Yes	No	NA	X	X	X					
T4354-03	Yes	No	NA	X	X	X	X	X			X
T4364-01	Yes	No	NA				X	X	X	X	X
T4399-02	Yes	No	NA	X	X	X	X	X			
T4574-01	Yes	No	NA	X	X	X					
T4745-01	Yes	No	NA				X	X	X	X	X
T5072-01	Yes	No	NA	X	X	X					
	X - Fields with manure applications										



This farm uses PI for P2O5 590 Compliance

**Rotational Restriction Problems**

No Rotational Problems found

**Soil Test Problems**

No Soil Test Problems

**Application Restriction Problems**

No Application Restriction Problems found

**Excess N Problems**

No Excess N Problems found

Soil Test Problems Legend	
Too Few Soil Samples	Less than one sample per five acres.
Soil Test Data Too Old	Soil test is greater than 4 years old



## **Section 5: Soil Tests & Manure Nutrient Estimation**





**AgSource**  
**Laboratories**

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No:  
Racine BN01439  
Field: Grub-Airport  
Acres: 30.9  
Soil Name/Subsoil group:  
Sanborg  
Plow Depth: Previous Crop:  
6.00

NUTRIENT RECOMMENDATIONS											
Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
		N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
	- per acre -	----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----		
Grass, hay	4.1-5 ton	130	110	295	0	0	0	0	130	110	295
Corn, grain	171-190 bu	***	110	95	0	0	0	0	***	110	95
Corn, grain	171-190 bu	***	110	95	0	0	0	0	***	110	95
Corn, grain	171-190 bu	***	110	95	0	0	0	0	***	110	95

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS											LAB USE				MISC		
Adjusted Avg:	5.9	3.7	4	42	0	0	0.0	0.0	0	0.0	0.0						
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	5.7	4.9	5	52	3.6									2	0.78	6.4	
2	6.2	3.5	4	35										2	0.82	6.7	
3	5.7	4.5	4	42	3.4									2	0.81	6.3	
4	5.8	3.0	3	44										2	0.88	6.7	
5	5.8	3.8	3	52										2	0.87	6.6	
6	6.2	2.8	3	27										2	0.90	6.9	
7	6.0	3.4	3	39										2	0.86	6.7	
ADDITIONAL INFORMATION																	

Year 2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Parts of this field may benefit from liming. Please see the unadjusted lime requirements in the Laboratory Analysis section below.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.

**DISCLAIMER: Data and information in this report are intended solely for the individual(s) for whom samples were submitted. Reproduction of this report must be in its entirety. Levels listed are guidelines only. Data was reported based on standard laboratory procedures and deviations.**





**AgSource**  
Laboratories

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-Gal-Barley  Acres: 28.3  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
			- per acre -	----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----		
		Alfalfa, established	5.6-6.5 ton	0	120	415	0	0	0	0	0	120	415
		Corn, grain	171-190 bu	***	110	95	120	0	0	0	***	110	95
		Corn, grain	171-190 bu	***	110	95	50	0	0	0	***	110	95
Corn, grain	171-190 bu	***	110	95	0	0	0	0	***	110	95		

The lime required for this rotation to reach pH 6.8 is 6 T/a of 60-69 lime or 4.5 T/a of 80-89 lime.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:		6.1	2.6	12	58	0	0	0.0	0.0	0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.1	2.7	6	56	5.4									2	0.83	6.7	
2	6.0	2.2	9	56	5.0									2	0.87	6.7	
3	6.3	2.5	16	77	3.4									2	0.94	6.7	
4	5.9	2.4	21	58	6.3									2	0.88	6.6	
5	6.2	2.4	8	47	4.0									2	0.88	6.7	
6	6.0	3.5	11	53	8.4									2	0.84	6.7	

## ADDITIONAL INFORMATION

Year 2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

If alfalfa will be maintained for more than three years, increase recommended K<sub>2</sub>O by 20% each year.

Some parts of this field are more acid and may require additional lime.

If lime has been applied in the last two years, more lime may not be needed due to incomplete reaction.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.





# AgSource Laboratories

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-hay below hill  Acres: 5.8  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence		Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
					N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----		----- lbs/a -----			
		Grass, hay	4.1-5 ton	130	70	250	0		0	0	0	130	70	250
		Corn, grain	171-190 bu	***	70	50	0		0	0	0	***	70	50
		Corn, grain	171-190 bu	***	70	50	0		0	0	0	***	70	50
Corn, grain	171-190 bu	***	70	50	0		0	0	0	***	70	50		

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:		6.5	4.3	16	109	0	0	0.0	0.0	0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.6	2.7	12	37										2	1.02		
2	6.4	5.9	19	180										2	0.80	7.0	

ADDITIONAL INFORMATION																	
------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-Hay by old barn  Acres: 26.5  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
		- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----		----- lbs/a -----			
Grass, hay		4.1-5 ton	130	100	295	0	0	0	0	130	100	295	
Corn, grain		171-190 bu	***	100	95	0	0	0	0	***	100	95	
Corn, grain		171-190 bu	***	100	95	0	0	0	0	***	100	95	
Corn, grain		171-190 bu	***	100	95	0	0	0	0	***	100	95	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:		6.4	4.0	14	35	0	0	0.0	0.0	0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.5	4.5	8	46										2	0.90	7.0	
2	6.6	2.6	17	37										2	1.07		
3	6.2	5.9	7	35										2	0.87	6.7	
4	6.0	3.8	29	38										2	1.03	6.8	
5	6.8	2.9	16	25										2	1.07		
6	6.4	4.0	8	31										2	0.97	7.0	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-Hay S of old ba  Acres: 15.1  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
		- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----		----- lbs/a -----			
Grass, hay		4.1-5 ton	130	70	295	0	0	0	0	130	70	295	
Corn, grain		171-190 bu	***	70	95	0	0	0	0	***	70	95	
Corn, grain		171-190 bu	***	70	95	0	0	0	0	***	70	95	
Corn, grain		171-190 bu	***	70	95	0	0	0	0	***	70	95	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:	6.3	2.5	27	37	0	0	0.0	0.0	0	0.0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.3	1.8	43	38										1	1.13	7.2	
2	6.1	2.8	4	38										2	0.97	6.9	
3	6.6	2.8	33	35										2	1.02		

## ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-Home Oats  Acres: 29.9  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:		6.8	3.1	39	122	0	0	0.0	0.0	0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.9	3.4	31	99										2	0.98		
2	6.9	3.4	29	126										2	0.92		
3	6.8	3.0	43	122										2	0.98		
4	6.7	2.9	48	130										2	0.97		
5	6.7	2.9	33	128										2	0.96		
6	6.8	2.8	44	120										2	1.04		
7	6.7	3.3	35	126										2	0.93		
8	6.7	3.1	49	124										2	0.95		

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

If barley or oats are underseeded with a legume forage, eliminate or reduce N by half.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-Home PP  Acres: 29.3  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
Corn, grain		171-190 bu	***	100	95	0	0	0	0	***	100	95		
Corn, grain		171-190 bu	***	100	95	0	0	0	0	***	100	95		
Corn, grain		171-190 bu	***	100	95	0	0	0	0	***	100	95		
Corn, grain		171-190 bu	***	100	95	0	0	0	0	***	100	95		

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:	6.5	3.0	23	67	0	0	0.0	0.0	0	0.0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.4	3.3	23	82										2	0.95	7.1	
2	6.8	2.1	16	73										2	0.98		
3	6.7	2.3	11	53										2	0.95		
4	6.4	5.1	89	44										2	0.82	7.0	
5	6.3	3.5	16	89										2	0.87	7.1	
6	6.6	3.3	7	76										2	0.87		
7	6.6	2.2	9	65										2	0.90		
8	6.4	2.2	16	52										2	1.00	7.0	

## ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-Hwy 63 South  Acres: 28.1  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
			- per acre -	----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----		
		Grass, hay	4.1-5 ton	130	100	295	0	0	0	0	130	100	295
		Corn, grain	171-190 bu	***	100	95	0	0	0	0	***	100	95
		Corn, grain	171-190 bu	***	100	95	0	0	0	0	***	100	95
Corn, grain	171-190 bu	***	100	95	0	0	0	0	***	100	95		

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE			MISC		
Adjusted Avg:		6.3	3.6	17	51	0		0	0.0	0.0	0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.4	3.4	32	44											2	1.01	6.9
2	6.5	4.0	31	46											2	0.97	7.0
3	6.4	4.0	11	53											2	0.95	7.0
4	6.4	3.5	17	55											2	0.94	6.9
5	6.5	2.8	15	45											2	0.96	7.1
6	5.9	3.5	8	51											2	0.87	6.9
7	6.1	4.2	8	63											2	0.90	6.8

### ADDITIONAL INFORMATION

Year 2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439  Field: Grub-poor corn  Acres: 11.8  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
		- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain	171-190 bu	***	35	50	0	0	0	0	***	35	50
		Corn, grain	171-190 bu	***	35	50	0	0	0	0	***	35	50
		Corn, grain	171-190 bu	***	35	50	0	0	0	0	***	35	50
		Corn, grain	171-190 bu	***	35	50	0	0	0	0	***	35	50

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:		6.4	3.2	27	116	0	0	0.0	0.0	0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.7	3.7	32	137										2	0.84		
2	6.0	2.7	22	94										2	0.87	6.8	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





**AgSource**  
Laboratories

A Subsidiary of Cooperative Resources International

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# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL49703 - AL49752**

Date Received:  
**07/24/2014**

Date Processed:  
**07/25/2014**

Information Sheet #  
**746329**

County: Account No: Racine BN01439 Field: Grub-small hay top o Acres: 1.4 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 6.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
				----- lbs/a -----			--- lbs/a ---		----- lbs/a -----		----- lbs/a -----		
Grass, hay	4.1-5 ton	130	0	280	0	0	0	0	130	0	280		
Corn, grain	171-190 bu	***	0	80	0	0	0	0	***	0	80		
Corn, grain	171-190 bu	***	0	80	0	0	0	0	***	0	80		
Corn, grain	171-190 bu	***	0	80	0	0	0	0	***	0	80		

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg: 6.3 5.0 35 79 0 0 0.0 0.0 0 0.0 0.0																	
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.3	5.0	35	79										2	1.00	6.9	

ADDITIONAL INFORMATION																	
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Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.



## Nitrogen Application Rate Guidelines for Corn

(For more info, see <http://www.soils.wisc.edu/extension/pubs/A2809.pdf>.)

**Justification:** While the yield response of corn to applied N has not changed, the economics of corn production have. Recently soil fertility specialists in Wisconsin, Minnesota, Iowa, and Illinois have agreed to use the same philosophy to develop N rate guidelines for corn (grain). The philosophy used is based on maximizing return to N fertilizer. The new N rate guidelines were developed as a means to provide growers guidance on how much they might adjust their N application rates and maintain or enhance profitability depending upon their individual farm situation. Research data collected in

SUGGESTED N APPLICATION RATES FOR CORN(GRAIN) AT DIFFERENT N:CORN PRICE RATIOS									
Soil and Previous Crop	N:Corn Price Ratio (\$/lb N:\$/bu)								
	0.05		0.10		0.15		0.20		
	Rate *3	Range *4	Rate *3	Range *4	Rate *3	Range *4	Rate *3	Range *4	
HIGH YIELD POTENTIAL SOILS	lb N/a (Total to Apply) *2								
Corn, Forage Legumes,									
Leguminous vegetables, Green manures *5	190	170-210	165	155-180	150	140-160	135	125-150	
Soybean, Small grains *6	140	125-160	120	105-135	105	95-115	95	80-105	
MEDIUM YIELD POTENTIAL SOILS									
Corn, Forage Legumes,									
Leguminous vegetables, Green manures *5	145	130-160	125	115-140	115	105-125	105	95-110	
Soybean, Small grains *6	130	110-150	100	85-120	85	70-95	70	60-80	
IRRIGATED SANDS AND LOAMY SANDS									
All Crops *5	215	200-230	200	185-210	185	175-195	175	165-185	
NON-IRRIGATED SANDS AND LOAMY SANDS									
All Crops *5	140	130-150	130	120-140	120	110-130	110	100-120	

\*1 To determine soil yield potential, consult UWEX publication A2809 or contact your county agent or agronomist.

\*2 Includes N in starter.

\*3 Maximum return to N (MRTN) rate.

\*4 Profitability range within \$1/a or MRTN rate.

\*5 Subtract N credit for forage legumes, legume vegetables, animal manures, green manures.

\*6 Subtract credits for animal manures and second year forage legumes.

### Guidelines for choosing an appropriate N application rate for corn (grain)

- 1) If there is more than 50% residue cover at planting, use the upper end of the range.
- 2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
- 3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
- 4) For medium and fine textured soils with: < 2% organic matter, use the high end of the range; > 10% organic matter, use the low end of the range.
- 5) For coarse textured soils with: < 2% organic matter, use the high end of the range; > 2% organic matter, use the mid to low end of the range.
- 6) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
- 7) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.





# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:  
**08/25/2014**

Date Processed:  
**08/26/2014**

Information Sheet #  
**746917**

County: Marinette Account No: BN01439  Field: 118-Colby Hay  Acres: 4.4  Soil Name/Subsoil group: Sanborg  Plow Depth: 6.00 Previous Crop: Grass, hay		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
		Corn, grain	171-190 bu	***	110	80	0	0	0	0	***	110	80	
		Corn, grain	171-190 bu	***	110	80	0	0	0	0	***	110	80	
Corn, grain	171-190 bu	***	110	80	0	0	0	0	***	110	80			

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE		MISC		
Adjusted Avg: 6.8 4.2 4 82 0 0 0.0 0.0 0 0.0 0.0																
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code
58	6.8	4.2	4	82										2	0.80	

ADDITIONAL INFORMATION																
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N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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**Laboratories**

A Subsidiary of Cooperative Resources International

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bonduel@agsource.com

# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:  
**08/25/2014**

Date Processed:  
**08/26/2014**

Information Sheet #  
**746917**

County: Account No: Marinette BN01439  Field: Alf South  Acres: 70.3  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00 Alfalfa, established		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain	131-150 bu	***	95	70	120		0	0	0	***	95	70
		Corn, grain	171-190 bu	***	110	80	50		0	0	0	***	110	80
		Corn, grain	171-190 bu	***	110	80	0		0	0	0	***	110	80
		Corn, grain	171-190 bu	***	110	80	0		0	0	0	***	110	80

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:		6.6	4.1	10	96	0	0	0.0	0.0	0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
39	7.0	5.4	30	194										2	0.84		
40	7.0	3.4	10	106										2	0.86		
41	7.2	3.8	6	101										2	0.88		
42	7.5	3.3	7	81										2	0.83		
43	6.6	3.1	5	79										2	0.82		
44	7.7	2.2	3	96										2	0.88		
45	6.9	3.5	7	85										2	0.97		
46	6.2	3.7	13	91										2	0.84	6.8	
47	5.5	6.6	22	133	7.6									2	0.80	6.2	
48	6.3	2.8	30	95										2	0.91	6.9	
49	6.4	4.4	7	94										2	0.83	6.9	
50	6.9	3.7	4	64										2	0.84		
51	6.5	4.2	3	59										2	0.80	6.9	
52	6.1	3.4	3	86										2	0.83	6.6	
53	6.3	3.8	10	79										2	0.78	7.0	
54	5.9	8.5	8	78										2	0.74	6.2	
55	6.4	3.8	8	105										2	0.81	6.7	

## ADDITIONAL INFORMATION

First year legume N credit is based on a previous fair stand of alfalfa, established with less than 8" of regrowth, as specified on sample submission form.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:

**08/25/2014**

Date Processed:

**08/26/2014**

Information Sheet #

**746917**

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Parts of this field may benefit from liming. Please see the unadjusted lime requirements in the Laboratory Analysis section below.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:  
**08/25/2014**

Date Processed:  
**08/26/2014**

Information Sheet #  
**746917**

County: Marinette Account No: BN01439  Field: Hay west of main  Acres: 21.7  Soil Name/Subsoil group: Sanborg  Plow Depth: 6.00 Previous Crop: Grass, hay		NUTRIENT RECOMMENDATIONS													
		Cropping Sequence		Yield Goal	Crop Nutrient Need N    P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O			Fertilizer Credits				Nutrients to Apply			
								Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
				- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain		131-150 bu	***    0    85			0		58    38    101		***    0    0			
		Corn, grain		171-190 bu	***    0    95			0		14    0    0		***    0    95			
		Corn, grain		171-190 bu	***    0    95			0		7    0    0		***    0    95			
		Corn, grain		171-190 bu	***    0    95			0		0    0    0		***    0    95			

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE				MISC	
Adjusted Avg:	6.8	4.0	41	77	0	0	0.0	0.0	0	0.0	0.0						
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
31	6.9	4.4	82	125										2	0.89		
32	6.9	4.0	40	62										2	0.89		
33	6.6	3.0	34	69										2	0.90		
34	6.7	3.8	23	73										2	0.86		
35	6.9	4.9	26	57										2	0.85		

ADDITIONAL INFORMATION																	
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Fertilizer credit based on 6000 gallons/acre of dairy: slurry manure for 1 consecutive year(s).

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 1,2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:  
**08/25/2014**

Date Processed:  
**08/26/2014**

Information Sheet #  
**746917**

County: Account No: Marinette BN01439  Field: Hay with poles  Acres: 11.3  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00 Grass, hay		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----		----- lbs/a -----			
		Corn, grain	131-150 bu	***	0	85	0		0	0	0	***	0	85
		Corn, grain	171-190 bu	***	0	95	0		0	0	0	***	0	95
		Corn, grain	171-190 bu	***	0	95	0		0	0	0	***	0	95
		Corn, grain	171-190 bu	***	0	95	0		0	0	0	***	0	95

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE			MISC			
Adjusted Avg:	6.8	4.5	50	59	0			0	0.0	0.0	0	0.0	0.0					
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code		
28	6.8	4.3	81	52										2	0.88			
29	6.7	4.0	35	59										2	0.89			
30	6.9	5.2	35	67										2	0.86			

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Because of very high P levels, P<sub>2</sub>O<sub>5</sub> applications from fertilizer or manure should be reduced and crops with a high P removal should be grown.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 1,2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





**AgSource**  
Laboratories

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:  
**08/25/2014**

Date Processed:  
**08/26/2014**

Information Sheet #  
**746917**

<div>County: Marinette      Account No: BN01439</div> <div>Field: PP across from main</div> <div>Acres: 10.8</div> <div>Soil Name/Subsoil group: Sanborg</div> <div>Plow Depth: 6.00      Previous Crop:</div>		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
				----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----		
Corn, grain		131-150 bu	***	0	20	0	58	38	101	***	0	0	
Corn, grain		171-190 bu	***	0	25	0	14	0	0	***	0	25	
Corn, grain		171-190 bu	***	0	25	0	7	0	0	***	0	25	
Corn, grain		171-190 bu	***	0	25	0	0	0	0	***	0	25	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE		MISC		
Adjusted Avg: 6.8 3.5 58 146 0 0 0.0 0.0 0 0.0 0.0																
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code
36	6.6	3.1	56	152										2	0.87	
37	6.9	4.1	82	167										2	0.86	
38	7.0	3.4	37	118										2	0.92	

## ADDITIONAL INFORMATION

Fertilizer credit based on 6000 gallons/acre of dairy: slurry manure for 1 consecutive year(s).

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Because of very high P levels, P<sub>2</sub>O<sub>5</sub> applications from fertilizer or manure should be reduced and crops with a high P removal should be grown.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 1,2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:  
**08/25/2014**

Date Processed:  
**08/26/2014**

Information Sheet #  
**746917**

County: Account No: Marinette BN01439  Field: Rented by Yellow  Acres: 7.6  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00 Grass, hay		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
		Corn, grain	171-190 bu	***	110	80	0	0	0	0	***	110	80	
		Corn, grain	171-190 bu	***	110	80	0	0	0	0	***	110	80	
		Corn, grain	171-190 bu	***	110	80	0	0	0	0	***	110	80	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg: 6.6 4.1 5 76 0 0 0.0 0.0 0 0.0 0.0																	
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
56	6.7	4.0	6	72										2	0.91		
57	6.5	4.2	3	79										2	0.81	6.9	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**27190 Cherryville Rd**  
**Ashland, WI 54806**

Submitted For:  
**Lake View Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AL74162 - AL74202**

Date Received:  
**08/25/2014**

Date Processed:  
**08/26/2014**

Information Sheet #  
**746917**

County: Account No: Marinette BN01439  Field: Windmill  Acres: 45.2  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 6.00 Grass, hay		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
		- per acre -	----- lbs/a -----	---	lbs/a	---	----- lbs/a -----	----- lbs/a -----					
		Corn, grain	131-150 bu	***	95	85	0	0	0	0	***	95	85
		Corn, grain	171-190 bu	***	110	95	0	0	0	0	***	110	95
		Corn, grain	171-190 bu	***	110	95	0	0	0	0	***	110	95
		Corn, grain	171-190 bu	***	110	95	0	0	0	0	***	110	95

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:		6.3	3.7	8	56	0	0	0.0	0.0	0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
59	6.1	4.6	4	60										2	0.82	6.9	
60	6.8	3.2	4	60										2	0.86		
61	6.2	3.5	3	81										2	0.85	6.9	
62	6.9	3.8	3	46										2	0.84		
63	6.9	2.5	3	41										2	0.88		
64	6.8	5.9	27	93										2	0.79		
65	5.8	3.5	4	62										2	0.91	6.7	
66	5.6	3.7	13	39	3.6									2	0.86	6.4	
67	5.6	3.7	13	43	3.6									2	0.88	6.4	
68	5.9	2.4	3	35										2	0.94	7.0	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Parts of this field may benefit from liming. Please see the unadjusted lime requirements in the Laboratory Analysis section below.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.



## Nitrogen Application Rate Guidelines for Corn

(For more info, see <http://www.soils.wisc.edu/extension/pubs/A2809.pdf>.)

**Justification:** While the yield response of corn to applied N has not changed, the economics of corn production have. Recently soil fertility specialists in Wisconsin, Minnesota, Iowa, and Illinois have agreed to use the same philosophy to develop N rate guidelines for corn (grain). The philosophy used is based on maximizing return to N fertilizer. The new N rate guidelines were developed as a means to provide growers guidance on how much they might adjust their N application rates and maintain or enhance profitability depending upon their individual farm situation. Research data collected in

SUGGESTED N APPLICATION RATES FOR CORN(GRAIN) AT DIFFERENT N:CORN PRICE RATIOS									
Soil and Previous Crop	N:Corn Price Ratio (\$/lb N:\$/bu)								
	0.05		0.10		0.15		0.20		
	Rate *3	Range *4	Rate *3	Range *4	Rate *3	Range *4	Rate *3	Range *4	
HIGH YIELD POTENTIAL SOILS	lb N/a (Total to Apply) *2								
Corn, Forage Legumes,									
Leguminous vegetables, Green manures *5	190	170-210	165	155-180	150	140-160	135	125-150	
Soybean, Small grains *6	140	125-160	120	105-135	105	95-115	95	80-105	
MEDIUM YIELD POTENTIAL SOILS									
Corn, Forage Legumes,									
Leguminous vegetables, Green manures *5	145	130-160	125	115-140	115	105-125	105	95-110	
Soybean, Small grains *6	130	110-150	100	85-120	85	70-95	70	60-80	
IRRIGATED SANDS AND LOAMY SANDS									
All Crops *5	215	200-230	200	185-210	185	175-195	175	165-185	
NON-IRRIGATED SANDS AND LOAMY SANDS									
All Crops *5	140	130-150	130	120-140	120	110-130	110	100-120	

\*1 To determine soil yield potential, consult UWEX publication A2809 or contact your county agent or agronomist.

\*2 Includes N in starter.

\*3 Maximum return to N (MRTN) rate.

\*4 Profitability range within \$1/a or MRTN rate.

\*5 Subtract N credit for forage legumes, legume vegetables, animal manures, green manures.

\*6 Subtract credits for animal manures and second year forage legumes.

### Guidelines for choosing an appropriate N application rate for corn (grain)

- 1) If there is more than 50% residue cover at planting, use the upper end of the range.
- 2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
- 3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied in this situation.
- 4) For medium and fine textured soils with: < 2% organic matter, use the high end of the range; > 10% organic matter, use the low end of the range.
- 5) For coarse textured soils with: < 2% organic matter, use the high end of the range; > 2% organic matter, use the mid to low end of the range.
- 6) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
- 7) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.





# AgSource Laboratories

A Subsidiary of Cooperative Resources International

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Bonduel, WI 54107  
(715) 758-2178  
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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No:		NUTRIENT RECOMMENDATIONS												
Bayfield BN01439		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
Field: Gal S31 T47N R5W				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
Acres: 37.7			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
Soil Name/Subsoil group:		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
Sanborg		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
Plow Depth: Previous Crop:		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
7.00		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE		MISC		
Adjusted Avg: 6.8 4.1 5 82 0 0 0.0 0.0 0 0.0 0.0																
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code
1	6.9	3.2	5	79										2	0.87	
2	6.6	3.5	4	99										2	0.89	
3	7.0	4.1	5	84										2	0.87	
4	7.3	3.7	5	85										2	0.88	
5	6.2	6.8	8	90										2	0.88	6.6
6	6.5	4.3	5	81										2	0.84	7.1
7	6.6	3.4	5	60										2	0.99	
8	6.9	4.1	5	76										2	0.83	
9	7.0	3.5	4	82										2	0.88	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.

**DISCLAIMER: Data and information in this report are intended solely for the individual(s) for whom samples were submitted.**

**Reproduction of this report must be in its entirety. Levels listed are guidelines only. Data was reported based on standard laboratory procedures and deviations.**





# AgSource Laboratories

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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No:		NUTRIENT RECOMMENDATIONS											
Bayfield BN01439		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
Field: Gal S31 T47N R5W-				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Acres: 104.0													
Soil Name/Subsoil group:													
Sanborg													
Plow Depth: Previous Crop:													
7.00													

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS											LAB USE				MISC	
Adjusted Avg: 7.5 3.9 21 101 0 0 0.0 0.0 0 0.0 0.0																
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code
01	7.6	2.6	9	72										2	0.94	
02	7.4	2.8	15	69										2	1.02	
03	7.1	3.0	7	80										2	0.99	
04	7.7	3.0	70	89										2	0.95	
05	7.5	2.5	21	90										2	0.92	
06	7.6	3.5	18	82										2	0.87	
07	7.1	3.0	28	102										2	0.91	
08	6.9	6.2	27	103										2	0.79	
09	7.3	4.0	15	95										2	0.95	
10	7.8	4.3	21	81										2	0.86	
11	7.9	3.3	30	106										2	0.86	
12	7.6	4.7	16	118										2	0.83	
13	8.0	5.2	26	97										2	0.86	
14	7.8	4.1	21	112										2	0.86	
15	7.5	4.6	21	109										2	0.84	
16	7.0	7.1	28	120										2	0.77	
17	7.6	4.4	38	181										2	0.86	
18	7.5	3.6	19	145										2	0.88	
19	7.7	2.9	4	78										2	0.91	
20	7.4	4.1	4	87										2	0.85	
21	7.9	3.1	8	102										2	0.89	





**AgSource  
Laboratories**

A Subsidiary of Cooperative Resources International

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

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Bonduel, WI 54107  
(715) 758-2178  
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## Soil Analysis

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





**AgSource**  
Laboratories

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

NUTRIENT RECOMMENDATIONS										
Cropping Sequence		Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply
			N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O
		- per acre -	----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----
County:	Account No:									
Bayfield	BN01439									
Field:	Gal S32 T47N R5W									
Acres:	43.5									
Soil Name/Subsoil group:										
Sanborg										
Plow Depth:	Previous Crop:									
7.00										
Corn, grain		131-150 bu	***	95	70	0	0	0	0	*** 95 70
Corn, grain		131-150 bu	***	95	70	0	0	0	0	*** 95 70
Corn, grain		131-150 bu	***	95	70	0	0	0	0	*** 95 70
Corn, grain		131-150 bu	***	95	70	0	0	0	0	*** 95 70

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS													LAB USE			MISC	
Adjusted Avg:		6.6	4.6	9	76	0		0	0.0	0.0	0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.5	4.3	7	67										2	0.83	7.1	
2	6.8	4.8	6	59										2	0.79		
3	6.9	3.1	6	78										2	0.95		
4	6.3	3.4	6	69										2	0.90	7.1	
5	6.8	3.8	6	78										2	0.89		
6	6.2	5.8	8	78										2	0.87	6.9	
7	6.3	4.1	7	77										2	0.92	6.9	
8	6.5	4.2	7	74										2	0.86	7.0	
9	7.3	7.5	25	103										2	0.77		

ADDITIONAL INFORMATION																
------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

NUTRIENT RECOMMENDATIONS										
Cropping Sequence		Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply
			N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O
		- per acre -	----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----
County:	Account No:									
Bayfield	BN01439									
Field:	Gal S32 T47N R5W -									
Acres:	27.9									
Soil Name/Subsoil group:										
Sanborg										
Plow Depth:	Previous Crop:									
7.00										
Corn, grain		131-150 bu	***	85	70	0	0	0	0	*** 85 70
Corn, grain		131-150 bu	***	85	70	0	0	0	0	*** 85 70
Corn, grain		131-150 bu	***	85	70	0	0	0	0	*** 85 70
Corn, grain		131-150 bu	***	85	70	0	0	0	0	*** 85 70

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS											LAB USE				MISC		
Adjusted Avg:		6.8	4.3	21	99	0	0	0.0	0.0	0	0.0	0.0					
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	7.5	5.4	59	144										2	0.85		
2	6.8	4.3	14	97										2	0.88		
3	6.6	5.1	13	89										2	0.89		
4	6.5	3.9	14	87										2	0.86	6.9	
5	7.0	3.9	13	93										2	0.89		
6	6.3	3.0	15	84										2	0.88	7.0	

## ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

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## Soil Analysis

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**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Galligan S30T47W R5W Acres: 19.6 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O			Fertilizer Credits Legume N Manure N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O				Nutrients to Apply N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O		
			- per acre -	----- lbs/a -----	--- lbs/a ---	----- lbs/a -----	----- lbs/a -----						
		Corn, grain	131-150 bu	*** 95 85	0	0 0 0	*** 95 85						
		Corn, grain	131-150 bu	*** 95 85	0	0 0 0	*** 95 85						
		Corn, grain	131-150 bu	*** 95 85	0	0 0 0	*** 95 85						
		Corn, grain	131-150 bu	*** 95 85	0	0 0 0	*** 95 85						

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE				MISC	
Adjusted Avg:	6.0	2.6	6	49	0		0	0.0	0.0	0	0.0	0.0					
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	5.9	2.5	5	54										2	0.91	7.1	
2	6.0	3.2	6	59										2	0.92	7.0	
3	6.1	2.5	9	46										2	0.95	7.2	
4	5.9	2.1	4	37										2	1.07	7.0	

### ADDITIONAL INFORMATION

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

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**12/16/2014**

Information Sheet #  
**754208**

County: Account No:		NUTRIENT RECOMMENDATIONS												
Bayfield BN01439		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
Field: Grub_Bailen T5072				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
Acres: 23.1			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
Soil Name/Subsoil group:		Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70	
Sanborg		Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70	
Plow Depth: Previous Crop:		Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70	
7.00		Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS											LAB USE				MISC		
Adjusted Avg:		6.5	2.3	11	71	0		0	0.0	0.0	0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.2	3.3	11	81										2	0.91	7.1	
2	6.5	2.0	13	60										1	1.04	7.2	
3	6.0	2.2	12	58										2	1.07	7.0	
4	7.2	2.0	9	83										1	0.98		
5	6.8	1.9	8	72										1	1.02		

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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## Soil Analysis

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**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
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Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T175-13 Acres: 13.5 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70	
		Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70	
Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70			
Corn, grain	131-150 bu	***	85	70	0	0	0	0	***	85	70			

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS													LAB USE		MISC		
Adjusted Avg:		6.6	3.0	15	78	0		0	0.0	0.0	0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.6	3.1	20	93										2	0.90		
2	7.0	2.8	11	79										2	0.95		
3	6.1	3.1	13	62										2	0.89	7.1	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

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**12/15/2014**

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**12/16/2014**

Information Sheet #  
**754208**

<div>County: Account No: Bayfield BN01439 Field: Grub T175-3 Acres: 16.0 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 7.00</div>		NUTRIENT RECOMMENDATIONS													
		Cropping Sequence		Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
					N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
				- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain		131-150 bu	***	30	85	0	0	0	0	***	30	85	
		Corn, grain		131-150 bu	***	30	85	0	0	0	0	***	30	85	
		Corn, grain		131-150 bu	***	30	85	0	0	0	0	***	30	85	
		Corn, grain		131-150 bu	***	30	85	0	0	0	0	***	30	85	

There is no lime recommendation. Please see Additional Information below.

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TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE		MISC		
Adjusted Avg: 7.0 2.5 32 44 0 0 0.0 0.0 0 0.0 0.0																
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code
1	7.1	2.8	45	67										2	0.95	
2	6.6	2.5	23	21										2	1.07	
3	7.0	2.3	19	55										2	1.07	
4	7.2	2.2	40	32										2	1.02	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

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Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T4009-11  Acres: 5.7  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
				----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain	131-150 bu	***	0	85	0		43	38	101	***	0	0
		Corn, grain	131-150 bu	***	0	85	0		7	0	0	***	0	85
		Corn, grain	131-150 bu	***	0	85	0		7	0	0	***	0	85
		Corn, grain	131-150 bu	***	0	85	0		0	0	0	***	0	85

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg: 7.1 2.1 34 30 0 0 0.0 0.0 0 0.0 0.0																	
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	7.1	2.2	23	30										2	1.12		
2	7.1	1.9	44	30										1	1.12		

### ADDITIONAL INFORMATION

Fertilizer credit based on 6000 gallons/acre of dairy: slurry manure for 0 consecutive year(s).

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 1,2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T4009-12 Acres: 13.5 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS												
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
				----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
	Corn, grain	131-150 bu	***	0	85	0		43	38	101	***	0	0	
	Corn, grain	131-150 bu	***	0	85	0		7	0	0	***	0	85	
	Corn, grain	131-150 bu	***	0	85	0		7	0	0	***	0	85	
	Corn, grain	131-150 bu	***	0	85	0		0	0	0	***	0	85	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE			MISC		
Adjusted Avg:		7.1	3.2	65	80	0		0	0.0	0.0	0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.8	3.1	26	41										2	0.95		
2	7.2	2.8	67	84										2	1.08		
3	7.3	3.6	103	115										2	0.88		

### ADDITIONAL INFORMATION

Fertilizer credit based on 6000 gallons/acre of dairy: slurry manure for 0 consecutive year(s).

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Because of very high P levels, P<sub>2</sub>O<sub>5</sub> applications from fertilizer or manure should be reduced and crops with a high P removal should be grown.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 1,2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T4009-25 Acres: 23.3 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
				----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----		
	Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70	
	Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70	
	Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70	
	Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS											LAB USE				MISC		
Adjusted Avg:		6.6	2.8	24	81	0	0	0.0	0.0	0	0.0	0.0					
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.6	3.1	34	81										2	0.94		
2	6.7	2.8	21	81										2	0.95		
3	6.2	2.7	34	97										2	0.96	7.0	
4	6.6	2.8	14	87										2	0.94		
5	6.4	3.8	21	89										2	0.85	7.0	
6	6.8	1.3	17	53										1	1.24		

## ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T4009-9 Acres: 4.3 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
				----- lbs/a -----	--- lbs/a ---	----- lbs/a -----	----- lbs/a -----						
		Corn, grain	131-150 bu	***	0	70	0	0	0	0	***	0	70
		Corn, grain	131-150 bu	***	0	70	0	0	0	0	***	0	70
		Corn, grain	131-150 bu	***	0	70	0	0	0	0	***	0	70
		Corn, grain	131-150 bu	***	0	70	0	0	0	0	***	0	70

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg: 7.0 2.6 38 75 0 0 0.0 0.0 0 0.0 0.0																	
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	7.0	2.6	38	75										2	1.02		

ADDITIONAL INFORMATION																	
------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

Year 1,2,3,4 If corn is harvested for silage instead of grain apply extra 90 lbs K<sub>2</sub>O per acre to next crop.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T4399-2 Acres: 35.0 Soil Name/Subsoil group: Kellogg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS													
		Cropping Sequence		Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
					N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
				- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
		Corn, grain	131-150 bu	***	55	20	0	0	0	0	***	55	20		
		Corn, grain	131-150 bu	***	55	20	0	0	0	0	***	55	20		
		Corn, grain	131-150 bu	***	55	20	0	0	0	0	***	55	20		
		Corn, grain	131-150 bu	***	55	20	0	0	0	0	***	55	20		

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE				MISC	
Adjusted Avg:		7.2	3.2	28	111	0		0	0.0	0.0	0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	7.3	3.6	45	147										2	0.89		
2	7.0	3.5	39	124										2	0.95		
3	7.5	3.9	28	100										2	0.94		
4	7.4	3.5	27	116										2	0.99		
5	7.2	2.3	15	100										2	1.00		
6	7.2	4.6	31	172										2	0.89		
7	7.1	1.9	17	57										1	1.11		
8	7.0	2.3	22	71										2	1.08		

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Because of the low potassium buffering capacity of this soil, retest every 2 years.

The nitrogen recommendation should be applied in sidedressed or split application on sandy soils.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

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## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T4574-1 Acres: 50.3 Soil Name/Subsoil group: Sanborg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
			- per acre -	----- lbs/a -----	--- lbs/a ---	----- lbs/a -----	----- lbs/a -----						
		Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70
		Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70
		Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70
		Corn, grain	131-150 bu	***	55	70	0	0	0	0	***	55	70

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS										LAB USE				MISC			
Adjusted Avg:	6.6	3.5	25	95	0	0	0.0	0.0	0	0.0	0.0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	6.6	4.3	14	96										2	0.92		
2	7.8	3.3	45	137										2	0.99		
3	5.9	2.0	14	72										1	1.03	7.0	
4	7.3	3.0	17	110										2	0.89		
5	6.7	2.3	14	77										2	0.99		
6	6.9	2.6	50	101										2	0.94		
7	5.7	5.4	38	108	4.0									2	0.84	6.4	
8	6.5	5.3	32	76										2	0.74	7.0	
9	6.4	3.3	5	82										2	0.89	7.0	

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Parts of this field may benefit from liming. Please see the unadjusted lime requirements in the Laboratory Analysis section below.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

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Bonduel, WI 54107  
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bonduel@agsource.com

## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No:		NUTRIENT RECOMMENDATIONS												
Bayfield BN01439		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply			
Field: Grub T4574-1 cont				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	
Acres: 50.3			- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
Soil Name/Subsoil group:		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
Sanborg		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
Plow Depth: Previous Crop:		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	
7.00		Corn, grain	131-150 bu	***	95	70	0	0	0	0	***	95	70	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS												LAB USE			MISC			
Adjusted Avg:		6.8	3.9	5	87	0	0	0.0	0.0	0	0.0	0.0						
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code		
1	6.9	4.3	6	88										2	0.93			
2	6.6	3.5	3	86										2	0.86			

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





# AgSource Laboratories

A Subsidiary of Cooperative Resources International

106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: Grub T4926-3 Acres: 18.6 Soil Name/Subsoil group: Kellogg Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need			Fertilizer Credits				Nutrients to Apply		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Legume N	Manure N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
			- per acre -	----- lbs/a -----			--- lbs/a ---	----- lbs/a -----			----- lbs/a -----		
		Corn, grain	131-150 bu	***	85	20	0	0	0	0	***	85	20
		Corn, grain	131-150 bu	***	85	20	0	0	0	0	***	85	20
		Corn, grain	131-150 bu	***	85	20	0	0	0	0	***	85	20
		Corn, grain	131-150 bu	***	85	20	0	0	0	0	***	85	20

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS											LAB USE				MISC		
Adjusted Avg:		7.0	5.4	22	107	0			0	0.0	0.0	0	0.0	0.0			
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
1	7.0	4.3	24	97										2	0.97		
2	7.3	4.8	23	118										2	0.91		
3	6.9	5.4	16	99										2	0.87		
4	6.7	6.9	25	114										2	0.84		

### ADDITIONAL INFORMATION

N.R.=Not required for calculation of lime requirement when soil pH is 6.6 or higher.

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.

Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

Because of the low potassium buffering capacity of this soil, retest every 2 years.

The nitrogen recommendation should be applied in sidedressed or split application on sandy soils.

Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.





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106 N. Cecil Street  
Bonduel, WI 54107  
(715) 758-2178  
bonduel@agsource.com

## Soil Analysis

Submitted By: **BN01439**  
**Lake View Family Farms**  
**PO Box 150**  
**LAWLER, IA 52154**

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

County: Account No: Bayfield BN01439 Field: GrubMillerS5T46NR5W  Acres: 67.0  Soil Name/Subsoil group: Sanborg  Plow Depth: Previous Crop: 7.00		NUTRIENT RECOMMENDATIONS											
		Cropping Sequence	Yield Goal	Crop Nutrient Need N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O			Fertilizer Credits Legume N Manure N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O				Nutrients to Apply N P <sub>2</sub> O <sub>5</sub> K <sub>2</sub> O		
		- per acre -	----- lbs/a -----			--- lbs/a ---		----- lbs/a -----			----- lbs/a -----		
Corn, grain		131-150 bu	***	95	40	0	0	0	0	***	95	40	
Corn, grain		131-150 bu	***	95	40	0	0	0	0	***	95	40	
Corn, grain		131-150 bu	***	95	40	0	0	0	0	***	95	40	
Corn, grain		131-150 bu	***	95	40	0	0	0	0	***	95	40	

There is no lime recommendation. Please see Additional Information below.

\*\*\* Please use the new Wisconsin Nitrogen Application Rates table to determine the N Application rate. Table included at end of report.

TEST INTERPRETATION						
Cropping Sequence	Very Low	Low	Optimum	High	Very High	Excessive
P						
K						
Rotation pH						

LABORATORY ANALYSIS											LAB USE				MISC		
Adjusted Avg:		5.9	4.2	5	106	0		0	0.0	0.0	0	0.0	0.0				
Sample ID	Soil pH	O.M. %	Phosphorus PPM	Potassium PPM	60-69 Lime Req T/a	Calcium PPM	Magnesium PPM	Estimated CEC	Boron PPM	Manganese PPM	Zinc PPM	Sulfate Sulfur	Sulfur Avail Index	Texture Code	Sample Density	Buffer Code	
01	6.2	3.9	6	116										2	0.85	6.8	
02	5.9	3.7	5	105										2	0.89	6.9	
03	5.5	4.2	5	116	5.0									2	0.82	6.6	
04	5.6	7.4	5	114	6.8									2	0.71	6.2	
05	5.7	4.3	4	101	3.3									2	0.84	6.5	
06	5.5	4.8	5	110	5.6									2	0.83	6.4	
07	6.1	3.6	4	91										2	0.97	6.9	
08	6.4	3.6	4	99										2	0.89	6.9	
09	6.1	3.5	5	108										2	0.89	6.7	
10	5.9	3.8	7	107										2	0.85	6.6	
11	5.8	4.7	4	116										2	0.79	6.6	
12	5.6	3.8	6	101	3.8									2	0.91	6.7	
13	5.8	2.4	5	83										2	0.94	6.9	
14	6.2	4.8	6	111										2	0.83	6.9	

### ADDITIONAL INFORMATION

Year 1,2,3,4 If corn is harvested for silage instead of grain add extra 30 lbs P<sub>2</sub>O<sub>5</sub> per acre and 90 lbs K<sub>2</sub>O per acre to next crop.  
Starter fertilizer (e.g. 10+20+20 lbs N+P<sub>2</sub>O<sub>5</sub>+K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.  
Parts of this field may benefit from liming. Please see the unadjusted lime requirements in the Laboratory Analysis section below.  
Recommended rates are the total amount of nutrients to apply (N-P-K), including starter fertilizer.





**AgSource  
Laboratories**

A Subsidiary of Cooperative Resources International

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**PO Box 150**  
**LAWLER, IA 52154**

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## Soil Analysis

Submitted For:  
**LakeView Family Farms**  
**1020 Pembroke Ave**  
**Lawler IA 52154**

Laboratory Sample #  
**AN54200 - AN54309**

Date Received:  
**12/15/2014**

Date Processed:  
**12/16/2014**

Information Sheet #  
**754208**

A lime recommendation is calculated only when soil pH is more than 0.2 units below the optimum pH. Starter fertilizer (e.g. 10 + 20 + 20 lbs N + P <sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O/a) is advisable for row crops on soils slow to warm in the spring.

A soil nitrate test may better estimate actual corn N needs. If conservative tillage leaves more than 50% residue cover when corn follows after corn, add an additional 30 N lb/a.

If alfalfa will be maintained for more than three years, increase recommended: K<sub>2</sub>O by 20% each year.



## Nitrogen Application Rate Guidelines for Corn

(For more info, see <http://www.soils.wisc.edu/extension/pubs/A2809.pdf>.)

**Justification:** While the yield response of corn to applied N has not changed, the economics of corn production have. Recently soil fertility specialists in Wisconsin, Minnesota, Iowa, and Illinois have agreed to use the same philosophy to develop N rate guidelines for corn (grain). The philosophy used is based on maximizing return to N fertilizer. The new N rate guidelines were developed as a means to provide growers guidance on how much they might adjust their N application rates and maintain or enhance profitability depending upon their individual farm situation. Research data collected in

SUGGESTED N APPLICATION RATES FOR CORN(GRAIN) AT DIFFERENT N:CORN PRICE RATIOS								
Soil and Previous Crop	N:Corn Price Ratio (\$/lb N:\$/bu)							
	0.05		0.10		0.15		0.20	
	Rate *3	Range *4	Rate *3	Range *4	Rate *3	Range *4	Rate *3	Range *4
HIGH YIELD POTENTIAL SOILS Corn, Forage Legumes, Leguminous vegetables, Green manures *5 Soybean, Small grains *6	190	170-210	165	155-180	150	140-160	135	125-150
	140	125-160	120	105-135	105	95-115	95	80-105
MEDIUM YIELD POTENTIAL SOILS Corn, Forage Legumes, Leguminous vegetables, Green manures *5 Soybean, Small grains *6	145	130-160	125	115-140	115	105-125	105	95-110
	130	110-150	100	85-120	85	70-95	70	60-80
IRRIGATED SANDS AND LOAMY SANDS All Crops *5	215	200-230	200	185-210	185	175-195	175	165-185
NON-IRRIGATED SANDS AND LOAMY SANDS All Crops *5	140	130-150	130	120-140	120	110-130	110	100-120

\*1 To determine soil yield potential, consult UWEX publication A2809 or contact your county agent or agronomist.

\*2 Includes N in starter.

\*3 Maximum return to N (MRTN) rate.

\*4 Profitability range within \$1/a or MRTN rate.

\*5 Subtract N credit for forage legumes, legume vegetables, animal manures, green manures.

\*6 Subtract credits for animal manures and second year forage legumes.

### Guidelines for choosing an appropriate N application rate for corn (grain)

- 1) If there is more than 50% residue cover at planting, use the upper end of the range.
- 2) For small grains grown on medium and fine textured soils, the mid to low end of the profitable range is the most appropriate.
- 3) If 100% of the N will come from organic sources, use the top end of the range. In addition, up to 20 lb N/a in starter fertilizer may be applied.
- 4) For medium and fine textured soils with: < 2% organic matter, use the high end of the range; > 10% organic matter, use the low end of the range.
- 5) For coarse textured soils with: < 2% organic matter, use the high end of the range; > 2% organic matter, use the mid to low end of the range.
- 6) If there is a likelihood of residual N, then use the low end of the range or use the high end of the range and subtract preplant nitrate test (PPNT) credits.
- 7) For corn following small grains on medium and fine textured soils, the middle to low end of the range is most appropriate.



## SnapPlus Manure Production Estimator Report

Crop Year	2016
Reported For	Badgerwood LLC
Printed	2015-01-28
Plan Completion/Update Date	2015-01-28
SnapPlus Version	14.1 built on 2014-12-20
C:\SnapPlus2\MySnapPlusData\BadgerwoodLLC.snapDb	

**Prepared for:**  
Badgerwood LLC  
attn:John Thomas  
27190 Cherryville Rd  
Ashland, 54806

**Prepared by:** Frontier-Servco FS  
PO Box 359  
Jefferson, 53549  
(920) 674-7000 X 157,(608) 574-1417,  
[nwagner@frontierservcofs.com](mailto:nwagner@frontierservcofs.com)

### Nutrient Source Summary for 2016

		Values are for First Year Available Nutrients in lb/ton or lb/1000 gallons								Volumes are in Tons or Gallons						Value of Applied Nutrients in \$ (based on commerical fertilizer costs in \$/lb)			
Source Name	Type	N	N Inc	N Inj	P	K	S	DM	Volume	Volume Applied	Volume Remain	Fall	Winter	Spring	Summer	N	P2O5	K2O	S
Planned Swine Manure	Swine, liquid, farrow-nursery, indoor pit	8.0	10.0	14.0	6.0	10.0	0.6	2	6,800,000	6,938,875	-138,875	6,938,875	0	0	0	0	0	0	0
<b>Total Solid:</b>									0	0	0	<b>Total Values</b>				0	0	0	0
<b>Total Liquid:</b>									6,800,000	6,938,875	-138,875								

### Estimated Livestock Manure Production

Animal Type	# Of animals	Total No. Of Days	% Collected As Solid	% Collected As Liquid	Yearly Tons	Yearly Gallons
Swine Sow 275 lbs	7,500	365	0	100	0	2,737,500
Swine Grow-Finish Pig 150 lbs	5,250	365	0	100	0	2,299,500
Swine Nursery Pig 25 lbs	13,500	365	0	100	0	1,478,250
Swine Boar 350 lbs	100	365	0	100	0	36,500
				<b>Farm Totals</b>	0	6,551,750

### Manure Storage Pits



No Pits Found

Spreaders

No Spreaders Found



## **Section 6:** Emergency Response Procedures



## Emergency Response Plan

Farm Name:	Badgerwood, LLC		
Owner/Operator:	Reicks View Family Farms	Phone: 641-364-7843	Cell:
Owner/Operator:	John Thomas	Phone:	Cell: 715-419-1958
Farm Address:	TBD, Franzel Rd, Mason, WI		
Farm Location:	T <u>47</u> N, R <u>5</u> <input type="radio"/> E <input checked="" type="radio"/> W	Section <u>29</u>	County: <u>Bayfield</u>
Driving Directions or Emergency Coordinates: <u>From Mason, head NE on County Hwy E, turn left onto US-63N, turn right onto Franzel Rd. From Benoit, head SW on US-2W, turn left onto US-63S, turn left onto Franzel Rd.</u>			

### In Case of Injury, Fire, or Rescue Emergency, Immediately Implement the Following:

1. Assess the condition of the victim, extent of the emergency (fire, rescue) and call for help.
2. Stabilize the victim, use on-site rescue equipment, evacuate buildings, or begin fire suppression as necessary.
3. Brief emergency responders upon arrival on current status of situation.

### In Case of a Spill, Leak, or Failure at the Storage Facility, During Transport, or Land Application, Immediately Implement the Following:

1. Stop the source of the leak or spill. For example:
  - Turn off all pumps/valves and clamp hoses or park tractor on hoses to stop the flow of manure.
2. Assess the situation and make appropriate calls for people, equipment, and materials. See contacts below.
  - Notify DNR spill hotline: 1-800-943-0003 (Spill reporting is mandatory by state law.)
  - Call sheriff's office if spilled on public roads or its right-of-ways for traffic control.
  - Clear the road and roadside of spilled material immediately.
3. Contain the spill and prevent spillage from entering surface waters, tile intakes, or waterways.
  - Use a skid loader or tractor with a blade to build dikes to contain or divert the spill or leak.
  - Insert sleeves around tile intakes (or plug/cap intakes) and block down slope culverts.
  - Use tillage implements to work up the ground ahead of the spill or use absorptive materials.
4. Begin cleanup.
  - Use pumps to recover liquids.
  - Land apply on approved cropland at appropriate rates.
5. Document your actions.

Emergency Contacts	Contact Person (or Company)	Phone Number
Fire/Rescue	Mason Rural Fire Department	911 or 715-765-4449
County Sheriff	Paul Susienka	911 or 715-373-6120
Farm Emergency Coordinator	John Thomas	715-419-1958
DNR Hazardous Spill Line		1-800-943-0003
DNR Permit Contact/Warden	Duane Popple	715-839-3730
Veterinarian	Reicks View Family Farms	641-364-7843
Equipment/Supplies	Contact Person (or Company)	Phone Number
On-Farm Equipment Operator	John Thomas	715-419-1958
Excavation Contractor	Reicks View Family Farms	641-364-7843
Manure Hauler	Reicks View Family Farms	641-364-7843
Septic Tank Pumping Truck	Reicks View Family Farms	641-364-7843
Mortality Disposal Contractor	Reicks View Family Farms	641-364-7843
Local Government Contacts	Contact Person	Phone Number
Town Chairman	Terry Torkko	715-682-0682
LCD County Conservationist	Benjamin Dufford	715-373-6167
NRCS District Conservationist	Gary Haughn	715-682-9117 x 115

#### Be prepared to provide the following information:

- Your name and contact information
- Farm address, location and other pertinent identification information.
- Nature of emergency (employee injury, fire, discharge of manure or hazardous materials).
- Emergency equipment and personnel that are needed.
- Potential for manure or hazardous materials to reach surface waters or major field drains.
- Current status of containment efforts.
- Location of hazardous/flammable materials, fire suppression equipment, emergency cut off switches or valves.



## **Section 7: Soil Features (Water & Depth to Bedrock)**

Very few of the soil types included in the NMP have issues with depth to bedrock or groundwater. The reports show that depth to groundwater might be questionable during the early spring on most of the fields (580B), but given these fields are planned for fall applications this should not be an issue.



## Report—Water Features

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Water Features—Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>f</i> t	<i>f</i> t				
92F—Udorthents, ravines and escarpments, 25 to 60 percent slopes										
Udorthents, ravines and escarpments	—	—	Jan-Dec	—	—	—	—	—	—	—
280C—Odanah silt loam, 6 to 15 percent slopes										
Odanah	C/D	Very high	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March					None		None
			April	0.0	0.5-0.5	—	—	None	—	None
			May	—	—	—	—	None	—	None
			June					None		None
			July					None		None
			August					None		None
			September	—	—	—	—	None	—	None
			October	—	—	—	—	None	—	None
			November	—	—	—	—	None	—	None
			December	—	—	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
280D—Odanah silt loam, 15 to 25 percent slopes										
Odanah	C/D	Very high	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	0.0	0.5-0.5	—	—	None	—	None
			May	—	—	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None		None
			October	—	—	—	—	None	—	None
			November	—	—	—	—	None	—	None
			December	—	—	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
280F--Odanah silt loam, 25 to 60 percent slopes										
Odanah	C/D	Very high	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	0.0	0.5-0.5	—	—	None	—	None
			May	—	—	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None		None
			October	—	—	—	—	None	—	None
			November	—	—	—	—	None	—	None
			December	—	—	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
479A--Lerch-Herbster complex, 0 to 3 percent slopes										
Lerch	D	Very high	January	0.0 3.5	2.0-2.0 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
Lerch			February	0.0 3.5	2.0-2.0 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
Lerch			March	0.0 3.5	2.0-2.0 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			April	0.0 3.5	2.5-2.5 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent		None
			May	0.0 3.5	2.0-2.0 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			June	0.0 3.5	1.5-1.5 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			July	0.5 4.0	1.0-1.0 >6.0	0.0-1.0	Brief (2 to 7 days)	Occasional	—	None
Lerch			August	4.0	>6.0	0.0-1.0	Brief (2 to 7 days)	Occasional	—	None
			September	4.0	>6.0	0.0-1.0	Brief (2 to 7 days)	Occasional	—	None
Lerch			October	0.0 4.0	1.5-1.5 >6.0	0.0-1.0	Brief (2 to 7 days)	Frequent		None
Lerch			November	0.0 3.5	2.5-2.5 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	0.0 3.5	2.5-2.5 >6.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
Herbster Herbster	D	High	January	0.0 3.5	1.0-1.0 >6.0	—	—	None	—	None
			February	0.0 3.5	1.0-1.0 >6.0	—	—	None	—	None
			March	0.0 3.5	1.0-1.0 >6.0	—	—	None	—	None
			April	0.0 3.5	2.0-2.0 >6.0			None		None
Herbster			May	0.0 3.5	1.5-1.5 >6.0			None		None
			June	4.0	>6.0	—	—	None	—	None
			July	5.0	>6.0	—	—	None	—	None
			August	5.0	>6.0	—	—	None	—	None
Herbster Herbster			September	5.0	>6.0	—	—	None	—	None
			October	0.0 4.0	1.0-1.0 >6.0	—	—	None	—	None
			November	0.0 3.5	1.5-1.5 >6.0	—	—	None	—	None
			December	0.0 3.5	0.5-0.5 >6.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
480B--Portwing-Herbster complex, 0 to 6 percent slopes										
Portwing	C/D	High	January	4.0	>6.0	—	—	None	—	None
			February	4.0	>6.0	—	—	None	—	None
			March	4.0	>6.0	—	—	None	—	None
Portwing			April	1.0	2.5-2.5	—	—	None	—	None
Portwing				3.5	>6.0					
Portwing			May	1.0	2.5-2.5	—	—	None	—	None
				3.5	>6.0					
			June	4.5	>6.0			None		None
			July	5.5	>6.0	—	—	None	—	None
			August	5.5	>6.0	—	—	None	—	None
			September	5.0	>6.0	—	—	None	—	None
			October	4.5	>6.0	—	—	None	—	None
Portwing			November	1.0	2.5-2.5	—	—	None	—	None
Portwing				4.0	>6.0					



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
Portwing			December	4.0	>6.0	—	—	None	—	None
Herbster Herbster	D	High	January	0.0 3.5	1.0-1.0 >6.0	—	—	None	—	None
			February	0.0 3.5	1.0-1.0 >6.0	—	—	None	—	None
			March	0.0 3.5	1.0-1.0 >6.0	—	—	None	—	None
			April	0.0 3.5	2.0-2.0 >6.0	—	—	None	—	None
Herbster			May	0.0 3.5	1.5-1.5 >6.0			None		None
			June	4.0	>6.0	—	—	None	—	None
			July	5.0	>6.0	—	—	None	—	None
			August	5.0	>6.0	—	—	None	—	None
			September	5.0	>6.0	—	—	None	—	None
Herbster Herbster			October	0.0 4.0	1.0-1.0 >6.0			None		None
			November	0.0 3.5	1.5-1.5 >6.0	—	—	None	—	None
			December	0.0 3.5	0.5-0.5 >6.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
481C--Cornucopia silt loam, 6 to 15 percent slopes										
Cornucopia	C	Very high	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	—	—	—	—	None	—	None
			May	—	—	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None		None
			October	—	—	—	—	None	—	None
			November	—	—	—	—	None	—	None
			December	—	—	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
481E--Cornucopia silt loam, 15 to 45 percent slopes										
Cornucopia	C	Very high	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	—	—	—	—	None	—	None
			May	—	—	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None		None
			October	—	—	—	—	None	—	None
			November	—	—	—	—	None	—	None
			December	—	—	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
548A--Pickford-Badriver complex, 0 to 3 percent slopes										
Pickford	D	High	January	0.0	2.0-2.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			February	0.0	2.0-2.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			March	0.0	2.0-2.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			April	0.0	2.5-2.5	0.0-1.0	Long (7 to 30 days)	Frequent		None
			May	0.0	2.0-2.0	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			June	0.0	1.5-1.5	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
			July	0.5	1.0-1.0	0.0-1.0	Brief (2 to 7 days)	Occasional	—	None
			August	—	—	0.0-1.0	Brief (2 to 7 days)	Occasional	—	None
			September	—	—	0.0-1.0	Brief (2 to 7 days)	Occasional	—	None
			October	0.0	1.5-1.5	0.0-1.0	Brief (2 to 7 days)	Frequent		None
			November	0.0	2.5-2.5	0.0-1.0	Long (7 to 30 days)	Frequent	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	0.0	2.5-2.5	0.0-1.0	Long (7 to 30 days)	Frequent	—	None
Badriver	C/D	—	January	0.0	1.0-1.0	—	—	None	—	None
			February	0.0	1.0-1.0	—	—	None	—	None
			March	0.0	1.0-1.0	—	—	None	—	None
			April	0.0	2.0-2.0	—	—	None	—	None
			May	0.0	1.5-1.5	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None		None
			October	0.0	1.0-1.0	—	—	None	—	None
			November	0.0	1.5-1.5	—	—	None	—	None
			December	0.0	1.0-1.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
580B--Sanborg-Badriver complex, 0 to 6 percent slopes										
Sanborg	C/D	High	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	1.0	2.5-2.5	—	—	None	—	None
			May	1.0	2.5-2.5	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	—	—	—	—	None	—	None
			November	1.0	2.0-2.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	—	—	—	—	None	—	None
Badriver	C/D	High	January	0.0	1.0-1.0	—	—	None	—	None
			February	0.0	1.0-1.0	—	—	None	—	None
			March	0.0	1.0-1.0	—	—	None	—	None
			April	0.0	2.0-2.0	—	—	None	—	None
			May	0.0	1.5-1.5	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	0.0	1.0-1.0	—	—	None	—	None
			November	0.0	1.5-1.5	—	—	None	—	None
			December	0.0	1.0-1.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
713B--Kellogg-Allendale-Ashwabay complex, 2 to 6 percent slopes										
Kellogg	C/D	Very low	January	2.0	3.0-3.0	—	—	None	—	None
			February	2.0	3.0-3.0	—	—	None	—	None
			March	2.0	3.0-3.0	—	—	None	—	None
			April	1.5	3.0-3.0	—	—	None	—	None
			May	2.0	3.0-3.0	—	—	None	—	None
			June	2.0	3.0-3.0	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	2.0	2.5-2.5	—	—	None	—	None
			November	2.0	3.0-3.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	2.0	3.0-3.0	—	—	None	—	None
Allendale	D	Very low	January	1.0	2.5-2.5	—	—	None	—	None
			February	1.0	2.5-2.5	—	—	None	—	None
			March	1.0	3.0-3.0	—	—	None	—	None
			April	0.5	3.0-3.0	—	—	None	—	None
			May	0.5	3.0-3.0	—	—	None	—	None
			June	1.0	2.5-2.5	—	—	None	—	None
			July	1.5	2.5-2.5	—	—	None	—	None
			August	2.0	2.5-2.5	—	—	None	—	None
			September	2.0	2.5-2.5	—	—	None	—	None
			October	1.0	2.5-2.5	—	—	None	—	None
			November	1.0	2.5-2.5	—	—	None	—	None
			December	1.5	2.5-2.5	—	—	None	—	None
Ashwabay	A	Negligible	January	3.5	4.5-4.5	—	—	None	—	None
			February	3.5	4.5-4.5	—	—	None	—	None
			March	3.0	4.5-4.5	—	—	None	—	None
			April	2.5	4.5-4.5	—	—	None	—	None
			May	2.5	4.5-4.5	—	—	None	—	None
			June	3.5	4.5-4.5	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None		None
			October	3.0	4.0-4.0	—	—	None	—	None
			November	3.0	4.5-4.5	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	3.0	4.5-4.5	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
713C--Kellogg-Allendale-Ashwabay complex, 6 to 15 percent slopes										
Kellogg	C/D	Low	January	2.0	3.0-3.0	—	—	None	—	None
			February	2.0	3.0-3.0	—	—	None	—	None
			March	2.0	3.0-3.0	—	—	None	—	None
			April	1.5	3.0-3.0	—	—	None	—	None
			May	2.0	3.0-3.0	—	—	None	—	None
			June	2.0	3.0-3.0	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	2.0	2.5-2.5	—	—	None	—	None
			November	2.0	3.0-3.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	2.0	3.0-3.0	—	—	None	—	None
Allendale	D	Low	January	1.0	2.5-2.5	—	—	None	—	None
			February	1.0	2.5-2.5	—	—	None	—	None
			March	1.0	3.0-3.0	—	—	None	—	None
			April	0.5	3.0-3.0	—	—	None	—	None
			May	0.5	3.0-3.0	—	—	None	—	None
			June	1.0	2.5-2.5	—	—	None	—	None
			July	1.5	2.5-2.5	—	—	None	—	None
			August	2.0	2.5-2.5	—	—	None	—	None
			September	2.0	2.5-2.5	—	—	None	—	None
			October	1.0	2.5-2.5	—	—	None	—	None
			November	1.0	2.5-2.5	—	—	None	—	None
			December	1.5	2.5-2.5	—	—	None	—	None
Ashwabay	A	Very low	January	3.5	4.5-4.5	—	—	None	—	None
			February	3.5	4.5-4.5	—	—	None	—	None
			March	3.0	4.5-4.5	—	—	None	—	None
			April	2.5	4.5-4.5	—	—	None	—	None
			May	2.5	4.5-4.5	—	—	None	—	None
			June	3.5	4.5-4.5	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None		None
			October	3.0	4.0-4.0	—	—	None	—	None
			November	3.0	4.5-4.5	—	—	None	—	None



Water Features—Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	3.0	4.5-4.5	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
753B--Sedgwick-Munuscong complex, 0 to 6 percent slopes										
Sedgwick	C/D	Very high	January	1.0	2.5-2.5	—	—	None	—	None
			February	1.0	2.5-2.5	—	—	None	—	None
			March	0.5	2.5-2.5	—	—	None	—	None
			April	0.5	2.5-2.5	—	—	None	—	None
			May	0.5	2.5-2.5	—	—	None	—	None
			June	0.5	1.5-1.5	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	1.0	1.5-1.5	—	—	None	—	None
			November	0.5	2.5-2.5	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	0.5	2.5-2.5	—	—	None	—	None
Munuscong	C/D	Medium	January	0.0	3.0-3.0	—	—	None	—	None
			February	0.0	3.0-3.0	—	—	None	—	None
			March	0.0	3.0-3.0	—	—	None	—	None
			April	0.0	3.0-3.0	0.5-0.5	Long (7 to 30 days)	Frequent	—	None
			May	0.0	3.0-3.0	0.5-0.5	Long (7 to 30 days)	Frequent	—	None
			June	0.5	3.0-3.0	—	—	None	—	None
			July	1.0	3.0-3.0	—	—	None	—	None
			August	1.5	2.5-2.5	—	—	None	—	None
			September	1.5	2.0-2.0	—	—	None	—	None
			October	0.5	—	—	—	None	—	None
			November	0.0	3.0-3.0	0.5-0.5	Brief (2 to 7 days)	Occasional	—	None
			December	0.0	3.0-3.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
756B--Superior-Sedgwick complex, 0 to 6 percent slopes										
Superior	D	Very high	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	0.5	2.0-2.0	—	—	None	—	None
			May	1.0	2.0-2.0	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	1.5	2.0-2.0	—	—	None	—	None
			November	1.0	2.0-2.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	1.0	1.5-1.5	—	—	None	—	None
Sedgwick	C/D	Very high	January	1.0	2.5-2.5	—	—	None	—	None
			February	1.0	2.5-2.5	—	—	None	—	None
			March	0.5	2.5-2.5	—	—	None	—	None
			April	0.5	2.5-2.5	—	—	None	—	None
			May	0.5	2.5-2.5	—	—	None	—	None
			June	0.5	1.5-1.5	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	1.0	1.5-1.5	—	—	None	—	None
			November	0.5	2.5-2.5	—	—	None	—	None
			December	0.5	2.5-2.5	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
813E--Manistee-Kellogg-Ashwabay complex, 15 to 45 percent slopes										
Manistee	D	Low	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	—	—	—	—	None	—	None
			May	—	—	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	—	—	—	—	None	—	None
			November	—	—	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	—	—	—	—	None	—	None
Kellogg	C/D	Low	January	2.0	3.0-3.0	—	—	None	—	None
			February	2.0	3.0-3.0	—	—	None	—	None
			March	2.0	3.0-3.0	—	—	None	—	None
			April	1.5	3.0-3.0	—	—	None	—	None
			May	2.0	3.0-3.0	—	—	None	—	None
			June	2.0	3.0-3.0	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None	—	None
			October	2.0	2.5-2.5	—	—	None	—	None
			November	2.0	3.0-3.0	—	—	None	—	None
			December	2.0	3.0-3.0	—	—	None	—	None
Ashwabay	A	Low	January	3.5	4.5-4.5	—	—	None	—	None
			February	3.5	4.5-4.5	—	—	None	—	None
			March	3.0	4.5-4.5	—	—	None	—	None
			April	2.5	4.5-4.5	—	—	None	—	None
			May	2.5	4.5-4.5	—	—	None	—	None
			June	3.5	4.5-4.5	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September					None	—	None
			October	3.0	4.0-4.0	—	—	None	—	None
			November	3.0	4.5-4.5	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	3.0	4.5-4.5	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
1280B--Sanborg-Odanah complex, 2 to 6 percent slopes										
Sanborg	C/D	High	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	1.0	2.5-2.5	—	—	None	—	None
			May	1.0	2.5-2.5	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	—	—	—	—	None	—	None
			November	1.0	2.0-2.0	—	—	None	—	None



Water Features--Bayfield County, Wisconsin										
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface depth	Duration	Frequency	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
			December	—	—	—	—	None	—	None
Odanah	C/D	High	January	—	—	—	—	None	—	None
			February	—	—	—	—	None	—	None
			March	—	—	—	—	None	—	None
			April	0.0	0.5 0.5			None		None
			May	—	—	—	—	None	—	None
			June	—	—	—	—	None	—	None
			July	—	—	—	—	None	—	None
			August	—	—	—	—	None	—	None
			September	—	—	—	—	None	—	None
			October	—	—	—	—	None	—	None
			November	—	—	—	—	None	—	None
			December	—	—	—	—	None	—	None
W—Water										
Water	—	—	Jan-Dec	—	—	—	—	—	—	—

## Data Source Information

Soil Survey Area: Bayfield County, Wisconsin  
 Survey Area Data: Version 16, Sep 8, 2014





## Report—Physical Soil Properties

Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
92F— Udorthents, ravines and escarpments, 25 to 60 percent slopes	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Udorthents, ravines and escarpments	—	—	—	—	—	—	—	—	—					
280C—Odanah silt loam, 6 to 15 percent slopes														
Odanah	0-4	-29-	-51-	10-20- 30	1.35-1.55	4.23-14.11	0.17 0.22	0.0 3.0	2.0 5.0	.37	.37	5	6	48
	4-8	10-18- 40	25-57- 65	15-25- 30	1.45-1.60	1.41-14.11	0.12-0.20	0.0-3.0	0.5-1.0	.49	.49			
	8-12	10-29- 40	25-31- 65	25-40- 55	1.45-1.60	0.42-4.23	0.10-0.16	6.0-8.9	0.0-1.0	.28	.28			
	12-30	10-23- 40	25-29- 65	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	30-80	10-23- 40	25-29- 65	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.24	.24			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
280D—Odanah silt loam, 15 to 25 percent slopes														
Odanah	0-4	-29-	-51-	10-20- 30	1.35-1.55	4.23-14.11	0.17-0.22	0.0-3.0	2.0-5.0	.37	.37	5	6	48
	4-8	10-18- 40	25-57- 65	15-25- 30	1.45-1.60	1.41-14.11	0.12-0.20	0.0-3.0	0.5-1.0	.49	.49			
	8-12	10-29- 40	25-31- 65	25-40- 55	1.45-1.60	0.42-4.23	0.10-0.16	6.0-8.9	0.0-1.0	.28	.28			
	12-30	10-23- 40	25-29- 65	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
280F—Odanah silt loam, 25 to 60 percent slopes														
Odanah	0-4	-29-	-51-	10-20- 30	1.35-1.55	4.23-14.11	0.17-0.22	0.0-3.0	2.0-5.0	.37	.37	5	6	48
	4-8	10-18- 40	25-57- 65	15-25- 30	1.45-1.60	1.41-14.11	0.12-0.20	0.0-3.0	0.5-1.0	.49	.49			
	8-12	10-29- 40	25-31- 65	25-40- 55	1.45-1.60	0.42-4.23	0.10-0.16	6.0-8.9	0.0-1.0	.28	.28			
	12-30	10-23- 40	25-29- 65	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	30-80	10-23- 40	25-29- 65	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.24	.24			



Physical Soil Properties--Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
479A—Lerch-Herbster complex, 0 to 3 percent slopes														
Lerch	0-3	0- 0- 0	0- 0- 0	0- 0- 0	0.15-0.40	42.34-141.10	0.35-0.45	—	65.0-85.0		5	4		86
	3-7	-10-	0-25- 35	60-65- 95	1.25-1.35	0.14-0.42	0.11-0.13	9.0-12.0	1.0-3.0	.20	.20			
	7-12	0- 7- .35	0-10- 60	40-75- 85	1.25-1.50	0.14-0.42	0.11-0.14	9.0-12.0	0.0-1.0	.17	.17			
	12-29	0- 8- .35	0-19- 60	40-73- 95	1.25-1.50	0.14-0.42	0.09-0.13	9.0-12.0	0.0-0.5	.17	.17			
	29-56	0- 8- .35	0-19- 60	40-73- 95	1.25-1.50	0.14-0.42	0.08-0.12	9.0-12.0	0.0-0.5	.17	.17			
	56-80	0-68- 80	5-20- 80	5-13- 25	1.45-1.65	4.23-141.00	0.08-0.22	0.0-2.9	0.0-0.5	.43	.43			
Herbster	0-5	-27-	-54-	10-19- 27	1.35-1.55	4.23-14.11	0.17-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	5-10	-17-	30-59- 70	15-25- 45	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.55	.55			
	10-13	5-17- 40	30-46- 70	25-38- 60	1.45-1.60	0.00-4.23	0.09-0.20	6.0-8.9	0.5-1.0	.37	.37			
	13-28	-23-	-29-	35-48- 60	1.45-1.60	0.00-0.42	0.09-0.13	6.0-8.9	0.5-1.0	.28	.28			
	28-33	5-18- 35	20-35- 65	35-40- 60	1.40-1.65	0.00-0.42	0.09-0.13	6.0-8.9	0.0-0.5	.20	.20			
	33-55	5-18- 35	20-35- 65	35-40- 60	1.40-1.65	0.00-0.42	0.09-0.13	6.0-8.9	0.0-0.5	.20	.20			
	55-80	20-65- 80	10-23- 65	5-13- 20	1.45-1.70	4.23-14.11	0.10-0.16	0.0-2.9	0.0-0.5	.49	.49			



Physical Soil Properties--Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
480B— Portwing- Herbster complex, 0 to 6 percent slopes														
Portwing	0-4	-27-	-54-	10-19- 27	1.35-1.55	4.23-14.11	0.17-0.22	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	4-9	15-17- 40	20-59- 70	15-25- 45	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.49	.49			
	9-32	15-23- 40	20-29- 60	35-40- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	32-51	15-23- 40	20-29- 60	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	51-80	15-65- 90	10-25- 85	5-10- 15	1.45-1.70	4.23-14.11	0.10-0.15	0.0-2.9	0.0-0.5	.55	.55			
Herbster	0-5	-27-	-54-	10-19- 27	1.35-1.55	4.23-14.11	0.17-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	5-10	-17-	30-59- 70	15-25- 45	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.55	.55			
	10-13	5-17- 40	30-46- 70	25-30- 60	1.45-1.60	0.00-1.23	0.09-0.20	6.0-8.9	0.5-1.0	.37	.37			
	13-28	-23-	-29-	35-40- 60	1.45-1.60	0.00-0.42	0.09-0.13	6.0-8.9	0.5-1.0	.20	.26			
	28-33	5-18	20-35- 65	35-48- 60	1.40-1.65	0.00-0.42	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	33-55	5-18-	20-35- 65	35-48- 60	1.40-1.65	0.00-0.42	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	55-80	20-65- 80	10-23- 65	5-13- 20	1.45-1.70	4.23-14.11	0.10-0.16	0.0-2.9	0.0-0.5	.49	.49			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
481C— Cornucopia silt loam, 6 to 15 percent slopes														
Cornucopia	0-3	-27-	-54-	10-19- 27	1.35-1.55	4.23-14.11	0.17-0.22	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	3-10	10-55- 70	15-26- 65	15-19- 45	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.49	.49			
	10-32	10-23- 40	20-27- 50	40-50- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	32-45	10-23- 40	20-27- 50	40-50- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	45-50	15-60- 90	10-28- 85	5-13- 20	1.45-1.70	4.23-14.11	0.10-0.15	0.0-2.9	0.0-0.5	.49	.49			
	50-72	15-65- 90	10-25- 85	5-10- 15	1.45-1.70	4.23-14.11	0.10-0.15	0.0-2.9	0.0-0.5	.49	.49			
481E— Cornucopia silt loam, 15 to 45 percent slopes														
Cornucopia	0-3	-27-	-54-	10-19- 27	1.35-1.55	4.23-14.11	0.17-0.22	0.0-2.9	1.0-3.0	.43	.43	3	5	56
	3-10	10-55- 70	15-26- 65	15-19- 45	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.49	.49			
	10-32	10-23- 40	20-27- 50	40-50- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	32-45	10-23- 40	20-27- 50	40-50- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	45-50	15-60- 90	10-28- 85	5-13- 20	1.45-1.70	4.23-14.11	0.10-0.15	0.0-2.9	0.0-0.5	.49	.49			
	50-72	15-65- 90	10-25- 85	5-10- 15	1.45-1.70	4.23-14.11	0.10-0.15	0.0-2.9	0.0-0.5	.49	.49			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
548A— Pickford- Badriver complex, 0 to 3 percent slopes														
Pickford	0-6	0- 0- 0	—	0- 0- 0	0.10-0.35	14.11-141.14	0.35-0.45	—	20.0-70.0		5		6	48
	6-8	-17-	25-10- 60	20-35- 50	1.10-1.35	1.23-14.11	0.20-0.24	0.0-2.8	3.0-15.0	.28	.28			
	8-10	-18-	25-13- 60	35-10- 60	1.40-1.65	0.00-0.42	0.09-0.13	6.0-8.9	0.0-0.5	.37	.37			
	10-16	6	25-47- 60	35-48- 60	1.40-1.65	0.00-0.42	0.09-0.13	6.0-8.9	0.0-0.5	.32	.32			
	16-24	10-22- 30	25-28- 50	40-50- 60	1.50-1.70	0.00-0.42	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
	24-60	10-22- 30	25-28- 50	40-50- 60	1.50-1.70	0.00-0.42	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
Badriver	0-3	-34-	-32-	27-34- 40	1.35-1.55	1.23-14.11	0.16-0.20	6.0-8.9	4.0-10.0	.17	.17	5	6	40
	3-10	10-35- 45	20-33- 70	25-33- 40	1.45-1.60	1.41-14.11	0.12-0.20	6.0-8.9	0.5-1.0	.28	.28			
	10-24	0-31- 45	20-29- 70	30-10- 50	1.45-1.60	0.42-1.23	0.10-0.16	6.0-8.9	0.0-1.0	.20	.26			
	24-53	0-23- 45	20-29- 70	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.24	.24			
	53-60	0-26- 45	20-36- 70	30-38- 45	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.32	.32			



Physical Soil Properties--Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
560B— Sanborg- Badriver complex, 0 to 6 percent slopes														
Sanborg	0-5	-30-	-55-	10-15- 20	1.30-1.60	4.23-14.11	0.20-0.24	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	5-9	5-18- 45	20-62- 75	15-20- 35	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.55	.55			
	9-17	5-19- 45	10-44- 70	25-30- 50	1.45-1.60	0.42-1.23	0.10-0.16	6.0-8.9	0.0-1.0	.37	.37			
	17-35	0-23- 40	10-29- 70	30-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	35-49	0-6- 40	10-47- 70	30-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.32	.32			
	49-80	0-8- 40	10-50- 70	30-43- 55	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.37	.37			
Badriver	0-3	-34-	-32-	27-34- 40	1.35-1.55	4.23-14.11	0.16-0.20	6.0-8.9	4.0-10.0	17	17	5	6	40
	3-10	10-35- 45	20-33- 70	25-33- 40	1.45-1.60	1.41-14.11	0.12-0.20	6.0-8.9	0.5-1.0	.20	.20			
	10-24	0-31- 45	20-29- 70	30-40- 50	1.45-1.60	0.42-1.23	0.10-0.16	6.0-8.9	0.0-1.0	.20	.20			
	24-53	0-23- 45	20-29- 70	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.24	.24			
	53-60	0-26- 45	20-36- 70	30-38- 45	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.32	.32			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
In		Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
713B—Kellogg-Allendale-Ashwabay complex, 2 to 6 percent slopes														
Kellogg	0-2	0- 0- 0	—	0- 0- 0	0.15-0.30	42.34-141.10	0.55-0.65	—	65.0-85.0		4	1		220
	2-6	84-	1-	2- 5- 8	1.35-1.60	42.34-141.10	0.06-0.10	0.0-2.9	0.6-1.0	.02	.02			
	6-26	80-91- 95	2-	2- 7- 12	1.35-1.60	42.34-141.10	0.06-0.10	0.0-2.9	0.6-1.0	.05	.05			
	26-29	5 7 35	20-48- 60	30-45- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
	29-40	5 5 35	20-47- 60	35-48- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
	40-80	5- 7- 35	20-48- 60	30-45- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
Allendale	0-3	79-	16-	0- 5- 10	1.25-1.40	42.34-141.10	0.09-0.12	0.0-2.9	2.0-4.0	.20	.20	4	2	134
	3-10	70-91- 95	2-	0- 7- 15	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.5-1.0	.02	.02			
	10-13	80-94- 95	1-	0- 5- 10	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.0-0.5	.20	.20			
	13-26	80-94- 95	1	0 5 10	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.0-0.5	.10	.10			
	26-28	80-94- 95	1-	0- 5- 10	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.0-0.5	.10	.10			
	28-34	15-22- 25	25-28- 45	40-50- 60	1.45-1.70	0.07-0.42	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
	34-60	15-22- 25	25-28- 45	40-50- 60	1.45-1.70	0.07-0.42	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
Ashwabay	0-4	85-	9-	2- 6- 10	1.35-1.65	42.34-141.14	0.09-0.12	0.0-2.9	2.0-4.0	.05	.05	4	2	134
	4-5	80-96-100	2-	1- 3- 4	1.35-1.65	42.34-141.14	0.09-0.12	0.0-2.9	0.5-1.0	.05	.05			
	5-12	80-96-100	2-	1- 3- 4	1.45-1.70	42.34-141.14	0.05-0.11	0.0-2.9	0.5-1.0	.05	.05			
	12-32	80-96-100	2	1 3 4	1.45-1.70	42.34-141.14	0.05-0.11	0.0-2.9	0.5-1.0	.05	.05			
	32-45	97	2	1 2 2	1.55-1.70	42.34-141.14	0.04-0.08	0.0-2.9	0.5-1.0	.17	.17			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
	45-62	10-22- 40	25-28- 60	35-50- 60	1.45-1.55	0.42-1.41	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
	62-80	10-30- 90	5-39- 85	2-31- 60	1.45-1.55	0.42-1.41	0.08-0.12	6.0-8.9	0.0-0.5	.37	.37			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
713C—Kellogg-Allendale-Ashwabay complex, 6 to 15 percent slopes														
Kellogg	0-2	0- 0- 0	—	0- 0- 0	0.15-0.30	42.34-141.10	0.55-0.65	—	65.0-85.0		4	1		220
	2-6	8-91-	- 1-	2- 5- 8	1.35-1.60	42.34-141.10	0.06-0.10	0.0-2.9	0.6-1.0	.02	.02			
	6-26	80-91- 95	- 2-	2- 7- 12	1.35-1.60	42.34-141.10	0.06-0.10	0.0-2.9	0.6-1.0	.05	.05			
	26-29	5- 7- 35	20-48- 60	30-45- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
	29-40	5- 5- 35	20-47- 60	35-48- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
	40-80	5- 7- 35	20-48- 60	30-45- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
Allendale	0-3	-79-	-16-	0- 5- 10	1.25-1.40	42.34-141.10	0.09-0.12	0.0-2.9	2.0-4.0	.20	.20	4	2	134
	3-10	70-91- 95	- 2-	0- 7- 15	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.5-1.0	.02	.02			
	10-13	80-94- 95	- 1-	0- 5- 10	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.0-0.5	.20	.20			
	13-26	80-94- 95	1	0- 5- 10	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.0-0.5	.10	.10			
	26-28	80-94- 95	- 1-	0- 5- 10	1.35-1.45	42.34-141.10	0.06-0.10	0.0-2.9	0.0-0.5	.10	.10			
	28-34	15-22- 25	25-28- 45	40-50- 60	1.45-1.70	0.07-0.42	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
	34-60	15-22- 25	25-28- 45	40-50- 60	1.45-1.70	0.07-0.42	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
Ashwabay	0-4	-85-	- 9-	2- 6- 10	1.35-1.65	42.34-141.14	0.09-0.12	0.0-2.9	2.0-4.0	.05	.05	4	2	134
	4-5	80-96-100	- 2-	1- 3- 4	1.35-1.65	42.34-141.14	0.09-0.12	0.0-2.9	0.5-1.0	.05	.05			
	5-12	80-96-100	- 2-	1- 3- 4	1.45-1.70	42.34-141.14	0.05-0.11	0.0-2.9	0.5-1.0	.05	.05			
	12-32	80-96-100	2	1- 3- 4	1.45-1.70	42.34-141.14	0.05-0.11	0.0-2.9	0.5-1.0	.05	.05			
	32-45	97	2	1- 2- 2	1.55-1.70	42.34-141.14	0.04-0.08	0.0-2.9	0.5-1.0	.17	.17			



Physical Soil Properties--Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
	45-62	10-22- 40	25-28- 60	35-50- 60	1.45-1.55	0.42-1.41	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			
	62-80	10-30- 90	5-39- 85	2-31- 60	1.45-1.55	0.42-1.41	0.08-0.12	6.0-8.9	0.0-0.5	.37	.37			
753B— Sedgwick- Munuscong complex, 0 to 6 percent slopes														
Sedgwick	0-5	-67-	-20-	8-13- 18	1.35-1.65	4.23-14.11	0.10-0.15	0.0-2.9	2.0-4.0	.20	.28	5	3	86
	5-8	82	9	3-9- 15	1.45-1.70	4.23-14.11	0.08-0.17	0.0-2.9	0.5-1.0	.24	.24			
	8-16	67	20	8-13- 18	1.40-1.70	4.23-14.11	0.10-0.17	0.0-2.9	1.0-2.0	.28	.28			
	16-19	5-27- 60	20-29- 65	18-44- 70	1.40-1.70	0.07-14.11	0.07-0.16	6.0-8.9	0.0-0.5	.28	.28			
	19-53	5-23- 40	25-27- 65	30-50- 70	1.45-1.70	0.00-1.41	0.07-0.16	6.0-8.9	0.0-0.5	.24	.24			
	53-80	5- 6- 40	25-45- 65	30-50- 70	1.50-1.80	0.00-1.41	0.07-0.16	6.0-8.9	0.0-0.5	.28	.28			
Munuscong	0-8	-69-	-22-	5-10- 15	1.30-1.65	14.11-42.34	0.13-0.15	0.0-2.9	2.0-3.0	.20	.20	4	3	86
	8-30	-67-	-20-	8-13- 18	1.30-1.70	14.11-42.34	0.12-0.17	0.0-2.9	0.0-0.5	.24	.24			
	30-60	- 1-	20-42- 70	35-58- 80	1.35-1.70	0.42-1.41	0.08-0.18	6.0-8.9	0.0-0.5	.24	.24			



Physical Soil Properties--Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
756B— Superior- Sedgwick complex, 0 to 6 percent slopes														
Superior	0-3	-68-	-21-	7-11- 15	1.35-1.65	4.23-14.11	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	3	3	86
	3-6	-68-	-23-	5- 8- 13	1.35-1.65	4.23-14.11	0.12-0.18	0.0-2.9	0.5-1.0	.37	.37			
	6-14	-66-	-23-	7-11- 15	1.55-1.65	4.23-14.11	0.11-0.19	0.0-2.9	0.5-1.0	.37	.37			
	14-19	22	28	15-50- 65	1.60-1.70	0.07-0.42	0.08-0.13	6.0-8.9	0.0-0.5	.24	.24			
	19-26	12	28	45-60- 75	1.60-1.70	0.07-0.42	0.08-0.13	6.0-8.9	0.0-0.5	.24	.24			
	26-60	-17-	-28-	40-55- 70	1.60-1.70	0.07-0.42	0.07-0.13	6.0-8.9	0.0-0.5	.24	.24			
Sedgwick	0-5	-82-	- 9-	3- 8- 15	1.35-1.65	4.23-14.11	0.10-0.15	0.0-2.9	2.0-4.0	.20	.20	5	2	134
	5-8	-82-	- 9-	3- 8- 15	1.45-1.70	4.23-14.11	0.08-0.17	0.0-2.9	0.5-1.0	.24	.24			
	8-16	-67-	-20-	8-13- 18	1.40-1.70	4.23-14.11	0.10-0.17	0.0-2.9	1.0-2.0	.20	.26			
	16-19	5-27- 60	20-29- 65	18-44- 70	1.40-1.70	0.07-0.14	0.07-0.16	6.0-8.9	0.0-0.5	.28	.28			
	19-53	5-23- 40	25-27- 65	30-50- 70	1.45-1.70	0.00-1.41	0.07-0.16	6.0-8.9	0.0-0.5	.24	.24			
	53-80	5- 6- 40	25-45- 65	30-50- 70	1.50-1.80	0.00-1.41	0.07-0.16	6.0-8.9	0.0-0.5	.28	.28			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
813E— Manistee- Kellogg- Ashwabay complex, 15 to 45 percent slopes														
Manistee	0-3	-91-	- 2-	3- 8- 12	1.35-1.60	42.34-141.14	0.10 0.12	0.0 2.9	2.0 4.0	.02	.02	4	1	220
	3-11	80-91- 95	- 2-	2- 7- 12	1.35-1.60	42.34-141.14	0.06-0.10	0.0-2.9	1.0-2.0	.02	.02			
	11-28	80-91- 95	- 2-	2- 7- 12	1.35-1.60	42.34-141.14	0.06-0.10	0.0-2.9	0.3-0.8	.10	.10			
	28-30	80-91- 95	- 2-	2- 7- 12	1.35-1.60	42.34-141.14	0.06-0.10	0.0-2.9	0.3-0.8	.10	.10			
	30-38	10-23- 40	25-29- 50	35-48- 60	1.50-1.70	0.07-0.42	0.08-0.12	6.0-8.9	0.0-0.5	.28	.28			
	38-60	10-23- 40	25-29- 50	35-48- 60	1.60-1.75	0.42-1.41	0.08-0.16	6.0-8.9	0.0-0.5	.24	.24			
Kellogg	0-2	0- 0- 0	—	0- 0- 0	0.15-0.30	42.34-141.10	0.55-0.65	—	60.0-85.0			4	1	220
	2-6	-94-	- 1-	2- 5- 8	1.35-1.60	42.34-141.10	0.06-0.10	0.0-2.9	0.6-1.0	.02	.02			
	6-26	80-91- 95	- 2-	2- 7- 12	1.35-1.60	42.34-141.10	0.06-0.10	0.0-2.9	0.6-1.0	.05	.05			
	26-29	10-10- 80	5-50- 60	5-40- 55	1.35-1.65	0.14-1.41	0.09-0.15	6.0-9.0	0.0-0.5	.37	.37			
	29-40	5- 5- 35	20-47- 60	35-48- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
	40-80	5- 7- 35	20-48- 60	30-45- 60	1.50-1.70	0.00-1.41	0.09-0.17	6.0-8.9	0.0-0.5	.32	.32			
Ashwabay	0-4	-85-	- 9-	2- 6- 10	1.35-1.65	42.34-141.14	0.09-0.12	0.0-2.9	2.0-4.0	.05	.05	4	2	134
	4-5	80-96-10 0	- 2-	1- 3- 4	1.35-1.65	42.34-141.14	0.09-0.12	0.0-2.9	0.5-1.0	.05	.05			
	5-12	80-96-10 0	- 2-	1- 3- 4	1.45-1.70	42.34-141.14	0.05-0.11	0.0-2.9	0.5-1.0	.05	.05			
	12-32	80-96-10 0	2	1- 3- 4	1.45-1.70	42.34-141.14	0.05-0.11	0.0-2.9	0.5-1.0	.05	.05			
	32-45	-97-	- 2-	1- 2- 2	1.55-1.70	42.34-141.14	0.04-0.08	0.0-2.9	0.5-1.0	.17	.17			
	45-62	10-22- 40	25-28- 60	35-50- 60	1.45-1.55	0.42-1.41	0.08-0.12	6.0-8.9	0.0-0.5	.24	.24			



Physical Soil Properties—Bayfield County, Wisconsin														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
	62-80	10-30- 90	5-39- 85	2-31- 60	1.45-1.55	0.42-1.41	0.08-0.12	6.0-8.9	0.0-0.5	.37	.37			
1280B— Sanborg- Odanah complex, 2 to 6 percent slopes														
Sanborg	0-5	-30-	-55-	10-15- 20	1.30-1.60	4.23-14.11	0.20-0.24	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	5-9	5-18- 45	20-62- 75	15-20- 35	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.55	.55			
	9-17	5-19- 45	10-44- 70	25-38- 50	1.45-1.60	0.42-4.23	0.10-0.16	6.0-8.9	0.0-1.0	.37	.37			
	17-35	0-23- 40	10-29- 70	30-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	35-49	0-6- 40	10-47- 70	30-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.32	.32			
	49-80	0-8- 40	10-50- 70	30-43- 55	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.37	.37			
Odanah	0-4	-29-	-51-	10-20- 30	1.35-1.55	4.23-14.11	0.17-0.22	0.0-2.9	2.0-5.0	.37	.37	5	6	48
	4-8	10-18- 40	25-57- 65	15-25- 30	1.45-1.60	1.41-14.11	0.12-0.20	0.0-2.9	0.5-1.0	.49	.49			
	8-12	10-29- 40	25-31- 65	25-40- 55	1.45-1.60	0.42-4.23	0.10-0.16	6.0-8.9	0.0-1.0	.28	.28			
	12-30	10-23- 40	25-29- 65	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-1.0	.24	.24			
	30-80	10-23- 40	25-29- 65	35-48- 60	1.40-1.55	0.42-1.41	0.08-0.14	6.0-8.9	0.0-0.5	.24	.24			
W—Water														
Water	—	—	—	—	—	—	—	—	—					

## Data Source Information

Soil Survey Area: Bayfield County, Wisconsin

Survey Area Data: Version 16, Sep 8, 2014





## **Section 8:** Manure Storage Capacity Calculations



## **180-Day Waste Production Estimate Badgerwood, LLC**

### **Wash Water**

Assumptions: 5,000 gallons/day from power washers @ 5 hours/day operation.  
500 gallons/day misc. waste water (spills, leaks from drinkers, etc.)  
33% Farrowing Barn, 17% GDU, 50% Breeding & Gestation

### **Farrowing Barn**

Assumptions: 1,320 sows. Manure estimate of 0.41 cu.ft./day-animal. 180 day duration.  
33% of total wash water used in this barn.

Vol. Manure = (1,320 sows)(0.41 cu.ft./day-animal)(180 days) = 97,416 cu.ft.

Vol. Wash Water = (0.33)(5,500 gallons/day)(180 days)(cu.ft./7.48 gallons) = 43,676 cu.ft.

Total Farrowing Barn Manure & Wash Water = 141,092 cu.ft.

### **Gilt Development Unit**

Nursery Assumptions: 2,274 pigs. 7 weeks in nursery, Manure estimate of 1.4 cu.ft./fin. animal.  
17% of total wash water used in this barn.

Vol. Manure =  $\frac{(2,274 \text{ pigs})(1.4 \text{ cu.ft./f-a})(52 \text{ weeks/year})(180 \text{ days})}{(7 \text{ weeks})(365 \text{ days})}$  = 11,663 cu.ft.

Growing Gilt Assumptions: 3,976 pigs. 15 weeks in GDU. Manure estimate of 20 cu.ft./f-a.

Vol. Manure =  $\frac{(3,976 \text{ pigs})(20 \text{ cu.ft./f-a})(52 \text{ weeks/year})(180 \text{ days})}{(15 \text{ weeks})(365 \text{ days})}$  = 135,947 cu.ft.

Vol. Wash Water = (0.17)(5,500 gallons/day)(180 days)(cu.ft./7.48 gallons) = 22,500 cu.ft.

Total GDU Manure & Wash Water = 170,110 cu.ft.

### **Breeding & Gestation Barn**

Assumptions: 6,180 sows and gilts.  
Manure estimate of 0.18 cu.ft./day-animal (gestating sows & gilts)  
100 boars. Manure estimate of 0.13 cu.ft./day-animal (boars)  
50% of total wash water used in this barn.

Vol. Manure (gestating animals) = (6,180 animals)(0.18 cu.ft./day-animal)(180 days) = 200,232 cu.ft.

Vol. Manure (boars) = (100 animals)(0.13 cu.ft./day-animal)(180 days) = 2,340 cu.ft.

Vol. Wash Water = (0.5)(5,500 gallons/day)(180 days)(cu.ft./7.48 gallons) = 66,177 cu.ft.

Total Breeding & Gestation Barn Manure & Wash Water = 268,749 cu.ft.



**Facility Summary of Wastes for 180-Days**

Total Facility Animal Manure Production Estimate 447,598 cu.ft.

Total Facility Wash Water Production Estimate 132,353 cu.ft.

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Total Manure & Waste Water 579,951 cu.ft.