

Managing Impacts of Livestock Operations

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Ashland County Agricultural Ordinance Advisory Group

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ATCP 51

Livestock Facility Siting

Livestock Facility Siting Rules

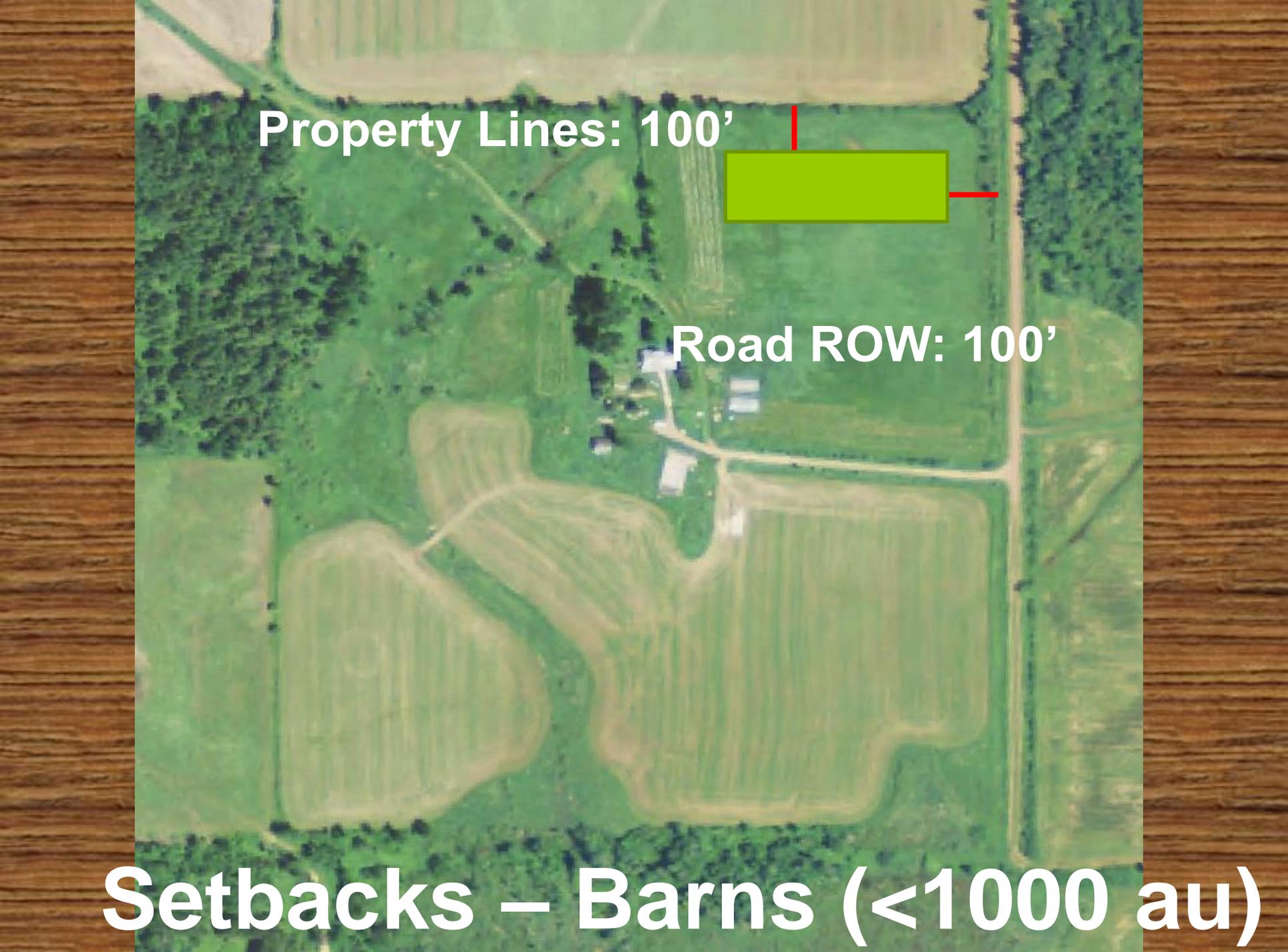
- Only apply in Counties or Towns that adopt the rules via a local ordinance
- Only apply to operations greater than 500 animal units (new operations or expansions greater than 20%)

How It Works (as a farmer)

- If you don't make any changes, you don't have to do anything
- If you expand by more than 20% and exceed 500 animal units you would need to apply for a license from Ashland County
- To apply for a license you would need to submit 5 worksheets to demonstrate you meet the standards of ATCP 51

ATCP 51 Standards

- Setbacks
- Odor
- Nutrient Management (Cropland)
- Manure Storage
- Runoff Management (Barnyard, Feed Storage)



Property Lines: 100'

Road ROW: 100'

Setbacks – Barns (<1000 au)



Property Lines: 200'

Road ROW: 150'

Setbacks – Barns (>1000 au)



Property Lines: 350'

Road ROW: 350'

Setbacks – Manure Storage

An aerial photograph of a rural farmstead. The image shows a central cluster of white buildings, likely barns or farmhouses, surrounded by green fields and wooded areas. A yellow rectangle highlights a large, open field area to the right of the buildings. A yellow circle highlights a smaller, circular area in the field below the rectangle. The background is a dark wood-grain texture.

Exceptions

Existing barns can be expanded (no closer)

Existing pits can be expanded (no closer)

New storage can be built (same size, within 50 feet of existing facility)

Odor Standard

- Nothing is measured, compliance is based on practices (no “sniff test”)
- Odor is not eliminated
- Considers odor from structures only
- Does not consider odor from land spreading

Who must meet the odor standard?

Only those applying for a siting license

REQUIRED (within 2,500 feet of neighbor)

- Expanding operations over 1,000 AU
- New operations over 500 AU

OPTIONAL

- Expanding operations under 1,000 AU
- New operations under 500 AU
- Operations farther than 2,500 feet from neighbor

Odor score

500 points or more = Pass

If under 500 points:

- **Add more practices**
- **Consider other options**
 - **Relocate structures**
 - **Make management changes**
 - **Ask for 30 points - local discretion**

Odor score elements

1. Type of operation
2. Surface area and location of structures
3. Location, density, and type of nearby neighbors
4. Management of the operation

Example Odor Score Calculation

**Separation
Score**

+

**Management
Credits**

-

**Predicted
Odor
Score**

=

**Total
Odor
Score**

Predicted Odor Score

- Column A – Animal Housing Area
 - (PGSF- Pork Nursery, slatted floor)
- Column B – Odor Generation Number
 - 46 (PGSF- Pork Nursery, slatted floor)
- Column C – Exposed Surface Area
 - 8 (200*400/10,000)
- Column D – Odor Control Codes
 - B3 (fresh water flush), C1 (windbreak)

Predicted Odor Score

- Column E – Multiplier Odor Control Practice
 - 0.4 (fresh water flush), 0.9 (windbreak)
- Column F – Predicted Odor
 - $46 * 8 * 0.4 * .90 = \mathbf{132.5}$
- Column G – Distance to Nearest Neighbor
 - 300 ft
- Column H – Weighted Distance
 - 39,750

Separation Score

- Total of Weighted Distances / Total Predicted Odor Score
 - $39,750 / 132.5 = 300$
- Compass Direction Multiplier
 - 1.3 (West)
- High or Low Density
 - Low (no more than 5 residences within 1300 ft)
- Separation Score
 - **534** (from Chart 1)

$$\begin{array}{ccccccc} \boxed{\text{Separation}} & + & \boxed{\text{Management}} & - & \boxed{\text{Predicted}} & = & \boxed{\text{Total}} \\ \boxed{\text{Score}} & & \boxed{\text{Credits}} & & \boxed{\text{Odor}} & & \boxed{\text{Odor}} \\ & & & & \boxed{\text{Score}} & & \boxed{\text{Score}} \\ 534 & & 80 & & 132.5 & & 481 \end{array}$$

Future expansions

- Distance to affected neighbor is “fixed”
- Density also “locked in”



ATCP 51 Standards

- Setbacks
- Odor
- Nutrient Management (Cropland)
- Manure Storage
- Runoff Management (Barnyard, Feed Storage)

Nutrient Management Planning

- Required to submit a checklist verifying the nutrient management plan meets the 590 Standard

Waste Storage Facilities

- Certified engineer signs off that existing and new facilities meet NRCS standards (if not they must be improved)
- Abandoned structures (24 months) closed to NRCS standards
- Storage capacity according to nutrient management plans plus space to accommodate 25-year, 24-hour storm

Runoff Management



Runoff Management

- New animal lots must conform with 635 Standard (ATCP 51.20 sub 1)
- Existing lots (ATCP 51.20 sub 2)
 - No direct discharge to groundwater
 - Limits on phosphorus runoff (BARNY)
- Feed storage (ATCP 51.20 sub 3)
 - Surface water diversion
 - Leachate collection and treatment
- Incorporation of NR 151.08 (Manure Management Prohibitions)

NR 243

**Animal Feeding Operations
(CAFO Water Quality Permits)**

Animal Feeding Operations

- Operations with more than 1000 a.u. are required to have a WPDES permit from the DNR
- Operations less than 1000 a.u. can be required to have a WPDES permit in response to discharge to waters of the state

CAFO WPDES Permit Requirements

- Production area discharge limitations (NR 243.13)
 - No discharge of pollutants from animal production areas to navigable waters, except as a result of certain storm events

Dairy/Cattle=25yr/24hr, Swine/Poultry=100yr/24hr

- Nutrient Management (NR 243.14)
 - How, when, where, amounts of manure are land applied
- Plans/Specifications Review of storage, transfer, runoff control, etc. structures (NR 243.15)

CAFO WPDES Permit Requirements

- Monitoring and Reporting (NR 243.19)
 - Sampling of manure and soil
 - Self-inspection/reporting to determine permit compliance
 - Annual reports for land application/self-inspection

Manure Storage Capacity – ATCP 51

- Storage capacity according to nutrient management plans plus space to accommodate 25-year, 24-hour storm
- Built to 313 Standard
- Only applies to livestock operations with more than 500 animal units

Manure Storage Capacity – NR 243

- For liquid manure, must have 180 days of storage to contain all manure, wastewater, and precipitation and runoff from 100year 24 hr storm (5.4 in.)
- 180-day level indicator in storage structure must be visible at least one day between October 1 and November 30, unless weather doesn't allow spreading

Manure Storage Capacity – NR 243

- Emergency application of manure in the winter to pre-approved fields is allowed if the manure storage is full due to unusual weather conditions, equipment failure, or other unforeseen circumstances beyond the control of the permittee (prolonged storm events, early onset frozen ground)

**Is 180 days of storage
enough in our region to
comply with the rest of NR
243?**

Spreading Windows on Clay In the Far North

- The key is flexibility and storage capacity
- If a window is missed, then what?
- The answer is more storage capacity, more acres, or emergency allowances
- Ideal is to have at least six months capacity as of December 1 of every year

590 Standard **(ATCP 51, NR 243)**

Nutrient Management Planning

Nutrient Management Planning and Water Quality

- Limit soil erosion (Tolerable Soil Loss)
- Meet but not exceed crop nutrient needs
 - Soil testing
 - Crediting existing nutrients
- Minimize non-point nutrient/manure loss
 - Spreading restrictions
 - Phosphorus restrictions
 - Nitrogen restrictions

Spreading Restrictions and Prohibitions

Spreading Restrictions and Prohibitions

- Primary means to limit nutrient/manure loss to surface and groundwater
- Some are basic, some are complicated
- Often requires ground-truthing
- Restrictions in 590 Standard and NR 243 are not always the same
- Winter
- SWQMAs

The Simple Restrictions

Nutrients shall not be applied to: (any time of year)

- Water, wetlands, gravel pits, concentrated flow channels
- Areas within 200 feet upslope of wells, sinkholes, tile inlets, gravel pits
- Fields exceeding tolerable soil loss “T”
- Non-cropland (forests, brushland)
- Manure within 50’ of a well (100’ if CAFO)

The Winter Restrictions (590 Standard/NR 151)

- Winter-spreading plan
- No applications within SWQMA (frozen or snow-covered)
- No manure with 300' of a well
- Liquid manure limited to 7000 gallons/ac

The Winter Restrictions (590 Standard/NR 151)

- No manure on slopes greater than 6% or on fields with concentrated flow channels unless two conservation practices in place
 - See revised 590 standard for options

The Winter Restrictions (NR 243)

- Winter-spreading plan required
- Surface liquid manure prohibited on frozen ground or snow-covered (over 4")
- Surface liquid on snow (up to 4") ok if incorporated
- Injected liquid ok on snow-covered
- Surface solid and liquid manure prohibited Feb 1-Mar 31
- Solid ok (outside SWQMA) in other months with additional restrictions
- See Table 4 for solid restrictions

The SWQMA Restrictions **(Surface Water Quality Management Area)**

What Is A SWQMA?

- **590 Standard**
 - 1000' buffer along ponds, lakes, flowages
 - 300' buffer along a perennial stream (USGS 1:24,000 topo maps)
- **NR 243 (CAFO)**
 - 1000' buffer along ponds, lakes, flowages
 - 300' buffer along non-lake navigable waters
 - 300' buffer along conduits to navigable waters

SWQMA – 590 Standard

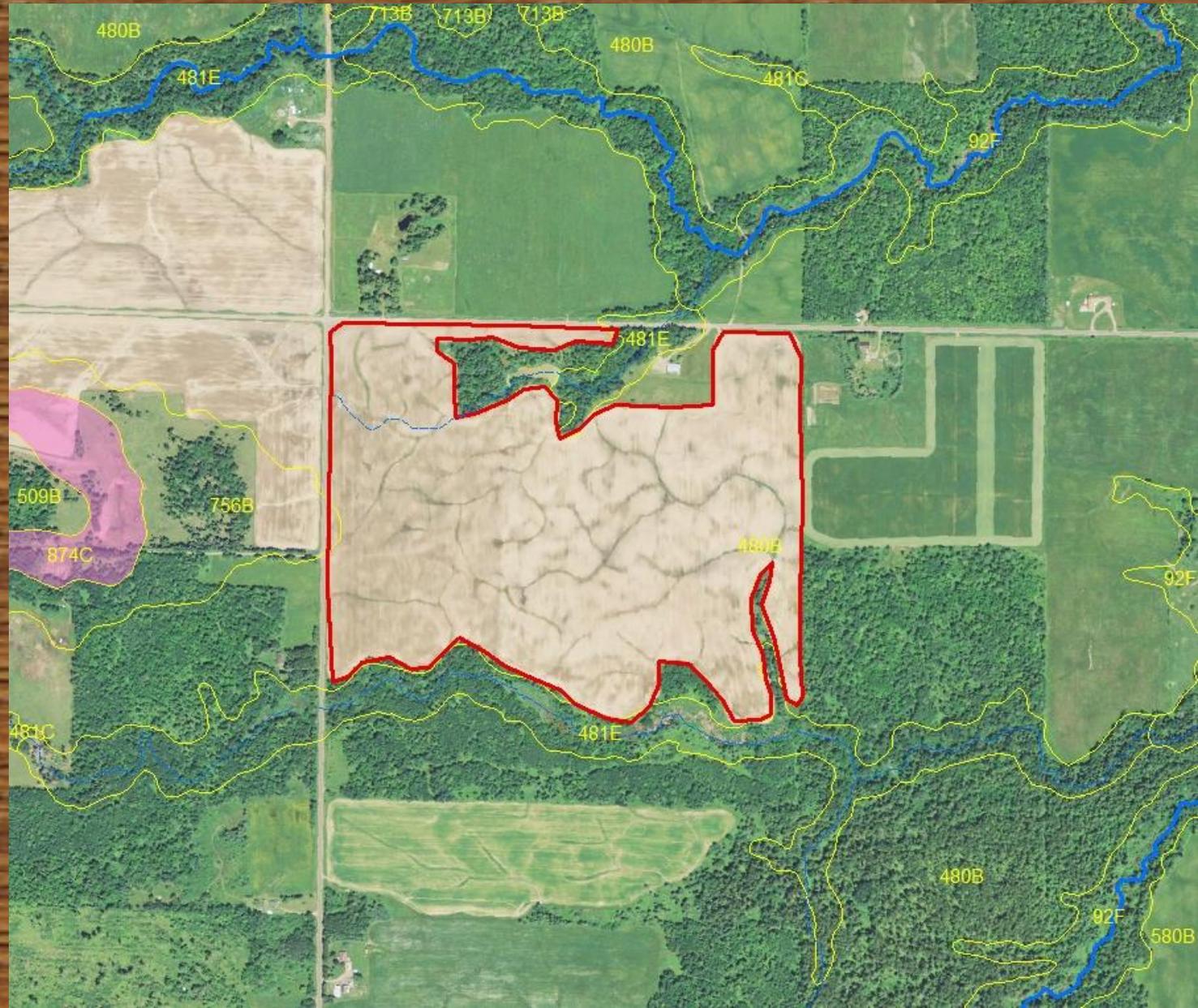
- No application of manure or fertilizer on frozen or snow-covered ground if effective incorporation is not possible
- Up to 5000 gallons unincorporated liquid manure per acre on non-frozen, non-saturated soils
- For any application of nutrients must have one of the following in place
 - Permanent vegetative buffers in place
 - A minimum of 30% crop residue in place
 - Incorporate within 3 days
 - Cover crops established after application

SWQMA – NR 243

- Must follow one of five options when applying manure in a SWQMA
- No winter applications in a SWQMA

SWQMAs In Practice

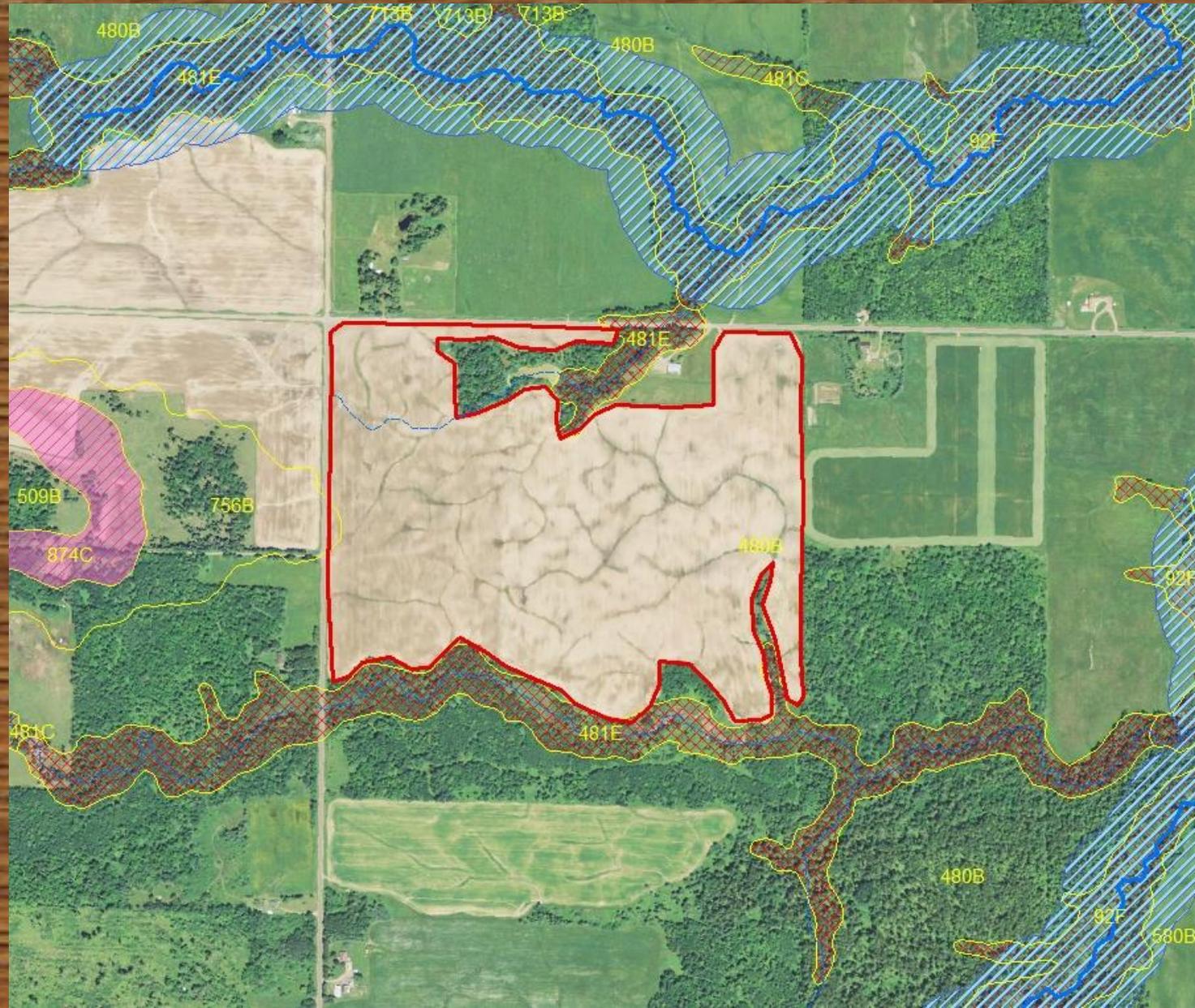
Example Field



**101.7
acres**

590 Slope and SWQMA Restrictions

- 300' SWQMA (blue)
- Winter slope restrictions (red)
- Fall N restrictions (pink)



CONCENTRATED FLOW AREAS

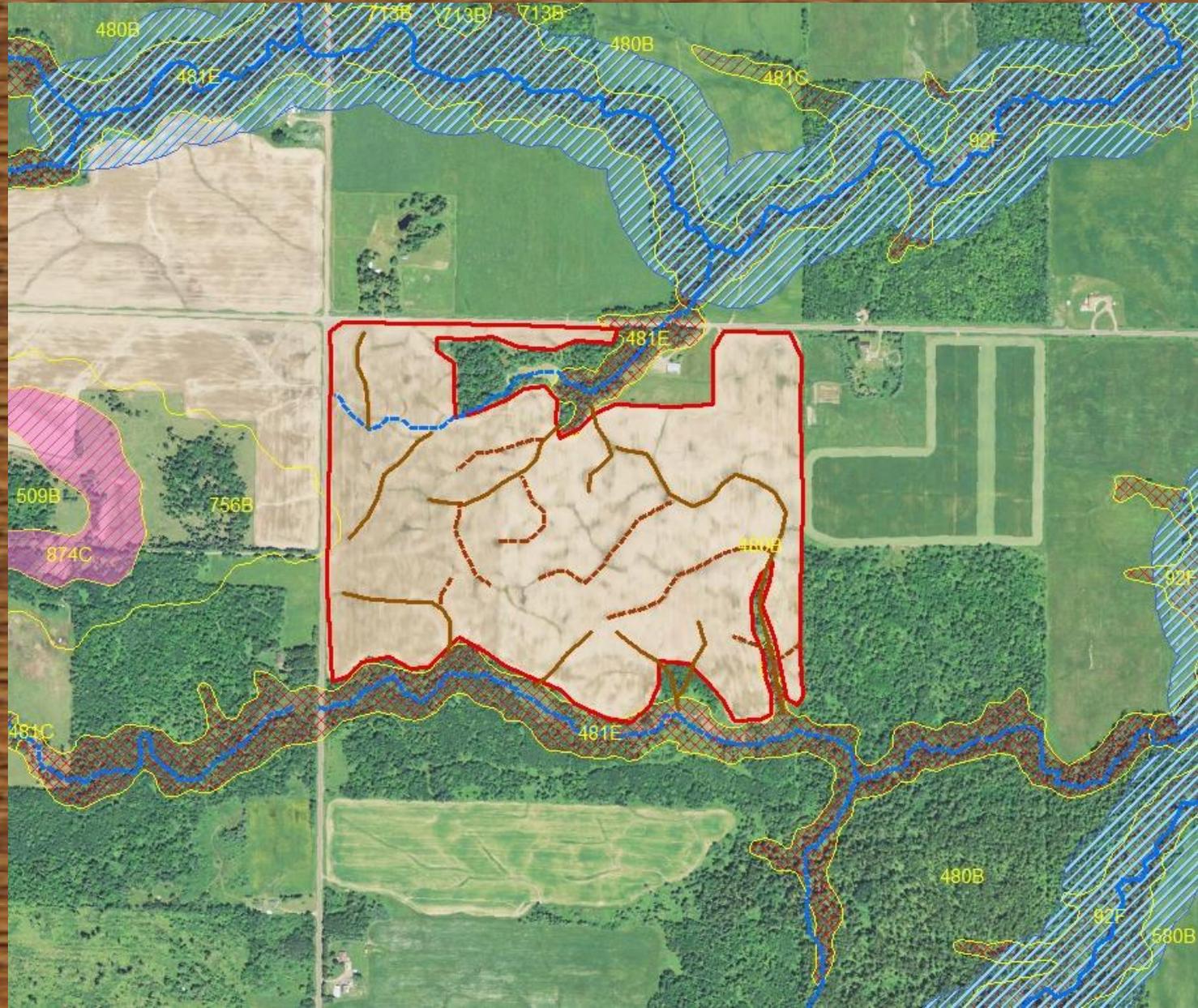
A natural channel or constructed channel that has been shaped or graded to required dimensions and established in perennial vegetation for the stable conveyance of runoff. This definition may include non-vegetated channels caused by ephemeral erosion. These channels include perennial and intermittent streams, drainage ditches, and drainage ends identified on the NRCS soil survey and not already classified as SWQMAs. Concentrated flow channels are also identifiable as contiguous up-gradient deflections of contour lines on the USGS 1:24,000 scale topographic map. The path of flow to surface water or direct conduits to groundwater must be documented.





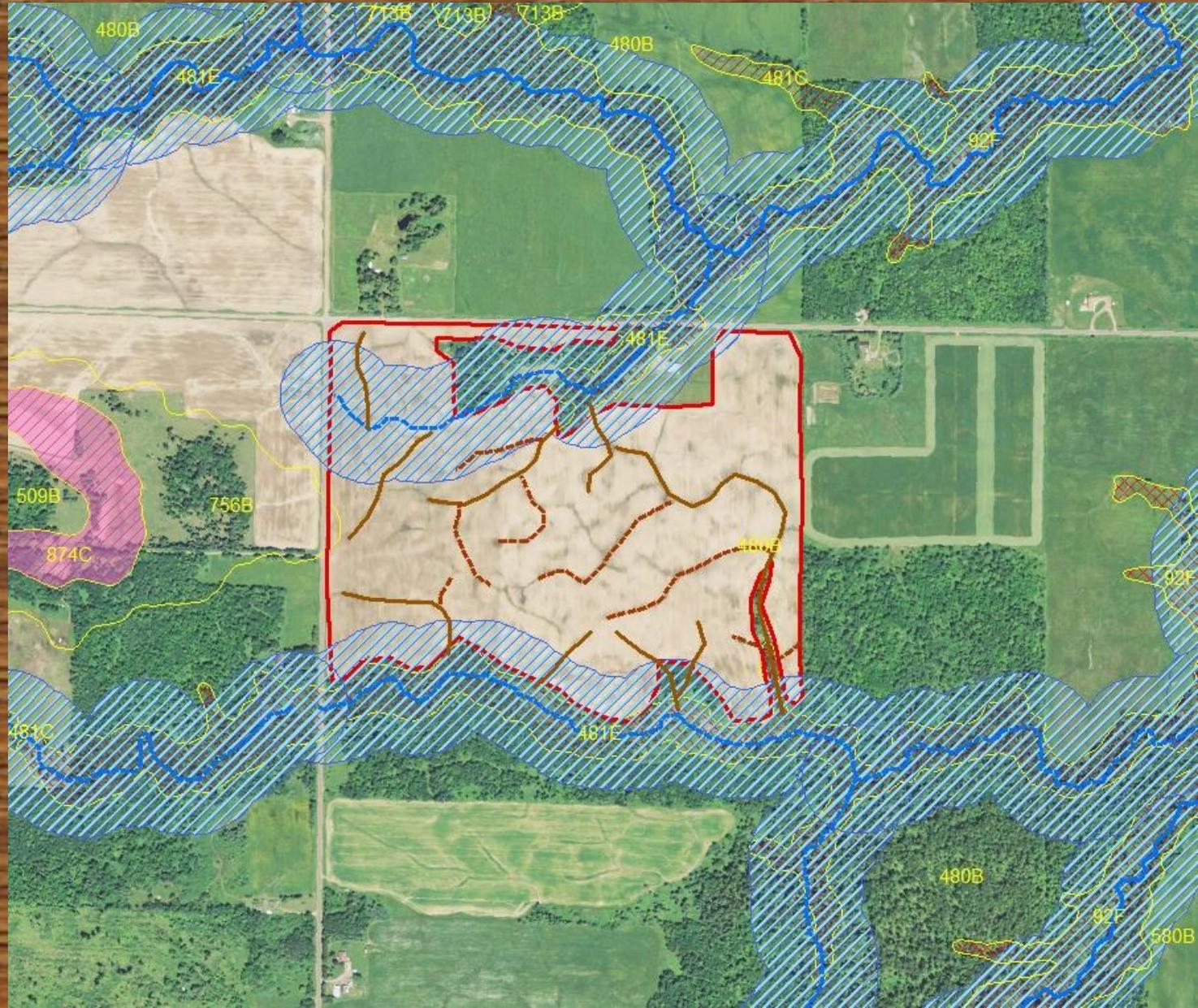
590/243 Concentrated Flow Areas (No manure)

**99
Acres
(10ft flows)**



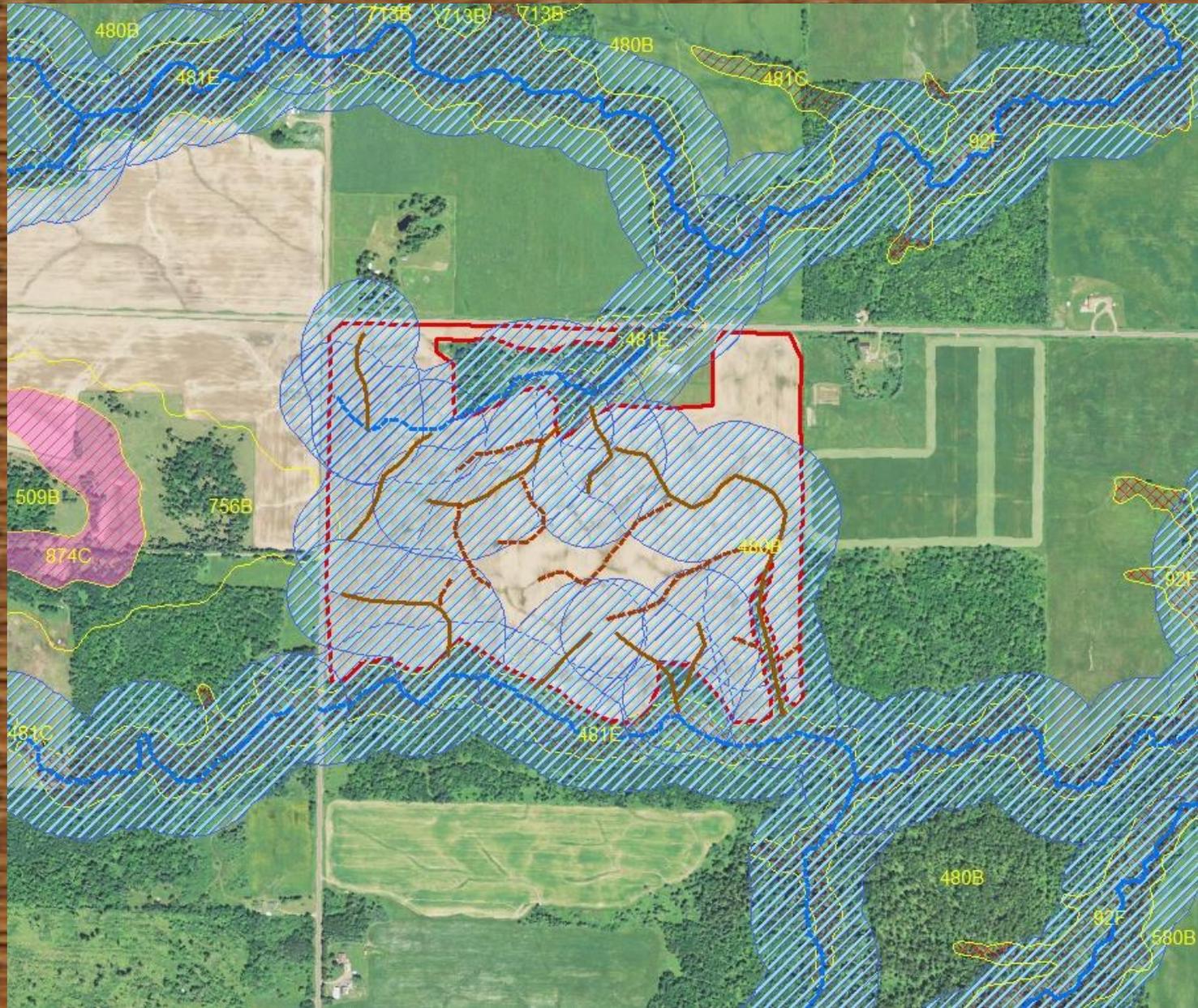
Additional 243 SWQMA Restrictions

- 300' along navigable waters (intermittent streams)



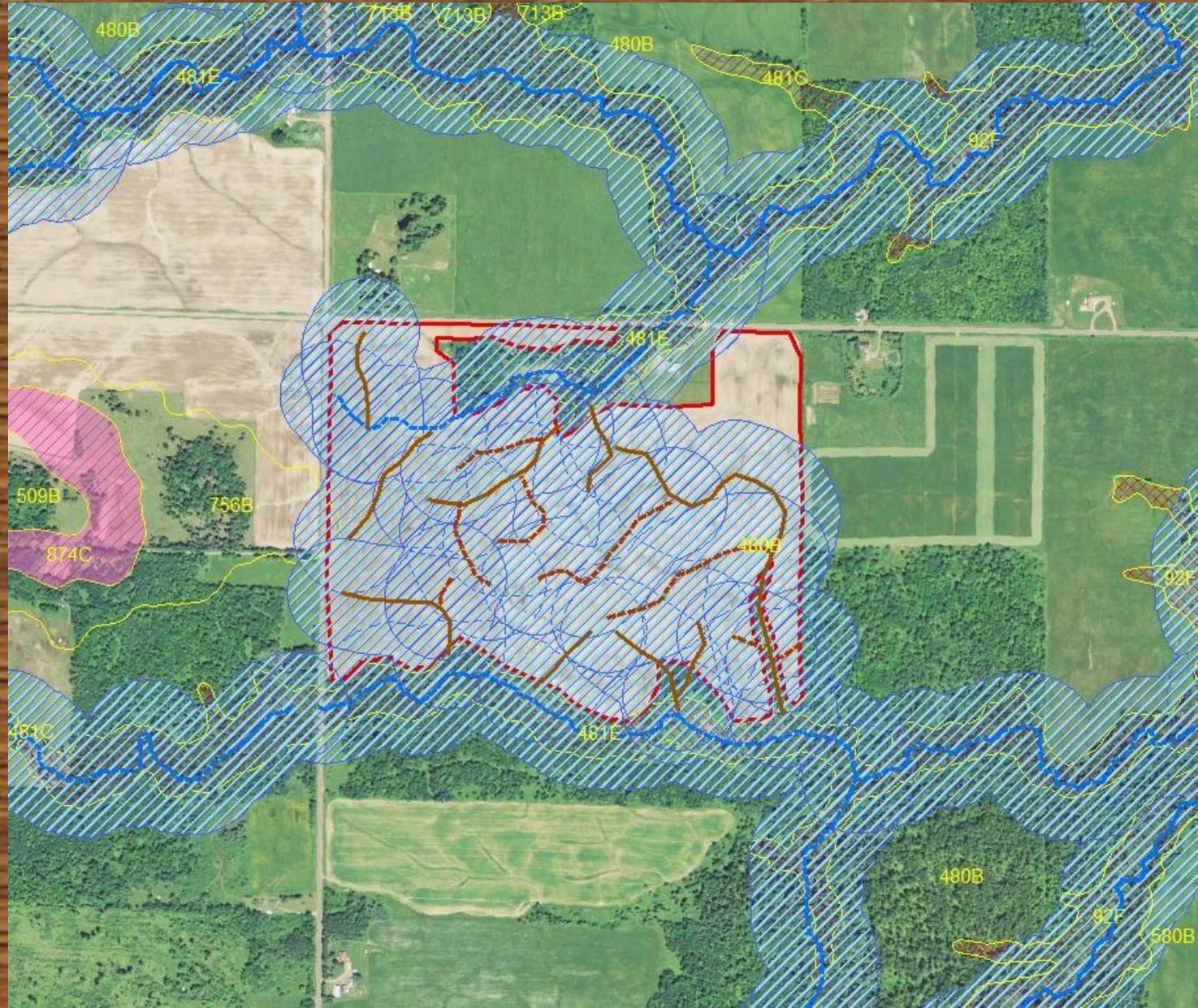
Additional 243 SWQMA Restrictions

- 300' along direct conduits to navigable waters



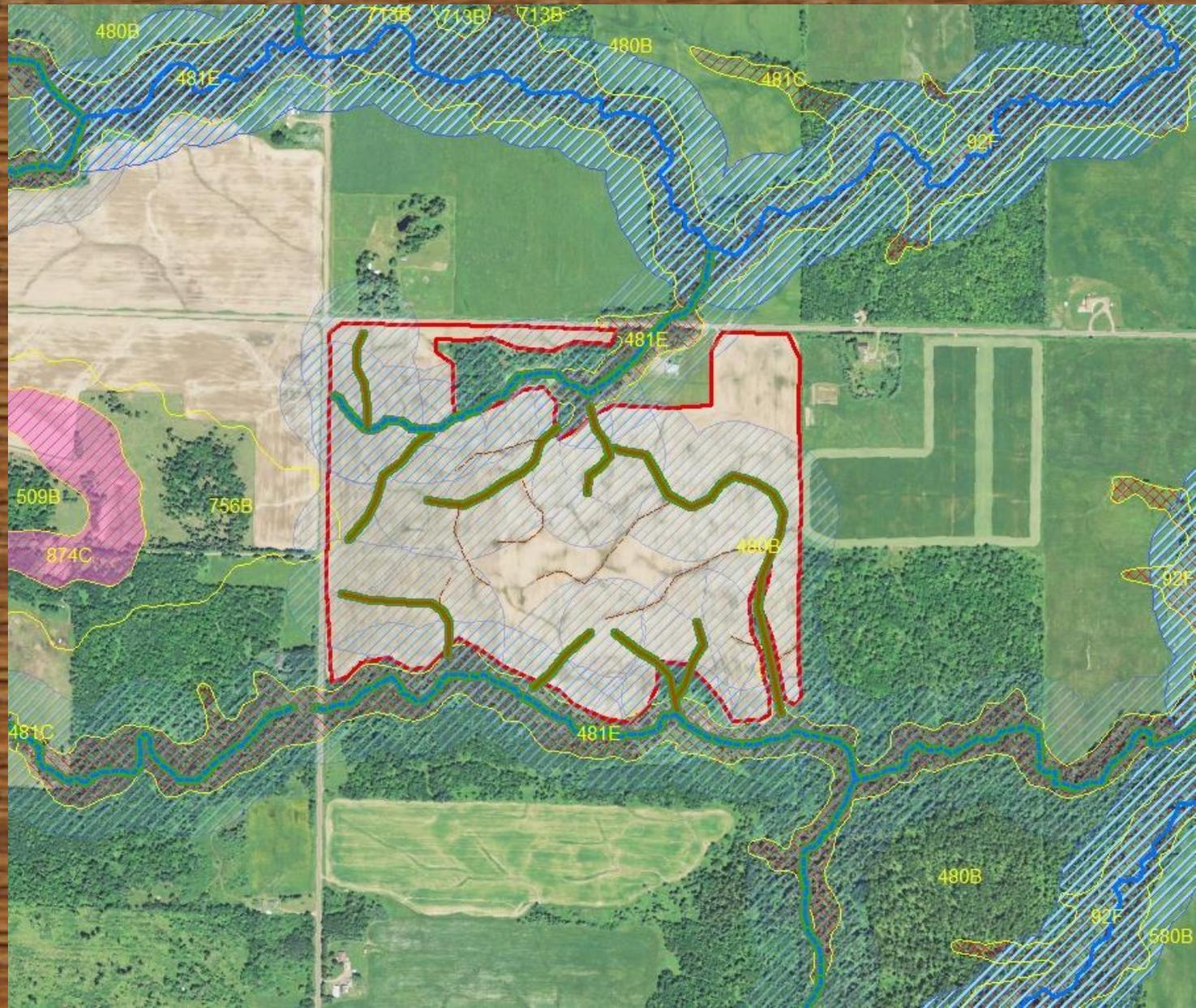
Additional 243 SWQMA Restrictions

- Do feeders to direct conduits also have a 300' SWQMA buffer?
- Should they?



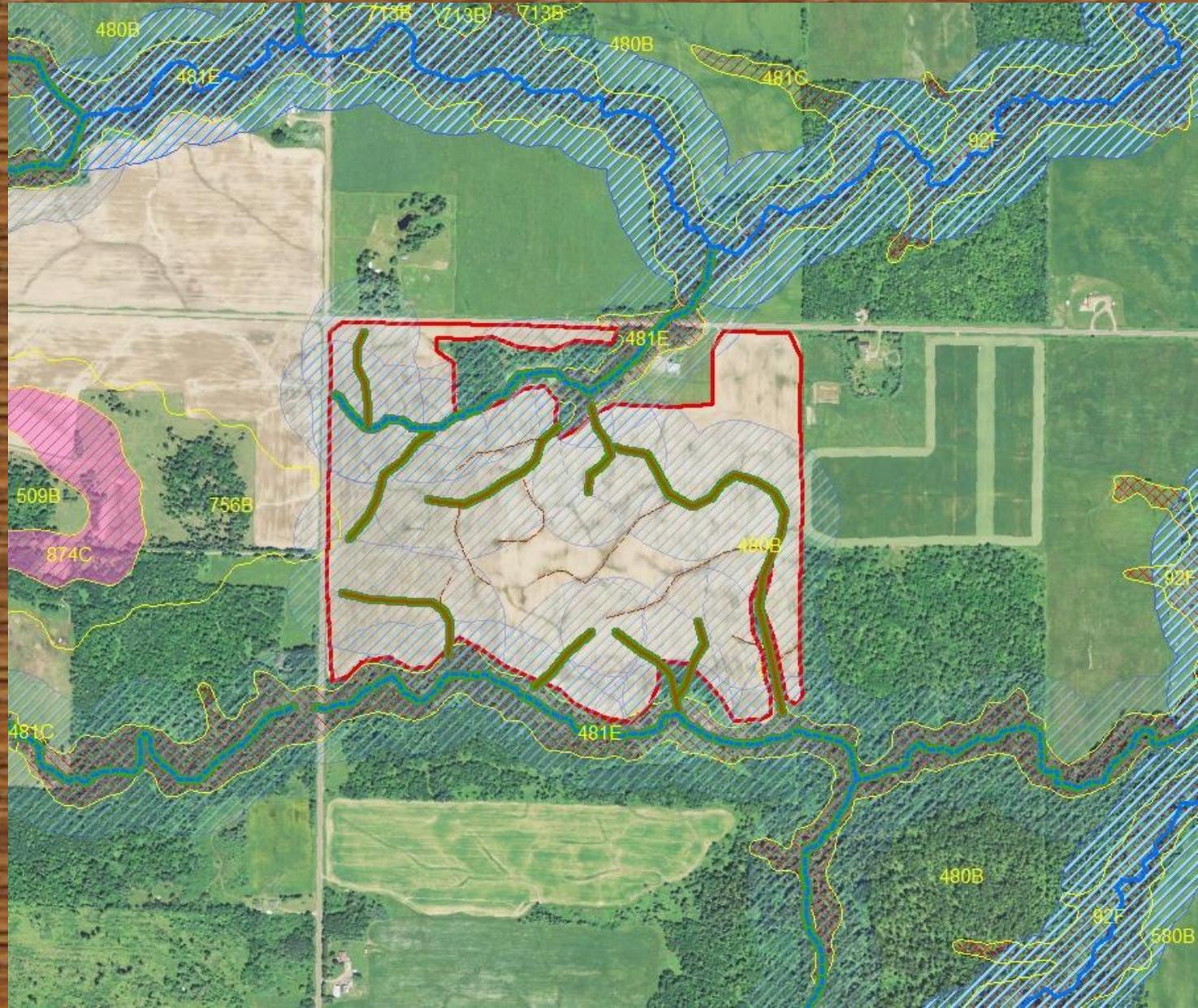
Option 1 – SWQMA Manure Applications

- 25' buffers
- 96 acres
- inject or incorporate in all other areas in SWQMA



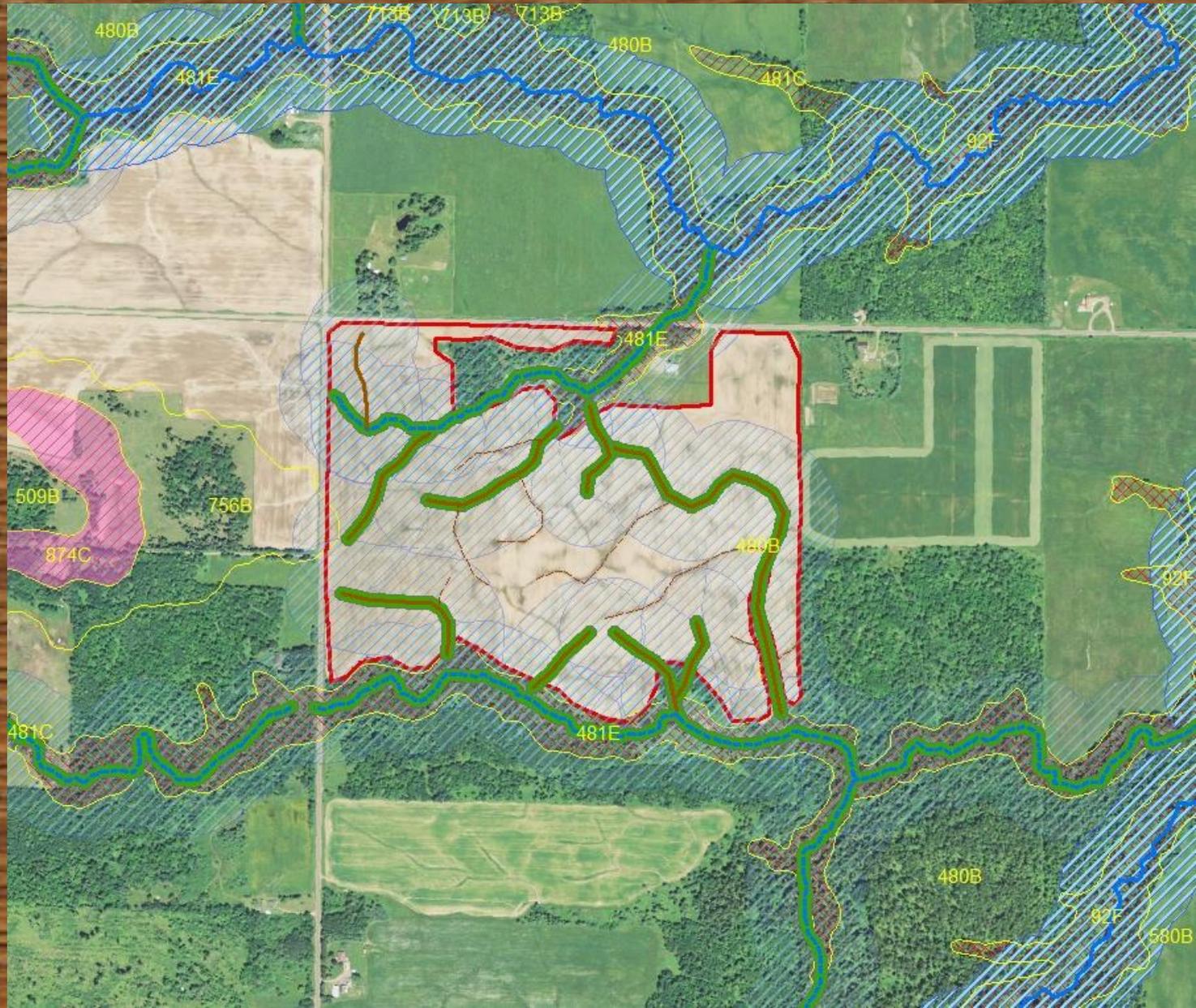
Option 2 – SWQMA Manure Applications

- 25' buffers
- 96 acres
- Surface apply <5000 gallons/acre on no-till ground with 30% residue



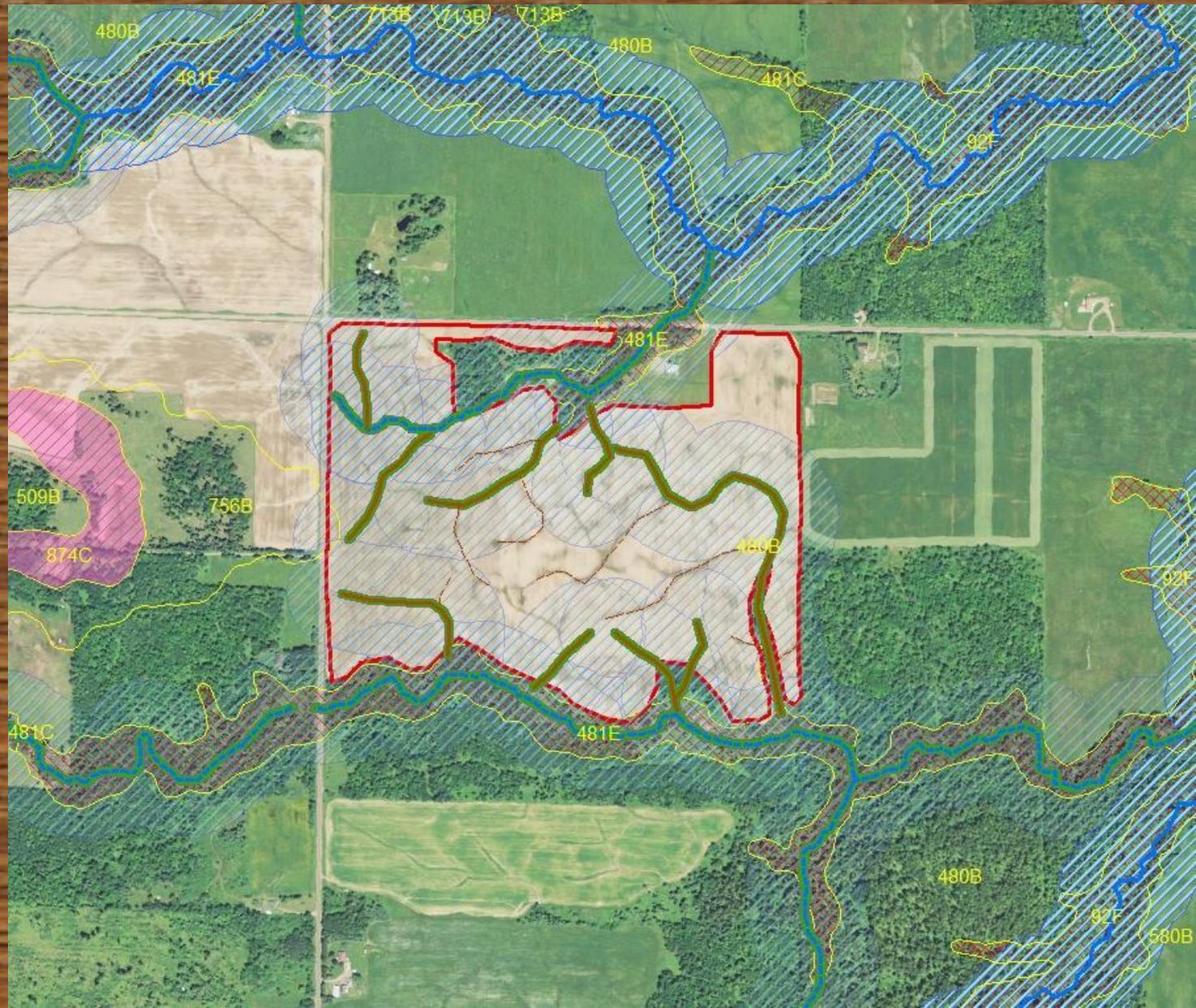
Option 3 – SWQMA Manure Applications

- 35' vegetated buffers
- 94 acres
- inject or incorporate elsewhere
- or
- <5000 gallons/acre with 30% residue



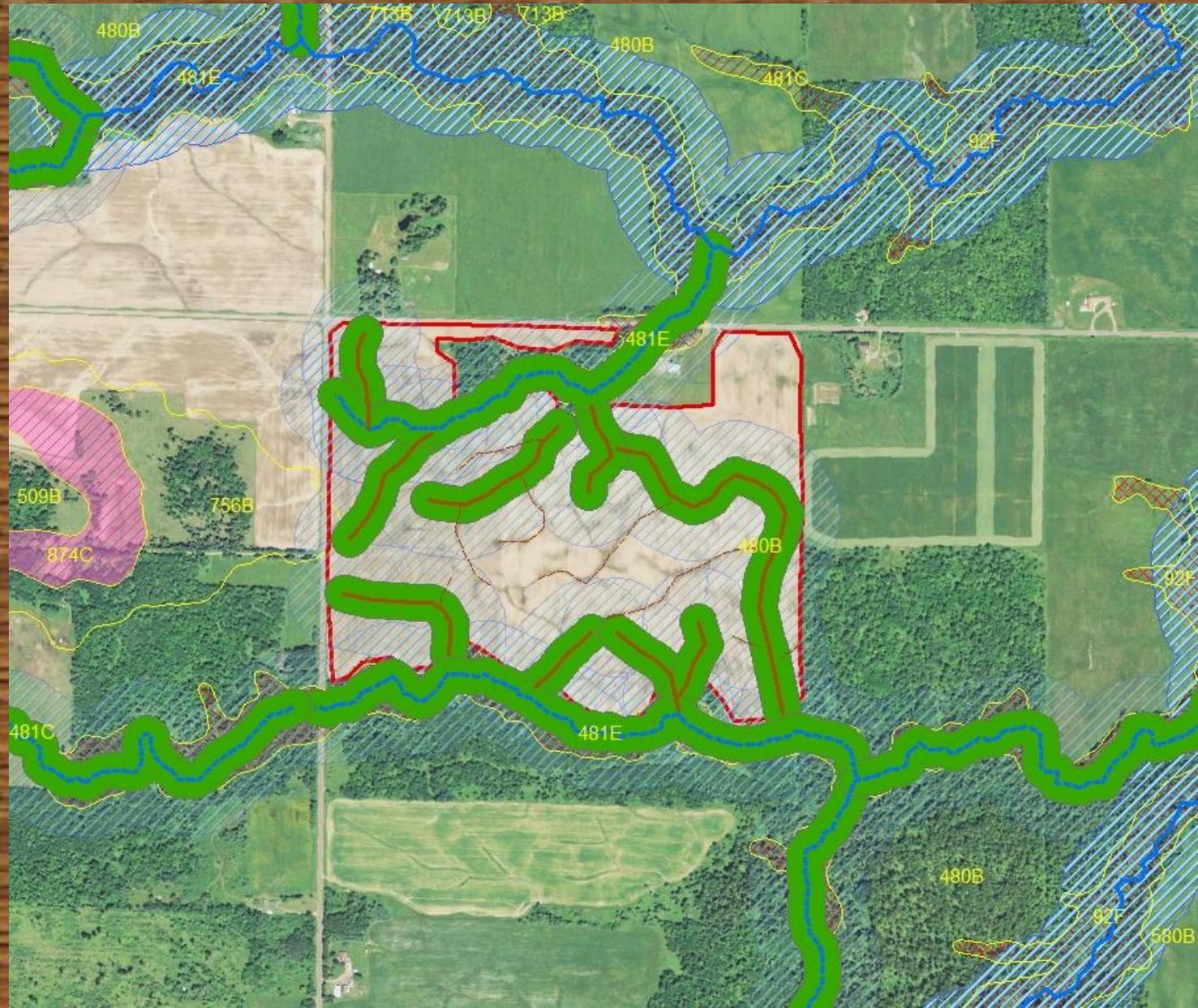
Option 4 – SWQMA Manure Applications

- 21' filter strip
- 97 acres
- inject or incorporate elsewhere
- or
- <5000 gallons/acre with 30% residue



Option 5 – SWQMA Manure Applications

- 100' no-spread buffer
- 82 acres



Additional Regulations

If you feel existing regulations or non-regulatory actions aren't good enough

Bayfield County Operations Ordinance

- Permit required from the County to operate a CAFO
- Must submit an application demonstrating the operations won't cause pollution or a private or public nuisance
- County Board approves or denies the permit request with or without conditions

Bayfield County Operations Ordinance

- New legal ground that has not yet been tested in court
- Goal is to evaluate the impacts of a specific operation and apply operating conditions specific to those impacts

Additional Regulations Necessary to Achieve Water Quality Standards – 92.15

- Wis. Stat. 92.15 allows for additional local standards upon approval by the DNR or DATCP
- Manitowoc County
- Bayfield County South Fish Creek Ordinance

South Fish Creek Ordinance

- 540 days manure storage capacity
- Cropping plans with at least three spreading windows
- Annual PI limited to 2
- No manure application within 48 hours of predicted runoff event
- Manure incorporated within 48 hours if applied within a SQQMA

Additional Regulations to Protect Public Health and Safety – 92.11

- Keewaunee County Public Health and Groundwater Protection Ordinance
 - Spreading restrictions related to shallow and fractured bedrock
 - Passed by the County Board, approved by local referendum
 - No DNR/DATCP approval