

Policy Committee Meeting Agenda

Clean Water Council

April 28, 2023

9:30 a.m. – 12:00 p.m.

[WebEx Only](#)

2023 Policy Committee: John Barten, Rich Biske (Chair), Kelly Gribauval-Hite, Raj Rajan, Victoria Reinhardt (Vice Chair), Peter Schwagerl, Jordan Vandal, and Marcie Weinandt

9:30 Regular Business

- Introductions
- Approve today's agenda
- Approve minutes of previous meeting(s)
- Chair update
- Staff update
 - Legislative Update

9:45 Drainage Work Group Topics

- Tom Gile, BWSR

10:45 Break

11:00 (DISCUSSION) Where Can the Council Be Most Helpful in Promoting Drainage Water Management?

- Review State Water Plan goal on drainage

12:00 Adjourn

May 19th Meeting: Drainage with Jeff Strock (University Extension, Southwest Research and Outreach Center at Lamberton)

Policy Committee Meeting Summary
Clean Water Council (Council)
February 24, 2023, 9:30 a.m. to 12:00 p.m.

Committee Members present: John Barten, Rich Biske (Chair), Kelly Gribauval-Hite, Victoria Reinhardt (Vice Chair), Peter Schwagerl, Marcie Weinandt, and Phil Sterner.

Members absent: Raj Rajan and Jordan Vandal.

To watch the Webex video recording of this meeting, please go to <https://www.pca.state.mn.us/clean-water-council/policy-ad-hoc-committee>, or contact [Brianna Frisch](#).

Regular Business

- Introductions
- Motion to approve the January 27 meeting agenda moved by John Barten and seconded by Peter Schwagerl. Motion approved by vote unanimously.
- Chair update
- Staff update

Groundwater Follow-Up Discussion: Sustainability Standard for Groundwater Appropriations, Katie Smith, Director, Ecological and Water Resources Division, and Dan O'Shea, DNR

- This is a follow up discussion on the sustainability standard for groundwater appropriations. There is a [Report to the Minnesota State Legislature: Definitions and Thresholds for Negative Impacts to Surface Waters](#) executive summary is in the meeting packet. In addition, the bill introduced at the Legislature (HF1680) is included in the meeting packet for anyone who wants to look at the bill language.
- Due to Minnesota's climate and geography, rainfall is not always available in the quantities needed, in the timeline needed. Businesses and communities need to have reliable water supplies. While water levels fluctuate throughout the year, and across multiple years, the intensive water appropriation can push the low levels lower, which significantly reduce stream flows which puts ecosystems at risk.
- There is a proposal for statutory revisions. There were several extensive stakeholder sessions over several months. It defines "negative impact", "ecosystem harm", and "sustainable diversion limit". The bill would recognize that many Minnesota surface waters are hydrologically connected to groundwater resources.
- The surface water provisions in Minn. Stat. 103G.287 are related to direct appropriations of surface water and can be managed by suspending permits under certain conditions. The delay between action and response in water flows is too slow, so they are trying to help address it.

Questions/Comments:

- John Barten: Would this have resolved the White Bear Lake issues and kept it out of court? *Answer:* It is hard to say, but there would have been more clarity. We think we would have used the same data-driven evidence. However, it would have been a cleaner and transparent pathway.
- Jim Stark: Would cold water streams be treated differently than warm water streams? *Answer:* We would want to take specifics into account, to make those considerations when setting the limits. Site-specific situations often have to do with where the groundwater wells are in the watershed. It is not just type of stream (because the process would be the same). That groundwater pumping affects the surface water is a new concept to people.
- Victoria Reinhardt: I'm from White Bear Lake. there would not have been a lawsuit with White Bear Lake if this was in place. I think there were a lot of missteps. A change in the high-level marks is needed, so no more came off the lake. No one is blameless. There was a need to keep our businesses and communities open. I would hope this legislation is not to just fix that problem, because you mentioned taking things case-by-case. Everyone needs to be a water warrior. When looking at solutions, all the partners need to be at the table.
- Peter Schwagerl: I am encouraged to see a site-specific approach. Are you able to discuss any of the concerns heard from stakeholders? Where are you anticipating concerns on this? *Answer:* The Irrigators Association and chamber were present. They feel that the new definitions are not clarifying enough and lack metrics to measure impacts. So, they don't know if this gets us in a better position than before. There were some

suggested edits. We will continue to on this as we move forward. We want to be proactive. We appreciate the actions others have already taken to decrease pressure on our waters.

- Rich Biske: Will the modeling be limited to the groundwater management areas, or in the absence of those models will there be any test pumping prior to allocations? Will they prevent ecosystem harm? *Answer:* As far as individual permits, I am not as familiar in that area, so I am not qualified. It is done now. The modeling is to help in certain areas of the state where the water pumping is intense. We can follow up.
- Rich Biske: Can the DNR enforce in the proposed language? *Answer:* Yes. Right now, we can issue administrative penalty orders, but it is prescriptive regarding the amounts. The penalties must be forgiven if the violations are corrected within thirty days. There is a proposal at the Legislature which would give the DNR a variety of compliance tools, depending on the situation.

Legislative Platform from Subcommittee on Minnesota Water Policy (SWMP), by Jim Stark, Executive Director, SWMP (*Webex 00:53:00*)

- New members are being identified for the SWMP this session. The SWMP process involves stakeholder meetings over the summer, looking at certain issues, getting feedback from state agencies, taking surveys, and working on bills. Topics are whittled down to a short list.
- Group 1: Defining sustainable groundwater limits using technological advances, voluntary private well testing, ensuring the safety of private wells (identify and monitor vulnerable aquifers).
- Group 2: Improve water and agriculture, tax credit for private riparian buffer lands, and water safety plans for cities (a pilot).
- Group 3: Reinstate Legislative Water Commission and the Wastewater Advisory Council, complete land management preservation and water quality goals for the Upper Mississippi, and enhanced groundwater recharge.
- Group 4: Water retention – urban stormwater, testing for and remediation of lead in drinking water at certain facilities, increase levy limits for watershed districts, and avoiding oversalting.
- Other bills: adjust appropriation priorities for commercial entities with conservation plans, carbon capture in mine waste rocks policy, and keeping our lakes clean (littering on ice covered lakes).

Questions/Comments:

- Rich Biske: Regarding the defining sustainable groundwater limits using technological advances, some of the work is funded by Clean Water Funds (CWFs) in terms of the county atlas, One Watershed One Plan (1W1P), and Groundwater Restoration and Protection Strategies (GRAPS). Could it be a pilot under existing programs. *Response:* It could be. The idea is to put together the county atlas system by meshing them together, to provide a structure for a model. The idea is to have a prototype for programs that would support 1W1P.
- Rich Biske: Is there a fiscal note on the buffer tax credit? Is the intention for the buffer required under rule, or new ones? *Answer:* It is for the ones that exist along public water courses. There is a fiscal note from last year.
- Marcie Weinandt: The trash on the lake is concerning, and a social science issue. I don't understand how fishermen can dump trash onto lakes they are fishing from. *Response:* There are some dedicated groups working on this item. It is mind boggling. Thankful to the local folks and governments working on it.

Minnesota's Climate Action Framework (Emphasis on Resiliency & Working Lands) by Dana Vanderbosch, Assistant Commissioner for Water and Agriculture Policy, Minnesota Pollution Control Agency (MPCA) (*Webex 01:20:45*)

- Climate change is not a far-off possibility. Minnesotans are suffering from its effects right now, and it will get worse, but we can all be a part of the solution. There is cause for optimism. Addressing climate change presents us with a historic opportunity to strengthen our economy, improve our health, and create a more equitable Minnesota.
- Minnesota developed a Climate Action Framework. It identifies near-term actions to take to achieve our long-term goal of a carbon-neutral, resilient, equitable future for Minnesota. These are specific recommendations for actions we can do in various categories.
- Climate targets – align with the best science from the Intergovernmental Panel on Climate Change (IPCC):
 - Reduce greenhouse gases by fifty percent by 2030.
 - Net-zero emissions by 2050
 - Prioritizing resilience investment over the next ten years.

- There is a need for action by all levels of government, businesses, nonprofits, and individuals.
- Framework goal areas: clean transportation, clean energy and efficient buildings, climate-smart natural and working lands, healthy lives and communities, resilient communities, and clean economy.
- Climate-smart natural and working lands:
 - The vision: Absorb and store more carbon, produce food and other products; sustain local economies, enhance climate resiliency; and improve the quality of life for all Minnesotans.
 - Measures of progress: By 2035, have an increase by twenty-five percent the amount of carbon sequestered and stored annually in natural and working lands, compared to 2014-2018 average levels. By 2035, reduce annual greenhouse gas emissions in the working lands sector by twenty-five percent from 2018 levels. By 2030, all state-funded or sponsored land, water, and species management plans identify actions to increase adaptation. The intention is to drive a lot of focus over the next ten years.
 - Priority actions in the next 10-15 years: expand climate-resilient agriculture and forestry, increase water storage and infiltration, manage drainage, invest in new markets, prioritize groundwater and drinking water, manage ag lands to reduce greenhouse gas emissions, promote local and community-based ag, store more carbon, restore/expand habitat complexes and corridors, and accelerate forest, grassland, and wetland restoration. For every priority action, there is a grid in the appendix with specific action steps related to each one. Being able to measure those goals are being worked on as well, trying to measure accurately.
 - The state plays a key role. Each action team looked at the priority action to move forward. This was forwarded to the Governor for inclusion in his budget proposal: Soil Health Equipment Grants (\$4M), Bioincentive Program (\$2.5M), AgBMP Revolving Loan Program (\$2M with \$3M per fiscal year thereafter), Mitigation and Resiliency for RIM Easements (\$7.1M and \$480,000 thereafter), Private Lands Grassland/Working Land Restoration Easements (\$22M, with \$400,000 thereafter), and Habitat Enhancement Landscape Program (\$9M, with \$1M thereafter). Some of these actions have multiple benefits as well, secondary ones.
 - The MPCA does put out a report on greenhouse gas emissions, tracking progress over time. One was released recently. It revealed that there have been some big reductions coming from the transportation industry (dropped like 23 percent). In the forestry arena, they can reflect carbon sequestration in those systems. All the recommendations are for the general fund. There is a need to accelerate in the agricultural world. There is concern about emerald ash borer, and its impact over the next thirty years. We can grow new trees and treat current ones.
- Resilient communities:
 - The vision is for communities across Minnesota to have the resources and support to plan for and implement projects to build a more resilient future for themselves. Air pollution is reduced, especially in communities most affected by it. Also, physical infrastructure, natural systems, and communities are more prepared for climate impacts and can recover from extreme events.
 - Measures of progress: By 2030, one hundred percent of Minnesotans live in communities with plans that identify climate risks and actions to build resiliency. By 2026, at least twenty-five adaptation projects that increase community resiliency are fully funded. Achieve a thirty percent overall tree canopy cover in Minnesota communities by 2030 and forty percent by 2050.
 - Priority actions in the next 10-15 years: Work on climate smart communities, like provide technical assistance, maps and tools, as well as deliver necessary funding. Focus on healthy community green spaces and water resources. This includes expanding tree planting and preservation (i.e., thinking about the ash trees and the emerald ash borer issues), plant beneficial veg on urban land. Additionally protect and improve water quality and quantity. Another action is building resilient buildings, infrastructure, and businesses. This would include expanding green infrastructure and stormwater management. There would also be a need for funds for resilient infrastructure and critical facilities.
 - Governor recommendations: Resilient Communities Grants and Technical Assistance (\$174M and \$1.1M thereafter), Tribal Governments Technical Assistance (\$4M and \$2M thereafter), GreenSteps Cities and Tribes Program (\$380,000 and \$190,000 thereafter), Community ReLeaf Program (\$15.2M, with \$402,000 thereafter), and Strengthen Minnesota Homes (\$32.5M and \$1.2M thereafter).
- What's next:
 - [FY 2024-25 Governor's Budget Recommendations/Minnesota Management and Budget \(MMB\) \(mn.gov\)](#)

- Drive budget and policy development
- Measure and report progress
- Priorities for guiding action: impact, equity, economy, and health/environment.

Discussion:

- Paul Gardner: I am relieved to hear there are plans for us to move forward, and ones that have secondary benefits. The one-time cash infusion is exciting. It would be important to track where the CWFs intersect to help make sure the public can see that connection.
- Rich Biske: This is exciting. So many of these areas overlap with what the Council has been talking about. The multiple benefits and how they are implemented, will provide a lot of information moving forward too. Additionally, it was great to see equity in so much of the plans. *Answer:* Equity is woven into all the chapters. Climate change is impacting all Minnesotans, but it is affecting some Minnesotans more than others and the individual and community level. Low income individuals can suffer heat island stress (low-income housing, intercity living, with no air conditioning). They don't have access to community assets that would provide help. We are thinking about prioritizing resiliency funding to those communities and individuals. There has been some funding strictly for small communities. This is an area where the stakeholders are being especially helpful, for maximum impact and helping those who need it the most.
- Peter Schwagerl: Regarding the working lands, there were some very ambitious goals. It is exciting to see the investments in the Governor's budget. We are hitting some key programs. However, the Council should be aware of the investment that will be needed over the next several years, to make the transition happen. For example, on our farm, we are thinking of moving to a strip till system. This would help in this area, but to make that switch is \$250,000-\$300,000. This is just on a small farm. So, thinking about that across the farms in Minnesota, so it would be a massive investment. Perhaps, there is a need for greater investments. *Response:* There is federal funding and other state funding as well, so it all comes together. There is a limit to what can be used as once as well. It is exciting funding, to get going, and ramp up. There is a feeling that the future will need more attention to this area of funding.
- Rich Biske: Regarding fertilizer, manure, and greenhouse gases, is that a target reduction? Are there action steps articulated? *Answer from Jeff Berg, Minnesota Department of Agriculture (MDA):* No there are no specific targets. As a state, we need to work on this area, but we are taking action with the Nutrient Reduction Strategy and Nitrate Reduction Plan.

Policy Committee Meeting Summary
Clean Water Council (Council)
March 24, 2023, 9:30 a.m. to 12:00 p.m.

Committee Members present: John Barten, Rich Biske (Chair), Kelly Gribauval-Hite, Victoria Reinhardt (Vice Chair), Peter Schwagerl, Marcie Weinandt, and Phil Sterner.

Members absent: Raj Rajan and Jordan Vandal.

To watch the Webex video recording of this meeting, please go to <https://www.pca.state.mn.us/clean-water-council/policy-ad-hoc-committee>, or contact [Brianna Frisch](#).

Regular Business

- Introductions
- Motion to approve the March 24 meeting agenda and December 19 meeting minutes, moved by John Barten and seconded by Victoria Reinhardt. Motion approved by vote unanimously (*at Webex 01:16:45*).
- Chair update
- Staff update
 - Legislative Update
 - Budget targets were set on Tuesday, which eventually will be followed by omnibus bills. Targets include \$240 million for lead pipe removal. Additionally, the property tax division of the House Taxes Committee recommends support for Soil and Water Conservation Districts (SWCDs). It is the amount the Legislature took out of the Clean Water Funds (CWFs) for SWCDs in the past biennia, although the SWCDs requested \$44 million (\$20 million over previous request).
 - Regarding the Legacy Bill, there are no current concerns in the House. The Senate Legacy Committee will take up the bill on April 4.

Water Storage, by Rita Weaver, P.E., Board of Water and Soil Resources (BWSR) Chief Engineer/State Drainage Engineer (*Webex 00:17:00*)

- There are a few examples of water storage that may come to mind, when thinking about changing the landscape. In the southern part of the state, what comes to mind typically are more wetland restorations and smaller storage areas for flood reduction, habitat, and water quality treatment. In northern Minnesota, they may think more about larger areas of land, with the main goal of flood reduction, and provide habitat or water quality treatment. There are also extremes like dams. Additionally, people do not think about healthy soil for storing water.
- For construction, they look at the overall goals and think about what problems to solve: flooding, water quality, erosion, as well as improve habitat. They often use a runoff hydrograph, to see how fast the water moves (usually over a storm event). They want to pay attention to the peak, as it is associated with flooding, and to the volume, which is associated with sustained flows. Unfortunately, it takes a lot of practices to make a difference. Infiltration will have an impact. Planning and design is important, but it does matter where practices go in the watershed. For structural practices one project can make a big difference, but it will only change the peak flow and not the water volume.
- Other factors in picking a project:
 - Permitting for dams, wetlands, public waters, etc.
 - Public acceptance like safety or aesthetics.
 - Landowner acceptance of a lower production, maintenance, or equipment.
 - Site restrictions like the soils, topography, or site history.
 - The funding restrictions may also dictate the type of project.
- Water storage goals in 1W1P:
 - Goals are often expressed in runoff volume retained/captured (acre-feet) or depth or runoff retained/captured (inches).
 - Using depth (inches) allows us to better visualize the storage for each storm event, but it is harder to calculate the benefits.
 - Example storage goal requirements:

- Buffalo-Red River 10-year goal: 42,750 acre-feet (approx. 0.45 inches runoff volume). Long-term goal: 171,000 acre-feet (approx. 1.79 inches runoff volume).
- Shell Rock/Winnebago 10-year goal: 6,247 acre-feet. Long-term goal: reduce peak stream flows by 15 percent in Shell Rock River Watershed and 20 percent in the Winnebago River Watershed.
- In a few plans the goal is expressed by selecting an average flow rate goal. Such as the Pine River: Maintain an average discharge of 306,945 acre-feet at the outlet of the Pine River Watershed.
- Tracking Water Storage Benefits
 - Structural storage areas (i.e., ponds, wetlands, reservoirs, WASCObS, etc.) are easy to track. The volume held by each storage feature can be expressed as “acre-feet” storage.
 - Non-structural storage, or storage in our soil, is more difficult to measure. We have average values, but actual water retained is very site specific, and depends on weather and consistency of implementation.
- Current water storage programs:
 - Soil health: Competitive CWF Soil Health Program and the Soil Health Cost Share Program
 - Water quality and storage pilot program: One million each year in FY22-23. Additionally, \$17 million in the Governor’s budget, with \$15 million in Senate/House bonding bills.
 - For FY22: Seven total applications for \$3.8 million ask. There were two applications that were ineligible (did not include hydrographs), so three projects were chosen to be funded, with a total award of \$843,851. In the statute language, the program is to control water volume rates to protect infrastructure, improve water quality and related to public benefits, and mitigate climate change impacts. They need to prioritize the Minnesota River and lower Mississippi River basins.
 - The project or practice must result in a reduction in peak flow rates and/or volumes. The applicant must show how the project improves flooding concerns, water quality issues, or addresses vulnerabilities to climate change. There needs to be a feasibility study because planning must be done. The project must have a 25-year lifespan, and a maintenance plan.
 - Examples: Lake Washington Patterson Watershed (79.75), Custer 7 and Sodus 32 Storage Projects (74.75), and Custer 10 floodwater retention (74.25).
 - They hope for a budget increase for FY24-25 but will wait to see funding amount before looking at any program changes. They will look at how to incorporate storage features that are constructed as part of the drainage project (as defined by 103E.101). Additionally, they are looking at water reuse/drainage water recycling projects. They are in coordination with other state that are implementing reuse, as well as with other agencies interested in reuse. They have a desktop analysis on what makes a good reuse area. They have a potential exhibition site in Dakota County.

Questions/Comments:

- John Barten: In the metro area, by building these stormwater detention ponds to maintain the peak flow at predevelopment levels, there is more water runoff because of the additional surface. So, water is stored upstream and the same thing happens. How do you factor it into the modeling and calculations? *Answer:* Ideally, everything that is tributary should be considered. By the time you get to the size of the Minnesota River, you have such a long peak and such a long retention time, that the issue you are mentioning is not as big of a concern. However, smaller than that, absolutely. There is a lot to think about regarding lengthening the hydrograph.
- Peter Schwagerl: Who is trying to give data to make the decisions to allocate resources for maximum impact? *Answer:* Some 1W1P have better data. Anywhere you do soil health practices work is helpful.
- Jason Moeckel: Anytime we can get active streams to reconnect to a floodplain, it is a tremendous way to help manage the energy.
- Rich Biske: How do the Minnesota Department of Natural Resources (DNR) wetlands fit into the storage within a watershed? How can the DNR be a part of this with the lands they manage? *Answer from Jason Moeckel, DNR:* I don’t have an answer for you right now. DNR participates in 1W1P.
- Rich Biske: How is cost-benefit factored in? *Answer:* Reducing damage downstream is factored in. It is a separate issue and gray area.
- Rich Biske: If given funds, could you leverage federal funds? *Answer:* Yes. We did apply for CRPP funding. We applied last year unsuccessfully but got good feedback to apply this year.

Topics for the next three months (Webex 01:18:00)

- The meeting packet include the 2023 Council Meeting Topic Suggestions document. There will be about seven new Council members, likely in June.

Discussion:

- Rich Biske: I would be comfortable with a June or July break when we have new members. We can refresh future agendas then.
 - Kelly Gribauval-Hite: I would agree with Rich.
 - Victoria Reinhardt: I would agree as well. Take July or August off.
 - Rich Biske: Let's leaving June open to review the Legislative session.
- Marcie Weinandt: Let's discuss content for our upcoming field tour?
 - John Barten: A presentation on retention ponds, including ongoing research of their efficiency.
 - Rich Biske: MPCA's community resilience work. There is a tie with stormwater and watershed resilience.
 - Paul Gardner: Would you like to have more on carp? *Response from John Barten:* Minnesota Aquatic Invasive Species Research Center (MAISRC) is putting together a summary of the work and breakout sessions from the conference. It could be at the May or June meeting.
 - Rich Biske: Placement of solar fields, and placement of DWSMAs, which would take land out of production in sensitive areas. *Response from Margaret Wagner, Minnesota Department of Agriculture (MDA):* This is something they are working on with the Minnesota Department of Health (MDH), and the Great Plains Institute. There are still challenges but there is interest. The struggle is finding the right locations.
- Does the Policy Committee want to have a deadline on policy recommendations approved by the full Council?
 - *Answer from Glenn Skuta, MPCA:* I think it is in the fall. It fluctuates depending on the administration.
 - *Response from Paul Gardner:* It might be good to reach out to the state agencies and Governor's Office.
 - *Victoria Reinhardt:* Good idea.
 - *Rich Biske:* The intent is to have any updates to the platform to get to the agencies for a timely manner.
 - *Paul Gardner:* There is a monthly call to the Governor's Office, so we can connect on that item.

Support for Groundwater Legislation? (Webex 01:54:00)

- The past presentations to this committee did a good job revealing this work. Should Paul draft a letter for the full Council's consideration to support DNR's update on sustainability standard for groundwater withdrawals.
- John Barten: Would it be too late to bring it to the full Council for review? *Answer from Paul:* Too late. It may be part of an omnibus on Monday. Committees like to have public comment in one meeting shortly thereafter.
- John Barten: Under a time constraint, has the Policy Committee sent a letter without full Council approval? *Answer from Victoria Reinhardt:* I think we have always had the timing to have it go through the full Council. I think we would be pushing it if it came from the committee only. *Response:* It could still be sent as soon as possible. It could be sent out to the full Council still before a meeting, requesting feedback, to be able to get it out quicker. Not sure on the rules though. Could Paul check this out for us?
- Jason Moeckel, DNR: I will share the concerns we have heard from irrigation associations and their testimony. It has to do with the ecosystem harm definition. They are looking for additional language that gets at the permanency of an effect. Clarity and accountability are what they are looking for. We wanted to make sure the Council was informed on this, because of the number of organizations in the Council, it is an important stakeholder group to connect with.
- John Barten: We could send a general clarification – not to support a specific bill, but to support a concept.
- Rich Biske: Would the Council support more clarity around groundwater protections, without speaking to the bill specifically? *Response from Victoria Reinhardt:* I think Paul does a good job wording things.
- Paul Gardner: In review of the Council's Bylaws, this would fall within the "speaking on behalf of the Council."
- Rich Biske: I am reluctant to take any action without the full Council's approval.
- Peter Schwagerl: I agree with Rich and Victoria. This may be something we return to later, to clarify our stance, with full Council approval. I don't think it is worth it to jump in right now.
- Rich Biske: Perhaps the Council can add something around groundwater protection in our platform to support some of the goals in the updated plan. We can return to this topic at a future meeting.

Adjournment (Webex 03:22:51)



The Confluence of Drainage and Clean Water

March 4, 2022

Tom Gile

Resource Conservation Section Manager
Board of Water and Soil Resources (BWSR)

Drainage & Minnesota

MINNESOTA STATUTES 1858

842

LANDS.

[CHAP.

CHAPTER 128.

LANDS.

SECTION

1. Act of congress granting to state lands for railroads, accepted.
2. Act accepting when to take effect.
3. Incorporation of companies organized for the drainage of lands; corporate rights.
4. Declaration and copy of charter to be filed.
5. Authority to survey and open drains; *pro rata* tax on land benefited.
6. Owner may construct drains on his own land; allowance therefor.
7. Lateral drains, privilege to make by parties having paid their assessments.
8. Authority to run drains into lakes or streams, but not to overflow, or deplete, or injure.
9. Right of way across lands, subject to compensation therefor.
10. Right to create water-power, and dispose of same.
11. Damages by overflowing land, to be recovered.

SECTION

12. Damages how determined.
13. Exemplary or vindictive damages not to be allowed.
14. Judgment to become a lien upon the company's works.
15. Rights of company upon adjustment of damages.
16. Prohibition to enter upon the same lands by more than one company.
17. This act deemed a public act, and subject to amendment.
18. Repeal of acts inconsistent.
19. Act takes effect on passage.
20. Governor to appoint commission to select lands for completion of public buildings.
21. Governor to appoint persons to select salt springs and lands given by United States.
22. Sec. 21 and 22 when to take effect.

An Act to regulate and encourage the Drainage of Lands.

[Passed August 3, 1858.] *c. 73*

(3.) SEC. I. *Be it enacted by the legislature of the state of Minnesota:* That any number of persons may associate themselves together for the purpose of draining lands and creating water privileges; and they may become incorporated with rights to have perpetual succession; to sue and be sued by their corporate name; to have and use a common seal, which they may alter at pleasure; to render the interest of stockholders transferable; to exempt the private property of its members from liability for corporate debts; to establish by-laws, and make all needful rules and regulations for the management of their affairs, and with such franchises and under such restrictions as are hereinafter set forth.

Company
incorpora
drainage

What is a Drainage System

Drainage Authority

- Act as the drainage system's governing body – administer proceedings and procedures; approve petitions; hold hearings; make findings; issue orders; appoint engineer(s), viewers, and inspector(s); engage or retain attorney(s); apportion costs; etc.

103E.105

Subd. 12.Drainage system. "Drainage system" means a system of ditch or tile, or both, to drain property, including laterals, improvements, and improvements of outlets, established and constructed by a drainage authority. Drainage system includes the improvement of a natural waterway used in the construction of a drainage system and any part of a flood control plan proposed by the United States or its agencies in the drainage system.

What is a Drainage System

103E.011 DRAINAGE AUTHORITY POWERS.

§Subdivision 1. **Generally.**

The drainage authority may make orders to:

(1) construct and maintain drainage systems;

(2) deepen, widen, straighten, or change the channel or bed of a natural waterway that is part of the drainage system or is located at the outlet of a drainage system;

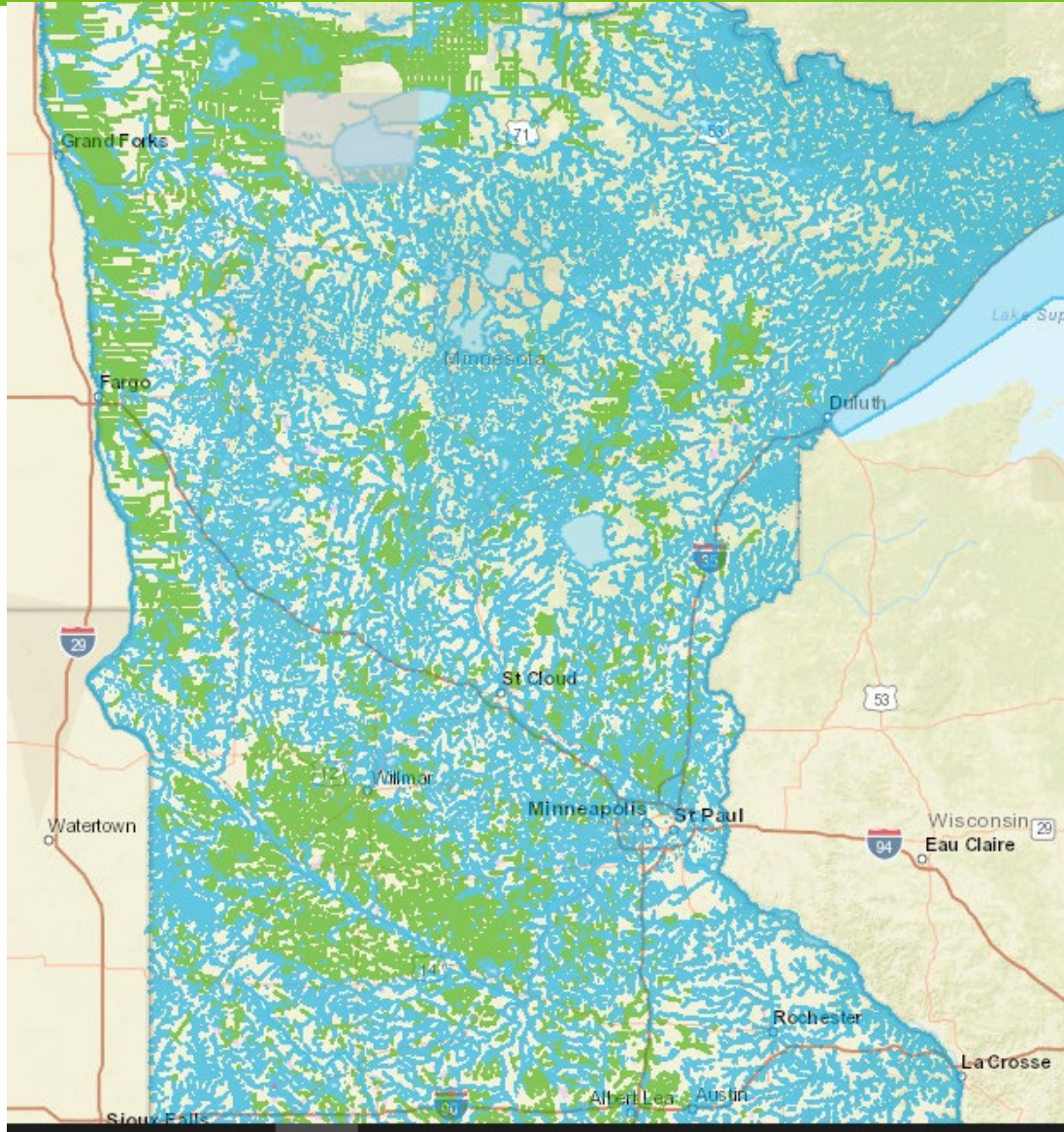
(3) extend a drainage system into or through a municipality for a suitable outlet; and

(4) construct necessary dikes, dams, and control structures and power appliances, pumps, and pumping machinery as provided by law.

§Subd. 5. **Using external sources of funding.**

Notwithstanding other provisions of this chapter, a drainage authority may accept and use funds from sources other than, or in addition to, those derived from assessments based on the benefits of the drainage system for the purposes of wetland preservation or restoration or creation of water quality improvements or flood control. The sources of funding authorized under this subdivision may also be used outside the benefited area but must be within the watershed of the drainage system.

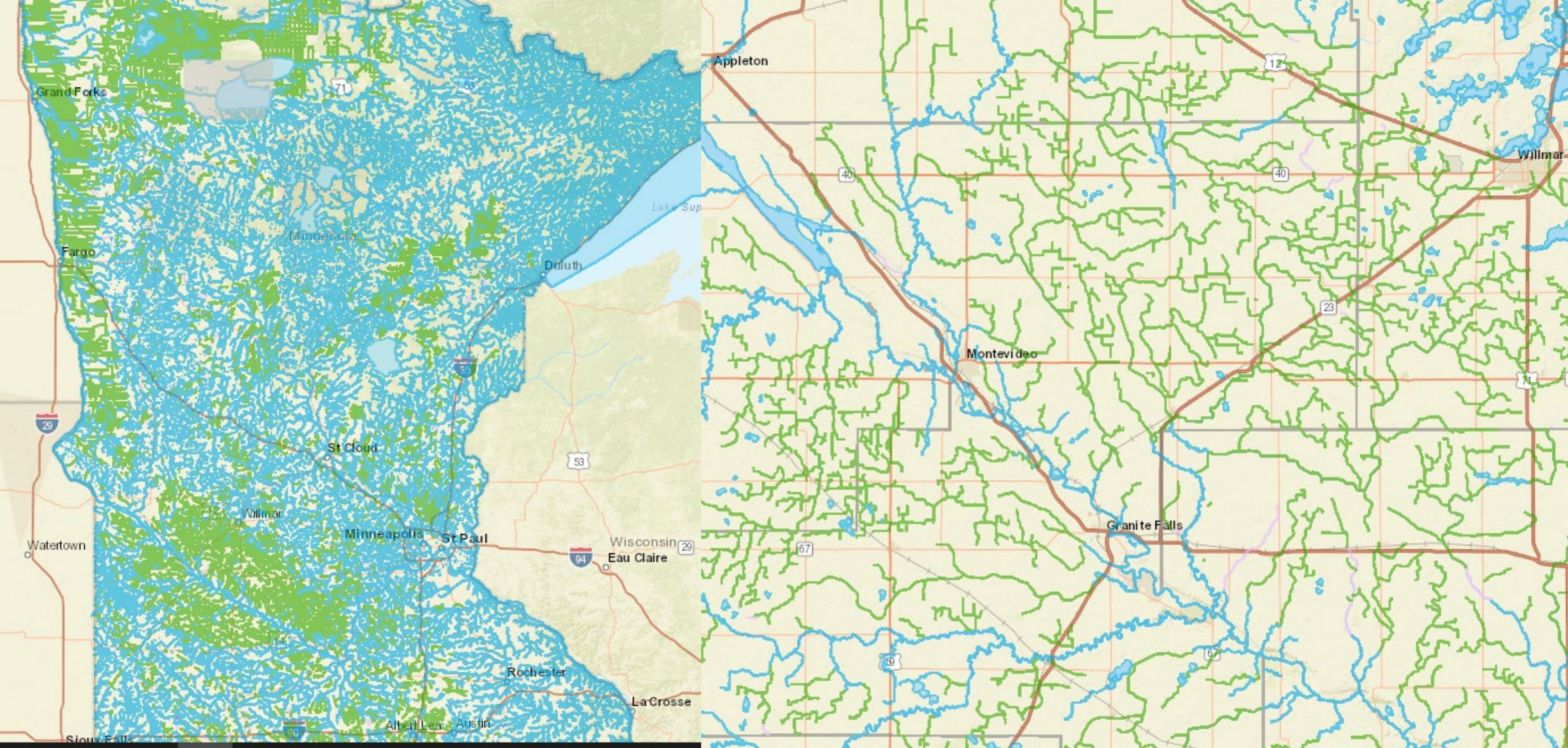
Drainage Scope



Blue Lines = Public Waters

Green Lines = Open Ditch Public Drainage Systems

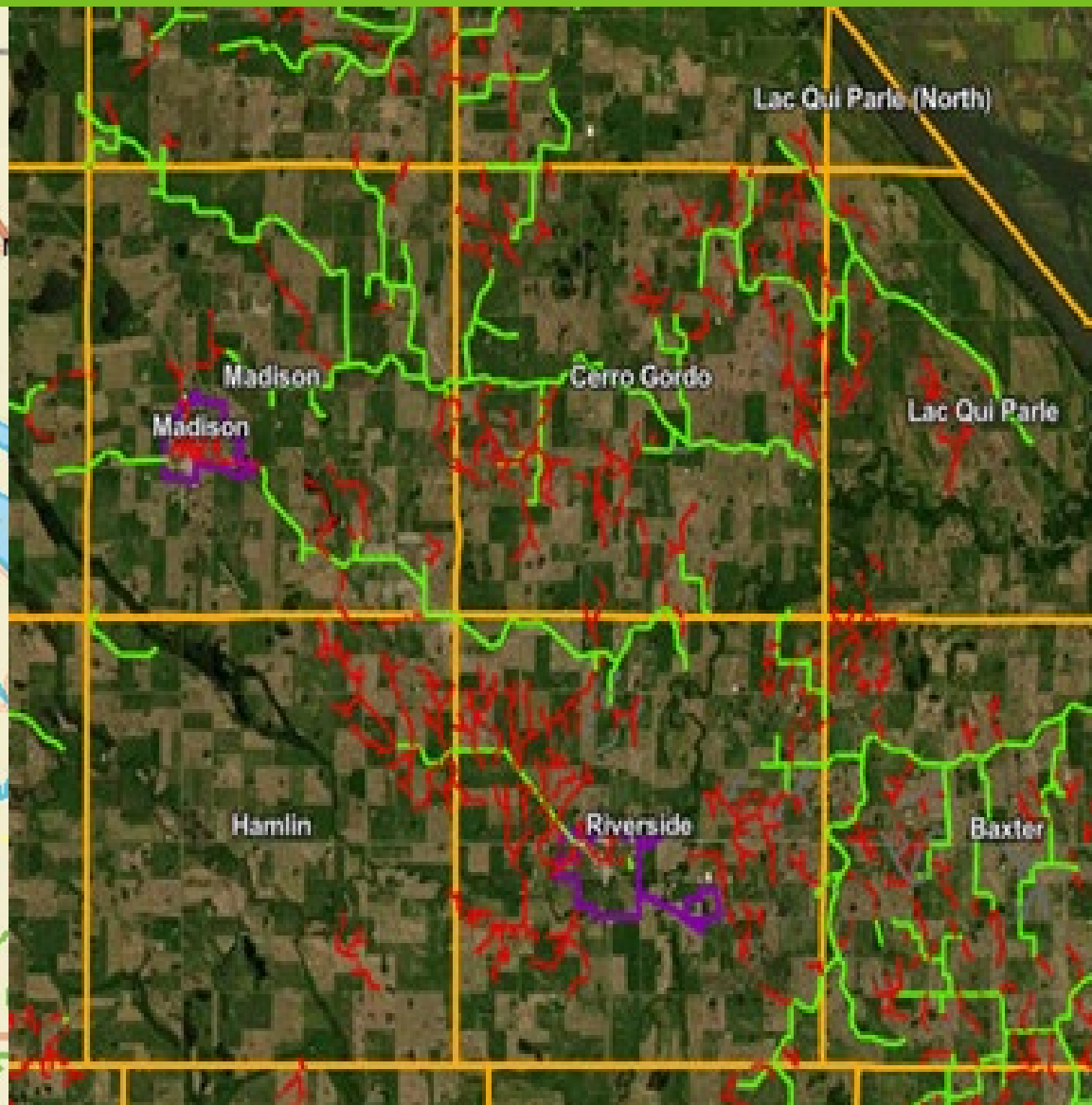
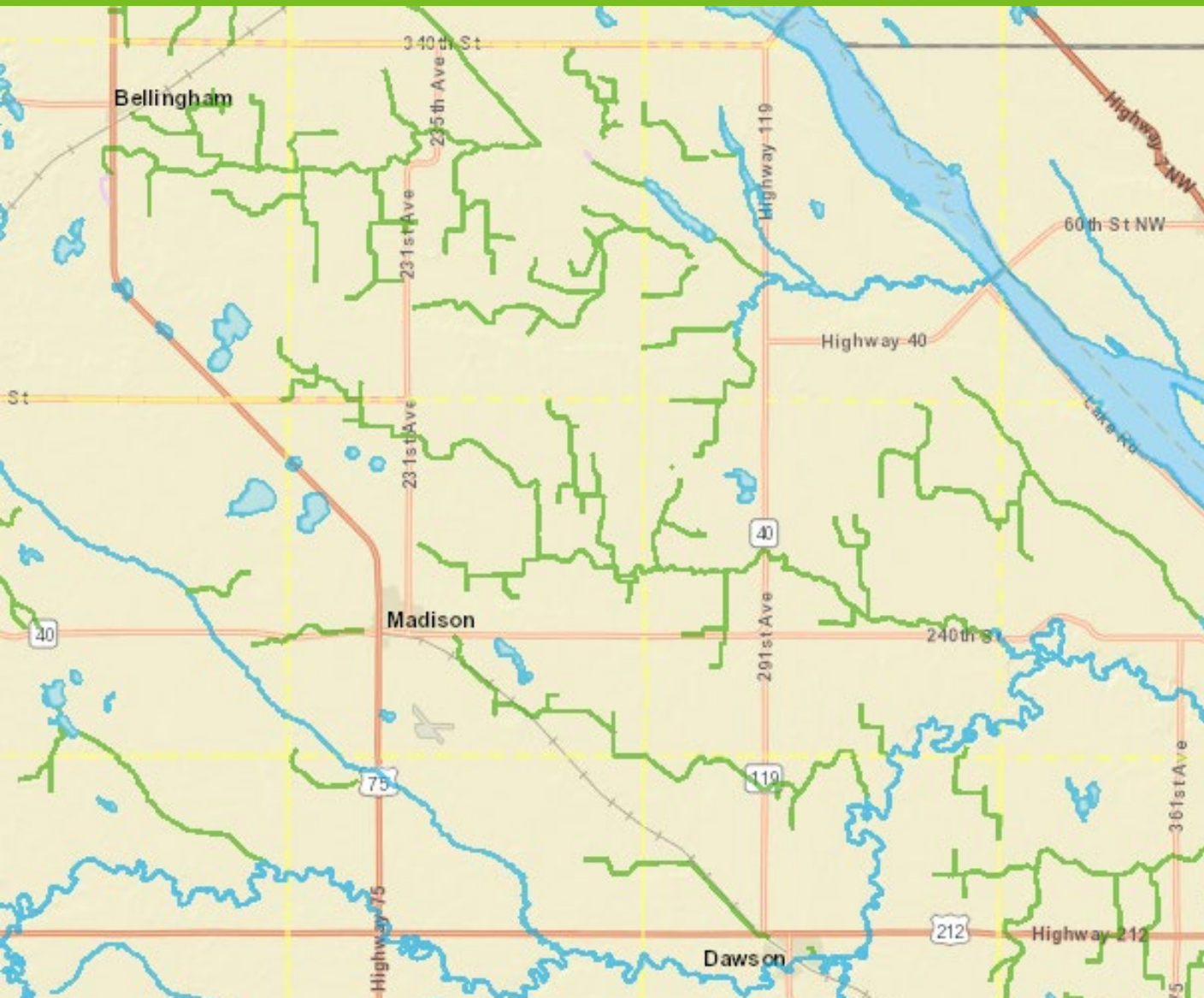
Drainage Scope



Open Systems



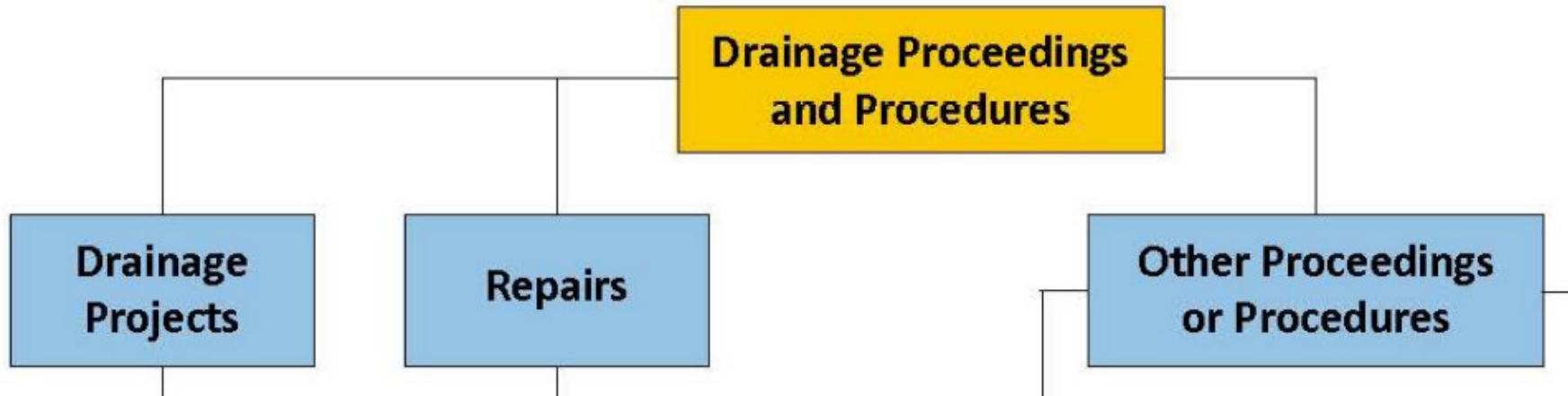
Open & Tile Systems



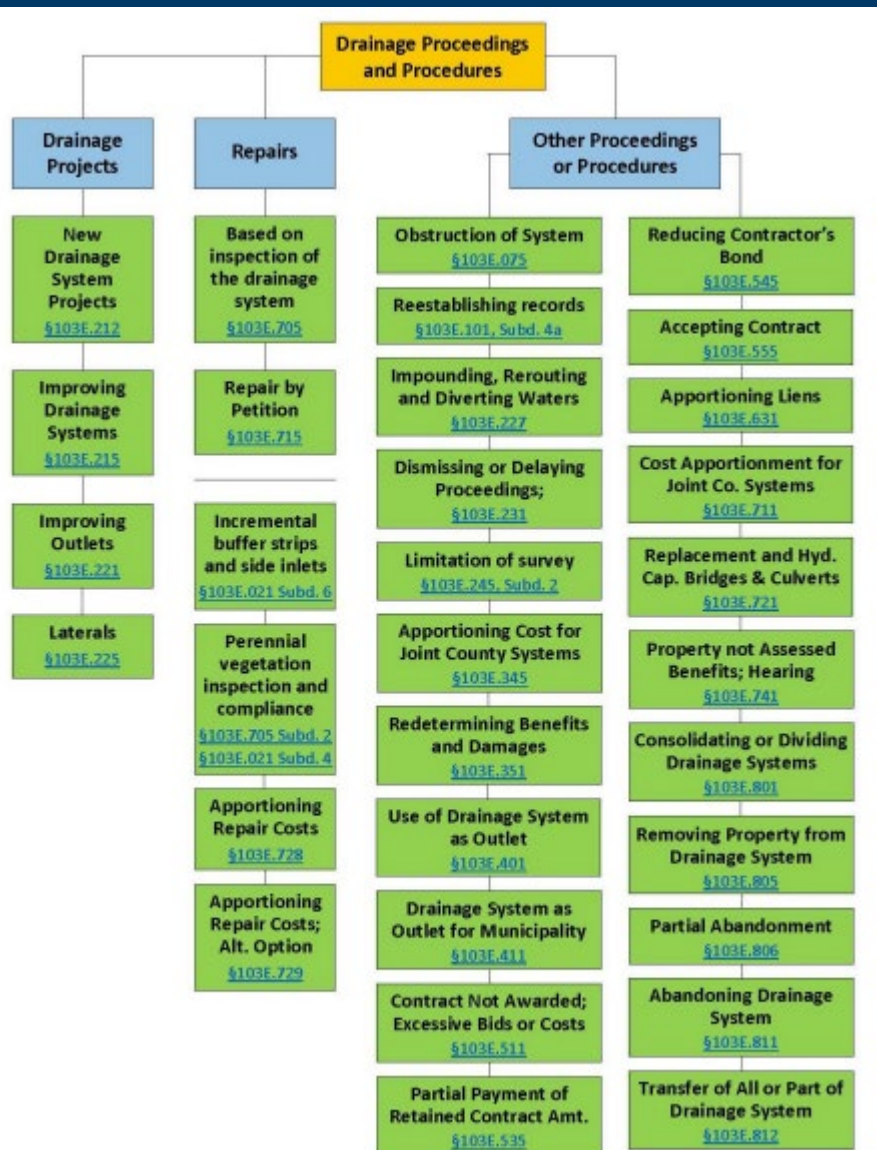
Types of Drainage Proceedings & Procedures

HANDBOOK: UNDERSTANDING MINNESOTA PUBLIC DRAINAGE LAW

Figure 1-1. Categories and Types of Drainage Proceedings and Procedures



Drainage can be complicated

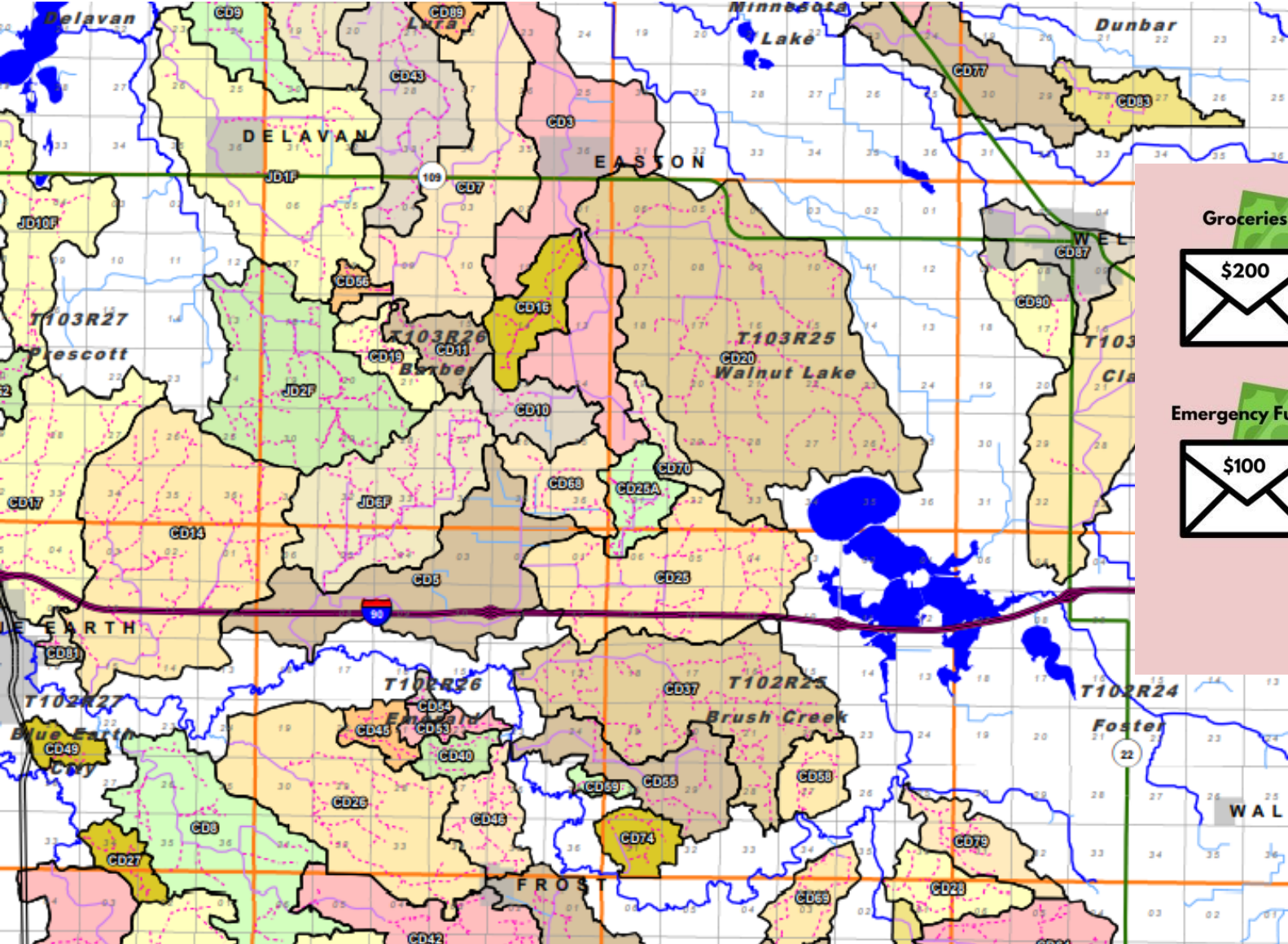


§ 103E.015, Subd. 1. Environmental, land use, and multipurpose water management criteria.

Before establishing a drainage project, the drainage authority must consider the following criteria:

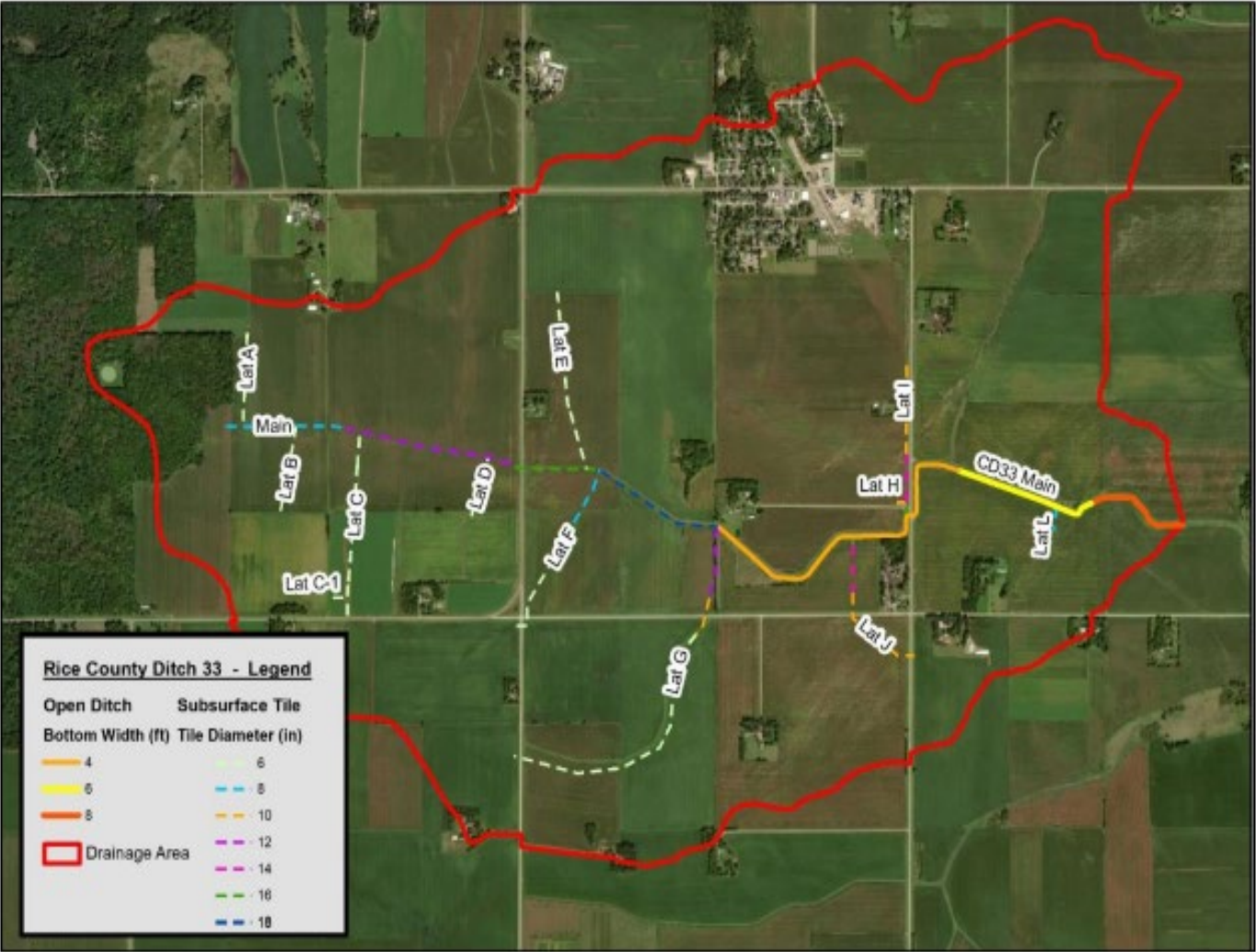
- (1) private and public benefits and costs of the proposed drainage project;
- (2) alternative measures, including measures identified in applicable state-approved and locally adopted water management plans, to:
 - (i) conserve, allocate, and use drainage waters for agriculture, stream flow augmentation, or other beneficial uses;
 - (ii) reduce downstream peak flows and flooding;
 - (iii) provide adequate drainage system capacity;
 - (iv) reduce erosion and sedimentation; and
 - (v) protect or improve water quality;
- (3) the present and anticipated land use within the drainage project or system, including compatibility of the project with local land use plans;
- (4) current and potential flooding characteristics of property in the drainage project or system and downstream for 5-, 10-, 25-, and 50-year flood events, including adequacy of the outlet for the drainage project;
- (5) the effects of the proposed drainage project on wetlands;
- (6) the effects of the proposed drainage project on water quality;
- (7) the effects of the proposed drainage project on fish and wildlife resources;
- (8) the effects of the proposed project on shallow groundwater availability, distribution, and use; and
- (9) the overall environmental impact of all the above criteria.

Drainage Project Accounting



Groceries	Cable	Household	Gas	Personal
\$200	\$100	\$100	\$50	\$150
Emergency Fund	Debt Pay off	Clothing Fund	Holiday Fund	Car Maintenance
\$100	\$50	\$50	\$50	\$50

Drainage Project Accounting



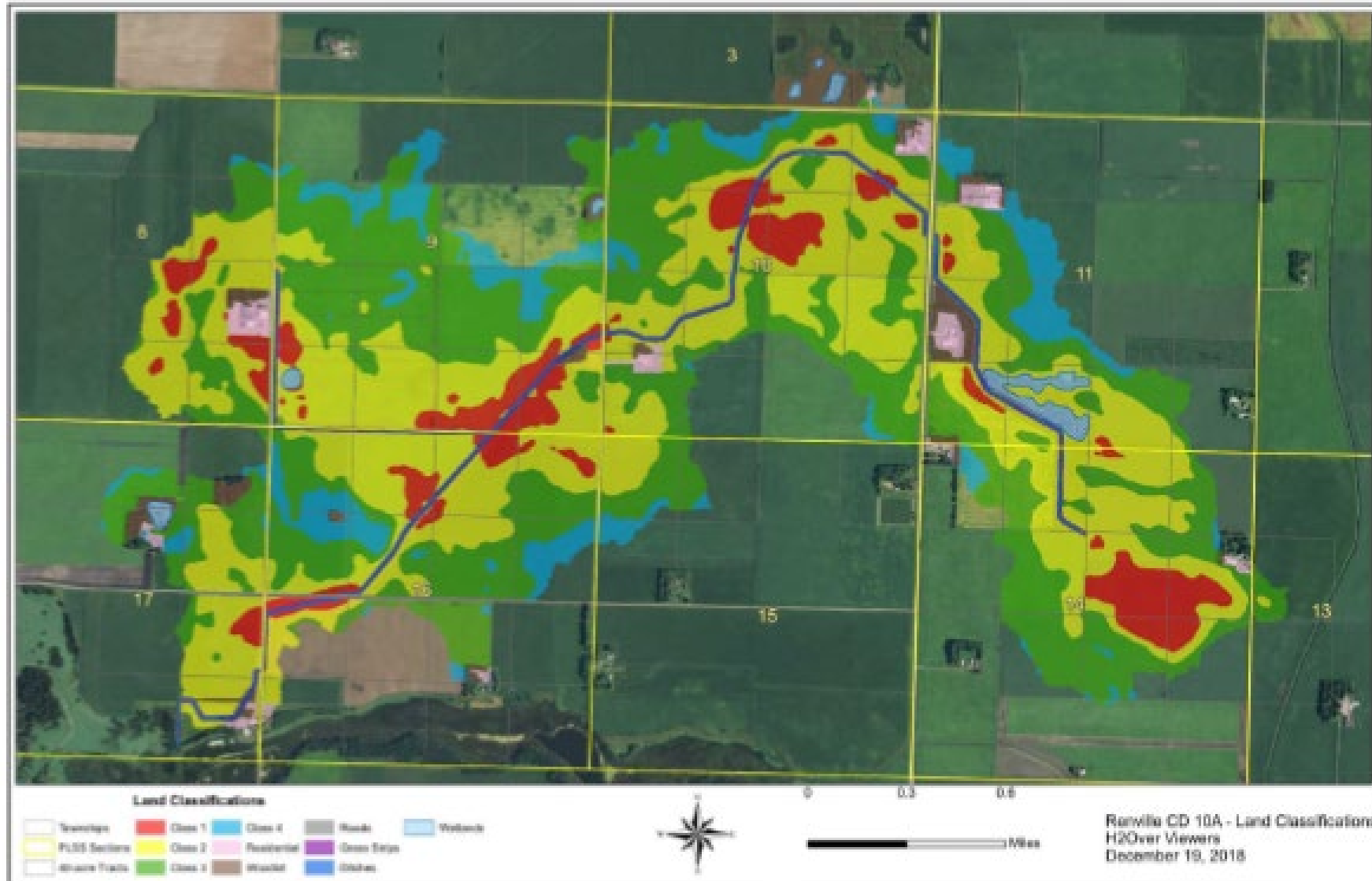
All costs for constructed “drainage projects” must be apportioned to the benefited property owners in proportion to the monetary benefits for each land unit benefited by the project, as determined by the team of viewers and approved by the drainage authority (i.e., pro rata based on benefits). [?]

The costs of a “repair” anywhere on a drainage system are apportioned pro rata: o to all property benefited by the drainage system based on benefits of record, or o can be apportioned to all property contributing runoff to the drainage system based on relative runoff and relative sediment delivery to the drainage system.

Drainage Authority Decisions



A REAL CONFLUENCE



A REAL CONFLUENCE

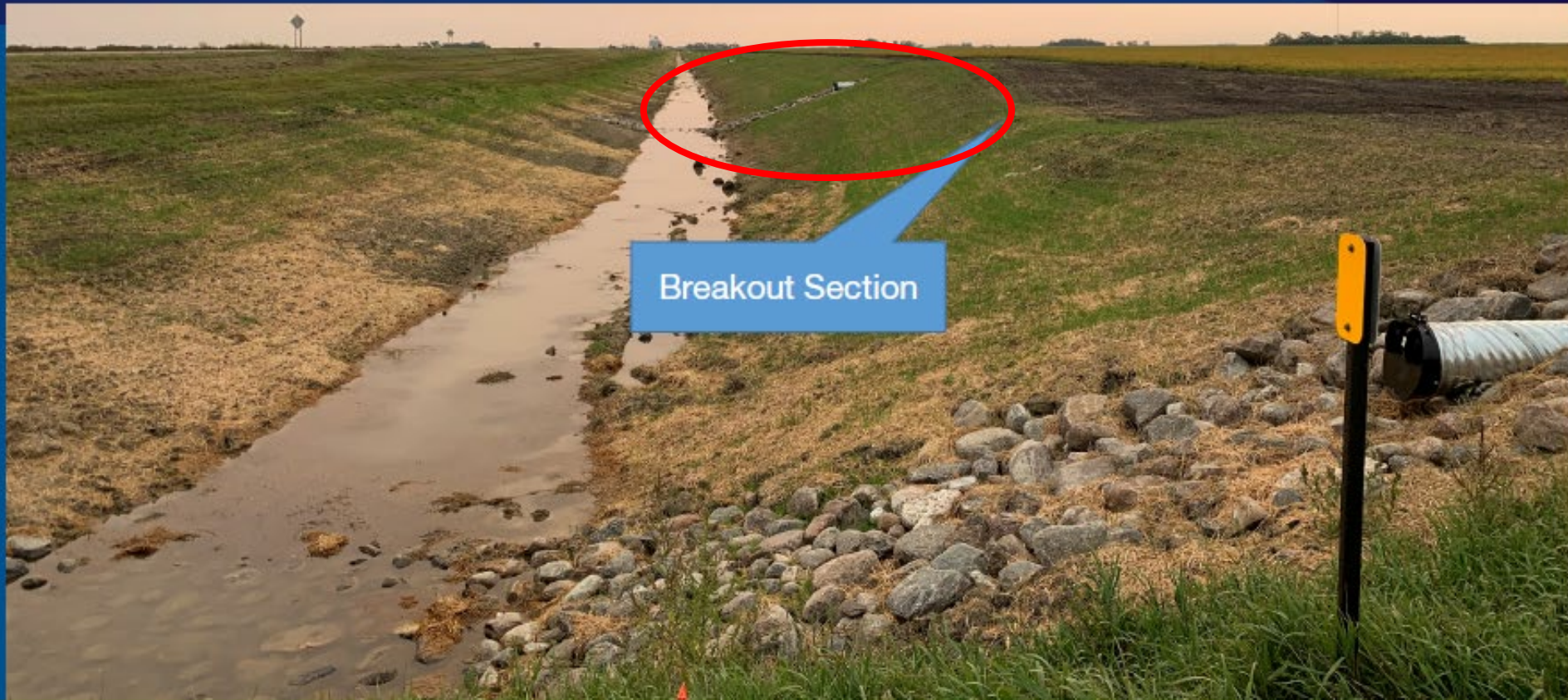


A REAL CONFLUENCE



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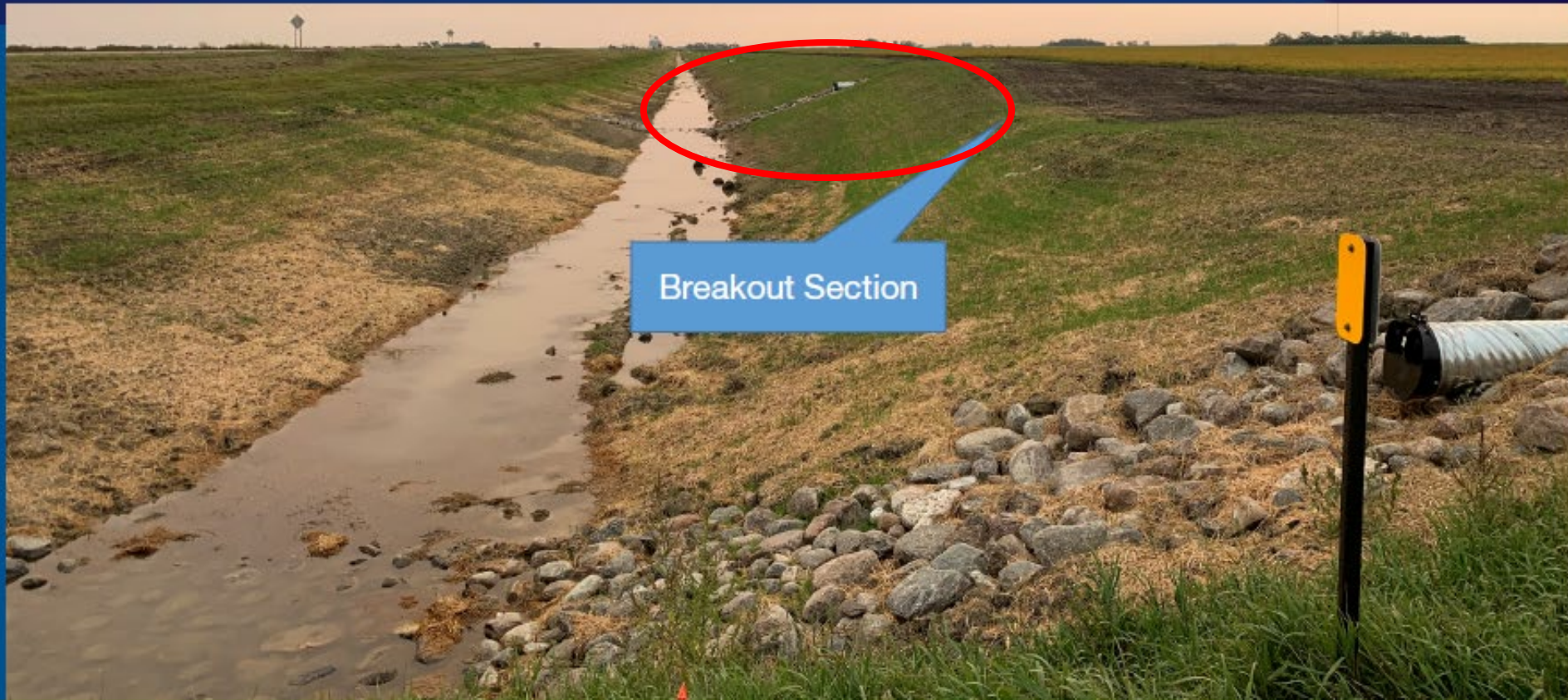
Breakout Design



Breakout Section

A REAL CONFLUENCE

Breakout Design



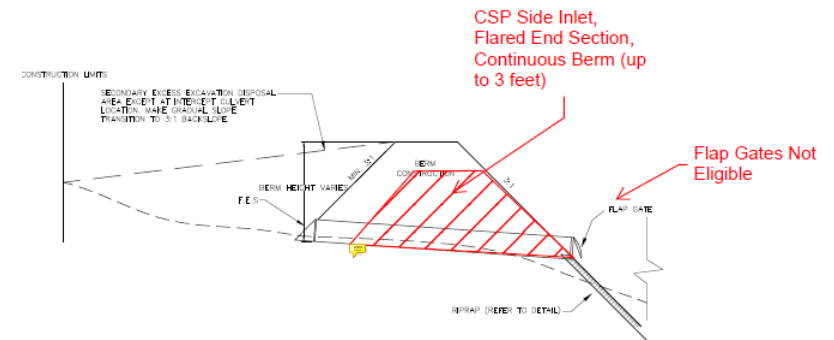
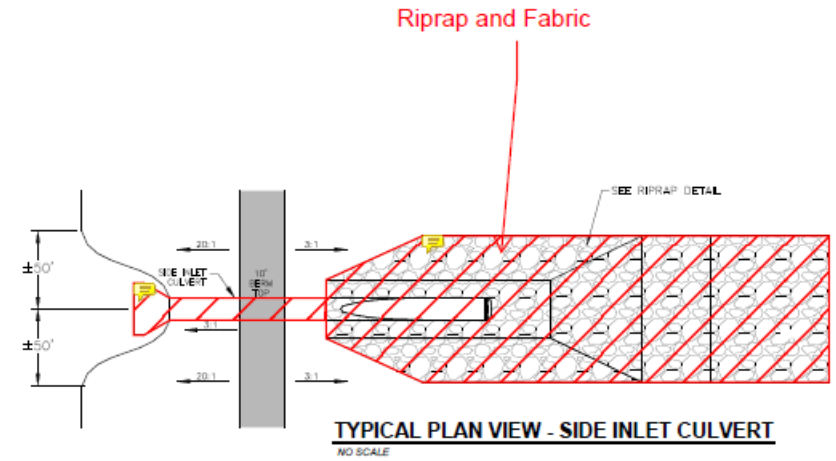
Breakout Section

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Design



Breakout Section



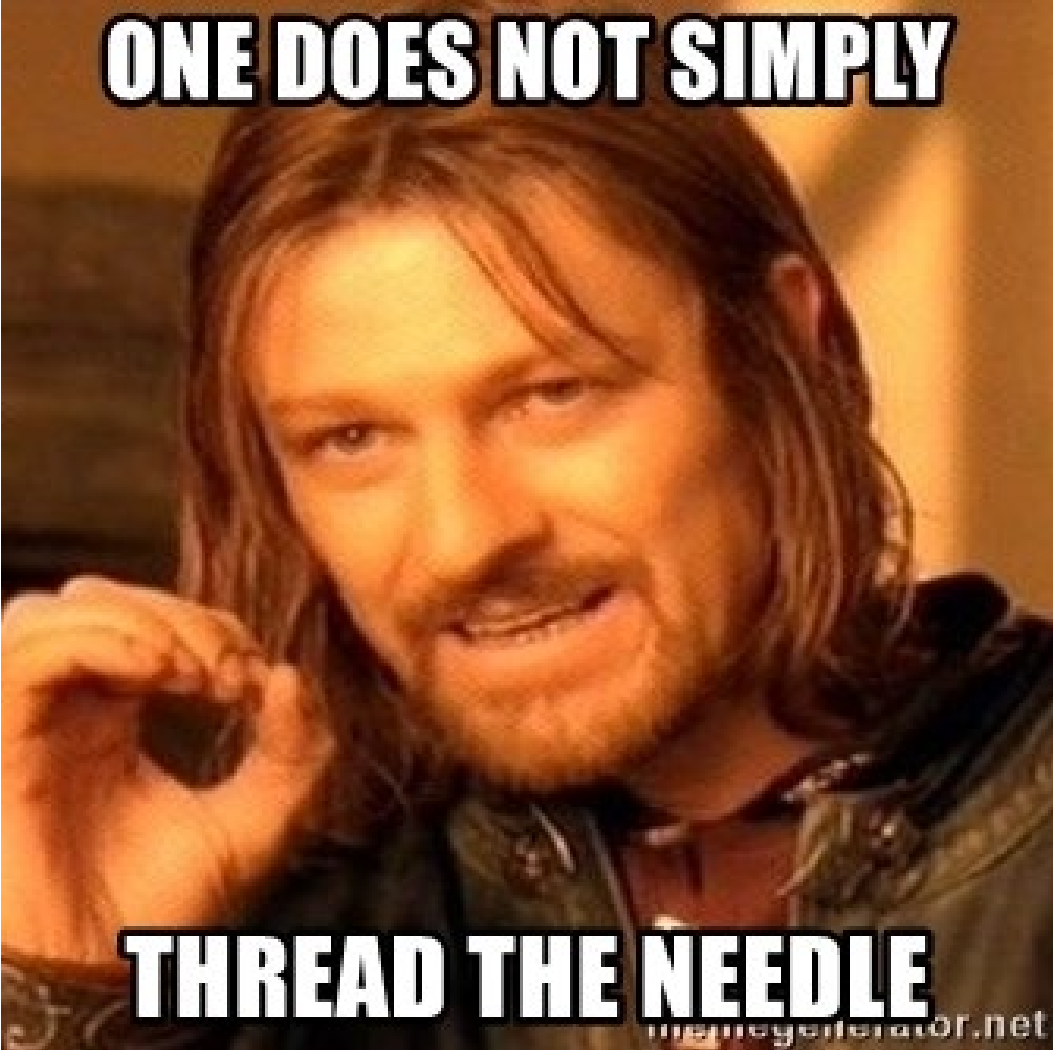
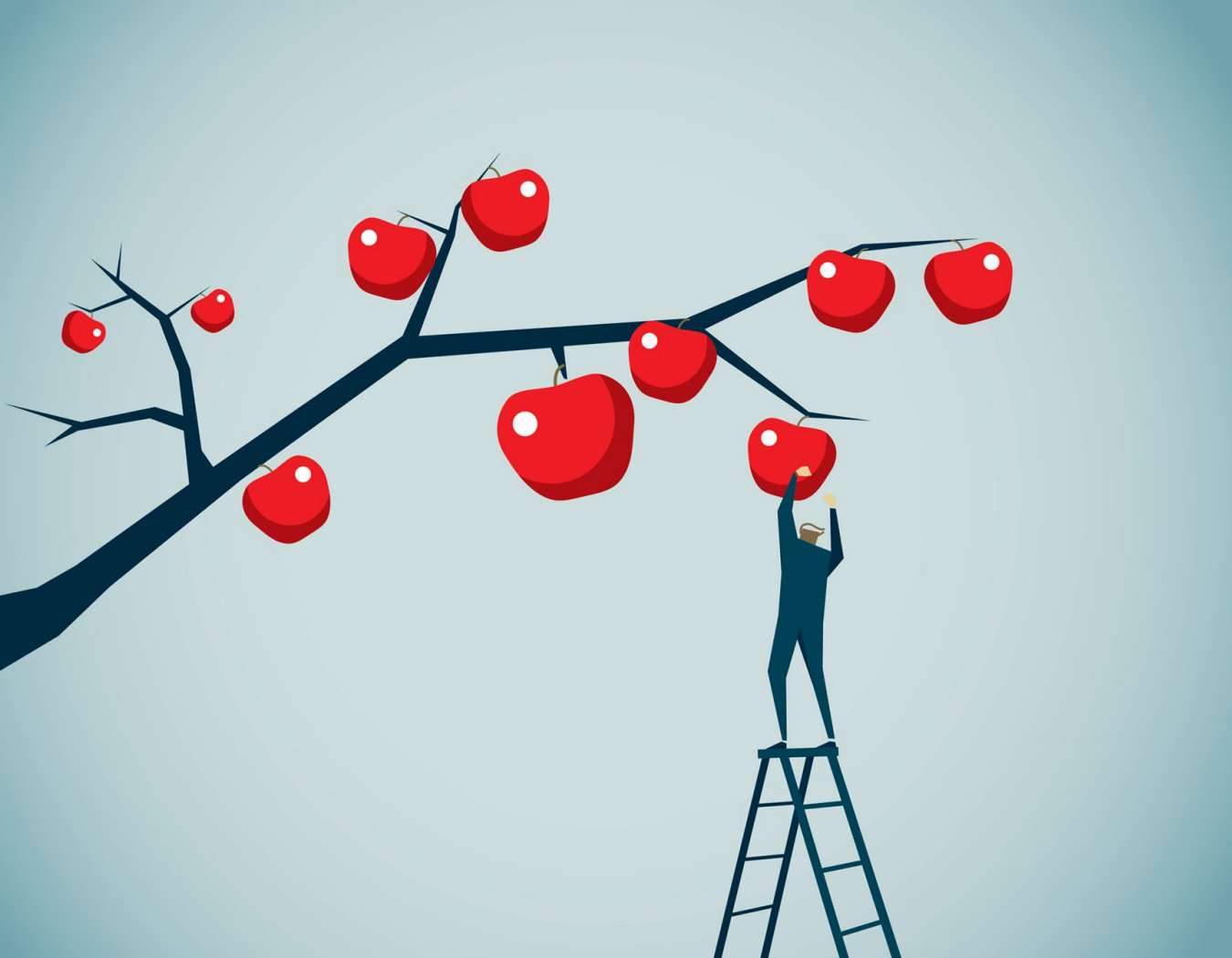
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Drainage and Clean Water

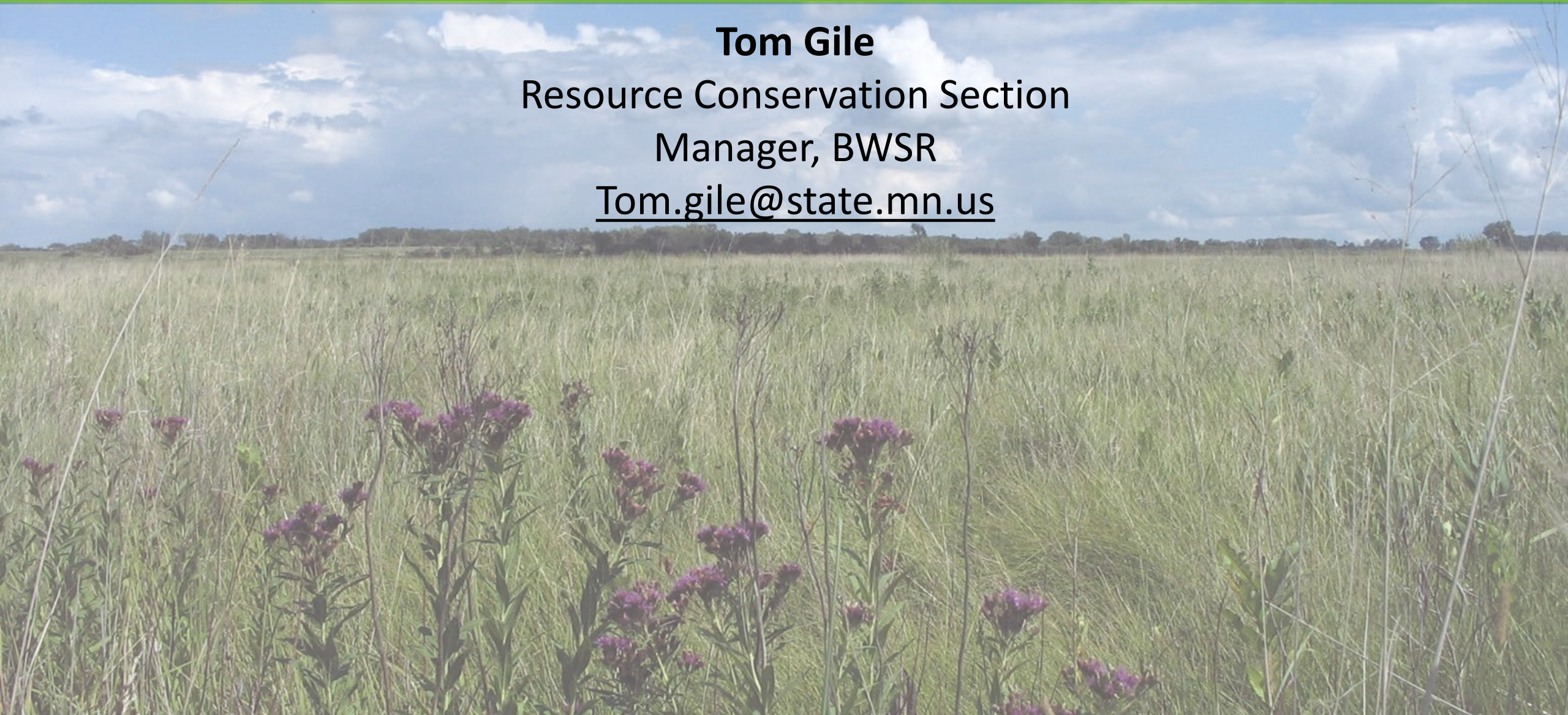


Thank you

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Water Storage Goals in Comprehensive Watershed Management Plans



This document is a compilation of goals related to water storage in comprehensive watershed management plans developed through BWSR's One Watershed, One Plan program. Some plans articulated both a short term goal (10-year time frame) and a long term goal (a.k.a. desired future condition). If not stated, assume the goal is short-term.

Start Year	Planning Boundary	Water Storage Goal
Northwest - Red River		
2017	Bois de Sioux/Mustinka	<p>10 year goal: Achieve progress towards long-term goal through implementation of Redpath Controlled Flood Impoundment Project and small-scale storage to mitigate impacts of altered hydrology.</p> <p>Long Term: A total of 78,903 acre-feet of additional water storage is achieved (see the plan for acre-feet by planning region).</p>
2017	Buffalo-Red River	<p>10 year goal: 42,750 acre feet (approx. 0.45 inches) of runoff volume reduction (25% of each planning region's long term goal).</p> <p>Long Term: 171,000 Acre-Feet (approx. 1.79 inches) of runoff volume reduction.</p>
2014	Red Lake River	10 year goal: 10,000 Ac-ft of gated storage in distributed detention basins
2016	Thief River	Reduce annual runoff by 1.5 inch over the entire watershed.
2018	Two Rivers Plus	<p>10 year goal: 1/4 inch runoff reduction in high priority planning zones (7 of 11 zones); 1/8 inch runoff reduction in medium priority planning zones (4 of 11 zones). {Total of 17,931 acre-feet. See p. 71 for planning zone goals}</p> <p>Long Term: Protect agricultural land from flooding for up to a 10-year runoff event</p> <ul style="list-style-type: none"> • Protect cities and farmsteads for up to a 100-year runoff event • Provide 40,000-acre feet of storage within the Two Rivers Watershed District • Provide 5,700-acre feet of storage within the Joe River Watershed District • Maintain minimum flow 20 cubic CFS on S. Branch Two Rivers and 10 CFS on M. Branch Two Rivers during low flow periods
2018	Wild Rice - Marsh River	<p>10 year goal: Achieve 25% of the altered hydrology analysis goal within the priority areas (10,750 acre-feet). The Altered Hydrology analysis resulted in an average storage goal of 0.4 inches across the watershed (approximately 43,000 acre-feet).</p> <p>Long Term Goal: Achieve storage goals from WRWD Expanded Distributed Detention Strategy aimed at providing the WRWD contribution to the Red River Basin Commission's 20% flow reduction goals specified in the LTFS Basin wide Flow Reduction Strategy (300,000 acre-feet).</p>

Northeast – Superior / Rainy		
2016	Lake of the Woods	<p>10 year goal: Achieve progress towards a water retention goal of 1/8" of water across the watershed, or 3,668 total acre-feet of additional water retention (not including the Northwest Angle (NWA)).</p> <p>Long Term Goal: Achieve progress towards a water retention goal of 1/4" of water across the watershed, or 7,335 total acre-feet of additional water retention (not including the NWA). Long-term water retention goal may be refined as watershed water retention data gaps are filled through implementation actions.</p>
2014	Lake Superior North	Promote a stormwater management approach that emphasizes the retention of the first 1.1 inches of runoff volume for unrestricted sites and 0.55 inches of volume for restricted sites, to promote the maintenances, restoration and/or rehabilitation of natural hydrologic functions to create a more resilient landscape.
2018	Nemadji	Increase water storage by 1,174 acre-feet through wetland and floodplain restoration.
North Central – Upper Mississippi		
2016	Leech Lake River	Maintain an average annual discharge of 747,000 acre-feet at the Federal Dam, Ball Park, MN.
2018	Mississippi River Headwaters	Maintain the Mississippi River Headwaters Watershed mean annual discharge of 2,579 - 2,777 acre feet per day.
2015	North Fork Crow River	<p>10 Year Goal: Interim volume reduction goal for the watershed is a 0.5 inch reduction in runoff depth on average across the watershed.</p> <p>Long Term Goal: meet altered hydrology mitigation goal of reducing runoff depth 0.75 inches across the watershed. (translates to 59,320 acre feet of storage across the watershed)</p>
2017	Pine River	Maintain an average discharge of 306,945 acre-feet at the pour point of the Pine River Watershed.
2018	Redeye River	Maintain the current average monitored discharge relative to climate norms of 368,196 acre-feet at the pour point of the watershed.
2018	Rum River*	<p>10 Year Goal: Implement actions that prevent increased surface water runoff and provide 100 acre-feet of storage over the life of the plan. To prevent flooding, erosion, and water quality degradation, there will be no net increase in discharge from each management zone.</p> <p>Long Term Goal: 5-year average water rate and volume have not increased (relative to precipitation) at the Anoka Dam on the Rum River.</p>
2017	Sauk River	<p>10 Year Goal: Maintain current average annual discharge relative to precipitation. Subwatershed water storage goals totaling 14,066 acre-feet.</p> <p>Long Term Goal: Sauk River Watershed runoff at the USGS gage in St. Cloud is less than or equal to the increase in precipitation.</p>
Southeast – Lower Mississippi		
2016	Cannon River	<p>Interim Goal: In the interim, the 10-year Volume Reduction Goal in the Cannon River at Welch is 35,733 acre-feet.</p> <p>Long Term Goal: Decrease the rate and volume of water that contributes to flooding of downstream communities to limit property damage and protect public safety by establishing water storage goals based on the results of the Long-Term Flood Evaluation Study which will be conducted in the first five years of the Plan.</p>
2016	Cedar - Wapsipinicon River	Increase average runoff retention by increasing watershed storage by 0.25 inches (~9,600 acre-feet)

2018	Greater Zumbro River	<p>10 Year Goal: increasing watershed storage (i.e., retention) by 22,000 acre-feet (equivalent to 0.25 inches of runoff over the watershed), establishing subwatershed-specific storage and peak flow goals based on modeling results, characterizing flood risk in un-modeled portions of the watershed, and managing and restoring floodplain areas to reduce risk to structures and infrastructure.</p> <p>Long Term Goals: reducing runoff and increasing storage within the planning area, mitigating increases in peak flows in streams, and reducing flood risk to structures and major infrastructure. These long-term goals are consistent with Zumbro WRAPS, Mississippi River-Lake Pepin WRAPS, and local resource management plans.</p>
2014	Root River	<p>10 Year Goal: Sediment Reduction Strategy for reducing two year peak discharge by 25% by 2030 - volume for the 2- year, 24-hour runoff event used as a temporary surrogate for peak discharge</p>
2018	Shell Rock River/Winnebago*	<p>10 Year Goal: Implement projects that store 6,247 acre-feet.</p> <p>Long Term Goal: reduce peak stream flows by 15% in the Shell Rock River Watershed and 20% in the Winnebago River Watershed (goals referenced in the WRAPS reports).</p>
Southwest – Minnesota River and Missouri River		
2018	Hawk Creek-Middle MN	<p>10 Year Goal: Reduce average annual runoff by 0.25 inches (total of 8,296 acre-feet in four priority areas: Upper Hawk Creek, Beaver Creek, Chetomba Creek, and Fort Ridgely Creek).</p> <p>Long Term Goal: Work to achieve no net increase in existing runoff volumes to the Minnesota River from changes in land use or land use practices for non-priority subwatersheds</p>
2016	Missouri River Basin	<p>10 Year Goal: Achieve 0.1 inches of water storage across the watershed, or 9,510 acre-feet of storage across the watershed.</p> <p>Long Term Goal: Achieve 0.5 inches of water storage across the watershed, or 47,550 acre-feet of storage across the watershed.</p>
2016	Pomme de Terre River	<ul style="list-style-type: none"> • Reduce annual runoff volume by 3,527 acre-feet at the outlet of the Pomme de Terre River watershed. • No increase in runoff from public water basins during peak run-off periods.
2017	Watowwan River	<ul style="list-style-type: none"> • Achieve 0.10 inches of water runoff reduction across the watershed, or 4,327 acre-feet of runoff reduction by implementation of targeted PTMApp practices across the watershed • Achieve 4% watershed-wide reduction in peak and annual streamflow, defined as the 10-year target in the WRW WRAPS
2014	Yellow Medicine River	<ul style="list-style-type: none"> • Add 1,000 acre-feet of new stormwater storage • No net increase in highest annual peak flows • 3% increase in dry season base flow
East Central - Metro		
2017	Lower St. Croix River	0.16 inches or 7,900 acre-feet across the entire watershed

**plan submitted to BWSR as of March 10, 2022 but not yet approved by the BWSR board.*