# Campbell Creek Stream Stabilization and Flood Storage Project Environmental Assessment Worksheet

**RGU: Pelican River Watershed District**
**Proposer: Pelican River Watershed District**

Stantec

Prepared for:
Pelican River Watershed District

Prepared by:
Stantec Consulting Services Inc.

March 2025

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*December 2022 version*

# Environmental Assessment Worksheet

This most recent Environmental Assessment Worksheet (EAW) form and guidance documents are available at the Environmental Quality Board's website at**:** https://www.eqb.state.mn.us/ .The EAW form provides information about a Project that may have the potential for significant environmental effects. Guidance documents provide additional detail and links to resources for completing the EAW form.

**Cumulative potential effects** can either be addressed under each applicable EAW Item or can be addressed collectively under EAW Item 21.

**Note to reviewers:** Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

## 1. Project Title

Campbell Creek Stabilization and Flood Storage Project

## 2. Proposer

| | |
|---|---|
| Proposer: | Pelican River Watershed District |
| Contact person: | Tera Guetter |
| Title: | District Administrator |
| Address: | 211 Holmes Street West, Wells-Fargo Bldg. Suite 201 |
| City, State, ZIP: | Detroit Lakes, MN, 56501 |
| Phone: | 218-846-0436 |
| Email: | tera.guetter@arvig.net |

## 3. Responsible Governmental Unit (RGU)

| | |
|---|---|
| RGU Agency: | Pelican River Watershed District |
| Contact person: | Tera Guetter |
| Title: | District Administrator |
| Address: | 211 Holmes Street West, Wells-Fargo Bldg. Suite 201 |
| City, State, ZIP: | Detroit Lakes, MN 56501 |
| Phone: | 218-846-0436 |
| Email: | tera.guetter@arvig.net |

## 4. Reason for EAW Preparation

| Required: | Discretionary: |
|---|---|
| ☐ EIS Scoping | ☐ Citizen petition |
| **X** Mandatory EAW | ☐ RGU discretion |
| | ☐ Proposer initiated |

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):

Minnesota Rules Part 4410.4300, Subpart 26: "for a diversion, realignment, or channelization of any designated trout stream, or affecting greater than 500 feet of natural watercourse with a total drainage area of ten or more square miles."

## 5. Project Location

County: Becker

City/Township: Detroit Township

PLS Location **(¼, ¼, Section, Township, Range)**: Upper Project Area: NE ¼ S28 T140N R41W

Lower Project Area: NE ¼ S4 T139N R41W and SE ¼ Sec 33 T140N R41W

**Watershed (81 major watershed scale):** Otter Tail River (HUC 09020103)

**GPS Coordinates:** Upper Project Area North Coordinates: Lat 46.91634, long -95.86059

Upper Project Area South Coordinates: Lat 46.91337, long -95.86457

Lower Project Area GPS Coordinates: Lat 46.89055, long -95.86709

**Tax Parcel Number:** Upper Project Area North: 240210000, 2402090000

Upper Project Area South: 240290000

Lower Project Area: 240259001, 080055006, 080055005

**At a minimum attach each of the following to the EAW:**

- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating Project boundaries (photocopy acceptable); and
  **See Figure 1, Appendix A**
- County map showing the general location of the Project;
  **See Figure 2, Appendix A**
- Site plans showing all significant Project and natural features. Pre-construction site plan and post-construction site plan.
  **See Figure 3, Appendix A and draft civil plans in Appendix B**
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the Project during the life of the Project (as detailed below in item 7. Climate Adaptation and Resilience).
  **See Item 7.**

## 6. Project Description

***a. Provide the brief Project summary to be published in the EQB Monitor, (approximately 50 words).***

Pelican River Watershed District (PRWD) proposes to conduct rehabilitation activities within portions of Campbell Creek in Becker County, MN. The Project goals include stabilization of eroded streambanks, reduced sediment delivery to Floyd Lake, improved flood storage, and improved fish passage. Proposed activities include bank grading, conifer revetments, grade control structures, riprap toes, rock arch rapids, and culvert replacement.

***b. Give a complete description of the proposed Project and related new construction, including infrastructure needs. If the Project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities***

The Project would feature two work areas, known as the Upper Reach and Lower Reach (See Figure 1 and Figure 2, Appendix A). The Lower Reach work would include implementation of channel stabilization along approximately 3,800 feet of Campbell Creek to address areas of active bank erosion, reduce potential for future erosion by reconnecting the floodplain, and provide aquatic organism passage through the County Road 149 culvert. The Upper Reach work would be focused on improving flood storage capacity. All permanent work would occur within the existing channel, and the existing stream alignment would not be altered. Construction is expected to occur between October 2025 and April 2026.

The main design elements would include rock arch rapids, bank grading, conifer revetments, grade control structures, riprap toe, and culvert replacement. The details of each activity are summarized below. See Appendix B for draft civil plans and typical detail drawings.

- Rock Arch Rapids (Upper Reach): Two sets of rock arch rapids with riprap weirs would be constructed near the outlet from Campbell Lake, likely using excavators and skid steers. Each structure would consist of a series of five 3-4’ boulder weirs. All material excavated near the bottom of the riffle would be placed along the traversable and recoverable slope on the upgradient side of the rapids sequence. The riffles will have a maximum 3% slope down-gradient. The rock arch rapids would promote flood storage by acting as outlet control structures for Campbell Lake and would maintain a more constant flow in this intermittent channel. Water levels on Campbell Lake will not be altered or raised as a result of the rock arch rapids. Gaps will be maintained in the weirs to allow for fish passage and additional water storage upstream. See Sheet C-805, Appendix B for a typical detail drawing.

- Bank Grading (Lower Reach): A standard excavator would be used from on top of the bank to create 3:1 slopes along approximately 1,460 linear feet of stream bank. Regraded areas would be seeded with native seed mixes (such as MN Board of Water and Soil Resources (BWSR) native seed mixes), and a woven coir soil erosion control blanket (bio-netting or natural-netting) would be installed parallel to the flow up to the top of the bank. See Sheet C-802, Appendix B for a typical detail drawing.

- Conifer Revetments (Lower Reach): In select areas, coniferous trees would be placed overlapping in the channel and parallel to flow with 4-5”-diameter untreated stakes installed into the bank and bed There would be approximately 950 linear feet of revetments within the Project limits. Conifer revetments help stabilize the streambank and provide habitat for various aquatic species. These features would be installed primarily on eroded outside bends. See Sheet C-804, Appendix B for a typical detail drawing.

- Grade Control Structures (Lower Reach): A total of 18 grade control structures would be installed. At each location, an arch-shaped trench would be dug across the channel using a standard excavator stationed outside the channel. Class IV riprap would be laid into the trench to a height of one to two feet above the streambed. These structures would help restore the incised channel to historic elevations and reconnect the channel to the floodplain. See Sheet C-802, Appendix B for a typical detail drawing.

- Vegetated Riprap Toe (Lower Reach): At select streambank areas with significant erosion concerns, Class IV riprap would be installed from the bank toe upslope to the 25-year storm flood elevation. Each riprap toe structure would be restored with topsoil, native seed mix (such as BWSR native seed mixes), erosion control blankets, and coir blankets. See Sheet C-803, Appendix B for a typical detail drawing.

- New Culvert (Lower Reach): The project would replace the existing 60-inch reinforced concrete pipe culvert with a 10-foot wide by 8-foot tall box culvert buried by a foot and filled with 12 inches of gravel to allow fish passage. This option would require an open cut excavation and road replacement.

Construction equipment would include excavators, backhoes, skid steers, and dump trucks. The Lower Reach work areas would be accessed primarily from a cleared access route along the east side of the creek. Equipment would access the west side of the creek via crossings at select locations. The Upper Reach areas would be accessed via an existing field road on the east side of the creek. Construction mats or similar devices would be utilized within wetlands or other wet soils to avoid permanent damage.

Approximately 3.10 acres of trees, shrubs, and other vegetation would be cleared for access and staging. The disturbed areas would be restored per the SWPPP and any relevant permitting conditions. See attached draft civil plans in Appendix B for disturbance areas and restoration plans.

***c.*** **Project magnitude**

Table 1 summarizes the Project magnitude.

**Table 1. Project Magnitude**

| **Description** | **Number** |
|---|---|
| Total Project Acreage | 12.06 |
| Linear Project length | Upper Project length: approx. 350 ft<br>Lower Project length: approx. 3,800 ft |
| Number and type of residential units | 0 |
| Residential building area (in square feet) | 0 |
| Commercial building area (in square feet) | 0 |
| Industrial building area (in square feet) | 0 |
| Institutional building area (in square feet) | 0 |
| Other uses – specify (in square feet) | 0 |
| Structure height(s) | n/a |

***d. Explain the Project purpose; if the Project will be carried out by a governmental unit, explain the need for the Project and identify its beneficiaries.***

The Project would be carried out by PRWD in partnership with MNDNR. Substantial funding is being provided by a U.S. Environmental Protection Agency (USEPA) 319 Small Watershed Grant, as administered by the Minnesota Pollution Control Agency (MPCA). The purpose of the Project is to address Campbell Creek impairments, reduce loading of suspended solids and phosphorous to downstream waters, improve aquatic habitat, and reduce the flow rate and volume of flood events. Campbell Creek is listed by the MPCA as Impaired for Aquatic Life due to excess total suspended solids (TSS). PRWD is also concerned about excessive sediment and nutrient delivery to Floyd Lake, the receiving water for Campbell Creek. Campbell Creek and Floyd Lake are also included as priority waterbodies for sediment and nutrient reductions in the Otter Tail River One Watershed One Plan. The beneficiaries of the Project include aquatic species, users of Campbell Creek or Floyd Lake, and the general public.

The Project is being undertaken as the first phase of a larger PRWD effort to address sediment and phosphorus pollutant loading. This Project is Phase 1 of PRWD's Headwaters Pelican River Watershed Nine Key Elements (NKE) Plan for reducing excess phosphorus and sediment (TSS) loading caused by overland runoff and in-channel erosion within the Campbell Creek watershed. From the PRWD Campbell Creek Project website:

"*In the Otter Tail River One Watershed One Plan, (10-year plan adopted in January 2023), Campbell Creek has a short- term phosphorus reduction goal of 45 lbs/year (5% reduction) and a short-term sediment reduction goal (4%) of 126 tons/year. Campbell Creek is 1 of 4 stream reach segments targeted for sediment reduction in the plan.*

*"In 2022, the District was selected by the Minnesota Pollution Control Agency (MPCA) to receive a 319 Small Watersheds Focus grant program for the Campbell Creek sub-watershed area that will support long-term comprehensive implementation (four, four-year grant awards that will span a total of 16 years) to address Campbell Creek's phosphorus and sediment pollution loading issues. These funds will be used to implement a series of projects outlined in the nine-element plan, provide a steady source of funding, focus implementation efforts, and achieve measurable water quality improvements on a specific waterbody. In early 2023, a comprehensive work plan was submitted to the Federal EPA for review and approval. The District will be working with Becker SWCD and the MN DNR to identify and target critical erosion areas and to work with landowners to install needed Ag Best management Practices and streambank stabilization measures*."[1]

***e. Are future stages of this development including development on any other property planned or likely to happen?*** ☐ **Yes** **X No**

***If yes, briefly describe future stages, relationship to present Project, timeline and plans for environmental review.***

***f. Is this Project a subsequent stage of an earlier Project?*** ☐ **Yes** **X No**

***If yes, briefly describe the past development, timeline and any past environmental review.***

[1] PRWD. 2024. Campbell Creek project website. https://prwd.org/project/campbell-creek/.

## 7. Climate Adaptation and Resilience

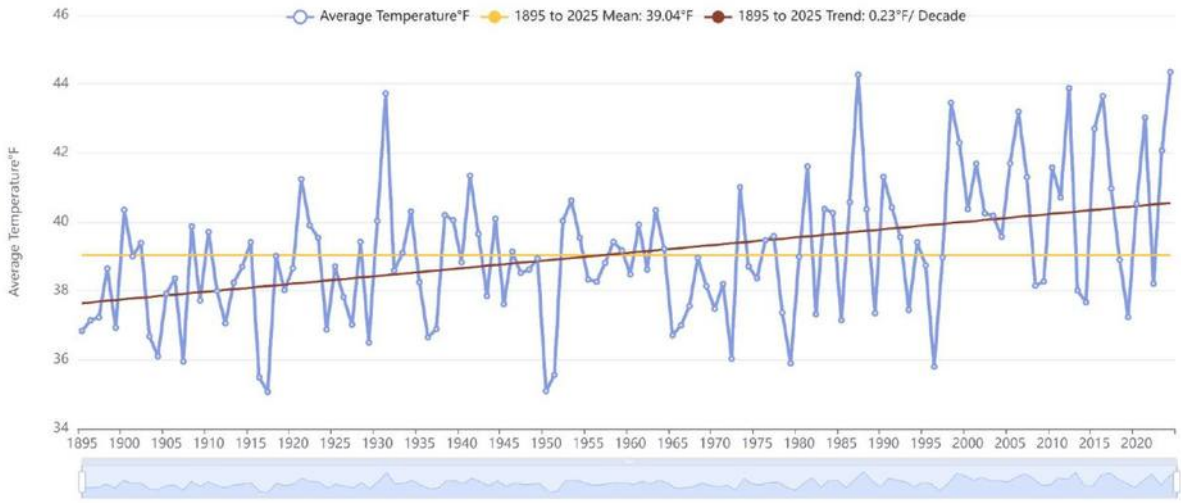
### *a. Describe the climate trends in the general location of the Project (see guidance: Climate Adaptation and Resilience) and how climate change is anticipated to affect that location during the life of the Project.*

In general, Minnesota is anticipated to experience an increase in temperature, precipitation, and more frequent extreme precipitation events resulting from climate change. In Minnesota, annual average temperatures have risen two degrees over the past century and up to three degrees in the northern part of the State. The highest average temperature increases have occurred during the winter. Since 1895, temperatures during the winter have increased at a rate two to three times higher than during the summer. In particular, winter warming rates have risen more sharply in recent decades.[2] Current climate warming trends, most notably during the winter, are anticipated to continue.[3]

Heavy rain events have become more frequent in Minnesota and more intense. From 1973 to 2020, Minnesota experienced 17 mega-rain events[4] with a notable increase since 2000. Of these 17 events, three occurred in the 1970s, two in the 1980s, one in the 1990s, six mega-rain events occurred in the 2000s, four in the 2010s, and one in 2020. Thus, in the past 21 years (2000 to 2020), almost two times as many mega rain events occurred compared to the prior 27 years (1973 to 1999).[5]

Climate trends in Becker County parallel the overall statewide trends, indicating Minnesota's climate is becoming warmer and wetter. Exhibit 1 and Exhibit 2 illustrate historical average annual temperature and precipitation trends from 1895 to 2023, respectively. During this time period, the County experienced an average annual temperature increase of 0.23 degrees Fahrenheit (°F) per decade and an annual precipitation increase of 0.17 inches per decade.

**Exhibit 1. Historical Annual Average Temperature in Becker County (1895 – 2025)**




*Source: Minnesota Department of Natural Resources (MNDNR).*
https://arcgis.dnr.state.mn.us/climateexplorer/main/historical

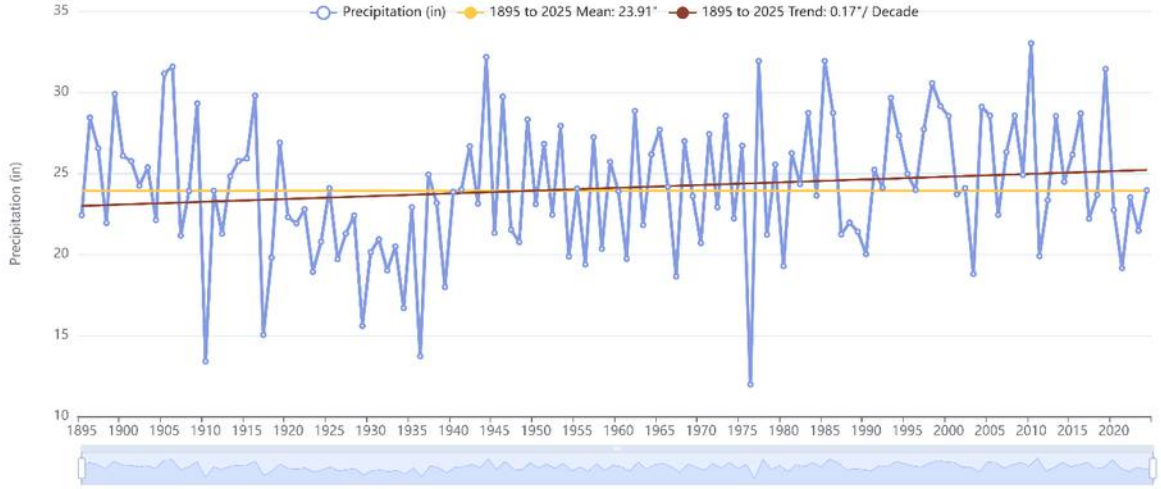
[2] MNDNR, undated(a). Climate Trends. Available at: https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html. Accessed January 2025.

[3] MnDOT, 2021. Minnesota Go Climate Change Report. Available at: https://www.minnesotago.org/trends/climate-change. January 2025.

[4] Mega-rain events are defined as events in which six inches of rain covers more than 1,000 square miles and the core of the event tops eight inches.

[5] MNDNR, 2024(a). Historic Mega-Rain Events in Minnesota. Available at: https://www.dnr.state.mn.us/climate/summaries_and_publications/mega_rain_events.html. Accessed January 2025.

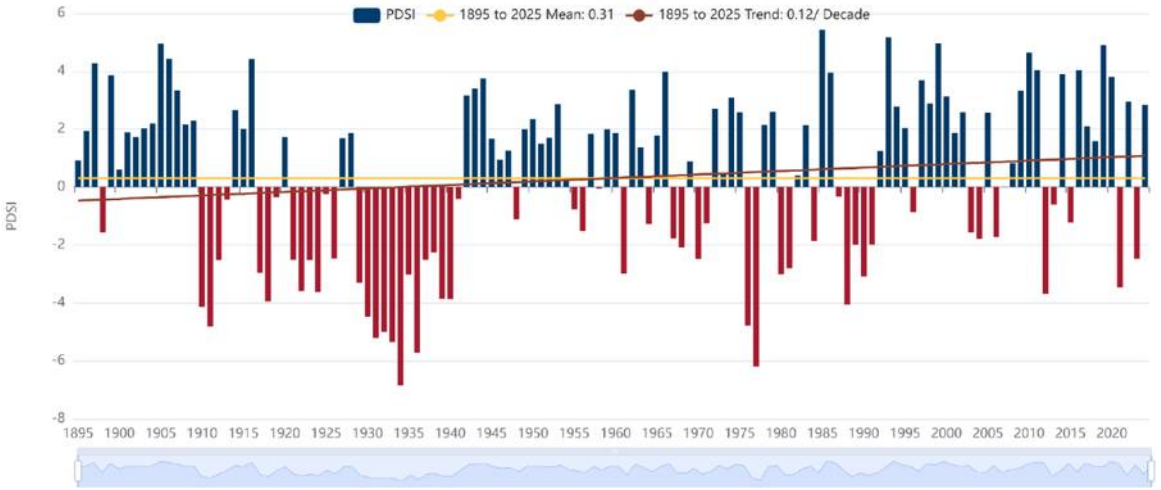
**Exhibit 2. Historical Annual Average Precipitation in Becker County (1895 – 2025)**




*Source: MNDNR.* https://arcgis.dnr.state.mn.us/climateexplorer/main/historical

The Palmer Drought Severity Index (PDSI) utilizes temperature and precipitation data to estimate relative soil moisture conditions and serve as an indicator of long-term drought conditions. The index ranges from -5 to +5 indicating dry and wet conditions, respectively. PDSI values are reported on a monthly basis. Exhibit 3 shows historic PDSI values for the month of August from 1895 to 2025 for Becker County, which indicates an increase of 0.12 per decade. Generally, the PDSI historical data indicates that the region is experiencing a wetter climate.

**Exhibit 3. Historical PDSI Values for Becker County (1895 – 2025)**

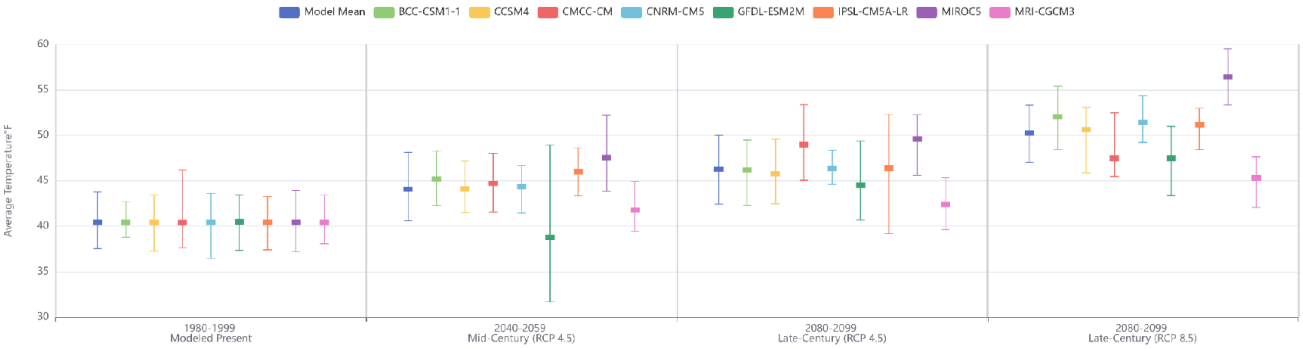



*Source: MNDNR.* https://arcgis.dnr.state.mn.us/climateexplorer/main/historical

Projected climate trends indicate that temperatures within the County would continue to increase. Exhibit 4 illustrates projected temperatures for the County. Several climate models are shown in the projected temperature analysis. The model mean, shown in blue, illustrates the average of all models included in the analysis. Exhibit 4 shows the modeled present condition, mid-century (2040-2059) at Representative Concentration Pathway (RCP) 4.5, late-century (2080-2099) at RCP 4.5, and late-century (2080-2099) at RCP 8.5. RCP is a greenhouse gas concentration scenario used by the Intergovernmental Panel on Climate Change in the fifth assessment report. RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040 and RCP 8.5 represents a worst-case scenario in which emissions continue rising through the 21st century.

Under the RCP 4.5 scenario, the annual temperature is anticipated to increase within the County from a modeled present mean of 40.4°F (1980-1999) to a mid-century (2040-2059) model mean of 44.1°F and a late-century (2080-2099) model mean of 46.3°F. Under the RCP 8.5 worst-case scenario, the County would experience a late-century (2080-2099) model mean temperature of 50.3°F. In comparison to the modeled present mean (1980-1999), the late-century (2080-2099) modeled mean annual temperature would increase by approximately 14.6 percent under the RCP 4.5 scenario and increase by approximately 24.5 percent under the RCP 8.5 scenario.

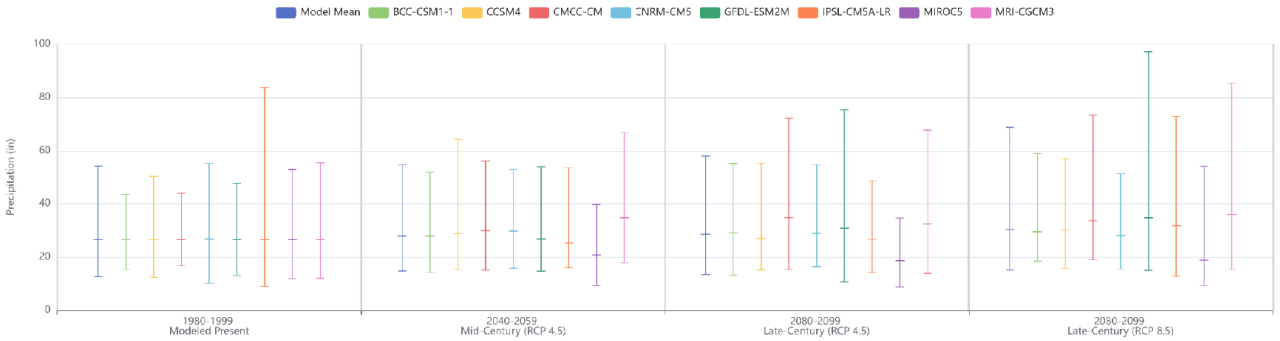
**Exhibit 4. Projected Temperatures in Becker County**




*Source: MNDNR.* https://arcgis.dnr.state.mn.us/climateexplorer/main/historical

Exhibit 5 presents projected average annual precipitation for Becker County. Under the RCP 4.5 scenario, the annual precipitation is anticipated to increase within the County from a modeled present mean of 26.5 inches (1980-1999) to a mid-century (2040-2059) model mean of 27.9 inches and a late-century (2080-2099) model mean of 28.4 inches. Under the RCP 8.5 worst-case scenario, the County would experience a late-century (2080-2099) model mean precipitation of 30.2 inches. In comparison to the modeled present mean (1980-1999), the late-century (2080-2099) modeled mean annual precipitation would increase by approximately 7.2 percent under the RCP 4.5 scenario and increase by approximately 14.0 percent under the RCP 8.5 scenario.

**Exhibit 5. Projected Precipitation in Becker County**




*Source: MNDNR.* https://arcgis.dnr.state.mn.us/climateexplorer/main/historical

***b. For each Resource Category in the table below: Describe how the Project's proposed activities and how the Project's design will interact with those climate trends. Describe proposed adaptations to address the Project effects identified.***

Table 2 summarizes climate considerations related to the Project and adaptation considerations.

**Table 2. Climate Considerations and Adaptations**

| Resource Category | Climate Considerations | Project Information | Adaptations |
|---|---|---|---|
| Project Design | Projected climate trends include increasing temperatures, precipitation, and frequency of heavy rainfall events. Minnesota is trending towards warmer temperatures. Urban heat islands occur when impervious surfaces, such as roofs and paved surfaces, absorb heat during the day and release it at night, amplifying the warming trend. | The Project would not increase impervious surface area as there is no construction of buildings, parking lots, etc. | No mitigation is required as the Project is a stream restoration project that would enhance the natural environment and would not add any impervious surfaces. |
| Land Use | Heavier rainfall expected to bring a higher risk of localized flooding. Increased temperatures may create public health crises primarily for the vulnerable communities such as children and the elderly. | The majority of the Project area currently consists of wetlands, lawn/landscaping, and undeveloped forest. As the Project does not convert undeveloped land to developed land, the Project would not contribute to local heat island effects. | The Project does not propose critical facilities within the Project area that would have heightened sensitivity to the climate considerations identified. The Project would not contribute to local heat island effect as there is no conversion of undeveloped land to impervious surfaces. |
| Water Resources | Addressed in Item 12. | | |
| Contamination/ Hazardous Materials/Wastes | The Project area is projected to experience an increase in precipitation and heavy rainfall events. | The Project would not involve the installation of chemical/ hazardous materials storage during operation. | A Spill Prevention, Control, and Countermeasures (SPCC) plan would be utilized during construction to minimize the potential for spill events. Waste generated during construction and demolition would be properly managed and disposed of in accordance with MPCA requirements. |

| Resource Category | Climate Considerations | Project Information | Adaptations |
|---|---|---|---|
| Fish, wildlife, plant communities, and sensitive ecological resources (rare features) | Addressed in Item 14. | | |

## 8. Cover Types

***Estimate the acreage of the site with each of the following cover types before and after development.***

Table 3 and Figure 4, Appendix A summarize cover types within the Project area.

**Table 3. Cover Types**

| Cover Types | Before(acres) | After (acres) |
|---|---|---|
| Wetlands and shallow lakes (<2 meters deep) | 3.48 | 3.48 |
| Deep lakes (>2 meters deep) | 0.00 | 0.00 |
| Wooded/forest | 7.77 | 7.77 |
| Brush/grassland | 0.38 | 0.38 |
| Cropland | 0.10 | 0.10 |
| Lawn/landscaping | 0.00 | 0.00 |
| Green infrastructure total (from table below*) | 0.00 | 0.00 |
| Impervious surface | 0.33 | 0.33 |
| Stormwater Basins | 0.00 | 0.00 |
| **Total** | **12.06** | **12.06** |

[1] *"Before" Acreages are approximate and based on the United States Geological Survey's (USGS) 2023 National Land Cover Database (NLCD) (see Figure 4, Appendix A) and wetland delineation data.*

[2] *The "Developed, Open Space" and "Developed, Low Intensity" as seen in Figure 4 are reclassified here as "Impervious Surface" and "Lawn/Landscaping" based on visual geospatial and field observations.*

[3] *The "Pasture/Hay" as seen in Figure 4 has been reclassified here as "Brush/grassland" based on visual geospatial and field observations.*

[4] *These numbers have been adjusted from the NLCD to match NWI Wetlands data as noted in Item 12.a.i.*

**Table 4. Green Infrastructure**

| Green Infrastructure* | Before (acreage) | After (acreage) |
|---|---|---|
| Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams) | 0 | 0 |
| Constructed tree trenches and tree boxes | 0 | 0 |
| Constructed wetlands | 0 | 0 |
| Constructed green roofs | 0 | 0 |
| Constructed permeable pavements | 0 | 0 |
| Other (describe) Landfill-based geothermal system | 0 | 0 |
| **Total** | **0** | **0** |

* Tree removal and replacement plan to follow applicable SWPPP and civil plans, see Appendix B for more information.

**Table 5. Tree Canopy**

| Trees | Percent | Number |
|---|---|---|
| Percent tree canopy removed, or number of mature trees removed during development | 25%** | |
| Number of new trees planted | TBD | TBD |

** Approximately 3.10 acres of primarily wooded cover would be temporarily cleared for access and construction activities. The number of trees present and subject to removal is unknown. Disturbed areas would be stabilized and seeded.

## 9. Permits and Approvals Required

***List all known local, state and federal permits, approvals, certifications and financial assistance for the Project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.***

**Table 6. Permits and Approvals**

| Unit of Government | Type of Application | Status |
|---|---|---|
| **Federal** | | |
| U.S. Army Corps of Engineers | Section 404 Wetland and Waterbody Permit | To be completed |
| U.S. Environmental Protection Agency | 319 Nonpoint Source Management Grant Funding | Grant funds awarded |
| Minnesota State Historic Preservation Office | Section 106 Cultural Resources Consultation | Report to be submitted in Spring 2025 |
| **State** | | |
| Minnesota Pollution Control Agency (MPCA) | NPDES Construction Stormwater Permit | To be completed |
| MPCA | 401 Water Quality Certification | To be completed, if needed |
| Minnesota Department of Natural Resources (MNDNR) | Public Waters Work Permit | To be completed |
| MNDNR | Natural Heritage Review | Completed |
| MNDNR | Construction Dewatering Water Appropriation Permit | To be completed, if needed |
| **Local** | | |
| Pelican River Watershed District | EAW Review and EIS Need Decision | Under review |
| Pelican River Watershed District | Shore Impact Zone Alteration permit | To be completed |
| Pelican River Watershed District | Culvert Replacement permit | To be completed |
| Becker Soil and Water Conservation District | Wetland Conservation Act Wetland Delineation Review | To be completed |
| Becker Soil and Water Conservation District | Wetland Conservation Act No-loss Approval | To be completed |
| Becker County | Public Water Alteration approval | To be completed, if needed |
| Becker County | Culvert Replacement approval | To be completed |

## 10. Land use

***a. Describe:***

***i. Existing land use of the site as well as areas adjacent to and near the site, including parks and open space, cemeteries, trails, prime or unique farmlands.***

The entire Project Area is undeveloped land, with the exception of County Road 149 in the Lower Reach Project area. Adjacent land uses for the Lower Reach Project area include agriculture to the west and east, residential to the south and southeast, and undeveloped forested land in all directions but predominantly to the north and south. Adjacent land uses for the Upper Reach Project area include agriculture in all directions, residential to the west, and undeveloped forested land to the west, east, and southeast.

There are no cemeteries within or near the Project. Floyd Lake aquatic management area (AMA), Little Floyd Lake AMA, Stenseth wildlife management area (WMA), and Frank WMA are south of the Project area. In addition, a snowmobile trail runs east of the Project area. The snowmobile trail would remain open to the public after Project completion. See Figure 5, Appendix A for a map of nearby recreational features.

According to United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), all soil map units within the Project are classified as either Prime Farmland, Prime Farmland if Drained, Farmland of Statewide Importance, or Not Prime Farmland[6]. See Figure 7, Appendix A for USDA-NRCS soil survey mapping.

***ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.***

Campbell Lake, Campbell Creek, and Floyd Lake are the headwaters of Pelican River and a top conservation priority for PRWD. Campbell Creek is listed as Impaired by the MPCA due to excess sediment and is considered at risk due to excess phosphorus. PRWD has highlighted Floyd Lake as at risk of an Impaired listing due to excess sediment and phosphorus. The District has identified bank erosion and related sediment and phosphorous delivery as critical issues in the Campbell Creek subwatershed[7].

Per the 2024 Becker County Land Use Plan, the Project area is designated for agriculture purposes.[8] Surrounding land use designation includes agricultural to the north, east, and west and residential/airport influence area and a mix of agricultural, commercial, and industrial to the south.

The 2023-2033 Otter Tail River Comprehensive Watershed Management Plan (Plan), created as part of the One Watershed One Plan program, identified several primary water quality issues of concern within the PRWD boundaries, including erosion & sedimentation, nutrient loading, and unstable stream channels. The proposed Project is an implementation of goals and actions put forth in the Plan, which calls for 0.4 miles of stream stabilization along Campbell Creek with targeted reductions of 45 pounds per year of phosphorous loading and 126 tons per year of sediment loading, and well as a ”no increase” goal for phosphorus loading to Floyd Lake.[9]

The 2021 Otter Tail River Watershed Total Maximum Daily Load (TMDL) Report specifically addressed excess erosion and sediment loading to Campbell Creek between Campbell Lake and

[6] USDA. 2024. Soil Survey Geographic Database (SSURGO). Accessed January 2025 via ESRI ArcGIS Online.

[7] PRWD. Undated. Campbell Creek projects website, available at https://prwd.org/project/campbell-creek/.

[8] Becker County. 2024. Becker County Land Use Plan. Available at: https://co.becker.mn.us/ucfiles/zon/news/Becker%20Co%20Plan_20241120%20for%20CB%2020241203.pdf. Accessed February 2025.

[9] Otter Tail Watershed Partners. 2023. Otter Tail River Comprehensive Watershed Management Plan. Available at https://prwd.org/wp-content/uploads/2021/02/OTCWMP_Final_Plan.pdf. Accessed February 2025.

Floyd Lake. The report identified both in-channel erosion and upland erosion as sediment delivery sources and indicated a 67% reduction in suspended solids loading was needed. The Report also noted that PRWD had been approved for the 319 Small Watershed Program and planning had begun to implement practices that would achieve pollutant reductions.[10]

Between 2018 and 2021, MNDNR staff conducted a Geomorphology Assessment on Campbell Creek between Campbell Lake and Floyd Lake. The study characterized the physical characteristics of the stream, identified opportunities for restoration activities, and provided preliminary restoration practices for further study.[11]

***iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.***

Per the 2024 Becker County Land Use Plan, the Project area is identified currently and in the future for agriculture purposes (AG-1).[12] Surrounding future land use zoning includes agricultural (AG-1) to the north, east, and west, and agriculture (AG-1) and residential (R-1 and R-2) to the south of the Project area.

The Project is within 300 feet of a Minnesota Public Waters stream and thus is subject to State and County shoreland rules. The Project area does not have a published Federal Emergency Management Agency (FEMA) floodplain map[13], but the Project would occur within a stream channel and adjacent floodplain.

The Project is also subject to PRWD's shoreland regulations and would require Shore Impact Zone Alteration and Culvert Replacement permits from PRWD.

***iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.***

Not applicable.

***b. Discuss the Project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.***

The Project is compatible with current plans and land use designations. The Project seeks to address erosion and pollutant delivery concerns as identified by state and local water management authorities. The Project would not alter existing land use and is not subject to Becker County zoning approval. Adverse floodplain impacts are not anticipated. No structures would be constructed within the floodplain, nor would the Project alter the topography or drainage characteristics of the floodplain.

***c. Identify measures incorporated into the proposed Project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.***

Not applicable.

[10] MPCA. 2021. Final Otter Tail River Watershed TMDL Report. Available at: https://www.pca.state.mn.us/sites/default/files/wq-iw5-21e.pdf.
[11] MNDNR. 2021. "Campbell Creek Geomorphology Assessment" presentation. Available at: https://prwd.org/wp-content/uploads/2021/02/Campbell-Creek-Presentation_June_2021.pdf.
[12] Becker County. [2]
[13] FEMA. Undated. FEMA Flood Map Service Center. Available at https://msc.fema.gov/portal/home. Accessed January 2025.

## 11. Geology, Soils and Topography/Land Forms

***a. Geology - Describe the geology underlying the Project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the Project and any effects the Project could have on these features. Identify any Project designs or mitigation measures to address effects to geologic features.***

The surficial geology in the Project area has been mapped by the Minnesota Geological Survey's (MGS) Geologic Atlas of Becker County as being the Red Lake Falls Formation stagnation moraine consisting of glacial till and glacial lacustrine sediments. Specifically, the Project area contains loam to clay loam diamiction with massive silt and clay layers. The lower reach of the Project area lies partially within a post-glacial lake consisting of silt, clay, and loamy sand. The upper reach of the Project area lies partially within post-glacial peat and wetland deposits consisting of silt, clay and decomposed organic matter (Figure 6, Appendix A). Though the relief in the Project area is low (0-10 ft), the Red Lake Falls Formation stagnation moraine has generally high relief (up to 100 ft) with abundant ice-walled lake plains representing stagnation and melting of the Red River lobe.[14]

The bedrock geology across the Project area has been mapped in the MGS Geologic Atlas of Becker County as being Neoarchean granite to granodiorite of the Wawa volcanoplutonic subprovince. The bedrock is characterized by variably magnetic, low density rocks forming intrusions with discrete boundaries. The rock is typically more magnetic along contacts adjacent to metavolcanic rocks.[15]

The bedrock topography within the lower reach of the Project area is mapped to be approximately 601 to 701 feet above mean sea level (amsl), increasing from north to south, and the bedrock topography within the upper reach of the Project area is mapped to be approximately 651 to 750 feet amsl, increasing from south to north. The depth to bedrock within the lower reach is estimated between 601 and 800 feet, increasing from south to north, and the depth to bedrock within the upper reach is estimated between 701 and 800 feet, increasing from north to south.[16] According to the Minnesota Department of Health (MDH) Minnesota Well Index (MWI)[17], no wells were identified within the Project area, and seven wells were identified within one-quarter mile of the lower reach (Figure 8, Appendix A). The seven wells near the Project area were all constructed to depths less than 100 feet and did not intersect bedrock. The wells are screened in buried sand and gravel outwash deposits at depths between 30 and 90 feet.

According to the MNDNR, Karst Feature Inventory, there are no known karst or sinkhole features within the Project area or within the vicinity of the Project area.[18] Further, the US Geological Survey (USGS) does not identify the Project area as being within a known or potential karst area.[19] The nearest known karst features are over 145 miles southeast of the Project area in Pine County, MN. The granite to granodiorite bedrock is not soluble and is located at depths greater than 100 feet below grade. Due to the absence of soluble carbonate bedrock within 50 feet of the surface, the formation of, and the surface expression of karst within the Project area is unlikely.

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[14] Bauer, Emily J.; Chandler, V.W.; Jirsa, Mark A.; Marshall, Katherine J.; Gowan, Angela S.; Hamilton, Jacqueline D.; Radakovich, Amy L.. (2016)(a). Minnesota Geological Survey. County Atlas Series. Atlas C-42, Becker County. Plate 3 – Surficial Geology. Available at: https://hdl.handle.net/11299/184650. Accessed January 2025.

[15] Bauer, Emily J.; Chandler, V.W.; Jirsa, Mark A.; Marshall, Katherine J.; Gowan, Angela S.; Hamilton, Jacqueline D.; Radakovich, Amy L.. (2016)(b). Minnesota Geological Survey. County Atlas Series. Atlas C-42, Becker County. Plate 2 – Bedrock Geology. Available at: https://hdl.handle.net/11299/184650. Accessed January 2025

[16] Bauer, Emily J.; Chandler, V.W.; Jirsa, Mark A.; Marshall, Katherine J.; Gowan, Angela S.; Hamilton, Jacqueline D.; Radakovich, Amy L.. (2016)(c). Minnesota Geological Survey. County Atlas Series. Atlas C-42, Becker County. Plate 6 – Depth to Bedrock. Available at: https://hdl.handle.net/11299/184650. Accessed January 2025

[17] MDH, 2025. MWI. Available at: https://www.health.state.mn.us/communities/environment/water/mwi/index.html. Accessed January 2025.

[18] MNDNR, undated(b). Karst Feature Inventory. Available at: https://arcgis.dnr.state.mn.us/portal/apps/webappviewer/index.html?id=9df792d8f86546f2aafc98b3e31adb62. Accessed January 2025.

[19] Weary, D.J. and Doctor, D.H. 2014. Karst in the United States: A digital map compilation and database: U.S. Geological Survey Open-File Report 2014-1156, 23 p. Available at: https://dx.doi.org/10.3133/ofr20141156. Accessed January 2025.

***b. Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from Project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after Project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/ sedimentation control related to stormwater runoff should be addressed in response to Item 12.b.ii.***

The Upper Reach Project areas feature a ditched stream channel bordering agricultural fields and a large marsh wetland complex. The Lower Reach Project area features a meandering, natural stream channel within a primarily wooded riparian corridor. Outside the immediate channel valley, topography is generally flat to rolling.

According to USDA-NRCS soil survey data, soils within the Project area predominantly consist of moderately to slowly permeable silty clay loam soils. Rapidly permeable soils are likely not present. The mapped soils are expected to feature relatively low susceptibility to wind erosion and moderate susceptibility to water erosion. See Figure 7, Appendix A for USDA-NRCS soil mapping. Table 7 below summarizes select data for each map unit present[20].

The Project would not alter existing soil and topographic conditions outside the stream channel. Existing land uses would not change. There would be approximately 3.10 acres of vegetation clearing for temporary construction access, primarily along the east side of the Lower Reach. The Upper Reach work areas are accessible from an existing field road.

The Project would adhere to erosion and sediment control practices during construction per the conditions of the Project's Stormwater Pollution Prevention Plan (SWPPP), National Pollution Discharge Elimination System (NPDES) Construction Stormwater Permit, and local stormwater permitting conditions. To help minimize sediment loss, the proposed work would be conducted during the winter when flowing water is low or not present, and when soils may be frozen. See EAW Item 12.b.ii for details on stormwater management and erosion and sediment control. See also the draft civil design, erosion control, and restoration plan sheets in Appendix B.

**Table 7. Soil within the Project area**

| Map Unit Symbol | Map Unit Name | Hydrologic Group | Wind Erodibility Group | Water Erodibility Factor (K*f*) | Acres | % of Project area |
|---|---|---|---|---|---|---|
| 1129 | Lindaas silty clay loam | C/D | 6 | 0.32 | 5.28 | 43.74% |
| 38E | Waukon loam, 15 to 30% slopes | B | 5 | 0.33 | 2.32 | 19.22% |
| 1137D | Birchlake silty clay loam, 12 to 20% slopes, eroded | D | 6 | 0.40 | 1.70 | 14.08% |
| 1137C | Birchlake silty clay loam, 6 to 12% slopes, eroded | D | 6 | 0.39 | 0.99 | 8.23% |
| 544 | Cathro muck, occasionally ponded, 0 to 1% slopes | B/D | 2 | 0.32 | 0.55 | 4.54% |
| 1135 | Foxlake silty clay loam | C/D | 4L | 0.32 | 0.52 | 4.34% |

[20] USDA. 2024. Soil Survey Geographic Database (SSURGO). Accessed January 2025 via ESRI ArcGIS Online.

| Map Unit Symbol | Map Unit Name | Hydrologic Group | Wind Erodibility Group | Water Erodibility Factor (K*f*) | Acres | % of Project area |
|---|---|---|---|---|---|---|
| 335 | Urness mucky silty clay loam, occasionally ponded, 0 to 1% slopes | C/D | 4L | 0.40 | 0.46 | 3.78% |
| 38B | Waukon loam, 2 to 6% slopes | C | 6 | 0.31 | 0.25 | 2.04% |
| | | | | **Total** | **12.07** | **100.0** |

The hydrologic soil groups are:

- **Group A**: Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.
- **Group B**: Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained, or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
- **Group C**: Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
- **Group D**: Soils having a very slow infiltration rate (high runoff potential). These consist chiefly of soils with high clay content, soils that have a high-water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.
- **Dual Groups**: Dual Group designations (A/D, B/D, or C/D) are used to indicate wet soils that belong to Group D due to a high water table but would meet the drainage or textural criteria for Group A, B, or C if drained. Dual Group soils should be treated as Group D soils in the absence of effective artificial drainage.

The soil erodibility factors are:

- **Wind Erodibility Group**: Soils are assigned a Wind Erodibility Group (WEG) rating based on their inherent vulnerability to soil particle detachment from wind forces. Values range from 1 (most erodible) to 8 (least erodible).
- **Water Erodibility Factor (K*f*):** The Soil Erodibility Factor (K*f*) is a unitless quantitative description of the inherent vulnerability of a soil to water erosion. It provides a measurement of soil particles' susceptibility to detachment from rain drops or surface runoff. Values range from 0.02 (least erodible) to 0.69 (most erodible).

## 12. Water Resources

***a. Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.***

***i. Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the Project. Include MNDNR Public Waters Inventory number(s), if any.***

**Surface Waters**

Campbell Creek is the only surface water within the Project area. Campbell Creek is a Minnesota Public Water classified by MNDNR as a natural watercourse or an altered watercourse ("Ditch 12") depending on the section of stream[21]. Between Campbell Lake and 240th Street, Campbell Creek is managed as Ditch 12 of the Becker County public drainage system. Campbell Creek is listed by the MPCA as Impaired for Aquatic Life due to excess suspended solids[22], and is considered by PRWD to be at risk from other stressors such as low dissolved oxygen and excess phosphorous[23].

There are numerous surface waters within one mile of the Project area, see Table 8 and Table 9 below and Figure 9, Appendix A. The surface waters most directly impacted the proposed Project are Campbell Lake, Mud Lake, and Floyd Lake. Campbell Lake is a Public Waters lake that discharges to Campbell Creek. Mud Lake and Floyd Lake occupy a common lake basin and act as the receiving water for Campbell Creek. This basin is referred to as "Floyd Lake" in this EAW. Floyd Lake is listed as Impaired for Aquatic Consumption due to excess mercury in fish tissue[24]. Floyd Lake is listed by MNDNR as Infested due to the presence of zebra mussels, and is classified as a Lake of High Biological Significance[25].

**Table 8. Surface Waters and Public Waters within One Mile of the Project area**

| Water Resource | Type | PW ID/ Kittle No. | Special Designation |
|---|---|---|---|
| **Within Project area** | | | |
| Campbell Creek | Public Waters Watercourse | Kittle No: H-026-081-012-011 | None |
| Campbell Creek (Ditch 12) | Public Ditch/Altered Natural Watercourse | Kittle No: H-026-081-012-011 | None |
| **Within One Mile of the Project area** | | | |
| Tamarac Lake | Public Water Basin | PW ID: 03038800 | Natural Environment |
| Sands Lake | Public Water Basin | PD ID: 03042000 | Natural Environment |
| Kennedy Lake | Public Water Basin | PW ID: 03038900 | Natural Environment |

[21] MNDNR. Undated. Minnesota Public Waters Inventory. Accessed via MNGEO hosted map server December 2024.

[22] MPCA. 2024. Impaired Waters, Minnesota – 2024. Available at: https://gisdata.mn.gov/dataset/env-impaired-water-2024. Accessed September 2024.

[23] PRWD. 2021. https://prwd.org/waterways/campbell-creek-ditch-11-12/.

[24] MPCA [2]

[25] Natural Resources Research Institute. Minnesota Natural Resource Atlas. Available at https://mnatlas.org/gis-tool. Accessed January 2025.

| Water Resource | Type | PW ID/ Kittle No. | Special Designation |
|---|---|---|---|
| Floyd Lake | Public Water Basin | PW ID: 03038702 | General Development |
| Mud Lake | Public Water Basin | PW ID: 03038701 | General Development |
| Fish Lake | Public Water Basin | PW ID: 03041700 | Natural Environment |
| Campbell Lake | Public Water Basin | PW ID: 03041900 | Natural Environment |
| Unnamed | Public Water Wetland | PW ID: 03123000 | |
| Unnamed | Public Water Wetland | PW ID: 03091700 | |
| Unnamed | Public Water Wetland | PW ID: 03093200 | |
| Unnamed | Public Water Wetland | PW ID: 03073700 | |
| Unnamed | Public Water Wetland | PW ID: 03091400 | |
| Unnamed | Public Water Wetland | PW ID: 03073500 | |
| Unnamed | Public Water Wetland | PW ID: 03041800 | |
| Seabold | Public Water Wetland | PW ID: 03042100 | |
| Unnamed | Public Water Wetland | PW ID: 03073600 | |

**Table 9. Impaired Waters within One Mile of the Project area**

| Waterbody Name | AUID[1] | Affected Designated Use | Pollutant or Stressor | TMDL[2] |
|---|---|---|---|---|
| Campbell Creek | 09020103-543 | Aquatic Life | Total suspended solids (TSS) | Otter Tail River Watershed (2021) |
| Mud Lake | 03-0387-01 | Aquatic Consumption | Mercury in Fish Tissue | Minnesota Statewide Mercury TMDL (2007) |
| Floyd Lake | 03-0387-02 | Aquatic Consumption | Mercury in Fish Tissue | Minnesota Statewide Mercury TMDL (2007) |

*[1] Assessment Unit Identification (AUID)*

*[2]Total Maximum Daily Load (TMDL)*

**Wetlands**
According to the MNDNR and United States Fish and Wildlife Services (USFWS) National Wetland Inventory (NWI), there are three likely wetland basins within the Project area[26]. See Table 10 below and Figure 9, Appendix A. An onsite wetland delineation would be conducted in spring 2025 to accurately identify wetlands and other aquatic resources within the Project area.

**Table 10. NWI Wetlands within the Project area**

| NWI Wetland ID | Circular 39 | Cowardin | Eggers and Reed | Acres within Project area |
|---|---|---|---|---|
| 1744109 | Type 1 | PFO1A | Floodplain Forest | 3.24 |
| 1507350 | Type 1 | PEM1Ad | Seasonally Flooded Basin | 0.10 |
| 1692760 | Type 3 | PEM1Cd | Shallow Marsh | 0.14 |

**Floodway/Floodplain**
The Project area does not have a published Federal Emergency Management Agency (FEMA) floodplain map[27], but the Project would occur within and adjacent to a stream channel and adjacent floodplain. Adverse floodplain impacts are not anticipated. The Project seeks to reduce stream bank erosion, prevent degradation of the channel and floodplain, and reduce risks of flash flooding. No structures would be constructed within the floodplain, nor would the Project alter the topography or drainage characteristics of the floodplain.

**Public Drainage Systems**
Campbell Creek is designated a public ditch (Ditch 12) Between 230th Street and Campbell Lake. PRWD is the local drainage authority and manages Ditch 12 under Minnesota drainage law rules (MN Chapter 103E). The Project would be compliant with all 103E requirements.

***ii. Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if Project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.***

There are no known springs, seeps or karst features present in the Project area. As discussed in Item 11a, the nearest known karst features are located approximately 145 miles southeast of the Project area in Pine County, MN.

A review of the Minnesota Department of Health (MDH) Minnesota Well Index (MWI) did not identify any wells within the Project area. Seven verified wells were identified within one-quarter mile of the Lower Reach of the Project area and are presented in Table 11 and Figure 8, Appendix A. Based on a review of the wells located near the Project area, the depth to static water level ranges from 9 feet to 56 feet. Well log reports are provided in Appendix C.

[26] MNDNR. 2014. Revised National Wetland Inventory. Access via downloaded MNDNR geodatabase December 2024.
[27] FEMA. Undated. FEMA Flood Map Service Center. Available at https://msc.fema.gov/portal/home. Accessed January 2025.

**Table 11. Verified Wells Within and Adjacent to the Project area**

| Well ID | Use Type | Distance from Project | Status | Depth (ft.) | Static Water Level (ft.) |
|---|---|---|---|---|---|
| 767665 | Domestic | Approx. 100 ft S | Active | 68 | 39 |
| 837052 | Domestic | Approx. 500 ft S | Active | 57 | 50 |
| 471297 | Domestic | Approx. 500 ft E | Active | 97 | 56 |
| 714870 | Domestic | Approx. 850 ft SE | Active | 90 | 32 |
| 729557 | Domestic | Approx. 850 ft SE | Active | 90 | 28 |
| 788457 | Domestic | Approx. 1,000 ft SE | Active | 74 | 27 |
| 798506 | Domestic | Approx. 1,200 ft S | Active | 70 | 9 |

According to the MDH Source Water Protection Map[28], the Project area is not within a MDH Wellhead Protection Area or a Drinking Water Supply Management Area. The nearest MDH Wellhead Protection Area and Drinking Water Supply Management Area is the Kountry Manor / Floyd Lake Mobile Home Park approximately 1.75 miles southeast of the lower reach Project area.

***b. Describe effects from Project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.***

***i. Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.***

*1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water andwaste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure*.

Not applicable.

*2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the Project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the Project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.*

Not applicable.

*3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the Project may influence the effects.*

Not applicable.

[28] MDH, 2023. Source Water Protection Web Map Viewer. Available at: https://www.health.state.mn.us/communities/environment/water/swp/mapviewer.html. Accessed January 2025.

***ii. Stormwater - Describe changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the Project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the Project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For Projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the Project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after Project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.***

A primary purpose of the Project's in-channel activities is to reduce sediment and nutrient delivery to downstream waters, and to reduce the severity of flash flows after major rain events. The Project would not result in a change of land cover, or permanently alter surface hydrology outside the stream channel. Hydrology alterations within the channel include structures such as rock arch rapids and grade control structure, which would help to create more consistent grades and flow velocities within the channel. The proposed structures and attenuated flows would help reduce bank erosion and discharge of sediment. The Project would result in a net reduction of pollutant loading to Campbell Creek and Floyd Lake compared to existing conditions.

The Project would disturb approximately 5.45 acres of ground surface. Approximately 3.10 acres of disturbance would be due to vegetation clearing for temporary access routes and staging areas. The proposed work, except for the culvert construction, would occur during winter months when there is typically little or no flow in the stream. A National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit would be required from the MPCA, including a Stormwater Pollution Prevention Plan (SWPPP). All necessary erosion and sediment control best management practices (BMPs) would be installed prior to any ground disturbance. BMPs could include rock construction entrances, biologs, salvaged sod mats, silt fences, seeded erosion control blankets (bio-netting or natural-netting), and temporary sedimentation basins. Disturbed areas would be stabilized within 24 hours of temporary or permanent work completion. Permanent restoration would include final grading, application of appropriate seed mixes (such as BWSR native seed mixes), and erosion control blankets. See the SWPPP and civil design sheets C-201 to C-204 in Appendix B for details.

Campbell Creek TSS impairment would trigger special requirements in the NPDES Construction Stormwater Permit. Those requirements include immediately initiating the stabilization of exposed soil areas with complete stabilization within seven calendars days after construction is temporarily or permanently ceased and providing a temporary sediment basin for common drainage locations that serve an area with five or more acres disturbed at one time.

The culvert installation would likely occur during spring or summer, when flowing water may be present. Erosion and sediment control practices for the culvert activity could include floating silt curtains and a water by-pass system to help isolate construction work from flowing water.

Because the Project would not create new impervious surfaces, permanent stormwater management would not be required.

***iii. Water appropriation - Describe if the Project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a MNDNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the Project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.***

The Project would not permanently appropriate any surface or ground water. Except for the culvert construction, Project activities would occur during winter when stream flow should be minimal or not present and construction dewatering would not be needed. The culvert installation would likely occur during spring or summer, when flowing water may be present. The culvert work area would utilize a water by-pass system to help isolate construction work from flowing water. Temporary dams and floating silt curtains would be installed upstream and downstream of the work area. The work area would be dewatered via pump and water conveyed downstream in hoses laid on the ground surface.

***iv. Surface Waters***

***a) Wetlands - Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the Project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed and identify those probable locations.***

Wetlands are likely present within the Project area. A wetland delineation will be conducted in spring 2025 to accurately identify wetland boundaries and quantify potential impacts. All permanent Project activities would occur within the existing stream channel and there would be no permanent direct or indirect impacts to adjacent wetlands. There would be temporary wetland impacts related to vegetation clearing for access routes and staging areas. All work would occur in winter, except for the culvert construction, which would minimize soil rutting and compaction risks. Temporary construction mats would be utilized within wetland areas to further prevent adverse impacts. All temporary wetland disturbance would be restored per Wetland Conservation Act permit conditions.

The Proposer has begun consultation with MNDNR, Becker SWCD, and the USACE regarding wetland and waterbody impact permitting. A pre-application meeting was conducted on February 13, 2025, to ascertain each agency's specific concerns about the Project and permitting requirements. Relevant applications will be submitted to each agency and no work would be conducted without their approvals.

***b) Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the Project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/ sedimentation while physically altering thewater features. Discuss how the Project will change the number or type of watercraft on any water body, including current and Projected watercraft usage.***

As described in Item 6, the Project would alter the channel of Campbell Creek through the installation of various stream stabilization structures. These structures would help to reduce bank erosion and sediment delivery to Campbell Creek and Floyd Lake. Campbell Creek is listed by the MPCA as and Impaired Water due to excess total suspended solids (TSS), and it is hoped this Project would help reduce sediment loading enough for Campbell Creek to be de-listed. The Project would also improve fish habitat and fish passage by improvement of stream morphology and vegetation, and through more consistent flows. The Project would create a stream system more resistant to erosion and degradation than under existing conditions and more resilient to changing climate conditions.

Campbell Creek is not a recreational stream due to its small size and intermittent flows. Watercraft use would not be impacted.

## 13. Contamination/Hazardous Materials/Wastes

***a. Pre-Project site conditions - Describe existing contamination or potential environmental hazards on or in close proximity to the Project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-Project site conditions that would be caused or exacerbated by Project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.***

A review of MPCA's *What's in My Neighborhood* (WIMN) database[29] was conducted to identify documented potentially contaminated sites within or in the vicinity of the Project area. No sites were identified within the Project areas, and no sites were identified within one-quarter mile of the upper Project area (Upper Reach). Two sites was identified within one-quarter mile of the lower Project area (Lower Reach). Table 12 summarizes these findings and Figure 10, Appendix A illustrates the location of potentially contaminated sites in close proximity to the Project.

**Table 12. MPCA Potentially Contaminated Sites within One-Quarter Mile of the Project area**

| Site ID | Site Name | MPCA Program | Status | Location |
|---|---|---|---|---|
| 138746 | SAP 003-749-001 | Construction Stormwater - (C00034071) | Inactive (Registered in 2012, Terminated 2013) | West of the Lower Reach Project area |
| 51452 | Donald Skarie Farm | Feedlots (005-66140) | Active | East of the Lower Reach Project area |

An additional review of the Minnesota Department of Agriculture (MDA) WIMN database[30] was conducted to identify documented potentially contaminated sites within or in the vicinity of the Project area. No MDA spill or release sites were identified within the Project area or within a quarter-mile radius.

It is not anticipated that Project construction would expose or exacerbate potentially contaminated sites within the vicinity of the Project area. In the event that potentially contaminated soils or other potentially hazardous materials are encountered during construction, plans would be developed to properly handle and treat contaminated soil and/or groundwater. Any contaminated soils or other potentially hazardous materials encountered during construction would be handled and disposed of in accordance with MPCA guidance and other applicable requirements.

***b. Project related generation/storage of solid wastes - Describe solid wastes generated/stored during construction and/or operation of the Project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.***

**Construction waste**

Construction wastes would be typical to the construction of stream restorations. Construction wastes would be primarily non-hazardous and would be managed as municipal solid waste (MSW) or

[29] MPCA, 2024. What's in My Neighborhood. Available at: What's in My Neighborhood | Minnesota Pollution Control Agency (state.mn.us). Accessed October 2024

[30] MDA, 2024. What's in my Neighborhood? – Agricultural. Available at: What's In My Neighborhood (arcgis.com) Accessed October 2024

construction debris. Potentially hazardous wastes in the form of used oils/lubricants or other materials may be generated during construction. The contractor would be required to manage and dispose of all construction-generated wastes in accordance with MPCA requirements and all other applicable regulatory requirements. Construction wastes would either be recycled or stored in approved containers and disposed of in the proper facilities. Any excess soil material that is not suitable for use onsite would become the property of the contractor and would be disposed of properly. All solid waste would be managed according to MPCA and other regulatory requirements.

**Operational waste**

No operational waste is anticipated in the Project area after restoration as the Project is not proposing residential, commercial, or industrial development.

***c. Project related use/storage of hazardous materials - Describe chemicals/hazardous materials used/stored during construction and/or operation of the Project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and age of existing tanks on the property that the Project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.***

The Project is not anticipated to include permanent chemicals/hazardous materials storage or use during its operation. No aboveground or underground storage tanks are planned for permanent or temporary use within the Project area. If this changes, a Spill Prevention, Control, and Countermeasures (SPCC) plan would be prepared by a licensed Minnesota Professional Engineer pursuant to federal regulations.

Construction equipment may require the limited use of potentially hazardous materials, such as gasoline or diesel fuels, engine motor oils, hydraulic fluids, and other lubricants. Vehicles responsible for the transportation of hazardous materials would be equipped with spill kits for rapid response to any spills and refueling procedures would be implemented to eliminate leakage. Additionally, all fuels, oils, and lubricants would be stored in containment apparatuses while not in use. Construction staff would be trained to spot and appropriately respond to potential spills. In the event that a leak or spill incident occurs, the contractor would be required to respond in accordance with MPCA containment and remedial action procedures. A SPCC plan would be prepared by a Minnesota Professional Engineer pursuant to federal regulations.

***d. Project related generation/storage of hazardous wastes - Describe hazardous wastes generated/stored during construction and/or operation of the Project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling***

It is not anticipated that the Project would generate or require storage of hazardous wastes during its construction or operation. Item 13.c. describes the potential storage and use of hazardous materials during construction of the Project.

## 14. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features)

***a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.***

The Project is located within the Eastern Broadleaf Forest Province (222), the Minnesota and Northeast Iowa Morainal Section (222M), and the Hardwood Hills Subsection (222Ma) as defined by the MNDNR in the Field Guide to Native Plant Communities of Minnesota – The Eastern Broadleaf Forest Province.[31,32] Existing land use within this subsection primarily consists of cropland and pasture with some remaining upland forest, wetlands, and lakes. Historically, the subsection consisted largely of a mosaic of tallgrass prairie, aspen-oak land, and oak openings or savanna along the prairie boundary to the west. Mixed forests of oaks, sugar maple, basswood, and other hardwoods were present in fire protected sites farther east. Tallgrass prairie grew on more level terrain within the subsection.[33,34]

The land cover within the Project area was reviewed and is described in Item 8 and Table 3. The 12.06-acre Project area is dominated by woodlands (approx. 7.8 acres) and wetlands (approx. 3.5 acres).

The Upper Reach Project area consists of woody wetlands, emergent herbaceous wetlands, and deciduous forest. The wetlands may provide some level of nesting, foraging, and/or travel habitat for a variety of wildlife species, including passerine birds, raptors, squirrels, rabbits, deer, coyotes, foxes, other small mammals, and aquatic species (such as turtles, fish, frogs, and toads). Suitable roosting habitat for bats may be present within the limited forested areas.

The Lower Reach Project area consists of deciduous forests, pasture/hay fields, wetlands, and low intensity development (County Road 149). The forest and pasture/hay fields may provide nesting, foraging, and/or travel habitat for a variety of urban wildlife species, including passerine birds, raptors, squirrels, rabbits, deer, coyotes, foxes, and other small mammals. Suitable roosting habitat for bats may be present within the limited forested areas.

***b. Describe rare features state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA- ) and/or correspondence number (MCE ) from which the data were obtained and attach the Natural Heritage Review letter from the MNDNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.***

Under Stantec's Limited License to Use Copyrighted Material (LA 2024-057) related to Rare Features Data, the MNDNR Natural Heritage Information System (NHIS) was searched in January 2025 to identify rare species or habitats within a one-mile buffer of the Project area. The NHIS search identified the mudpuppy (*Necturus maculosus*) as a Species of Special Concern potentially within the Project area. One Site of Biodiversity Significance was identified within the Project area, and three additional sites are within one mile. See summaries below. A NHIS review letter was obtained from the MNDNR through the Minnesota Conservation Explorer (MCE) system on January 7, 2025, and is included in Appendix D.

[31] Aaseng, N. 2005. *Field Guide to the Native Plant Communities of Minnesota – The Eastern Broadleaf Forest Province*. St. Paul: DNR.

[32] MNDNR. 2000. Ecological Classification System. Available at: https://www.dnr.state.mn.us/ecs/index.html. Accessed February 2025.

[33] MNDNR, 1999. Minnesota Geospatial Commons – Ecological Sections of Minnesota. Available at: https://gisdata.mn.gov/dataset/geos-ecological-class-system. Accessed February 2025.

[34] MNDNR. [2]

**Rare Plant Communities and Habitats**

Based on a review of the MNDNR MCE portal[35], no known native plant communities, calcareous fens, or lakes of biological significance are located within the Project area. One Minnesota Biological Survey (MBS) Site of Biodiversity Significance (SBS) was found in the Project area, as detailed below:

- The Richwood 33 SBS site is located in the northern tip of the Lower Reach Project area. It is ranked as Below. Sites ranked as Below are sites that lack occurrences of rare species and natural features or do not meet MBS standards for Outstanding, High, or Moderate rank. These sites may include areas of conservation value at the local level, such as habitat for native plants and animals, corridors for animal movement, buffers surrounding higher-quality natural areas, areas with high potential for restoration of native habitat, or open space.[36]

Based on a review of the MNDNR MCE portal, no known native plant communities or calcareous fens are located within a one-mile buffer of the Project area. Two calcareous fens were identified approximately four miles west of the Project area. Two Sites of Biodiversity Significance and one Lake of Biological Significance were found within a one-mile buffer of the Project area, as detailed below:

- The Sands Lake SBS is ranked as Moderate and is located approximately 50 meters southeast of the Upper Reach Project area. Sites ranked as Moderate are sites that contain occurrences of rare species, moderately disturbed native plant communities, and/or landscapes that have strong potential for recovery of native plant communities and characteristic ecological processes.
- The Detroit 5 SBS is ranked as Below and is located approximately 0.5 miles southwest of the Lower Reach Project area. Sites ranked as Below are sites that lack occurrences of rare species and natural features or do not meet MBS standards for Outstanding, High, or Moderate rank. These sites may include areas of conservation value at the local level, such as habitat for native plants and animals, corridors for animal movement, buffers surrounding higher-quality natural areas, areas with high potential for restoration of native habitat, or open space.
- Floyd Lake is a Lake of Biological Significance and is located approximately 0.19 miles southeast of the Lower Reach Project area. It is ranked as High. High Lakes of Biological Significance are lakes that have at least one of a list of criteria as noted by MNDNR's website.[37] One of these criteria are the presence of the mudpuppy (*necturus maculosus*), which was noted as a State-listed species of special concern for the Project area.

**State Listed Species**

Mudpuppy (*Necturus maculosus*)

Listed as a Species of Special Concern, the mudpuppy is a rare salamander species that requires aquatic environments for habitat. In Minnesota, it inhabits larger lakes and waterways with permanent flow. Typically, rocky structures and substrates are utilized for refuse and nesting, but some are also found in muddy substrates with occasional rocks or logs for the same purpose.[38]

No records were found for State-listed Endangered or Threatened Species.

[35] MNDNR. undated(d). Minnesota Conservation Explorer. Available at: https://mce.dnr.state.mn.us/. Accessed February 2025.

[36] MNDNR. 2023. MBS Sites of Biodiversity Significance Ranks. Available at: https://www.dnr.state.mn.us/eco/mbs/biodiversity_guidelines.html. Accessed February 2025.

[37] MNDNR. 2020. Lakes of Biological Significance. Available at: https://resources.gisdata.mn.gov/pub/gdrs/data/pub/us_mn_state_dnr/env_lakes_of_biological_signific/metadata/Lakes%20of%20Biological%20Significance_20200707.pdf. Accessed February 2025.

[38] MNDNR. 2018. Rare Species Guide Necturus maculosus. Available at: https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=AAAAE01040. Accessed February 2025.

**Federally Listed Species**

The USFWS Information for Planning and Consultation (IPaC) tool[39] was reviewed to identify federally listed species within the Project area. Three species were identified that have the potential to occur within the Project Area: the gray wolf (*Canis lupus*; threatened), monarch butterfly (*Danaus plexippus*; proposed threatened), and Suckley's cuckoo bumble bee (*Bombus suckleyi*; proposed endangered).

Gray Wolf (*Canis lupus*)

The gray wolf inhabits a wide range of habitats, including temperate forests, mountains, tundra, taiga, grasslands, and deserts.[40] While forests are present within the Project area, they are located in an agriculturally developed area that would not provide suitable habitat for the gray wolf. Additionally, gray wolves are known to be more successful where human and road densities are low.[41]

Monarch Butterfly (*Danaus plexippus*)

The monarch butterfly is a migratory butterfly that exists in two main populations within the United States divided by the Rocky Mountains: the eastern population that overwinters in the mountains of Mexico, and the western population that overwinters along the southern pacific coast of California.[42] This species generally occurs in areas with high densities of nectar sources, preferably native prairies with nectar species such as black-eyed Susan (*Rudbeckia hirta*), narrow-leaved coneflower (*Echinacea angustifolia*), and rough blazing star (*Lastris aspera*) that are utilized for feeding by adults.[43] However, the presence of Milkweed (*Asclepias* spp.) is required for breeding habitat as it is the only plant on which the larvae can feed.[44]

Suckley's Cuckoo Bumble Bee (*Bombus suckleyi*)

The Suckley's cuckoo bumble bee (SCBB) is a parasitic species that relies exclusively on other bumble bees as hosts. The SCBB historically occurs across a wide variety of habitats, including woodlands, prairies, meadows, agricultural areas, and urban areas where host bumble bee nests are present. The SCBB population has declined due to loss of host species. While this species has historically occurred in portions of western and northern Minnesota, no extant populations are known to occur in Minnesota at present. The last confirmed sighting in the United States was in 2016 in Oregon.[45]

Migratory birds

Six migratory bird species listed as USFWS Birds of Conservation Concern (BCC) and one eagle species have the potential to occur within the Project area according to the USFWS IPaC review (Appendix E). These species and their habitat requirements are detailed in Table 13 using data from the Cornell Lab of Ornithology.[46]

[39] USFWS, 2024. Information for Planning and Consultation. Available at: https://ipac.ecosphere.fws.gov/. Accessed January 2025.

[40] USFWS. 2023. Gray Wolf. Available at: https://www.fws.gov/species/gray-wolf-canis-lupus. Accessed February 2025.

[41] Mech, L. D. 1989. *Wolf population survival in an area of high road density*. American Midland Naturalist, 387-389.

[42] United States Department of Agriculture [USDA] Forest Service undated. Migration and Overwintering. Available at: https://www.fs.usda.gov/wildflowers/pollinators/Monarch_Butterfly/migration/index.shtml. Accessed February 2025.

[43] MNDNR. 2022b. Butterfly Gardens. Available at: https://www.dnr.state.mn.us/gardens/butterfly/index.html. Accessed February 2025.

[44] National Wildlife Federation. undated. Monarch Butterfly. Available at: https://www.nwf.org/Educational-Resources/Wildlife-Guide/Invertebrates/Monarch-Butterfly. Accessed February 2025.

[45] USFWS. 2024. https://www.fws.gov/press-release/2024-12/service-proposes-list-suckleys-cuckoo-bumble-bee-endangered-seeks-public.

[46] Cornell Lab of Ornithology, 2024. All About Birds. Ithaca, New York. Available at: https://www.allaboutbirds.org/news/#. Accessed January 2025.

**Table 13. Migratory Birds Listed as BCC with the Potential to Occur within the Project area**

| Common Name | Scientific Name | Nesting, Foraging, and/or Migration Habitat |
|---|---|---|
| Bald Eagle | *Haliaeetus leucocephalus* | Forested areas (conifers and deciduous trees) near large bodies of open water. Open uplands near open water in winter. |
| Black Tern | *Chlidonias niger surinamenisis* | Large (>50 acres), dense marshes for breeding. Lagoons, river edges, lakes, marshes, and beaches during migration. |
| Black-billed cuckoo | *Coccyzus erythropthalmus* | Breeds in large, dense woodlands and thickets. Preferred species include aspen, poplar, birch, sugar maple, hickory, hawthorn, and willow. |
| Chimney swift | *Chaetura pelagica* | Breeds in rural and urban settings in chimneys, tree cavities, and caves. Forages over open habitats, forests, ponds, and residential areas. |
| Grasshopper sparrow | *Ammodramus savannarum perpallidus* | Grasslands, prairies, hayfields, and open pastures with little scrub and some bare ground. |
| Long-eared Owl | *Asio otus* | Grasslands, shrublands, forests (coniferous or deciduous), dense vegetation. |
| Rusty blackbird | *Euphagus carolinus* | Breeds in wet forests, fens, bogs, muskeg, and beaver ponds. |
| *These species are not listed as BBC but warrant special attention under the Bald and Golden Eagle Protection Act (BGEPA). | | |

The bald eagle has the potential to occur in the Project area. This species is not listed as BCC but warrants special attention under the Bald and Golden Eagle Protection Act (BGEPA). Forested areas within and in the vicinity of the Project area, as well as Floyd Lake or Campbell Lake and other neighboring waterbodies, may provide suitable nesting sites and foraging habitat for the bald eagle.

The forested areas, wetlands, and neighboring lakes within and in the immediate vicinity of the Project area may provide nesting, foraging, and/or migration stopover habitat for the black tern, black-billed cuckoo, chimney swift, long-eared owl, and rusty blackbird. The Project area does not contain significant grassland habitat to support the habitat needs of the grasshopper sparrow.

***c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the Project including how current Minnesota climate trends and anticipated climate change in the general location of the Project may influence the effects. Include a discussion on introduction and spread of invasive species from the Project construction and operation. Separately discuss effects to known threatened and endangered species.***

**Impacts Analysis for Native Plant Communities and Sites of Biodiversity Significance**

No native plant communities, calcareous fens, or lakes of biological significance are located within the Project area, and no native plant communities or calcareous fens are located within a one-mile buffer of the Project area. There is one MBS site found in the Project area and two MBS sites and one Lake of Biological Significance found within a one-mile buffer of the Project area. Two calcareous fens were identified within four miles to the west of the Project area.

No adverse impacts are anticipated. The Project would not result in any changes in land cover or permanent habitat degradation, and groundwater would not be affected. The Project would improve in-stream and riparian habitat and would reduce pollutant delivery to Campbell Creek and Floyd Lake.

**Impacts Analysis for State-Listed Species**

*Mudpuppy*

The mudpuppy lives in water during every stage of its life cycle and prefers rocky rivers and rocky lakes.[47] The Project will cause temporary impacts (vegetation loss, ground disturbance). Campbell Creek is a flashy, intermittent stream that experiences periods of little or no flow and thus is not typical mudpuppy habitat. The Project is not anticipated to adversely affect the mudpuppy and may improve existing habitat in Floyd Lake/Mud Lake through reduction in sediment delivery.

**Impacts Analysis for Federally-Listed Species**

Impact determination keys were evaluated through IPaC. Appendix E provides the USFWS consistency letter generated through the IPaC determination keys.

*Gray Wolf*

The Project would not result in permanent changes in land cover types. Areas temporarily disturbed for construction access would be stabilized immediately after completion or pause of work and would be seeded using appropriate native seed mixes (such as BWSR native seed mixes). Woody shrubs and trees would naturally re-populate the disturbed areas over time. Surrounding agricultural development reduces available habitat for this species. Based on the IPaC Minnesota-Wisconsin Determination Key, the Project is not likely to adversely affect the gray wolf.

Given the wide range of habitats and climates the gray wolf can inhabit, they are thought to be resilient to climate change according to a 2017-2020 winter tracking survey and climate change/land use prediction study conducted in Michigan, Wisconsin, and Minnesota. It was found that wolf habitat is anticipated to remain stable or even increase under average global temperature increases of 3-5 degrees Celsius.[48]

*Monarch Butterfly*

The monarch butterfly is a proposed threatened species for federal listing and is not currently regulated by the USFWS. Impacts may need to be reassessed if a listing status is finalized. The Project area consists primarily of wetlands and mixed forest. The nearby landscape also includes cultivated farm fields. No large populations of native prairie are known to exist within or near the Project area. Based on the IPaC Minnesota-Wisconsin Determination Key, the Project would have no effect on the monarch butterfly.

As discussed in Item 7, climate change is anticipated to result in increasing temperatures in Minnesota, which may increase the number of days and the area in which monarch butterfly populations will be exposed to unsuitably high temperatures. This can result in this species using up fat stores too quickly and may result in a misjudgment of when to enter and exit states of diapause (dormancy).[49]

[47] MNDNR. Mudpuppy. Available at: https://www.dnr.state.mn.us/eco/mbs/mudpuppy.html. Accessed February 2025.

[48] Learn, Joshua Rapp. 2024. Great Lakes Wolves Resilient to Climate, Land Use Change. The Wildlife Society. Available at: https://wildlife.org/great-lakes-wolves-resilient-to-climate-land-use-change/. Accessed February 2025.

[49] Kobilinksy, Dana. 2019. Watch: Temperature Drives Internal Clock for Monarchs. The Wildlife Society. Available at: https://wildlife.org/watch-temperature-drives-internal-clock-for-monarchs/. Accessed February 2025.

*Suckley's Cuckoo Bumble Bee*

The SCBB is a proposed endangered species for federal listing and is not currently regulated by the USFWS. Impacts may need to be reassessed if a listing status is finalized. There is potential suitable habitat for the SBCC within and near the Project area. Ground and vegetation disturbance activities are not expected to appreciably diminish the quality or extent of available suitable habitat within the Project area. The IPaC Minnesota-Wisconsin Determination Key did not provide an effect determination for this species. Based on the species' rarity and lack of confirmed sitings in the United States since 2016, the Project is unlikely to affect the SCBB.

**Impacts Analysis for Migratory Birds**

Construction activities and development within the Project area may result in the take of migratory birds protected under the Migratory Bird Treaty Act (MBTA). The MBTA makes it illegal to take (i.e., to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct) any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations.

Although the provisions of the MBTA are applicable throughout the year, most migratory bird nesting activity in Minnesota occurs approximately from May 15 to August 1. Based on the IPaC species review, the six migratory bird species listed as USFWS BCC and one eagle species with the potential to occur in the Project area are most likely to be in the Project area from March 15 to October 10. This comes with the exception of the bald eagle that is most likely to be present from December 1 to August 31 as well as the Rusty Blackbird that breed elsewhere. If construction activities occur within vegetated areas of the Project area, it may result in the take of migratory birds, eggs, young, and/or active nests if conducted during the bird nesting timeframe in Minnesota.

**Impacts Analysis for Urban Wildlife**

Urban wildlife may be impacted by the development of the Project area, such as through the removal of trees, grass/brush, and wetlands. Additionally, lighting and noise associated with construction have the potential to negatively impact wildlife. These species are generally adaptable to change and would likely relocate to other undeveloped areas.

**Invasive Species**

Noxious weeds and invasive species in Minnesota are managed through the Minnesota Department of Agriculture (MDA) under Minnesota Statutes Section 18.78, the MNDNR, and local ordinances. BMPs during construction activities and operation within the Project area could be implemented to minimize the introduction or spread of noxious weeds and invasive species. These practices include cleaning vehicles and equipment of mud and dirt, removing seeds that attach to clothing or equipment, minimizing soil disturbance, not moving potentially contaminated materials between sites, and staying on designated roads/trails.

***d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.***

Sightings of any rare species during development within the Project area should be reported to the MNDNR Nongame Wildlife specialist. The Proposer would follow the guidance that is received to avoid impacts.

Native seed mixes (such as BWSR native seed mixes) would be utilized in revegetation plans within the Project area for site restoration in order to provide suitable habitat for pollinator species and to prevent the spread of invasive species and noxious weeds. Utilizing native seed mixes in revegetation plans may create a net positive in pollinator habitat compared to existing conditions. Herbicide, fungicide, and insecticide would not be used. In addition, tree removal should be avoided from June 1 through August 15 to avoid negative impacts to any potential bat species.

Restoration plans are still preliminary and would be finalized by PRWD in consultation with MNDNR and other relevant agencies. Post-project restoration monitoring and performance standards may be implemented. Live tree plantings are not proposed as part of the restoration plan due to concerns about first establishing the seeded native forbs and grasses. Woody species should naturally re-populate disturbed areas.

Invasive species prevention measures would be implemented during construction to prevent the movement of invasive species on trucks, heavy equipment, off-highway vehicles, and equipment and tools to reduce the likelihood of introducing invasive species from off site. Measures may include requiring contractors and others working on site to arrive and leave with clean equipment free of visible plants, seeds, mud, and dirt clods. Other measures may include using weed-free seed and mulch products and avoiding the re-use of the top six inches of stockpiled materials (mulch, soil, gravel) that may contain more weed seeds.

The results of the MNDNR NHIS and USFWS IPaC review are typically valid for one year. The NHIS database should be consulted prior to the commencement of construction activities within the Project area to identify any new records of rare or otherwise significant species, native plant communities, or other natural features within the Project's vicinity.

## 15. Historic Properties

***Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during Project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.***

The following summary provides a literature review summary of known cultural resources within or adjacent to the Project area to inform Project planning but does not satisfy any requirements under Section 106 of the National Historic Preservation Act to identify historic properties that are eligible for inclusion or listed in the National Register of Historic Places.

Stantec reviewed the Minnesota State Historic Preservation Office (MnSHPO) previous survey report data as well as the Office of the State Archaeologist (OSA) Portal and the Minnesota State Historic Inventory Portal in January 2025. The literature search focused on previously identified cultural resources (archaeological sites and architectural properties) within or adjacent to the Project area. In addition, Stantec reviewed archival resources including General Land Office (GLO) maps, county atlases, the University of Minnesota Borchert Map Library, Trygg maps, and historical aerial imagery to identify potential cultural features in the Project area. The results of the literature review are summarized in relation to anticipated Project effects below.

The MnModel, available on the OSA online portal, shows that the Project is located largely within a poorly surveyed area with unknown site potential. The MnModel analyzes the number and distribution of archaeological sites and surveys, the resolution of environmental data, and the degree to which the environmental data represents the historic and prehistoric landscape, to determine the probability of encountering an archaeological site. The Upper Reach Project, around Campbell Creek and Campbell Lake, yields the highest site potential. According to the OSA Portal, during the precontact period the Project site was located in an area of interspersed wetlands, deciduous forest/woodlands, and prairie. As distance to water is generally a predictor for archaeological site location, much of the Project area yields a moderate potential for previously unrecorded cultural resources.

No previously conducted archaeological surveys overlap with the Project area. No previously recorded archaeological sites are located within or adjacent to the Project area. No previously identified burial sites/cemeteries are recorded within or adjacent to the Project area. No previously identified above ground historic resources are recorded within or adjacent to the Project area.

No cultural features are identified within the Project area on the original 1870 and 1871 GLO survey maps. Campbell Lake is mapped extending into the center of Section 28 of Township 140N, Range 41W and Campbell Creek, unlabeled on the map, extends south through the Project area. Marshes are mapped in the Project area surrounding the mentioned waterbodies.[50,51] The Trygg map, based on the original 1870 and 1871 GLO survey information, also maps a creek extending from Campbell Lake to Floyd Lake, through the Project area. Sporadic marshes are mapped to the east of the creek while prairie vegetation and unlabeled roads are mapped to the west of the creek, all outside the Project area.[52] No cultural features are mapped within the Project area on reviewed atlas maps from 1911, 1916, 1929, and 1964; an unnamed tributary of Campbell

[50] General Land Office (GLO). 1870. Original Survey, MN, 5th PM, T140N – R41W. United States Department of the Interior. Electronic Document, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=115497&sid=us4g1kha.2k5#surveyDetailsTabIndex=0. Accessed January 2025.

[51] General Land Office (GLO). 1871. Original Survey, MN, 5th PM, T139N – R41W. United States Department of the Interior. Electronic Document, https://glorecords.blm.gov/details/survey/default.aspx?dm_id=115495&sid=534mrnqn.did#surveyDetailsTabIndex=0. Accessed January 2025.

[52] Trygg, J. William, Sr. 1964. *Composite Map of United States Land Surveyors'' Original Plats and Field Notes – Sheet 11.* Trygg Land Office, Ely, Minnesota.

Lake extends south through Section 28 of Township 140N, Range 41W, on all reviewed maps. Structures are mapped surrounding the Project area on all reviewed county atlas maps.[53, 54, 55, 56]

Stantec also reviewed U.S. Geological Survey historic topographic maps for structures/features recorded within the Project area. No structures are mapped within the Project area on the Richmond 1959 (1960 and 1974 eds.) topographic maps and Campbell Creek is mapped extending through the Project area from Campbell Lake to Floyd Lake.[57]

Reviewed aerial imagery of the northern portion of the Project area from 1939 to the present shows land use within the Project area remaining relatively unchanged. Campbell Creek is delimited on each side by trees and grassland on all reviewed aerial imagery. Agricultural land use surrounding the northern portion of the Project area persists from 1939 to present. Aerial imagery of the southern portion of the Project area from 1939 to 2003 characterizes land use as a mixture of forested and cultivated. Floyd Lake Drive first appears in aerial imagery in 2003, at which point land use between Floyd Lake Drive and Campbell Creek to the west transitions to areas of forest and grassland. The two structures directly adjacent to the Project area on the west side of Floyd Lake Drive first appear in aerial imagery from 2013 and 2015. Dense tree coverage obscured aerial imagery visibility of much of the southern portion of the Project area from 1939 to the present.[58,59]

Traditional Cultural Properties within the Project area are unknown, however the Project will require consultation with interested tribes per the provisions set forth in Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108).

The Project will obtain federal funding and therefore is subject to review under Section 106 of the National Historic Preservation Act. A Phase I archaeological reconnaissance survey is typically required for compliance with Section 106. The Phase I archaeological survey will follow the State guidelines set forth in the SHPO Manual for Archaeological Projects in Minnesota[60] and the OSA Survey Manual.[61]

Should archaeological sites or historic properties be identified during the course of the archaeological survey, the Pelican River Watershed District will coordinate with the MnSHPO to avoid Project impacts.

[53] Brock and Company. 1929. Standard Atlas of Becker County, Minnesota. Available at: https://historicmapworks.com/Atlas/US/8603/Becker+County+1929/. Accessed January 2025.

[54] Geo. A. Ogle and Co. 1911. Standard Atlas of Becker County, Minnesota. Available at: https://historicmapworks.com/Atlas/US/10234/Becker+County+1911/. Accessed January 2025.

[55] State of Minnesota. 1916. State of Minnesota Plat Book. John R. Borchert Map Library. Available at: https://geo.lib.umn.edu/collections/digitizedplatbooks/stateofmn1916.html. Accessed January 2025.

[56] Thomas O. Nelson Co. 1964. Atlas of Becker County, Minnesota. Available at: https://historicmapworks.com/Atlas/US/21872/Becker+County+1964/. Accessed January 2025.

[57] USGS. 2025. TopoViewer. Available at: https://ngmdb.usgs.gov/topoview/viewer/#14/46.8991/-95.8628. Accessed January 2025.

[58] Nationwide Environmental Title Research, LLC. 2025. Historic Aerials by Netronline, Available at: https://historicaerials.com/viewer. Accessed January 2025.

[59] UofMN. 2015. Minnesota Historical Aerial Photographs Online. Available at: https://apps.lib.umn.edu/mhapo/. Accessed January 2025.

[60] Anfinson, Scott. 2005. SHPO Manual for Archaeological Projects in Minnesota. State Historic Preservation Office, St. Paul, Minnesota. Available at: https://mn.gov/admin/assets/archsurvey_tcm36-327672.pdf. Accessed January 2025.

[61] Anfinson, Scott. 2011. State Archaeologists Manual for Archaeological Projects in Minnesota. Office of the State Archaeologist, St. Paul, Minnesota. Available at: https://mn.gov/admin/assets/OSAmanual_tcm36-186982.pdf. Accessed January 2025.

## 16. Visual

***Describe any scenic views or vistas on or near the Project site. Describe any Project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the Project. Identify any measures to avoid, minimize, or mitigate visual effects.***

The current land use in the Project area and adjacent properties consist primarily of agricultural land, single family homes, and undeveloped land. The Project area itself currently consists of Campbell Creek and adjacent undeveloped riparian land, including wetlands and forests. No designated scenic views or vistas are present in the vicinity of the Project area.

For the Upper Reach Project area, the landscape immediately surrounding the site consists of agricultural land to the west, east, and south and single-family detached homes to the northwest. The primary visual impact would be the temporary impacts of construction equipment and temporary vegetation clearing as a result of the Project. The Project is not expected to include industries that would emit vapor plumes.

For the Lower Reach Project area, the landscape immediately surrounding the site consists of agricultural land to the west; residential developments in the east; single-family detached homes to the south, with lakes to the northeast and southeast. The Project is not expected to include industries that would emit vapor plumes.

## 17. Air

***a. Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the Project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.***

The Project proposes stream restoration improvements. No stationary source emissions are proposed as part of the Project. There would be temporary utilization of natural gas and electric-powered equipment from construction. This would emit low levels of greenhouse gas emissions (GHG) as well as hazardous air pollutants (HAPs) and criteria pollutants, such as nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO2), and particulate matter (PM). An inventory of potential electric and natural gas equipment to be used for construction within the Project area is not known at this time. Generally, air emissions associated with construction are relatively insignificant.

***b. Vehicle emissions - Describe the effect of the Project's traffic generation on air emissions. Discuss the Project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.***

Motorized vehicles affect air quality by emitting air borne pollutants. The changes in traffic volumes, travel patterns, and roadway access due to temporary construction could affect air quality by changing the number of vehicles and the congestion levels in the Project area. Criteria pollutants identified by the U.S. Environmental Protection Agency (USEPA) are ozone (O3), particulate matter (PM), carbon monoxide (CO), nitrogen dioxide (NO2), lead (Pb), and sulfur dioxide (SO2). The Project area is not located in an area of nonattainment or maintenance area for any of the criteria pollutants. The Project area is in attainment for all criteria pollutants. The Project would not include transportation improvements and would not result in changes to existing traffic conditions. Therefore, no further air quality analysis is warranted.

***c. Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during Project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the Project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.***

The Project is not anticipated to produce dust or odors during operation but may generate temporary dust and odors during construction. Sensitive receptors would include single family residences near the Project area.

Potential odors would likely be associated with exhaust from diesel engines and fuel storage. Dust generated during construction would be minimized through standard dust control measures such as applying water to exposed soils and limiting the duration of exposed soils to the extent possible.

Dust levels, after construction is complete, would be minimal as all surfaces will be revegetated. With these mitigation measures in place, the quality of life for nearby residences is not anticipated to be affected.

## 18. Greenhouse Gas (GHG) Emissions/Carbon Footprint

***a. GHG Quantification: For all proposed Projects, provide quantification and discussion of Project GHG emissions. Include additional rows in the tables as necessary to provide Project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation.***

The GHG emissions for the proposed development scenarios are calculated using the Simplified Greenhouse Gas Emissions Calculator (SGEC) tool and are based on the methodologies for developing a carbon footprint described in Minnesota Environmental Quality Board's (EQB's) EAW Guidance (June 2024). See Appendix F for GHG emissions calculations and assumptions.

Table 14 shows the emission categories for the proposed Project's carbon footprint calculations, as provided in the EQB Guidance. Note that there are no operational indirect or direct emissions as there is no proposed industrial, residential, or commercial development in the Project area. There is also no change in land use (atmospheric removal of GHGs) as the cover type will not be impacted by this project.

**Table 14. Emission Categories for Carbon Footprint**

| Category | Scope | Project Phase | Type of Emissions |
|---|---|---|---|
| Direct Emissions | Scope 1 | Construction | Combustion (Mobile Sources) |

**Construction Emissions**

GHG emissions from construction of this Project are associated with fuel combustion in the mobile construction equipment and on-road vehicles. For on-road vehicles (commuting construction workers and dump trucks), emissions are calculated by estimating the number of vehicles, miles traveled (estimated to be 20 miles per day for workers, 60 miles per day for heavy duty trucks), gallons of fuel used (using default mileage rates), and emission factors from the USEPA's Emission Factors Hub.[62]

For off-road vehicles, the quantity and horsepower of cranes, backhoes, loaders, bulldozers, excavators, and skid steers was estimated based on other similar development projects. The default fuel consumption rate of 0.05 gallons per horsepower-hour is used to determine the fuel usage for all equipment. Like the on-road vehicles, emission factors from the Emission Factors Hub are used to calculate GHG emissions. Per EQB's Revised EAW Guidance, total construction emissions for each scenario are divided by the lifetime of the project, estimated to be 50 years.

**Table 15. GHG Emissions Summary (CO2e in short tons per year)**

| Scope | Source | Project Emissions |
|---|---|---|
| **Direct Emissions** | | |
| Scope 1 | Construction – Mobile Sources* | 23 |
| **Total** | | **23** |

**Construction emissions are annualized over the life of the project, estimated to be 50 years.*

[62] EPA. 2025. GHG Emission Factors Hub. Updated January 2025. Accessed February 2025. https://www.epa.gov/climateleadership/ghg-emission-factors-hub.

***b. GHG Assessment***

***i. Describe any mitigation considered to reduce the Project's GHG emissions.***

The following possible activities may be considered to help mitigate the project's GHG emissions:

- Minimize grading, incorporating existing topography into the site design.
- Elimination of invasive species and replacing with native grasses and plants.
- Keeping as many existing trees as possible.
- Utilizing best management practices (BMPs) to conserve water, preserve water quality, limit pesticide and fertilizer applications and habitat management.

***ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the Project's GHG emissions. Explain why the selected mitigation was preferred.***

The mitigation measures Item 18.b.i. may help offset the GHG emissions from the Project, but were not explicitly quantified in this analysis. The Project's GHG emissions (without mitigation) are conservatively estimated to be those presented in Table 2.

***iii. Quantify the proposed Projects predicted net lifetime GHG emissions (total tons/# of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.***

The Project lifetime is estimated at 50 years. Thus, the lifetime emissions associated with the Project are approximately 1,153 tons of CO2e. This conservative total may be offset by the mitigation measures noted above. The Project's GHG emissions would have minimal effect on the State of Minnesota's or the local area's GHG reduction goals.

## 19. Noise

***Describe sources, characteristics, duration, quantities, and intensity of noise generated during Project construction and operation. Discuss the effect of noise in the vicinity of the Project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.***

1) *Existing noise levels/sources in the area*

   Existing noise sources include vehicle traffic along 230th Street, County Road 149 and Floyd Lake Drive and other connecting local roadways. Other existing noise sources would include noise generated by agricultural operations and equipment near the Project area.

2) *Nearby sensitive receptors*

   The majority of the Project area consists of agricultural land and undeveloped land. Nearby sensitive receptors would include a few rural residences near the Project area.

3) *Conformance to State noise standards*

   The State of Minnesota's noise rules (Minn. Rules Ch. 7030)[63] establish noise limits by noise area classifications (NACs) based on land use at the location of the person that hears noise. Table 16 identified State noise standards for each NAC. The MPCA enforces noise standards at industrial facilities for which it has issued an air permit.

   The L10 calculation is the noise level that is exceeded for 10 percent, or 6 minutes, of the hour, and the L50 calculation is the noise level exceeded for 50 percent, or 30 minutes, of the hour. There is no limit on maximum noise.

   The statutory limits for a residential location are L10 = 65 dBA and L50 = 60 dBA during the daytime (7:00 a.m. – 10:00 p.m.) and L10 = 55 dBA and L50 = 50 dBA during the nighttime (10:00 p.m. – 7:00 a.m.). This means that during the one-hour period of monitoring, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time or 60 dBA more than 50 percent of the time.

**Table 16. Noise Area Classifications**

| NAC | Common land use associated with the Noise Area Classification | Daytime (dBA) | | Nighttime (dBA) | |
|---|---|---|---|---|---|
| | | $L_{10}$ | $L_{50}$ | $L_{10}$ | $L_{50}$ |
| 1 | Residential housing, religious activities, camping and picnicking areas, health services, hotels, educational services | 65 | 60 | 55 | 50 |
| 2 | Retail, business and government services, recreational activities, transit passenger terminals | 70 | 65 | 70 | 65 |
| 3 | Manufacturing, fairgrounds and amusement parks, agricultural and forestry activities | 80 | 75 | 80 | 75 |

[63] More information on Minnesota Noise rules, Minn. Rules Ch. 7030, may be found at: https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf

NACs are based on the land use at the location of the person who hears the noise, which does not always correspond with the zoning of an area. Therefore, noise from an industrial facility near a residential area is held to the NAC 1 standards if it can be heard on a residential property.

The Project consists of stream restoration improvements and would not generate operational noise post-construction. The project would minimize noise disturbances caused by the construction of the Project to the extent possible and will adhere to the noise regulations outlined in Minnesota State Statute 7030.0030.

*4) Quality of life*

Varying degrees of noise can be expected during the construction period. Anticipated noise sources are primarily construction equipment and normal construction activities. Table 17 below summarizes the estimated noise levels for typical construction equipment.

**Table 17. Estimated Noise for Typical Construction Equipment**

| Equipment | Impact Device (Yes/No) | Spec 721.560* Lmax dBA** | Actual Lmax dBA** | No. of Actual Data Samples |
|---|---|---|---|---|
| Backhoe | No | 80 | 78 | 372 |
| Front loader | No | 80 | 79 | 96 |
| Dozer | No | 85 | 82 | 55 |
| Dump truck | No | 84 | 76 | 31 |
| Excavator | No | 85 | 81 | 170 |
| Grader | No | 85 | N/A | 0 |
| Scraper | No | 85 | 84 | 12 |
| Impact Pile driver | Yes | 95 | 101 | 11 |

**Construction Noise Control Specification 721.560, Central Artery/Tunnel Project, Massachusetts Turnpike Authority, Boston, MA, 2002.*

***Noise levels listed represent the A-weighted maximum sound level (Lmax), measured at a distance of 50 feet from the construction equipment.*

High impact noise may be required during construction. Pile driving equipment results in the highest peak noise level. Mitigative measures would include standard mufflers on engine driven equipment and possible ear protection as necessary for workers engaged in demolition or other short-term noise intensive activities.

## 20. Transportation

***a. Describe traffic-related aspects of Project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.***

There is currently traffic in the Project area on County Road 149 and local connecting roads, and the Project would not change existing traffic conditions. Temporary road closure of County Road 149 due to culvert construction is anticipated.

*1) Existing and proposed parking spaces*

There are no current or proposed parking spaces in the Project area. Construction equipment and vehicles will utilize temporary off-street parking and cleared access and staging areas.

*2) Estimated total average daily traffic generated*

The Project would not generate traffic post-construction. Temporary minor increases in traffic would result during construction. During construction, passenger vehicles for construction workers as well as dump trucks and equipment would access the Project area. It is estimated that the average daily trips for these vehicles will be less than 100.

*3) Estimated maximum peak hour traffic generated and time of occurrence*

Maximum peak hour traffic would occur during allowed construction time (daytime hours). Construction vehicles would access the Project area during standard daytime hours arriving in the morning and departing in the late afternoon.

*4) Source of trip generation rates*

Construction traffic estimates are based on available information from design engineers and contractors.

*5) Availability of transit and/or other alternative transportation modes*

No existing transit or other alternative transportation modes are available in the vicinity of the Project area.

***b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the Project's impact on the regional transportation system. If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance.***

The Project would not change existing traffic volumes. Traffic impacts resulting from the Project would be limited to a temporary road closure for culvert construction and a minimal increase in construction-related.

***c. Identify measures that will be taken to minimize or mitigate Project related transportation effects.***

The road closure would require a traffic detour or single-lane two-way traffic control.

## 21. Cumulative Potential Effects

(***Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)***

***a. Describe the geographic scales and timeframes of the Project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.***

The Project is anticipated to be constructed Fall 2025 through Spring 2026, with direct work on the creek to occur in Winter 2025-2026.

***b. Describe any reasonably foreseeable future Projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed Project within the geographic scales and timeframes identified above.***

No other significant projects in the surrounding area are known to be planned or in construction.

***c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.***

Not applicable.

## 22. Other Potential Environmental Effects

***If the Project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.***

No other potential environmental effects are anticipated that are not addressed by Items 1 through 21.

## RGU CERTIFICATION

*(The Environmental Quality Board will only accept **SIGNED** EnvironmentalAssessment Worksheets for public notice in the EQB Monitor.)*

**I hereby certify that:**

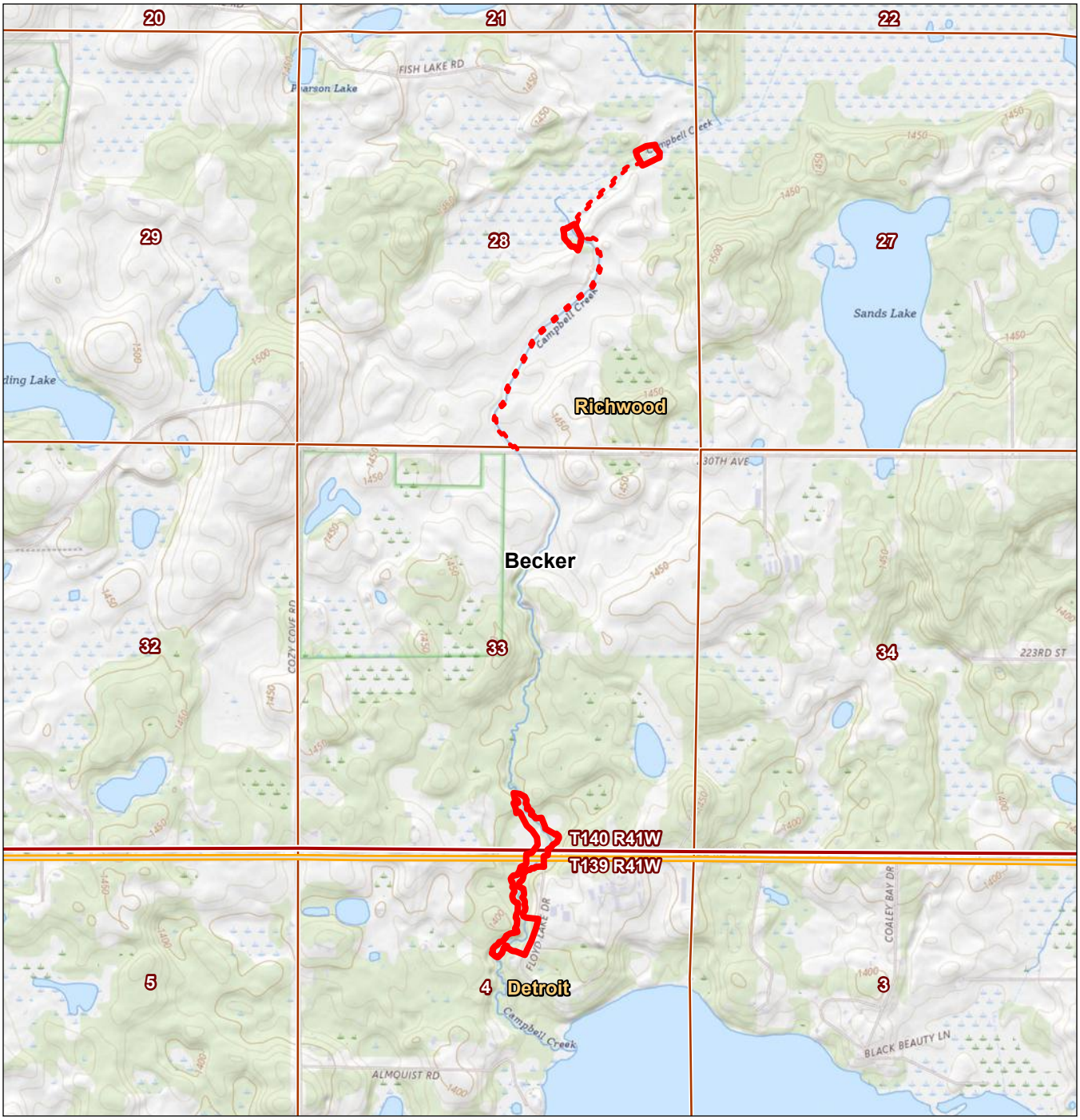
- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete Project; there are no other Projects, stages or components other than those described in this document, which are related to the Project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60,respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

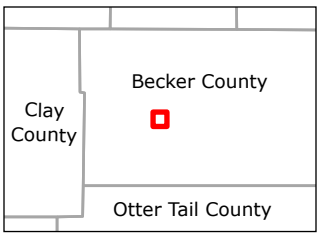
Signature _____ Date March 20, 2025

Title Tera Guetter, PRWD Administrator

# Appendix A
## Figures

**Figure 1: Project Location USGS Topo**
**Figure 2: Project Location Aerial Map**
**Figure 3: Site Plan**
**Figure 4: Existing Land Cover**
**Figure 5: Parks and Trails**
**Figure 6: Surficial Geology**
**Figure 7: Soil and Farmland Classification**
**Figure 8: Minnesota Well Index**
**Figure 9: Water Resources**
**Figure 10: MPCA Potentially Contaminated Sites**




Legend

- Project Area
- Construction Access (Existing Field Road)
- County Subdivision
- Township/Range & Section

0 1,000 2,000 Feet

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N

Stantec

***Notes***

1. Coordinate System: NAD 1983 HARN Adj MN Becker Feet
2. Data Sources: USGS
3. Background: USGS 7.5 Minute Quadrangle

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-01-08

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

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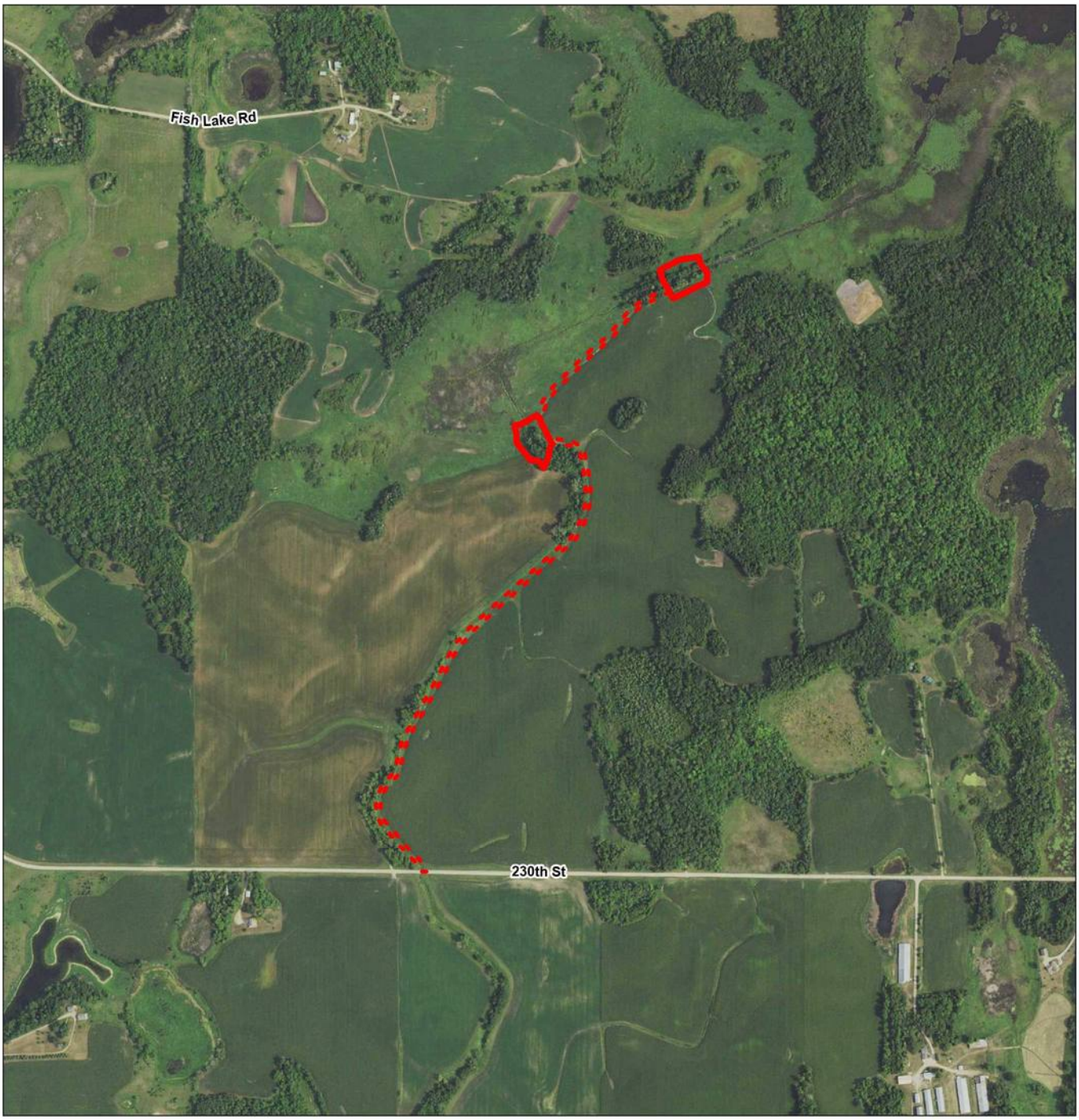
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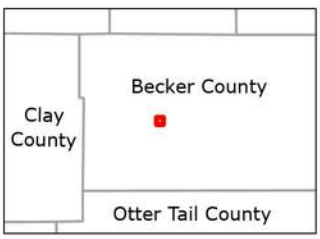
*Title*
**USGS Project Location**



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Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.




Legend

Project Area

Construction Access (Existing Field Road)

0 500 1,000 Feet

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N

Stantec

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: FSA, Stantec
**3.** Background: 2021 FSA

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-01-08

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

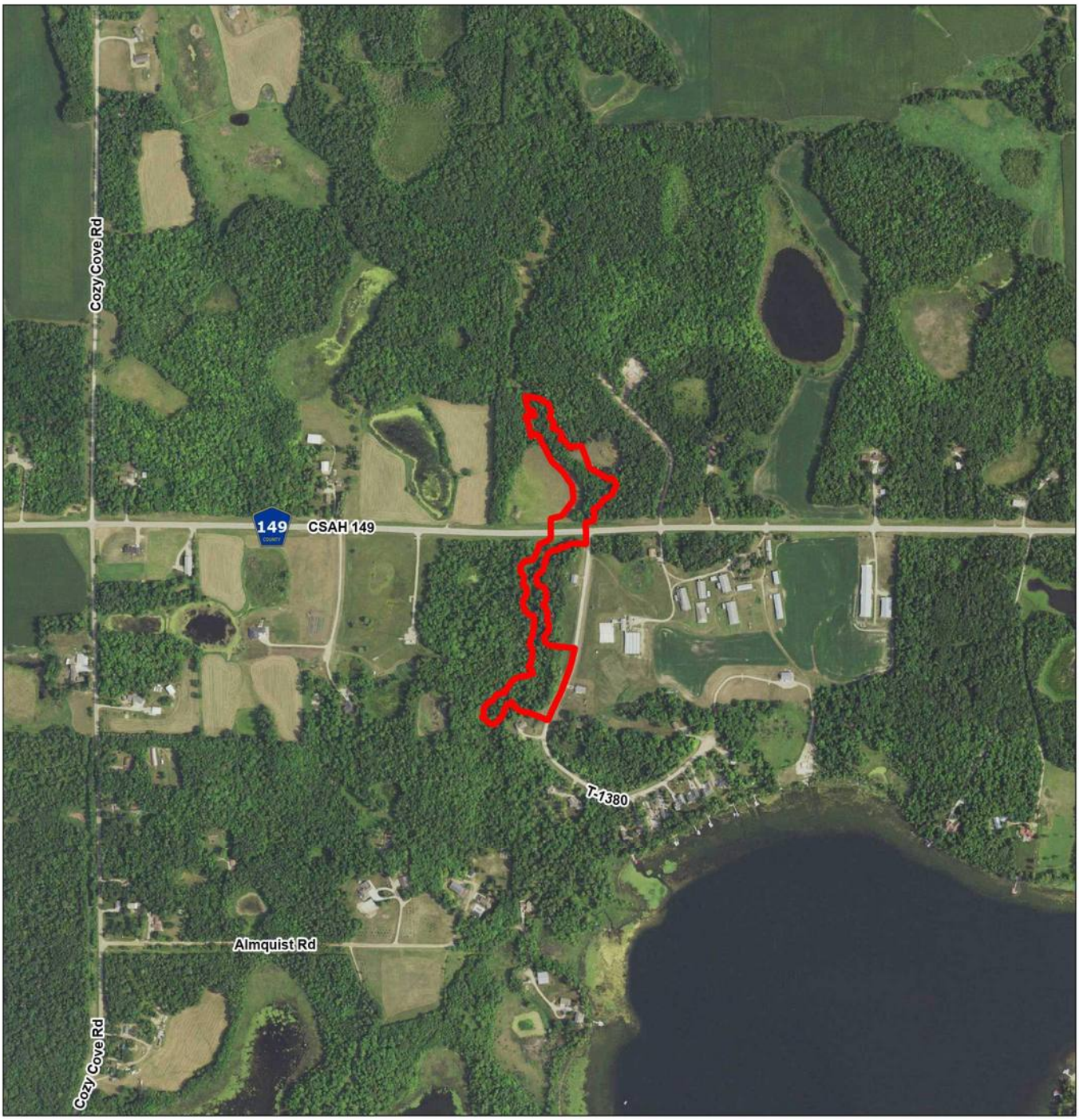
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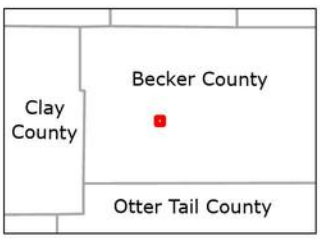
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**2**

*Title*
**Aerial Project Location - Upper Reach**

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Legend

Project Area

0 500 1,000 Feet

(At original document size of 8.5x11)
1:12,000

N

Stantec

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: FSA, Stantec
**3.** Background: 2021 FSA

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-01-08

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

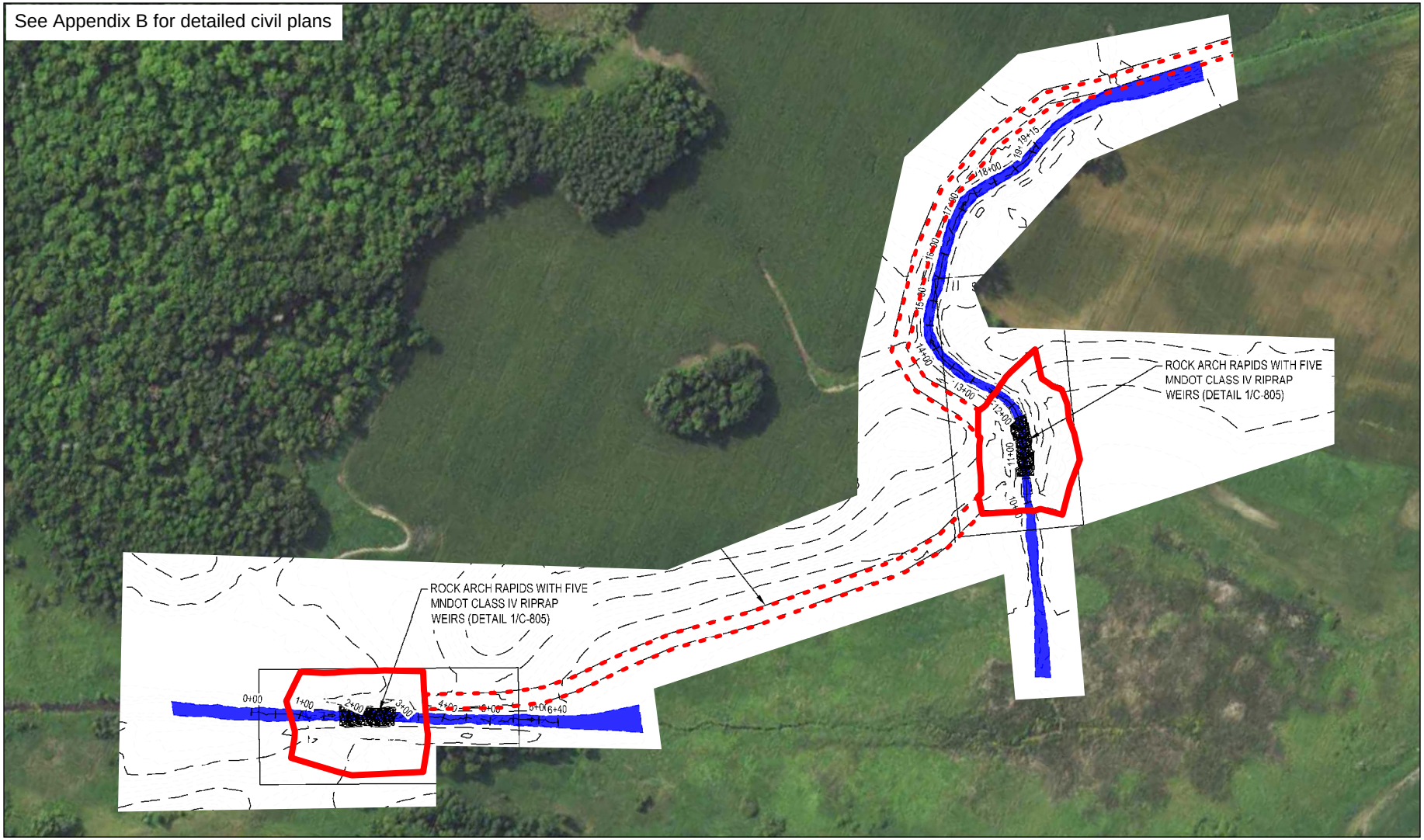
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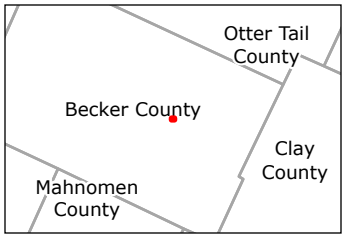
*Title*
**Aerial Project Location - Lower Reach**

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See Appendix B for detailed civil plans




Legend

- Project Area
- Construction Access (Existing Field Road)

N

0 150 300 Feet
(At original document size of 8.5x11)
1:3,600

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: Stantec
**3.** Background: 2021 FSA

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-13

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

*Figure No.*
**3**

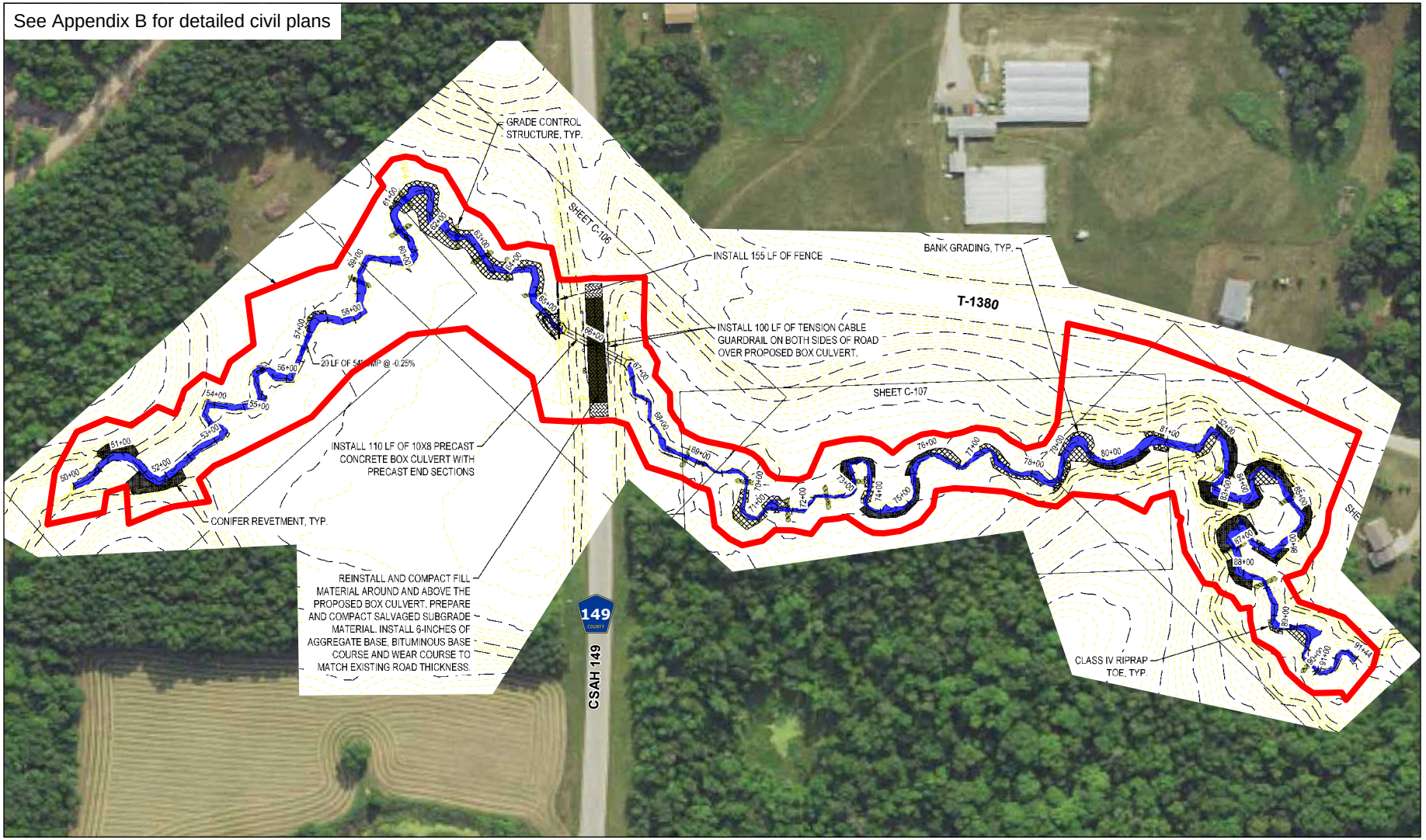
*Title*
**Site Plan - Upper Reach**

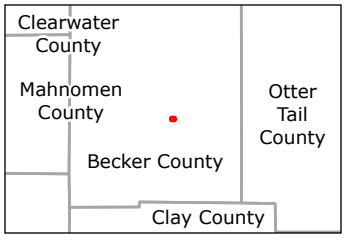


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See Appendix B for detailed civil plans




Legend

- Project Area
- BANK GRADING
- CONIFER REVETMENT
- GRADE CONTROL STRUCTURE (MNDOT CLASS IV RIPRAP)
- MNDOT CLASS IV RIPRAP TOE

N

0 120 240 Feet

(At original document size of 8.5x11)
1:2,880

***Notes***

1. Coordinate System: NAD 1983 HARN Adj MN Becker Feet
2. Data Sources: Stantec
3. Background: 2021 FSA

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-13

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

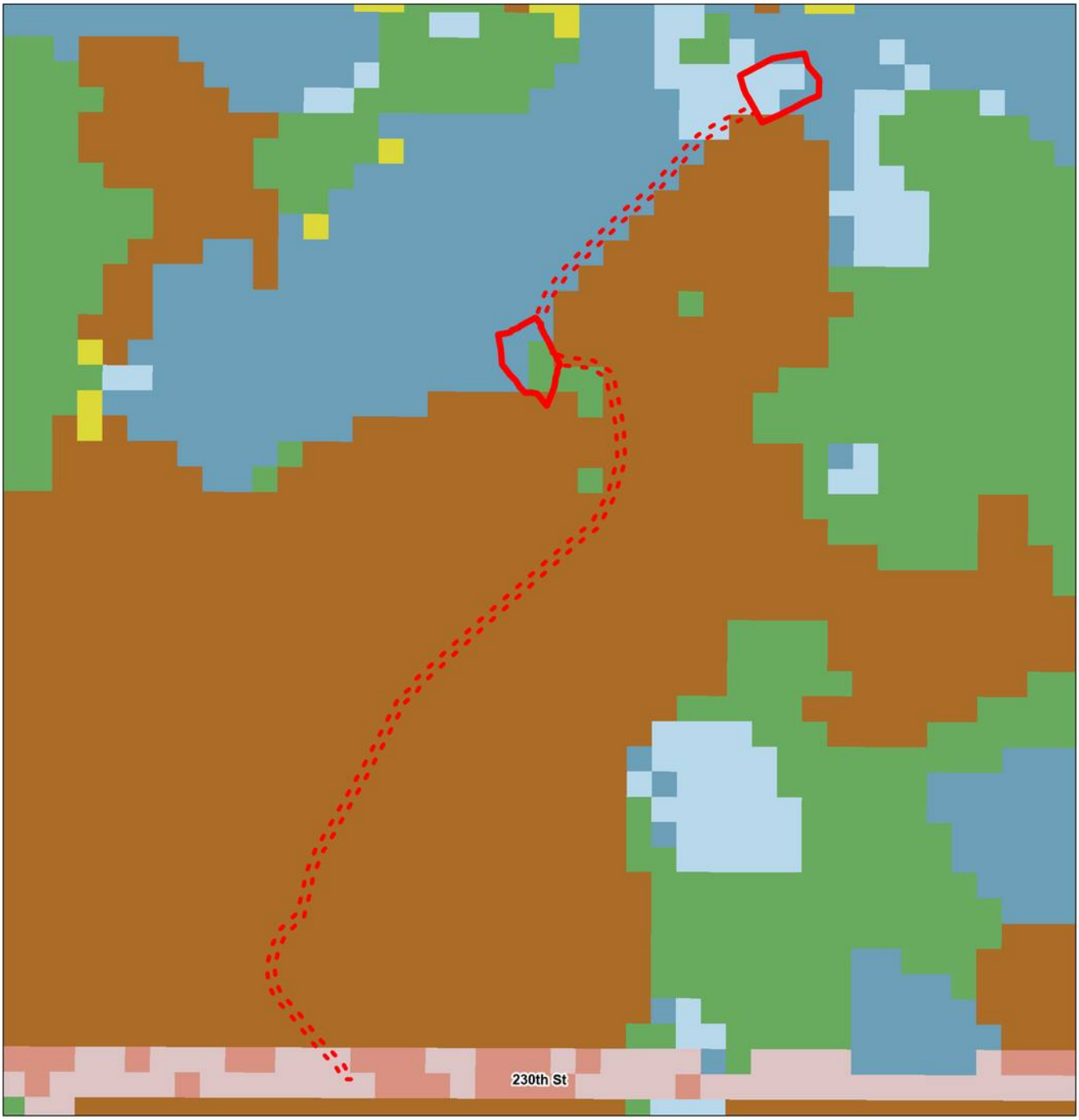
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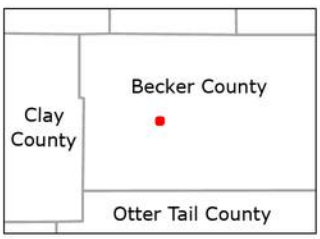
*Title*
**Site Plan - Lower Reach**



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**Notes**
1. Coordinate System: NAD 1983 HARN Adj MN Becker Feet
2. Data Sources: USGS NLCD
3. Background: 2023 NLCD

Legend
- Project Area
- Construction Access (Existing Field Road)

2023 National Land Cover Database
- Developed, Open Space
- Developed, Low Intensity
- Deciduous Forest
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 300 600 Feet
(At original document size of 8.5x11)
1:7,200

N

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-01-08

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

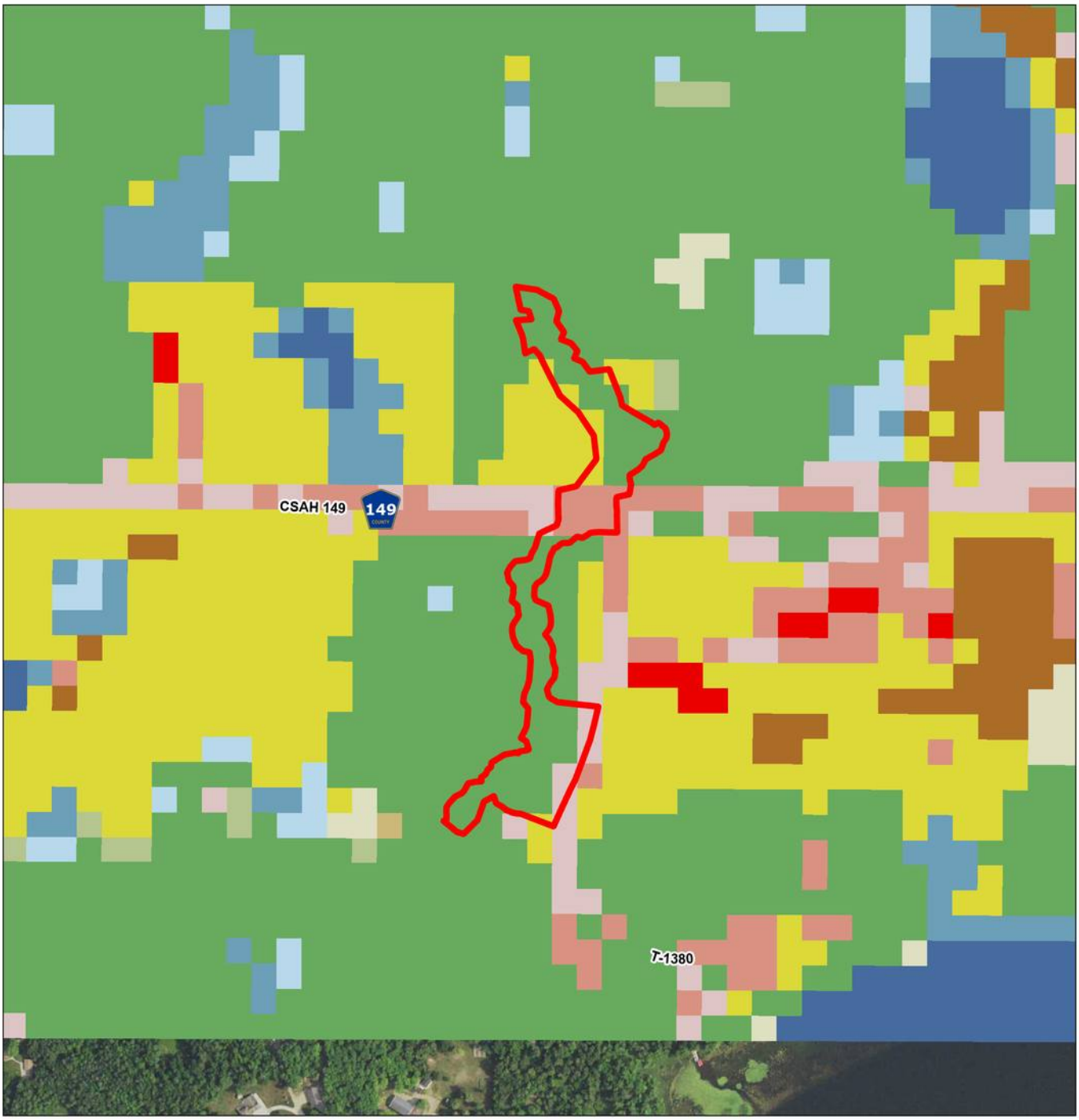
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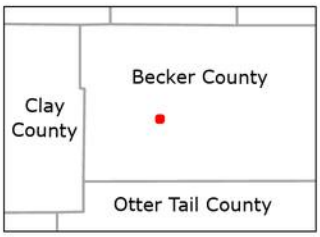
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*Title*
**Land Cover - Upper Reach**

U:\227\227707144\03_data\gis_cad\gis\ArcPro\CampbellCreek\CampbellCreek.aprx Revised: 2025-01-08 By: lhershley

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**Notes**
1. Coordinate System: NAD 1983 HARN Adj MN Becker Feet
2. Data Sources: USGS NLCD
3. Background: 2023 NLCD

Legend
- Project Area

2023 National Land Cover Database
- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Deciduous Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture/Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 300 600 Feet
(At original document size of 8.5x11)
1:7,200

N

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-01-08

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

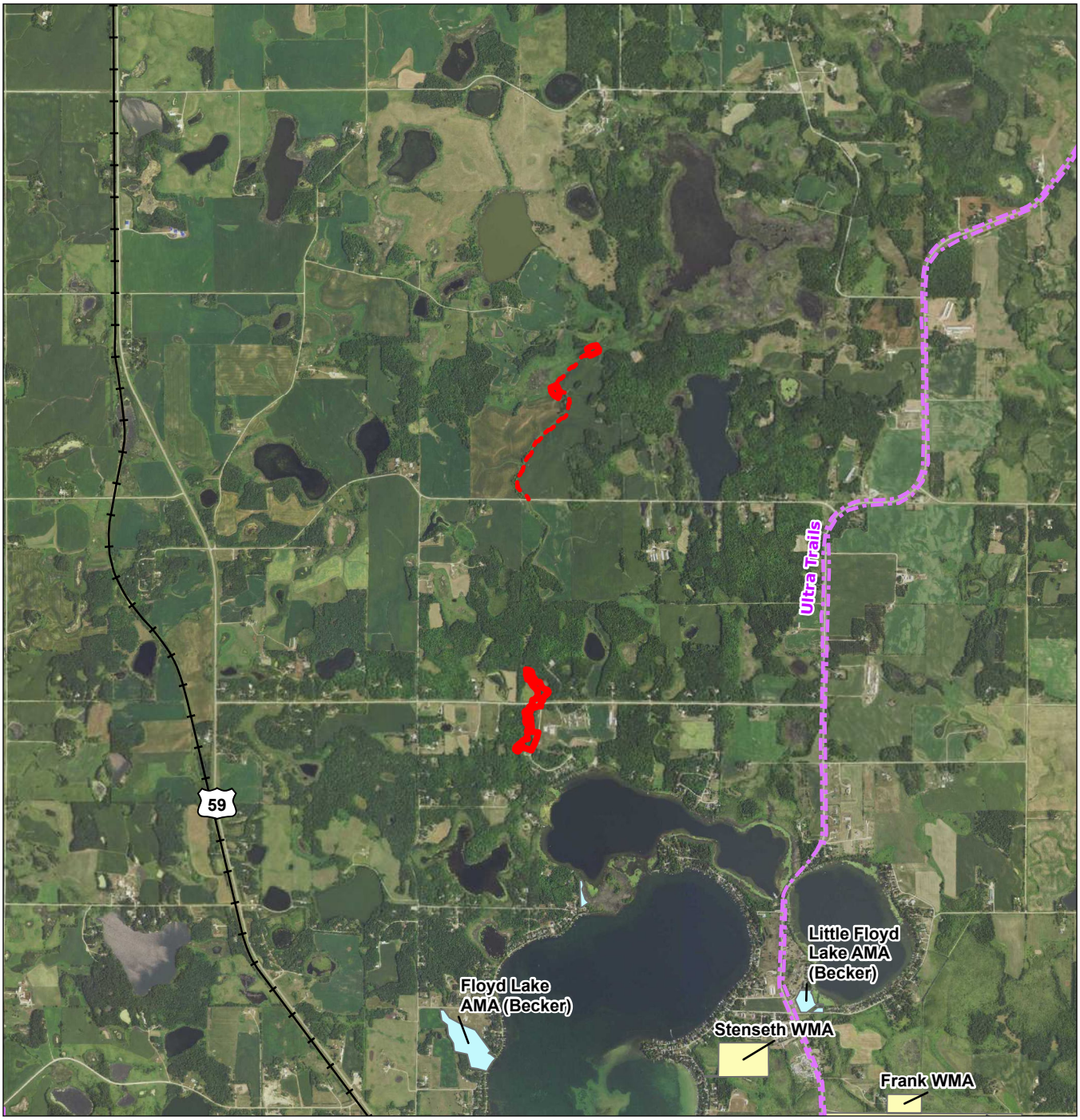
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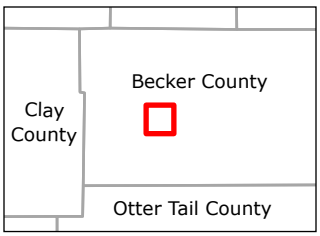
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*Title*
**Land Cover - Lower Reach**

U:\227\227707144\03_data\gis_cad\gis\ArcPro\CampbellCreek\CampbellCreek.aprx Revised: 2025-01-08 By: lhershiey

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Legend

- Project Area
- Construction Access (Existing Field Road)
- Railroads
- Snowmobile Trails

DNR Management Units

- Aquatic Management Area
- Wildlife Management Area

0 2,000 4,000 Feet

(At original document size of 8.5x11)
1:48,000

N

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MnDNR, MnDOT
**3.** Background: 2021 FSA

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

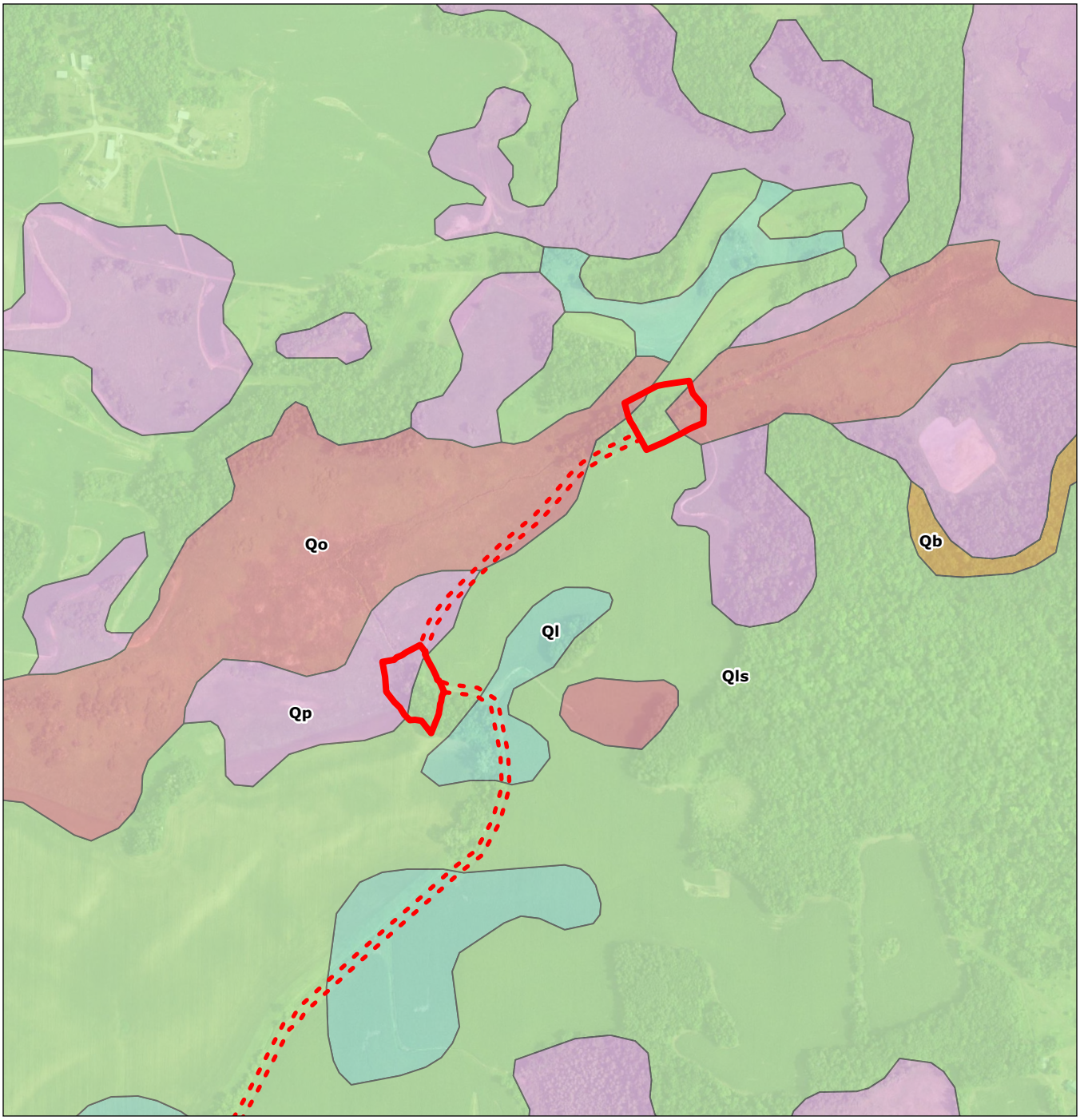
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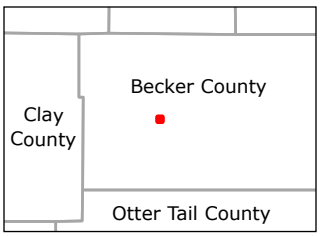
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**Parks, Trails, and Other Recreational Areas**



U:\227\227707144\03_data\gis_cad\gis\ArcPro\CampbellCreek\CampbellCreek.aprx Revised: 2025-02-14 By: lhershley

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***Notes***
**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MGS Becker CGA
**3.** Background: 2021 FSA

Legend
- Project Area
- Construction Access (Existing Field Road)

Becker County Surficial Geology
- Qb
- Ql
- Qls
- Qo
- Qp
- Ice Margin

0 300 600 Feet
(At original document size of 8.5x11)
1:7,200

N

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

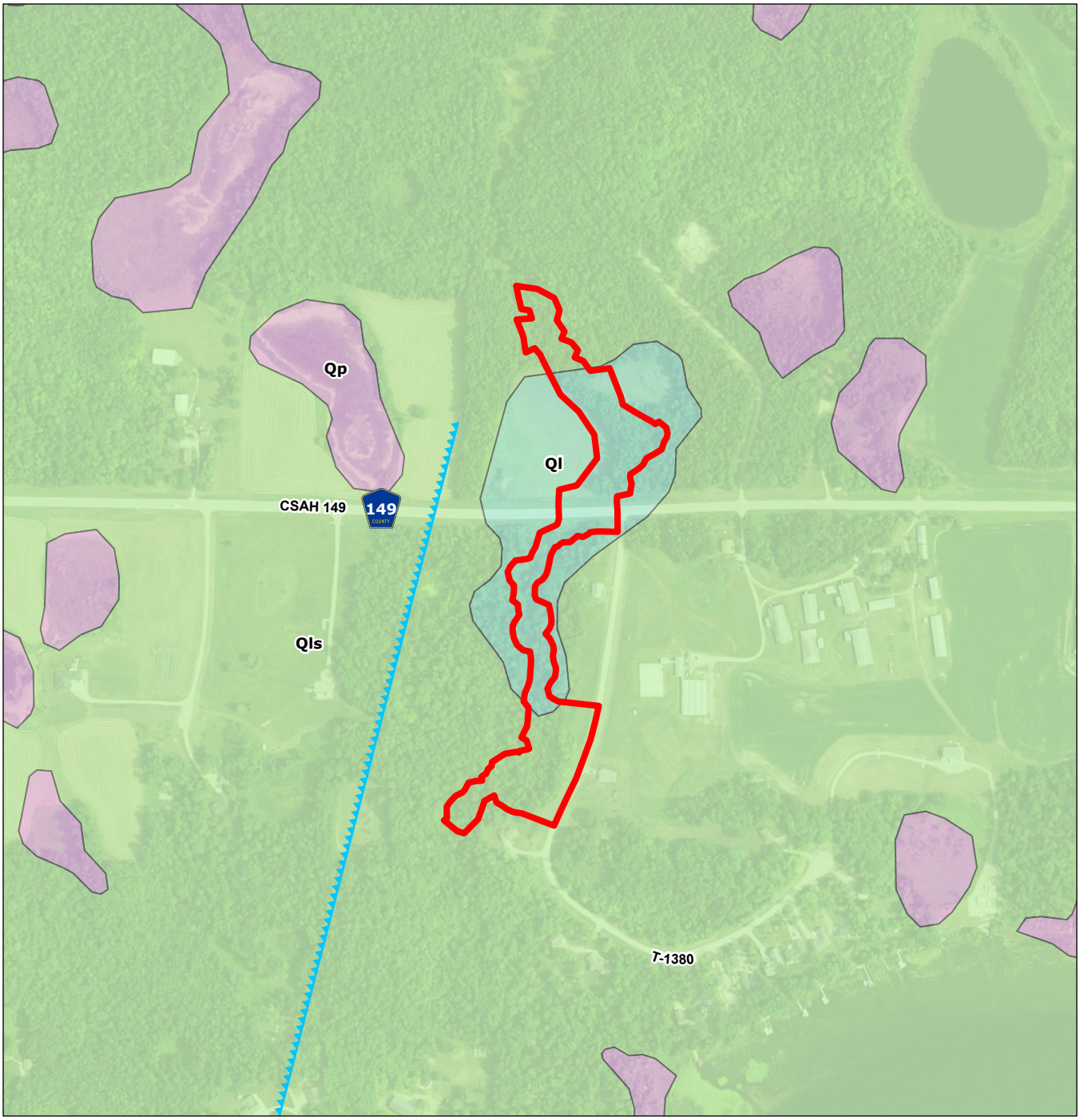
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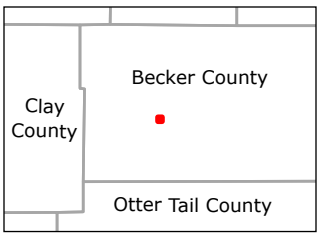
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**Surficial Geology - Upper Reach**



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Legend

Project Area

Becker County Surficial Geology

- Ql
- Qls
- Qp
- Ice Margin

0 300 600 Feet

(At original document size of 8.5x11)
1:7,200

N

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MGS Becker CGA
**3.** Background: 2021 FSA

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

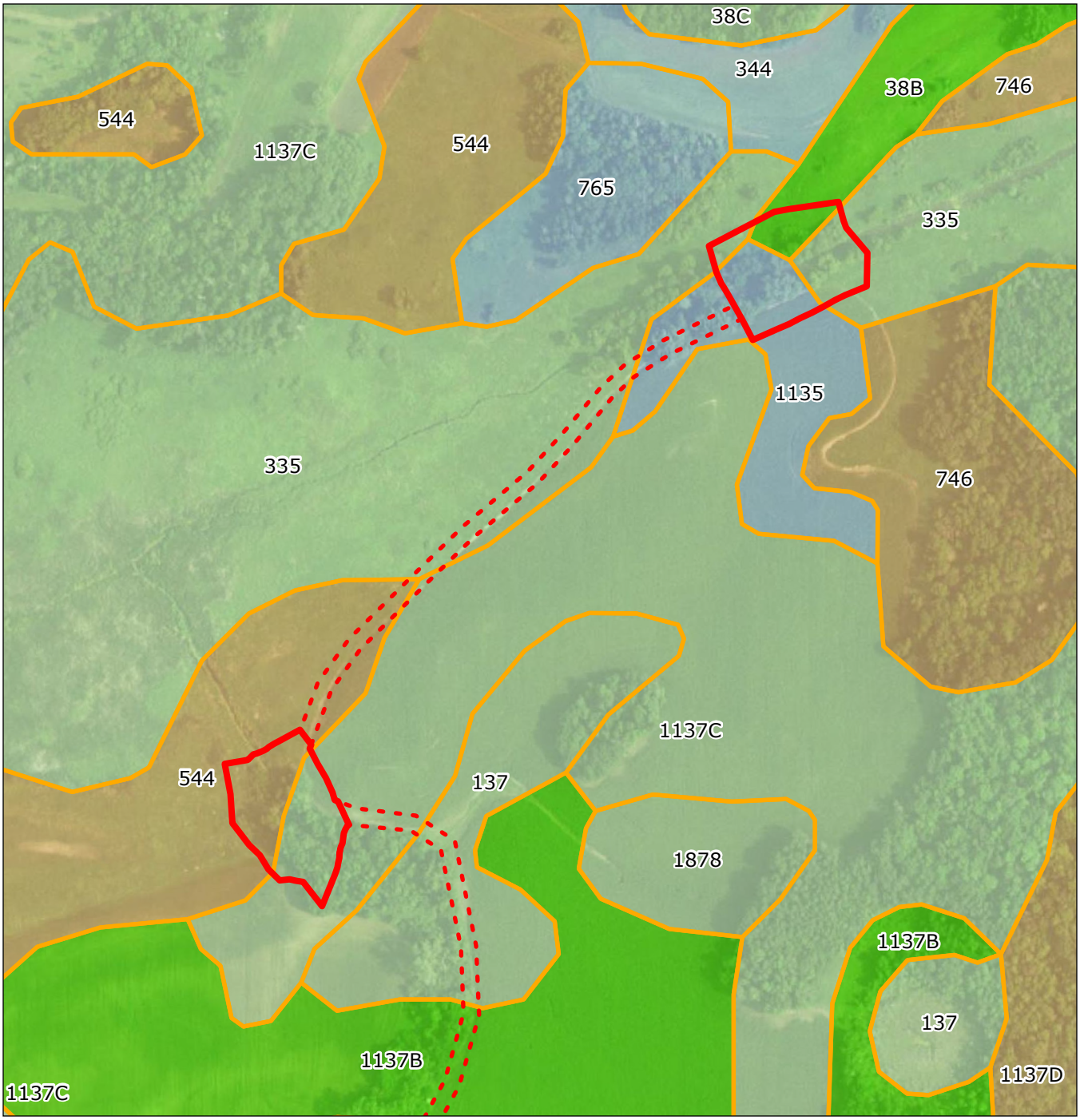
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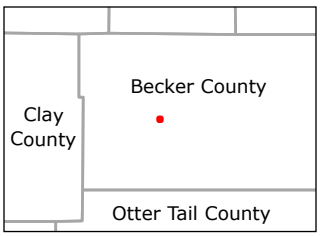
*Title*
**Surficial Geology - Lower Reach**



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***Notes***
**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: USGS NRCS
**3.** Background: 2021 FSA

Legend
- Project Area
- Construction Access (Existing Field Road)
- Soil Unit

Farmland Classification
- All areas are prime farmland
- Farmland of statewide importance
- Prime farmland if drained
- Not prime farmland

0 150 300 Feet
(At original document size of 8.5x11)
1:3,600

N

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
227707144
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

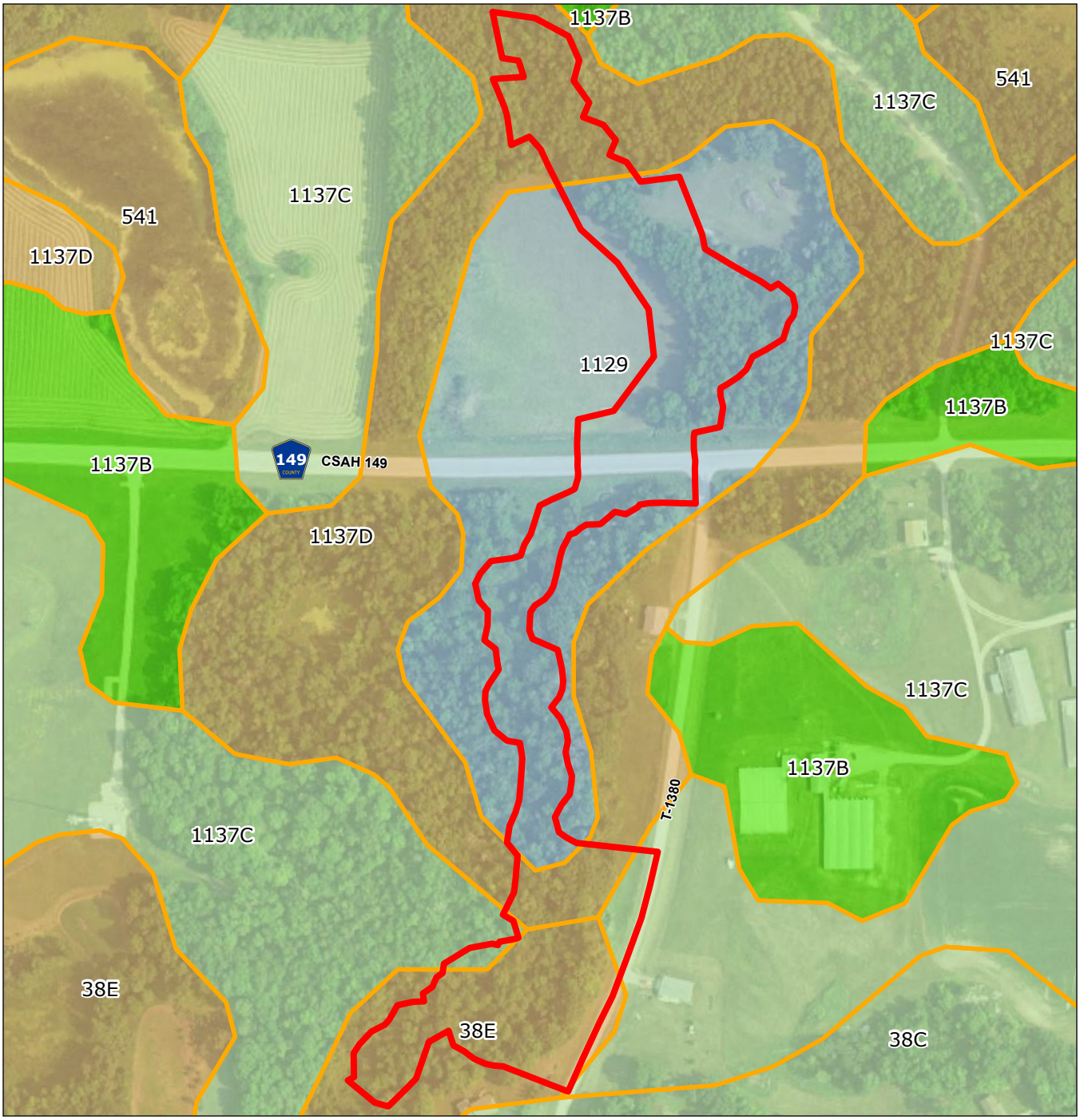
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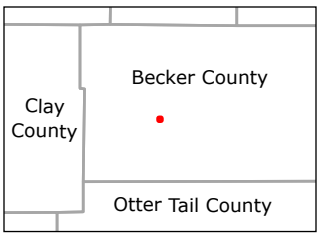
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**Soil Survey and Farmland Classification - Upper Reach**



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Legend

- Project Area
- Soil Unit

Farmland Classification

- All areas are prime farmland
- Farmland of statewide importance
- Prime farmland if drained
- Not prime farmland

0 150 300 Feet

(At original document size of 8.5x11)
1:3,600

N

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: USGS NRCS
**3.** Background: 2021 FSA

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

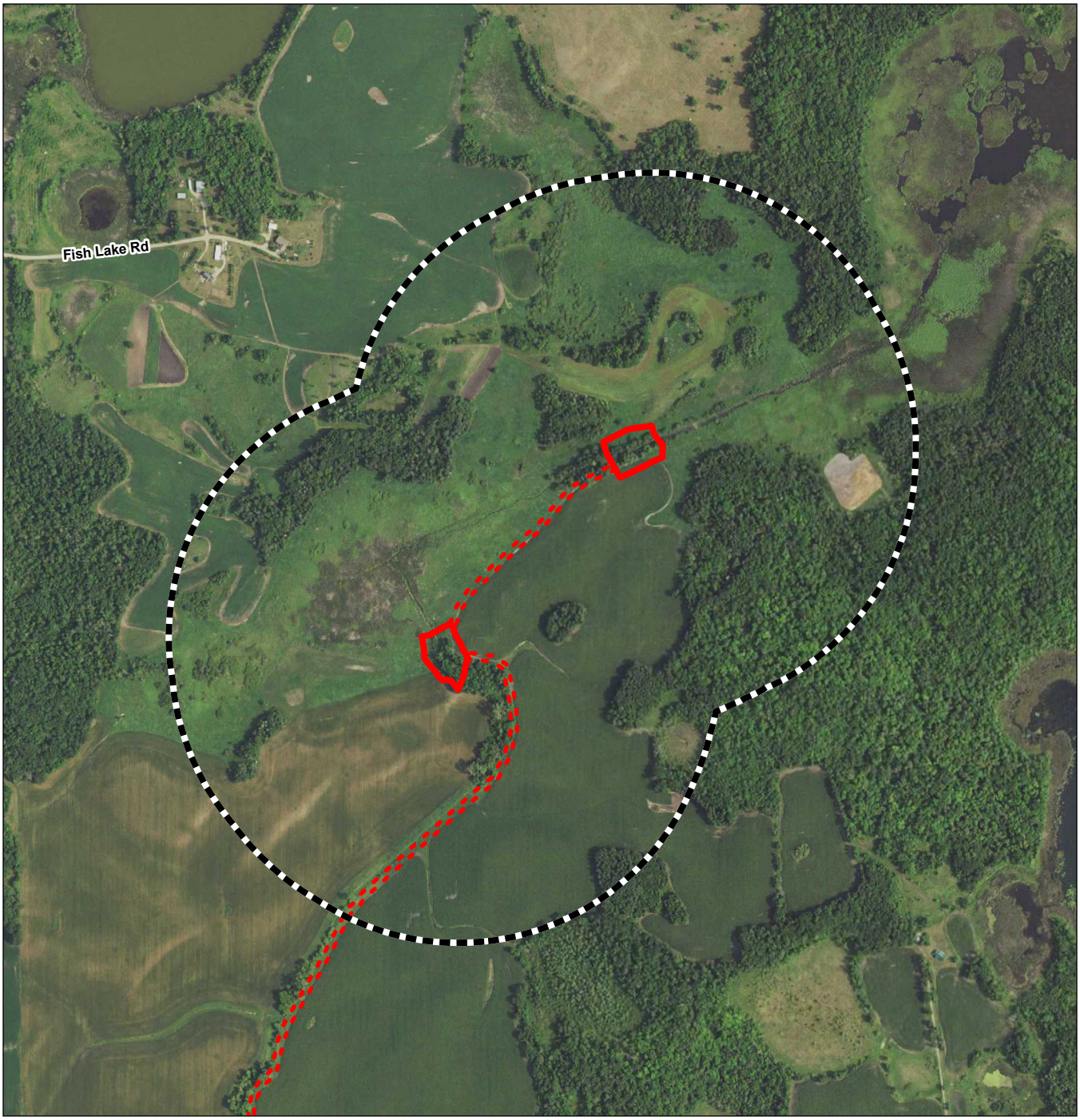
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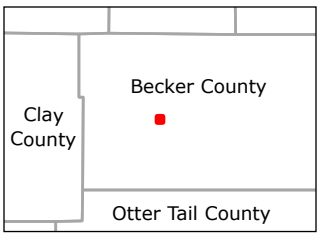
*Title*
**Soil Survey and Farmland Classification - Lower Reach**



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Legend

- Project Area
- Construction Access (Existing Field Road)
- 1/4 Mile Radius

Minnesota Well Index

- Domestic Well

0 500 1,000 Feet

(At original document size of 8.5x11)
1:9,600

N

Stantec

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MDH MWI
**3.** Background: 2021 FSA

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

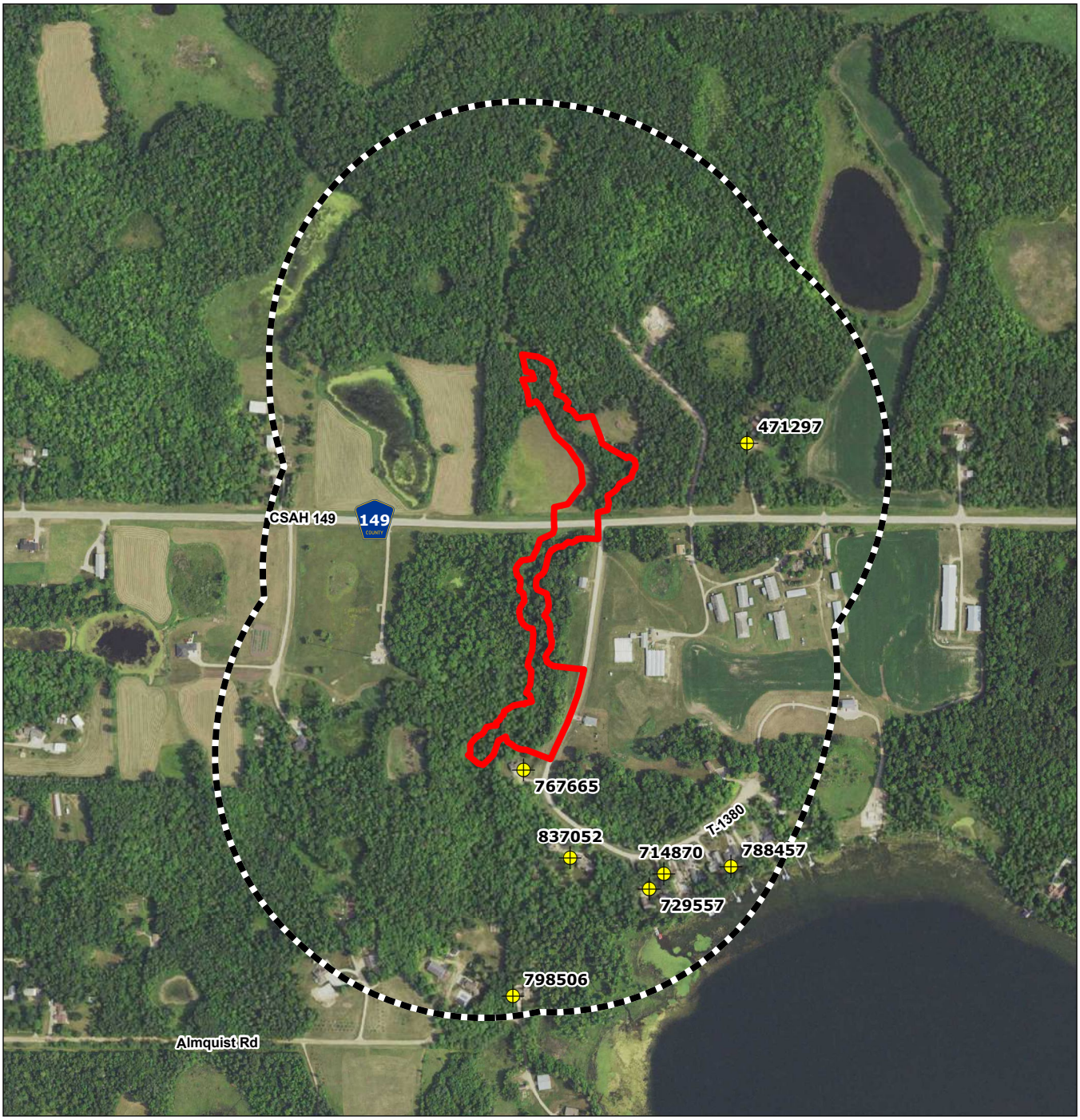
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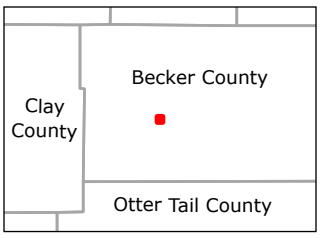
*Title*
**Minnesota Well Index - Upper Reach**



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Legend

- Project Area
- 1/4 Mile Radius

Minnesota Well Index

- Domestic Well

0 500 1,000 Feet

(At original document size of 8.5x11)
1:9,600

N

Stantec

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MDH MWI
**3.** Background: 2021 FSA

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

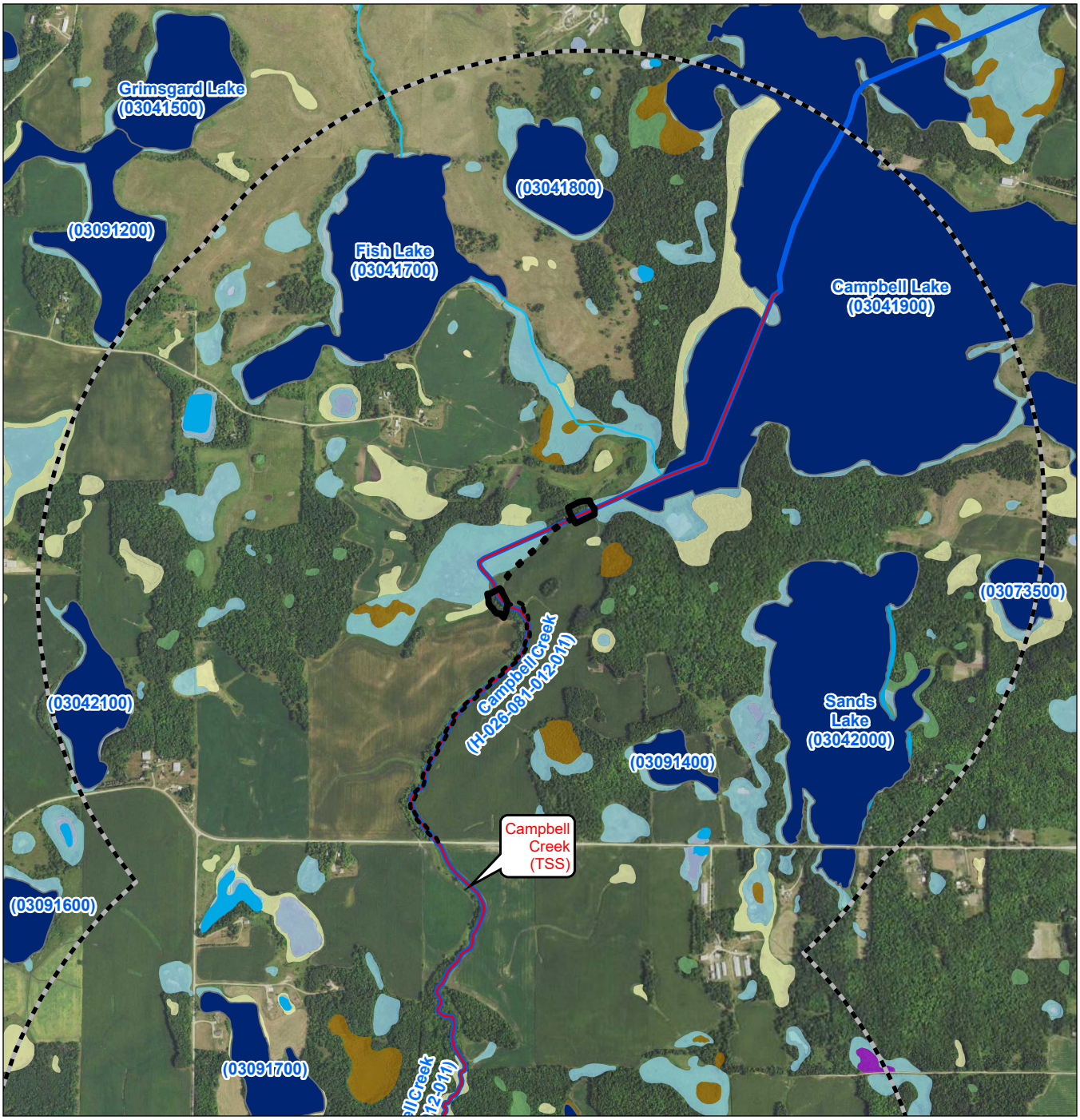
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**8**

*Title*
**Minnesota Well Index - Lower Reach**



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Legend

- Project Area
- Construction Access (Existing Field Road)
- 1 Mile Radius
- 2024 MPCA Impaired Streams (Draft)
- Public Waters Watercourse
- Public Waters Basin
- NHD Flowline
- NHD Waterbody

National Wetland Inventory Circular 39 Class

- 1 - Seasonally Flooded Basin or Flat
- 3 - Shallow Marsh
- 4 - Deep Marsh
- 5 - Shallow Open Water
- 6 - Shrub Swamp
- 7 - Wooded Swamp
- 8 - Bog

0 1,000 2,000 Feet

(At original document size of 8.5x11)
1:21,600

N

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

*Figure No.*
**9**

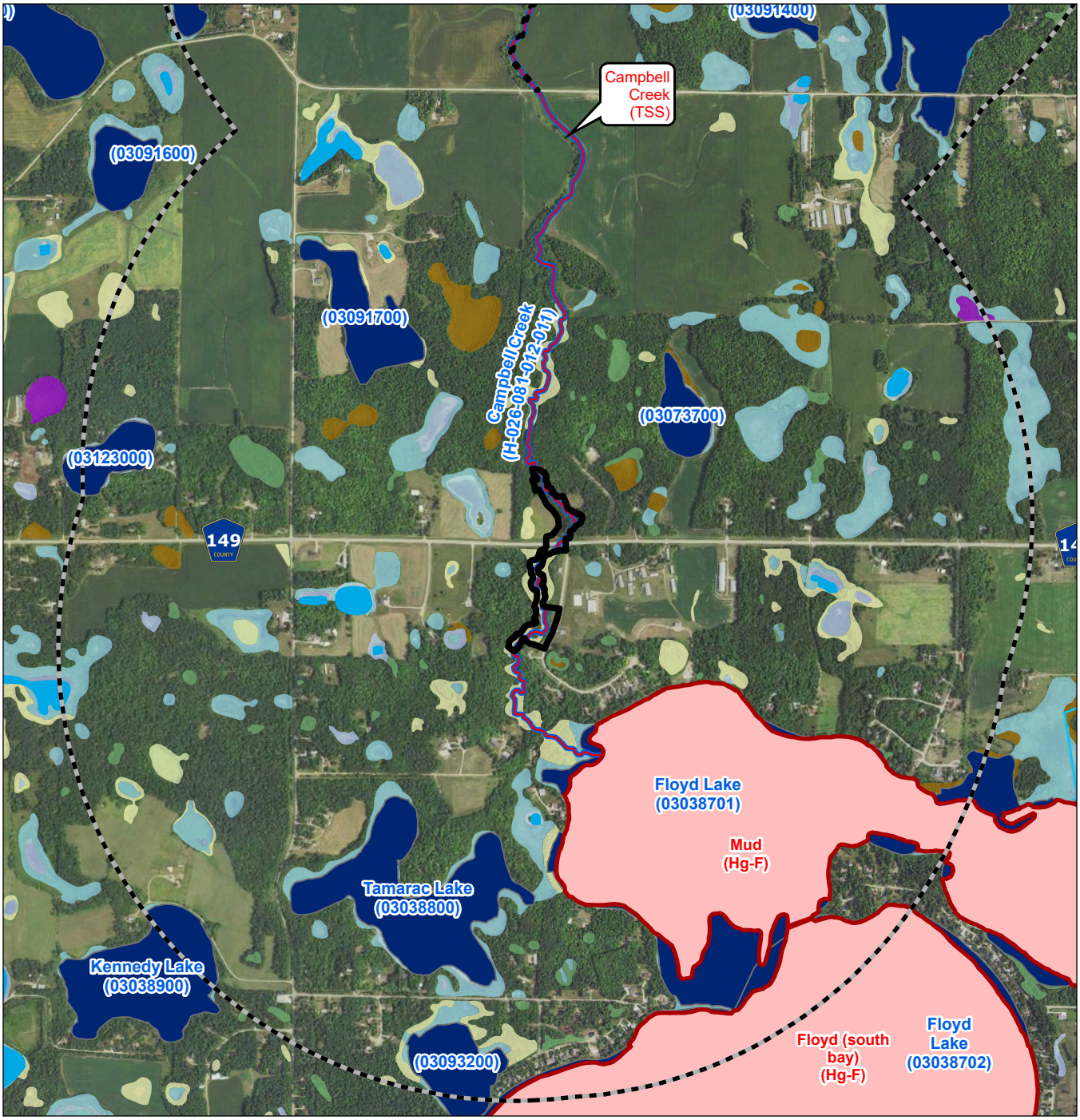
*Title*
**Water Resources**

***Notes***
**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MnDNR, MPCA, NWI, NHD
**3.** Background: 2021 FSA



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Legend

- Project Area
- Construction Access (Existing Field Road)
- 1 Mile Radius
- 2024 MPCA Impaired Lakes (Draft)
- 2024 MPCA Impaired Streams (Draft)
- Public Waters Watercourse
- Public Waters Basin
- NHD Flowline
- NHD Waterbody

National Wetland Inventory Circular 39 Class

- 1 - Seasonally Flooded Basin or Flat
- 2 - Wet Meadow
- 3 - Shallow Marsh
- 4 - Deep Marsh
- 5 - Shallow Open Water
- 6 - Shrub Swamp
- 7 - Wooded Swamp
- 8 - Bog

0 1,000 2,000 Feet

(At original document size of 8.5x11)
1:21,600

N

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

*Figure No.*
**9**

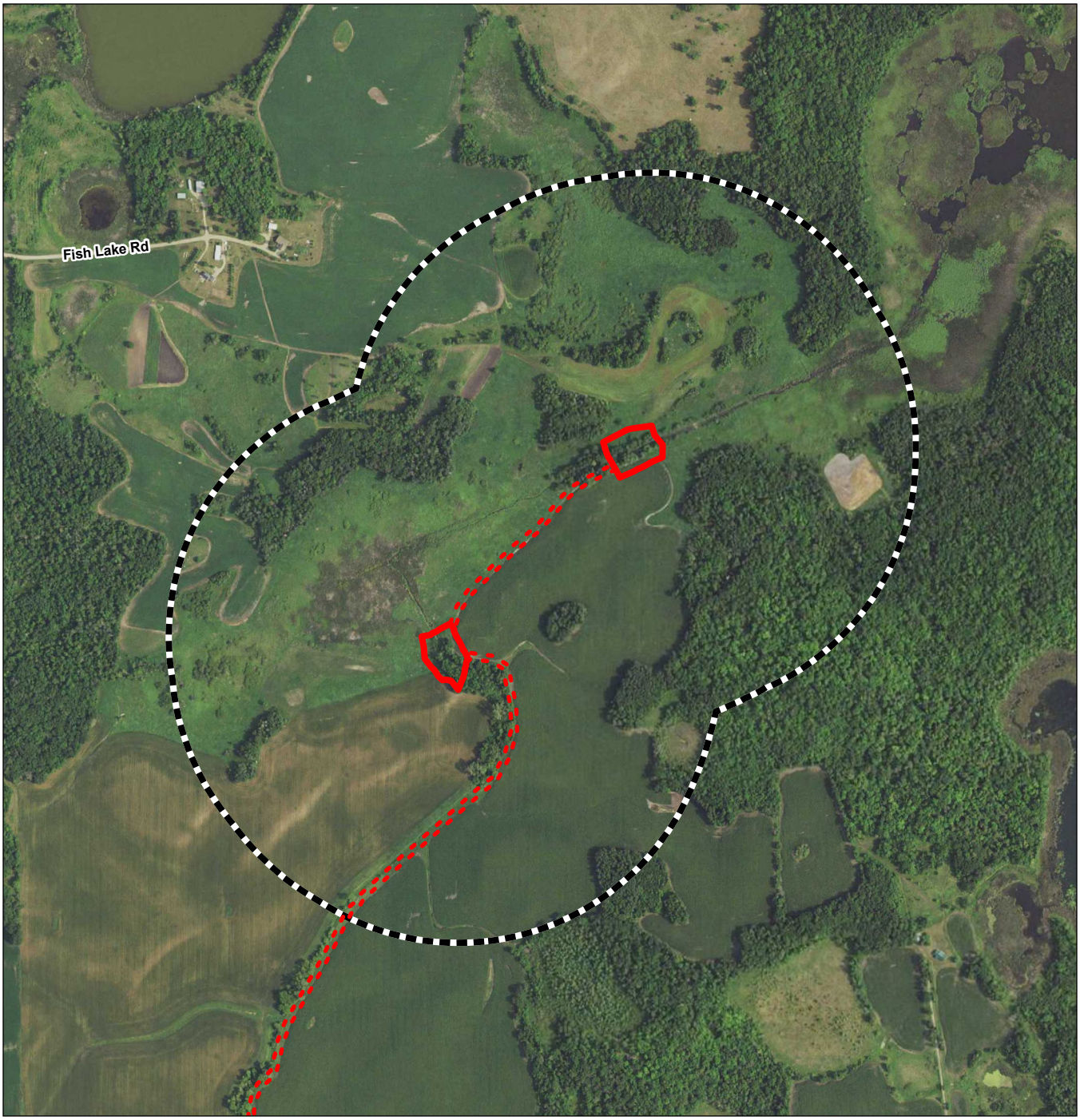
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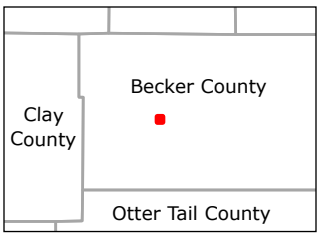
***Notes***
**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MnDNR, MPCA, NWI, NHD
**3.** Background: 2021 FSA



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Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.




Legend

- Project Area
- Construction Access (Existing Field Road)
- 1/4 Mile Radius

0 400 800 Feet

(At original document size of 8.5x11)
1:9,600

N

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MPCA WIMN
**3.** Background: 2021 FSA

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

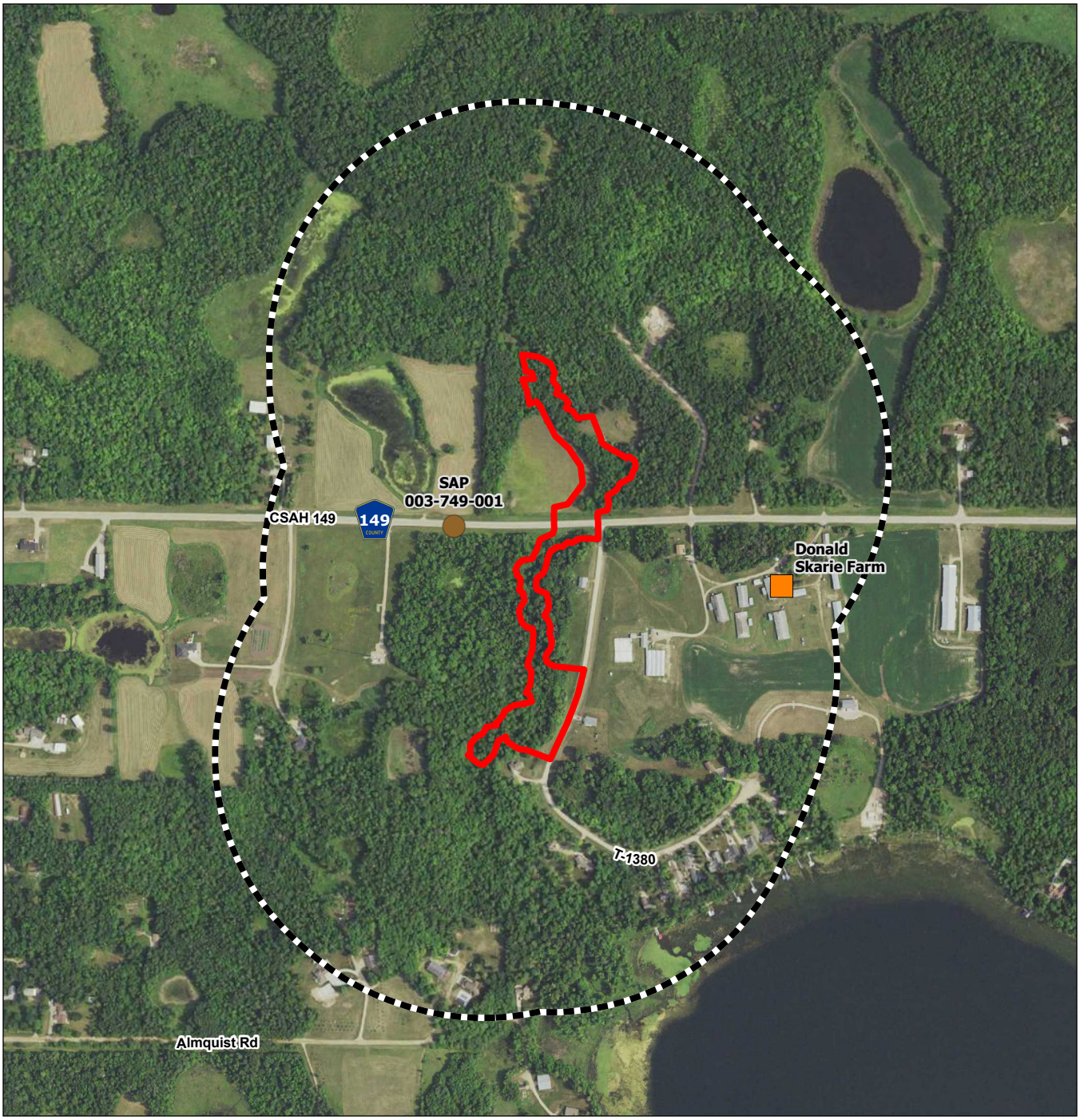
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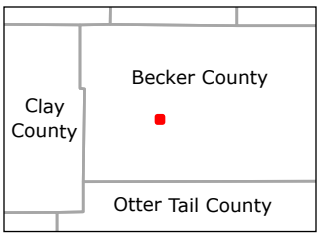
*Title*
**MPCA Potentially Contaminated Sites - Upper Reach**



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Legend

- Project Area
- Construction Access (Existing Field Road)
- 1/4 Mile Radius

MPCA Sites

- Feedlots
- Stormwater

0 400 800 Feet

(At original document size of 8.5x11)
1:9,600

N

***Notes***

**1.** Coordinate System: NAD 1983 HARN Adj MN Becker Feet
**2.** Data Sources: MPCA WIMN
**3.** Background: 2021 FSA

Stantec

*Project Location*
Detroit Lakes, Becker Co., MN
T139N, R41W, S04 & T140N, R41W, S28 & 33

Prepared by LAH on 2025-02-14

*Client/Project*
Pelican River Watershed District
Campbell Creek Stream Restoration
EAW

227707144

*Figure No.*
**10**

*Title*
**MPCA Potentially Contaminated Sites - Lower Reach**



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# Appendix B
## Draft Civil Site Plan

# 30% CIVIL CONSTRUCTION DRAWINGS

FOR

# CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT

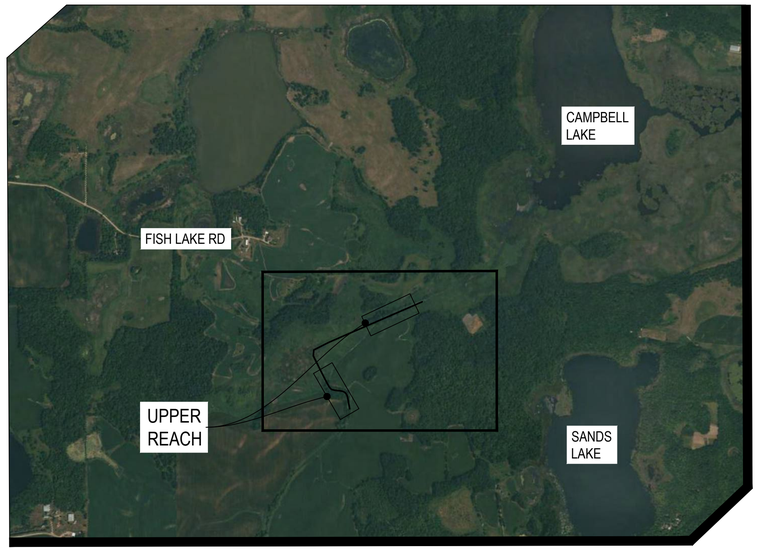
## BECKER COUNTY, MINNESOTA
## JANUARY 2025

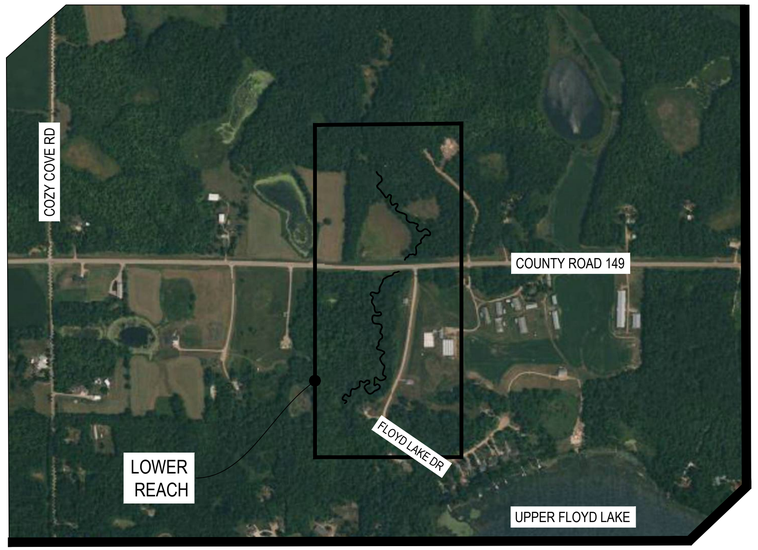

CLIENT

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501
(P) - (218) 846-0436
(E) - TERA.GUETTER@ARVIG.NET
CONTACT: TERA GUETTER (DISTRICT ADMINISTRATOR)

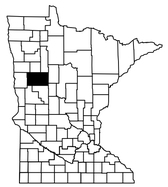
ENGINEER

STANTEC CONSULTING SERVICES, INC.
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MINNESOTA 55447
(OFFICE) - (763) 479-4200
(MOBILE) - (952) 334-1418
(E) - JOSHUA.ACCOLA@STANTEC.COM
CONTACT: JOSH ACCOLA


VICINITY MAP
NOT TO SCALE



PROJECT LOCATION
**CITY: RICHWOOD AND DETROIT TOWNSHIPS**
**COUNTY: BECKER**

THIS PLANSET CONTAINS 26 SHEETS

SHEET INDEX


| Sheet Number | Sheet Title |
|---|---|
| G-001 | COVER SHEET |
| G-002 | GENERAL NOTES |
| G-003 | LEGEND |
| C-001 | OVERALL EXISTING CONDITIONS AND REMOVALS PLAN |
| C-002 | EXISTING CONDITIONS AND REMOVALS PLAN (1 OF 3) |
| C-003 | EXISTING CONDITIONS AND REMOVALS PLAN (2 OF 3) |
| C-004 | EXISTING CONDITIONS AND REMOVALS PLAN (3 OF 3) |
| C-101 | OVERALL GRADING AND EROSION CONTROL PLAN (UPPER REACH) |
| C-102 | OVERALL GRADING AND EROSION CONTROL PLAN (LOWER REACH) |
| C-103 | GRADING AND EROSION CONTROL PLAN (1 OF 6) |
| C-104 | GRADING AND EROSION CONTROL PLAN (2 OF 6) |
| C-105 | GRADING AND EROSION CONTROL PLAN (3 OF 6) |
| C-106 | GRADING AND EROSION CONTROL PLAN (4 OF 6) |
| C-107 | GRADING AND EROSION CONTROL PLAN (5 OF 6) |
| C-108 | GRADING AND EROSION CONTROL PLAN (6 OF 6) |
| C-109 | SWPPP |
| C-201 | OVERALL RESTORATION PLAN |
| C-202 | RESTORATION PLAN (1 OF 3) |
| C-203 | RESTORATION PLAN (2 OF 3) |
| C-204 | RESTORATION PLAN (3 OF 3) |
| C-501 | EXISTING STORM SEWER PLAN |
| C-801 | DETAILS |
| C-802 | DETAILS |
| C-803 | DETAILS |
| C-804 | DETAILS |
| C-805 | DETAILS |


WARNING:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG
GOPHER STATE ONE CALL
TWIN CITY AREA: 651-454-0002
TOLL FREE 1-800-252-1166


Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200


CLIENT:
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

| ISSUE NO: | DESCRIPTION: | DATE: |
|---|---|---|
| 1 | 30% CONSTRUCTION DRAWINGS | 01/31/2025 |

CERTIFICATION:
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

LICENSE NO.: 56108
DATE: 01/31/2025

PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: COVER SHEET
SHEET NO.: G-001


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## GOVERNING SPECIFICATIONS

1. PROJECT MANUAL CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
2. MINNESOTA DEPARTMENT OF TRANSPORTATION (MN/DOT) "STANDARD SPECIFICATIONS FOR CONSTRUCTION" LATEST EDITION AND SUPPLEMENTS.
3. CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) STANDARD SPECIFICATIONS FOR UTILITIES LATEST EDITION.
4. APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES

## GENERAL NOTES

1. UNTIL REVISION BLOCK STATES "ISSUED FOR CONSTRUCTION", THE PLAN SET IS NOT CERTIFIED FOR CONSTRUCTION.
2. EXISTING CONDITIONS SHOWN ARE FROM LIDAR AND SURVEY DATA COMPLETED BY STANTEC CONSULTING SERVICES, INC. ON DECEMBER 5, 2024. EXISTING FEATURES MAY NOT BE EXACT TO THEIR LOCATION. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE CONDITIONS OF THE SITE AND MUST IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF DISCREPANCIES OR VARIATIONS FROM THE DRAWINGS.
3. QUANTITIES ARE APPROXIMATE AND MAY VARY TO ALLOW COMPLETION OF WORK.
4. WORK AND MATERIALS MUST COMPLY WITH COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND CODES.
5. CONTRACTOR SHALL COORDINATE WORK WITH OTHER CONTRACTORS PERFORMING WORK AT OR NEAR THE SITE.
6. CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS TO ADJACENT PROPERTIES THROUGHOUT CONSTRUCTION.
7. CONTRACTOR SHALL COORDINATE AND MAINTAIN MAIL, GARBAGE, AND RECYCLING SERVICES TO PROPERTIES THROUGHOUT CONSTRUCTION.
8. CONTRACTOR SHALL COORDINATE AND MAINTAIN STORMWATER DRAINAGE CONVEYANCE THROUGHOUT CONSTRUCTION (BOTH PIPED AND OVERLAND FLOW).
9. CONTRACTOR SHALL COORDINATE AND MAINTAIN WATER AND SANITARY FLOW TO AND FROM PROPERTIES. PROVIDE BYPASS AND TEMPORARY SYSTEMS, AS NECESSARY.
10. CONTRACTOR SHALL COORDINATE AND MAINTAIN UTILITY SERVICES TO ADJACENT PROPERTIES AT ALL TIMES. UTILITY SERVICE MUST NOT BE INTERRUPTED WITHOUT APPROVAL FROM THE DISTRICT, COUNTY, AND ADJACENT PROPERTIES.
11. CONTRACTOR RESPONSIBLE FOR CONTACTING GOPHER STATE ONE CALL (1-800-252-1166) A MINIMUM OF 48 HOURS IN ADVANCE (EXCLUDING HOLIDAYS AND WEEKENDS) BEFORE STARTING WORK FOR LOCATIONS OF UNDERGROUND UTILITIES.
12. CONSTRUCTION LIMITS ARE TO PROPERTY LINE UNLESS SHOWN OR NOTED OTHERWISE. CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITIES TO AREAS DESIGNATED ON PLANS WITHIN THE CONSTRUCTION LIMITS.
13. CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., UNLESS NOTED OR SHOWN OTHERWISE.
14. CONTRACTOR SHALL PHOTO OR VIDEO DOCUMENT EXISTING CONDITIONS OF TREES AND PLANTINGS, ADJOINING CONSTRUCTION, SURFACES, AND SITE IMPROVEMENTS, ETC. TO REMAIN THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY CONSTRUCTION OPERATIONS. SUBMIT TO ENGINEER AND DISTRICT BEFORE CONSTRUCTION BEGINS. USE ADEQUATELY DETAILED PHOTOGRAPHS OR VIDEO RECORDINGS. INCLUDE PLANS AND NOTATIONS TO INDICATE SPECIFIC EXISTING DAMAGE CONDITIONS OF ITEMS DESIGNATED TO REMAIN. ANY DAMAGE TO SITE FEATURES TO REMAIN MUST BE REPLACED BY THE CONTRACTOR, TO DISTRICT'S SATISFACTION, AT NO ADDITIONAL COST TO THE DISTRICT.
15. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION AND WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES.
16. CONTRACTOR MUST IMMEDIATELY NOTIFY THE DISTRICT AND ENGINEER IN WRITING OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. FAILURE TO NOTIFY DISTRICT AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES DISTRICT AND ENGINEER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
17. CONTRACTOR SHALL HAVE ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND ONE COPY OF THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS (INCLUDING PLANS, SPECIFICATIONS, SPECIAL CONDITIONS AND PROVISIONS, ETC.) AVAILABLE AT THE PROJECT SITE AT ALL TIMES AS APPLICABLE.
18. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR IMPLEMENTATION AND ENFORCEMENT OF SAFE WORK PRACTICES, INCLUDING BUT NOT LIMITED TO PERSONNEL MONITORING, USE OF TRENCHING, SHEETING, AND SHORING, SCAFFOLDING; MATERIALS HANDLING AND DRILLING; OPERATION OF EQUIPMENT; AND SAFETY OF PUBLIC DURING PROGRESS OF WORK.
19. CONTRACTOR SHALL PLAN FOR AND ENSURE PERSONNEL COMPLY WITH PROVISIONS OF OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE.
20. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH WORK. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR SAFETY OF EMPLOYEES ON PROJECT SITE AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED BY THE PROJECT. CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR SAFETY IN CONNECTION WITH WORK SHALL CONTINUE UNTIL SUCH TIME AS ALL WORK IS COMPLETED, AND ENGINEER HAS ISSUED NOTICE TO CONTRACTOR THAT WORK IS COMPLETE.
21. HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND OTHER HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED BY THE CONTRACTOR, INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MCPA REGULATIONS. CONTRACTOR SHALL REMOVE SPILL OF FUELS, OILS, OR OTHER CHEMICALS IMMEDIATELY UPON DETECTION.
22. CONTRACTOR SHALL DOCUMENT AND MAINTAIN AS-BUILT INFORMATION AS CONSTRUCTION PROGRESSES AND IS RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS TO THE DISTRICT AS REQUIRED BY JURISDICTIONAL AGENCIES FOR CERTIFICATION. ALL AS-BUILT DATA MUST BE COLLECTED BY A STATE OF MN PROFESSIONAL LAND SURVEYOR WHOSE SERVICES ARE ENGAGED AND PAID FOR BY THE CONTRACTOR.
23. NO IN-CHANNEL WORK MAY BE COMPLETED BETWEEN MARCH 15 THROUGH JUNE 15 TO ALLOW FOR FISH SPAWNING AND MIGRATION PER THE MNDNR WORK EXCLUSION DATES. THERE HAVE BEEN NO OCCURRENCES OF BLANDING'S TURTLE NOR FOR LONG-EARED BATS WITHIN ONE-MILE OF THE PROJECT SITE

## HORIZONTAL AND VERTICAL CONTROL NOTES

1. THE HORIZONTAL CONTROL FOR THIS PLAN IS NAD83 BECKER COUNTY COORDINATES SYSTEM US FOOT.
2. THE VERTICAL CONTROL FOR THIS PLAN IS NAVD88.

## REMOVAL / DEMOLITION NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR SHALL OBTAIN PERMITS REQUIRED FOR DEMOLITION, REMOVAL AND DISPOSAL.
3. CONTRACTOR SHALL REVIEW FEATURES NOT SPECIFICALLY IDENTIFIED ON PLAN FOR SALVAGE OR REMOVAL THAT CONFLICT WITH CONSTRUCTION WITH THE ENGINEER.
4. MATERIALS REMOVED/DEMOLISHED BY CONTRACTOR BECOME PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL LOAD AND HAUL MATERIAL OFF-SITE AND PROPERLY DISPOSE OF MATERIALS IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTRACTOR MUST LEAVE THE SITE IN A CONDITION TO THE SATISFACTION OF THE DISTRICT AND ENGINEER.
5. IN THE EVENT THAT UNKNOWN CONTAINERS OR TANKS ARE ENCOUNTERED, THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY. ALL CONTAINERS OR TANKS MUST BE DISPOSED OF PROPERLY AT A REGULATED/PERMITTED FACILITY.
6. CONTRACTOR SHALL REVIEW ALL TREE REMOVALS WITH THE DISTRICT AND ENGINEER PRIOR TO REMOVAL OPERATIONS.
7. CLEARING AND GRUBBING OPERATIONS MUST COMPLY WITH THE FOLLOWING:
   A. PROTECT ALL TREES AND PLANTS NOT DESIGNATED FOR REMOVAL EXCEPT IF PRIOR APPROVAL HAS BEEN PROVIDED BY THE LANDOWNER AND THE DISTRICT/ENGINEER.
   B. CONDUCT OPERATIONS IN SUCH A MANNER THAT DOES NOT DAMAGE PROTECTED TREES AND VEGETATION.
   C. CUT, REMOVE, AND DISPOSE OF TREES, BRUSH, SHRUBS, WINDFALLS, LOGS, STUMPS, ROOTS, FALLEN TIMBER, AND OTHER VEGETATION.
   D. BACKFILL DEPRESSIONS WITH NATIVE SOILS OR SUITABLE FILL MATERIAL AS REQUIRED BY DESIGN AND COMPACT BACKFILL AS DIRECTED.
   E. DISPOSE OF DEBRIS IN ACCORDANCE WITH APPLICABLE REGULATIONS.
   F. CONSIDER BENEFICIAL USE DESIGNATIONS FOR UNADULTERATED WOOD, WOOD CHIPS, BARK AND SAWDUST.
   G. NO BURYING OF CLEARED AND GRUBBED WASTE WITHIN THE CONSTRUCTION LIMITS.

## TRAFFIC CONTROL NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.

## EROSION CONTROL NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE REQUIRED NPDES PERMIT FROM MPCA.
3. CONTRACTOR SHALL CONFORM TO AND CONDUCT INSPECTIONS IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS.
4. BEFORE SITE DISTURBANCE AND AS REQUIRED AS CONSTRUCTION PROGRESSES, CONTRACTOR SHALL INSTALL, MAINTAIN, REPAIR, AND REPLACE EROSION PREVENTION MEASURES AND SEDIMENT CONTROL DEVICES (INLET PROTECTION, CONSTRUCTION ENTRANCE, SILT FENCE, EROSION CONTROL BLANKET, ETC.) IN ACCORDANCE WITH THE NPDES PERMIT, AND COUNTY, STATE, AND WATERSHED DISTRICT PERMITS.
5. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDING ON SITE CONDITIONS DURING CONSTRUCTION. COORDINATE WITH ENGINEER.
6. CONTRACTOR SHALL STABILIZE ALL EXPOSED SOIL AREAS WITHIN THE CONSTRUCTION LIMITS WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE THAT HAS TEMPORARILY (WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS) OR PERMANENTLY CEASED. STABILIZATION MUST BE INITIATED PROMPTLY.
7. CONTRACTOR SHALL REMOVE ANY SEDIMENT THAT HAS TRACKED ONTO PAVED SURFACES BOTH ON AND OFFSITE WITHIN 24 HOURS AND AS DIRECTED BY COUNTY, DISTRICT, AND/OR ENGINEER. SWEEP STREET IN ACCORDANCE WITH COUNTY AND NDPES PERMIT REQUIREMENTS.
8. CONTRACTOR SHALL MINIMIZE DUST FROM CONSTRUCTION OPERATIONS BY PROVIDING WATER OR OTHER APPROVED METHOD ON A DAILY BASIS.
9. CONTRACTOR SHALL PHASE GRADING WORK TO MINIMIZE THE DURATION THAT DISTURBED SOIL IS EXPOSED.
10. CONTRACTOR SHALL PROVIDE/INSTALL DIVERSION DITCHES, SEDIMENT BASINS, AND OTHER EROSION PROTECTION/SEDIMENT CONTROL MEASURES AS NECESSARY DURING INTERIM PROJECT CONDITIONS (NOT SHOWN ON PLANS) TO MANAGE/DIVERT STORM WATER AWAY FROM SITE FEATURES AND CONTROL EROSION/SEDIMENT. CONTRACTOR SHALL ADJUST MEASURES AS NECESSARY THROUGHOUT PROJECT PHASING.
11. CONTRACTOR SHALL NOT STOCKPILE SOILS. ALL SOILS SHALL BE HAULED OFFSITE UPON EXCAVATION.
12. CONTRACTOR SHALL REMOVE ALL EROSION CONTROL MEASURES AFTER SITE HAS BEEN STABILIZED AND VEGETATION HAS REACHED 70% ESTABLISHMENT AS DIRECTED BY ENGINEER. EROSION CONTROL MEASURES USED FOR CONSTRUCTION MUST NOT BE REMOVED UNTIL AUTHORIZED BY THE DISTRICT OR ENGINEER.
13. SOIL PREPARATION: PREPARE SOIL IN ACCORDANCE WITH THE PROJECT MANUAL.
14. PROJECT SITE IS NOT LOCATED WITHIN A FLOOD HAZARD ZONE.

## TREE PRESERVATION NOTES

1. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING TREES THAT ARE NOT TO BE REMOVED. A PROTECTIVE AREA OF 5 FEET OUTSIDE OF THE DRIP LINE OR AT THE PROJECT LIMITS,WHICHEVER IS GREATER, SHALL BE ESTABLISHED. DO NOT PERFORM ACTIONS WITHIN THE PROTECTED AREA THAT MAY HARM THE TREE AND COMPACT THE SOIL, INCLUDING EXCAVATION, STORING MATERIALS, PARKING AND TRAFFIC DURING CONSTRUCTION. WHERE CONSTRUCTION REQUIRES DISTURBANCE WITHIN THE PROTECTED AREAS, DISTURB THE ROOT ZONE AS LITTLE AS POSSIBLE.
2. TREE PROTECTION MEASURES/FENCING MUST BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION AND MUST BE REVIEWED BY THE DISTRICT AND ENGINEER BEFORE STARTING CONSTRUCTION.
3. WHEN TREE ROOTS ARE ENCOUNTERED THAT MUST BE REMOVED, CONTRACTOR SHALL CUT ROOTS CLEANLY AS FAR FROM THE TREE AS POSSIBLE AND IMMEDIATELY WATER AND BACKFILL OVER THE ROOTS TO PREVENT DRYING.
4. ACCESS PATH CAN BE SHIFTED FROM PROPOSED LOCATION TO MINIMIZE DISTURBANCE AND AVOID TREE REMOVALS UNLESS REMOVALS ARE APPROVED BY THE LANDOWNER AND THE DISTRICT/ENGINEER.

## WARNING:

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CALL BEFORE YOU DIG

GOPHER STATE ONE CALL

TWIN CITY AREA: 651-454-0002
TOLL FREE 1-800-252-1166

Stantec

ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:

PELICAN RIVER watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT

RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

| DATE: | DESCRIPTION: | ISSUE NO.: |
|---|---|---|
| 01/31/2025 | 30% CONSTRUCTION DRAWINGS | 1 |

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

LICENSE NO.: 56108

DATE: 01/31/2025

PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025

ISSUE NO.: 1

SHEET TITLE: GENERAL NOTES

SHEET NO.: G-002

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1/30/2025 12:34:6 PM

## LEGAL / BOUNDARY LEGEND

| EXISTING | DESCRIPTION | PROPOSED |
|---|---|---|
| | PROPERTY BOUNDARY | |
| | LOT LINE | |
| | EASEMENT LINE | |
| | SETBACK LINE | |
| | RIGHT OF WAY LINE | |
| | SECTION LINE | |
| | QUARTER LINE | |
| XXXX | LOT NUMBER | |

## SITE / MISC. LEGEND

| EXISTING | DESCRIPTION | PROPOSED |
|---|---|---|
| | RAILROAD TRACK | |
| X X | FENCE LINE | |
| | GUARD RAIL | |
| | RETAINING WALL | |
| | DITCH CENTERLINE | |
| WET | WETLAND BOUNDARY | |
| | WETLAND | |
| | SIGN | |
| | BOLLARD/POST | |
| | UTILITY POLE | |
| | ANCHOR CABLE | |
| | LIGHT POLE | |
| | SOIL BORING | |
| | CAMPBELL CREEK | |
| | FLOW DIRECTION | |

## GRADING / TOPOGRAPHY LEGEND

| EXISTING | DESCRIPTION | PROPOSED |
|---|---|---|
| 901 | MINOR CONTOUR | 901 |
| 900 | MAJOR CONTOUR | 900 |
| | GRADING LIMITS | |
| | CONSTRUCTION LIMITS | |
| | SPOT ELEVATION | XXX.XX |
| | SURFACE GRADE & FLOW DIRECTION | 1.00% |
| | SURFACE SLOPE (H:V) & FLOW DIRECTION | 3.0:1 |

## PAVEMENT LEGEND

| EXISTING | DESCRIPTION | PROPOSED |
|---|---|---|
| | EDGE OF PAVEMENT / GRAVEL | |
| | ROAD CENTERLINE | |
| | CURB AND GUTTER | |
| | CONCRETE PAVEMENT | |
| | BITUMINOUS PAVEMENT | |

## UTILITY LEGEND

| EXISTING | DESCRIPTION | PROPOSED |
|---|---|---|
| >> >> | STORM SEWER | |
| > > | SANITARY SEWER | |
| FM FM | FORCEMAIN | FM FM |
| W W | WATERMAIN | W W |
| IRR | IRRIGATION LINE | |
| G G | UNDERGROUND GAS LINE | |
| COM | UNDERGROUND COMMUNICATION LINE | |
| F/O F/O | UNDERGROUND FIBER OPTIC LINE | |
| UE UE | UNDERGROUND ELECTRIC LINE | |
| OU | OVERHEAD UTILITY LINE | |
| | DRAINTILE | |
| | PIPE CASING | |
| S | SANITARY MANHOLE | |
| CO | CLEANOUT | |
| ST | STORM SEWER MANHOLE | |
| | STORM SEWER INLET | |
| | FLARED END SECTION | |
| | CURB STOP | |
| | HYDRANT | |
| WV | WATER VALVE | |
| | REDUCER | |
| | FIRE DEPARTMENT CONNECTION | |
| W | WATER WELL | |
| | AUTO SPRINKLER | |
| FDC | POST INDICATOR VALVE | |
| | WATER METER | |
| | SPRINKLER HEAD | |
| | IRRIGATION CONTROL VALVE | |
| | GAS MARKER | |
| GV | GAS VALVE | |
| GM | GAS METER | |
| C | COMMUNICATIONS PEDESTAL | |
| T | TELEPHONE MANHOLE | |
| E | ELECTRICAL PEDESTAL | |
| EM | ELECTRIC METER | |
| | TRANSFORMER | |

## VEGETATION / LANDSCAPING LEGEND

| EXISTING | DESCRIPTION | PROPOSED |
|---|---|---|
| | TREE LINE | |
| | STUMP | |
| | SHRUB/PERENNIAL PLANT | |
| | DECIDUOUS TREE | |
| | CONIFEROUS TREE | |
| | ORNAMENTAL TREE | |
| | SOD | |
| | SEED | |

## REMOVALS LEGEND

| DESCRIPTION | PROPOSED |
|---|---|
| CLEAR AND GRUB AREA | |
| DOWNED TREE REMOVAL | |
| ROCK CONSTRUCTION EXIT | |

## EROSION CONTROL LEGEND

| DESCRIPTION | PROPOSED |
|---|---|
| EROSION CONTROL BLANKET | |
| TURF REINFORCEMENT MAT | |
| SEED | |
| SOD | |
| RIPRAP | |
| VEGETATED RIPRAP | |
| SILT FENCE | |
| FLOTATION SILT CURTAIN | |
| BIOLOG [OR DITCH CHECK] | |
| CULVERT PROTECTION | |
| TREE PROTECTION | |
| ROCK GRADE CONTROL STRUCTURE | |
| TEMPORARY CONSTRUCTION ACCESS TRAIL | |

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| BV | BUTTERFLY VALVE | OC | ON CENTER |
| BW | BOTTOM OF WALL (AT GRADE) | OCS | OUTLET CONTROL STRUCTURE |
| BVC | BEGIN VERTICAL CURVE | MAX | MAXIMUM |
| BOT | BOTTOM | MH | MANHOLE |
| CB | CATCH BASIN | ME | MATCH EXISTING |
| CBMH | CATCH BASIN MANHOLE | MIN | MINIMUM |
| CO | CLEANOUT | NWL | NORMAL WATER LEVEL |
| CF | CUBIC FEET | OFF | OFFSET |
| CFS | CUBIC FEET PER SECOND | PC | POINT OF CURVATURE |
| ℄ | CENTERLINE | PI | POINT OF INTERSECTION |
| CL | CLASS | PL | PROPERTY LINE |
| CMP | CORRUGATED METAL PIPE | PR | PROPOSED |
| CY | CUBIC YARDS | PT | POINT OF TANGENCY |
| DIP | DUCTILE IRON PIPE | PVC | POLYVINYL CHLORIDE |
| EG | EXISTING GRADE | PVI | POINT OF VERTICAL INTERSECTION |
| EOF | EMERGENCY OVERFLOW | R | RADIUS |
| EL | ELEVATION | RCP | REINFORCED CONCRETE PIPE |
| EP | EDGE OF PAVEMENT | RIM | STRUCTURE TOP OF CASTING/GRATE |
| EVC | END VERTICAL CURVE | ROW | RIGHT OF WAY |
| EX | EXISTING | SF | SQUARE FEET |
| F/F | FACE TO FACE | SS | SANITARY SEWER |
| FFE | FINISHED FLOOR ELEVATION | SSMH | SANITARY SEWER MANHOLE |
| FES | FLARED END SECTION | ST | STORM SEWER |
| FM | FORCEMAIN | STA | STATION |
| FNH | FRONT NOZZLE OF HYDRANT | STD | STANDARD |
| FG | FINISHED GRADE | STMH | STORM SEWER MANHOLE |
| FL | FLOW LINE | SW | SIDEWALK |
| GV | GATE VALVE | SY | SQUARE YARDS |
| GPM | GALLONS PER MINUTE | TC | TOP OF CURB |
| HDPE | HIGH-DENSITY POLYETHYLENE | TNH | TOP NUT OF HYDRANT |
| HP | HIGH POINT | TOE | TOE OF DITCH |
| HYD | HYDRANT | TOP | TOP OF DITCH |
| HWL | HIGH WATER LEVEL | TP | TOP OF PIPE |
| INV | INVERT | TW | TOP OF WALL |
| LF | LINEAL FEET | TYP | TYPICAL |
| LFE | LOW FLOOR ELEVATION | VCP | VITRIFIED CLAY PIPE |
| LP | LOW POINT | WM | WATERMAIN |
| LVC | LENGTH OF VERTICAL CURVE | | |

### WARNING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL AT 651-454-0002 AT LEAST 48 HOURS IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG

**GOPHER STATE ONE CALL**

TWIN CITY AREA: 651-454-0002
TOLL FREE 1-800-252-1166

Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:
PELICAN RIVER watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:
CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

| ISSUE NO: | DESCRIPTION: | DATE: |
|---|---|---|
| 1 | 30% CONSTRUCTION DRAWINGS | 01/31/2025 |

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NOT FOR CONSTRUCTION

LICENSE NO.: 56108
DATE: 01/31/2025

PROJECT NO.: 227707144

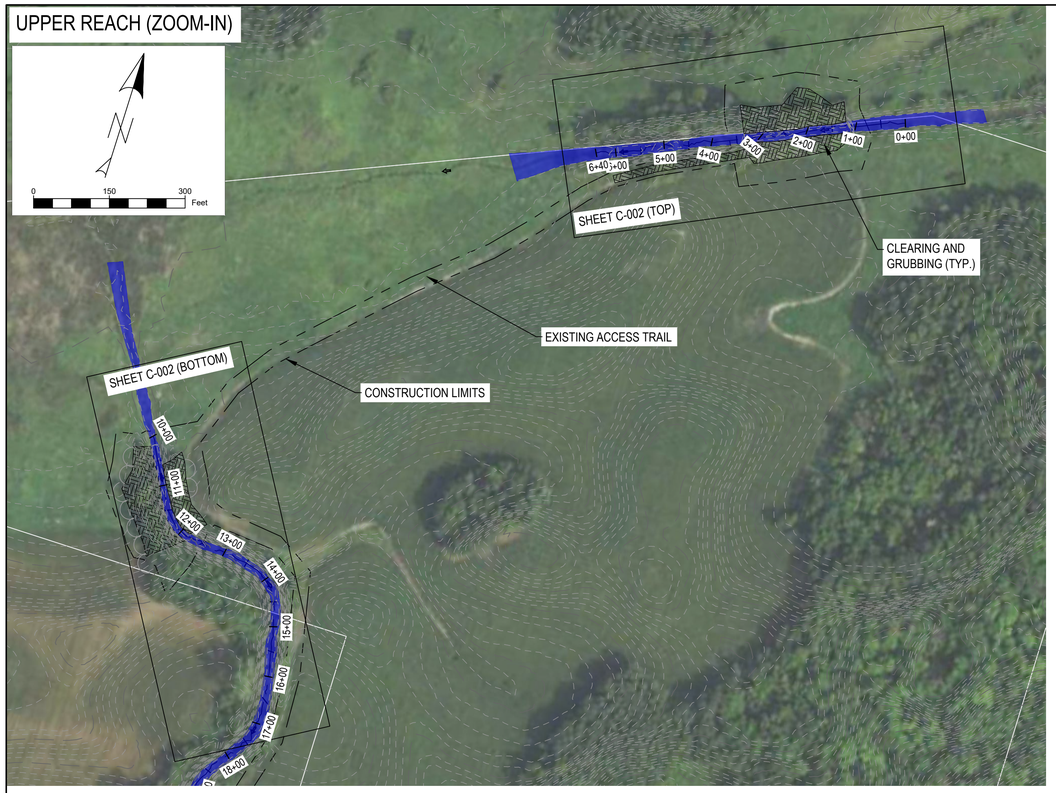
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|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: LEGEND
SHEET NO.: G-003

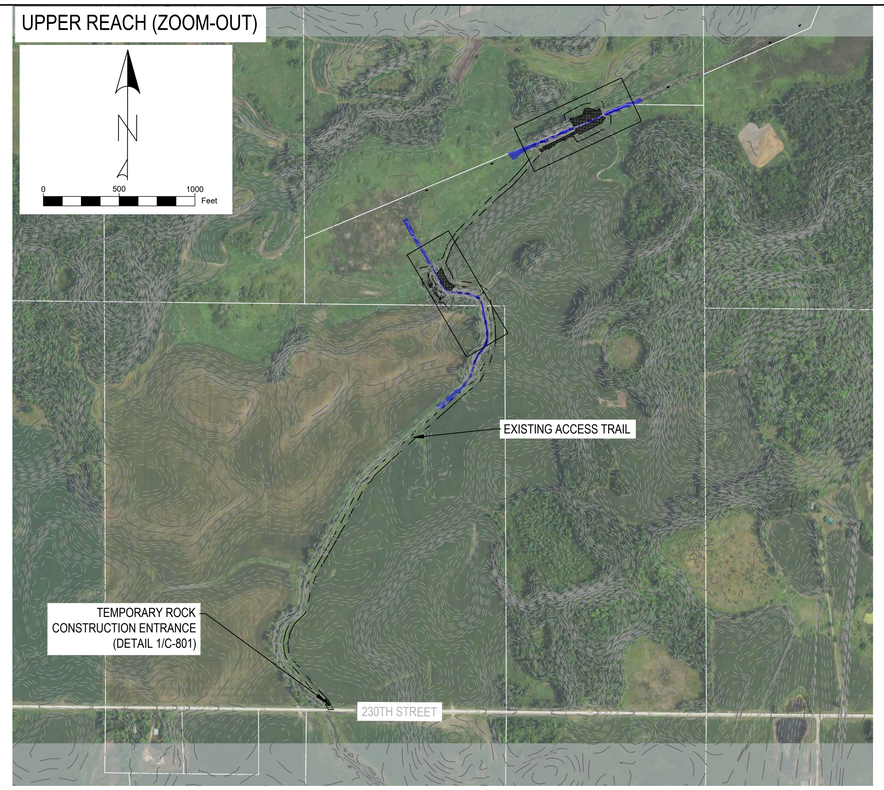
\\ad0088.pfdad1\shared_projects\227707144\drafting\project_name\5_DESIGN\1_CAD\3 PLANSHEETS\227707144 G-002 GENERAL NOTES.dwg 1/30/2025 FESIK, JOSEPH

1/30/2025 12:43 PM

## UPPER REACH (ZOOM-IN)




## UPPER REACH (ZOOM-OUT)



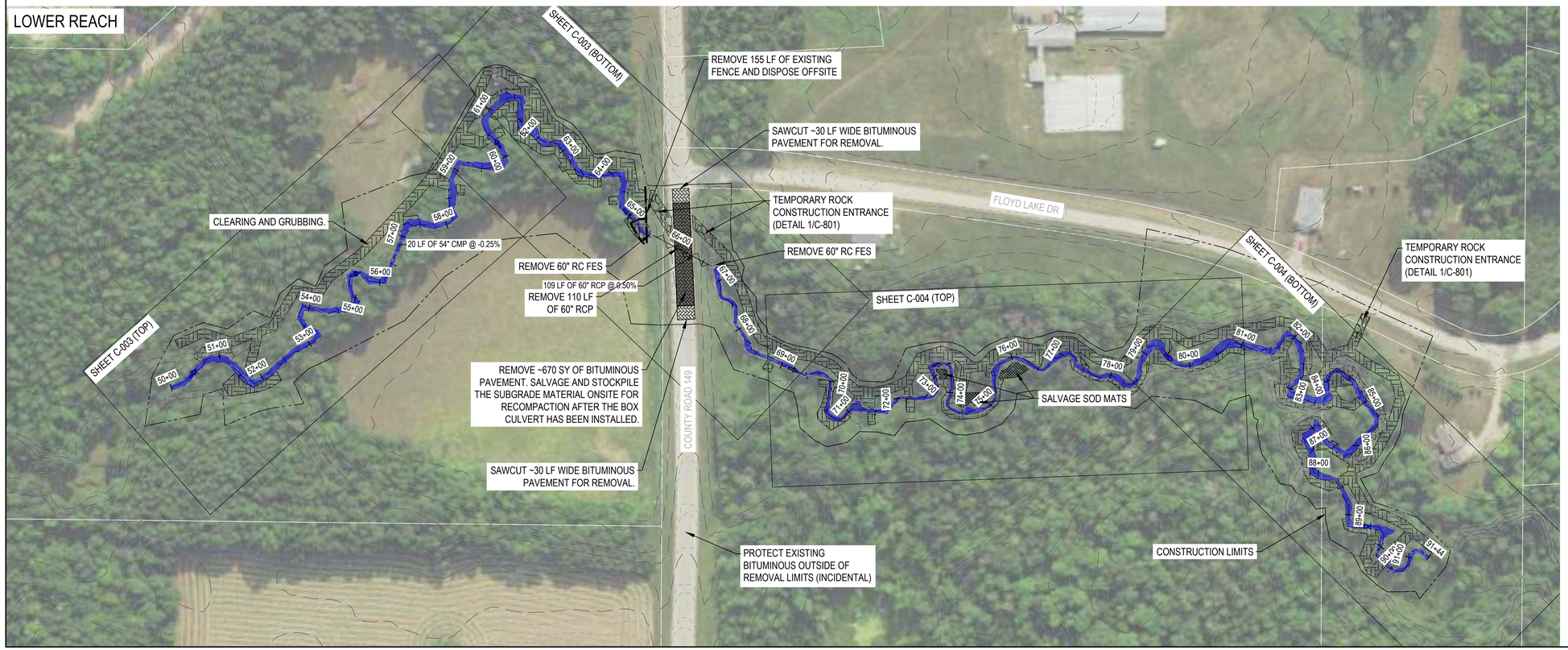

## NOTES

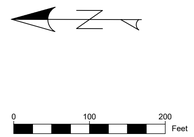
1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- CLEARING AND GRUBBING
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- SALVAGE SOD MATS
- BITUMINOUS PAVEMENT REMOVAL
- FLOW DIRECTION
- EXISTING INLET PIPE
- SALVAGE EXISTING FENCE
- REMOVE RCP

## LOWER REACH




Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
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LICENSE NO.: 56108
DATE: 01/31/2025

PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: OVERALL EXISTING CONDITIONS AND REMOVALS PLAN
SHEET NO.: C-001

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1/30/2025 1:25:16 PM




0 30 60 Feet

## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- CLEARING AND GRUBBING
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- SALVAGE SOD MATS
- FLOW DIRECTION
- EXISTING INLET PIPE


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(P): (763) 479-4200


CLIENT:

PELICAN RIVER watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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DATE: 01/31/2025

PROJECT NO.: 227707144

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ISSUE DATE: 01/31/2025

ISSUE NO.: 1

SHEET TITLE:
EXISTING CONDITIONS AND REMOVALS PLAN (1 OF 3)

SHEET NO.:
C-002

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1/30/2025 12:56:0 PM

LOWER REACH

SHEET C-003 (BOTTOM)

CONSTRUCTION LIMITS

CLEARING AND GRUBBING

20 LF OF 54" CMP @ -0.25%

PROTECT EXISTING FOOT BRIDGE (INCIDENTAL)

PROTECT EXISTING CULVERT CROSSING (INCIDENTAL)

LOWER REACH

FLOYD LAKE DR

CONSTRUCTION LIMITS

SAWCUT ~30 LF WIDE BITUMINOUS PAVEMENT FOR REMOVAL.

TEMPORARY ROCK CONSTRUCTION ENTRANCE (DETAIL 1/C-801)

CLEARING AND GRUBBING

REMOVE 60" RC FES

SHEET C-004 (TOP)

REMOVE DEBRIS FROM CHANNEL

REMOVE 155 LF OF EXISTING FENCE AND DISPOSE OFFSITE

REMOVE 60" RC FES

REMOVE 110 LF OF 60" RCP

109 LF OF 60" RCP @ 0.50%

SHEET C-003 (TOP)

REMOVE ~670 SY OF BITUMINOUS PAVEMENT. SALVAGE AND STOCKPILE THE SUBGRADE MATERIAL ONSITE FOR RECOMPACTION AFTER THE BOX CULVERT HAS BEEN INSTALLED. SALVAGE AND STOCKPILE ALL FILL MATERIAL TO BE REINSTALLED AND COMPACTED PRIOR TO SUBGRADE.

SAWCUT ~30 LF WIDE BITUMINOUS PAVEMENT FOR REMOVAL.

PROTECT EXISTING BITUMINOUS OUTSIDE OF REMOVAL LIMITS (INCIDENTAL)

COUNTY ROAD 149

0 30 60 Feet

## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

## LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- CLEARING AND GRUBBING
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- SALVAGE SOD MATS
- BITUMINOUS PAVEMENT REMOVAL
- FLOW DIRECTION
- EXISTING INLET PIPE
- SALVAGE EXISTING FENCE
- REMOVE RCP

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ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:

PELICAN RIVER watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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LICENSE NO.: 56108
DATE: 01/31/2025

PROJECT NO.: 227707144

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|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025

ISSUE NO.: 1

SHEET TITLE:
EXISTING CONDITIONS AND REMOVALS PLAN (2 OF 3)

SHEET NO.:
C-003

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## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

## LEGEND

- EXISTING MINOR CONTOUR (901)
- EXISTING MAJOR CONTOUR (900)
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- CLEARING AND GRUBBING
- TEMPORARY ROCK CONSTRUCTION ENTRANCE
- SALVAGE SOD MATS
- FLOW DIRECTION
- EXISTING INLET PIPE

0 30 60 Feet

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CLIENT:

Pelican River watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
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DETROIT LAKES, MN 56501

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| DWN BY: | CHK'D BY: | APP'D BY: |
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ISSUE DATE: 01/31/2025

ISSUE NO.: 1

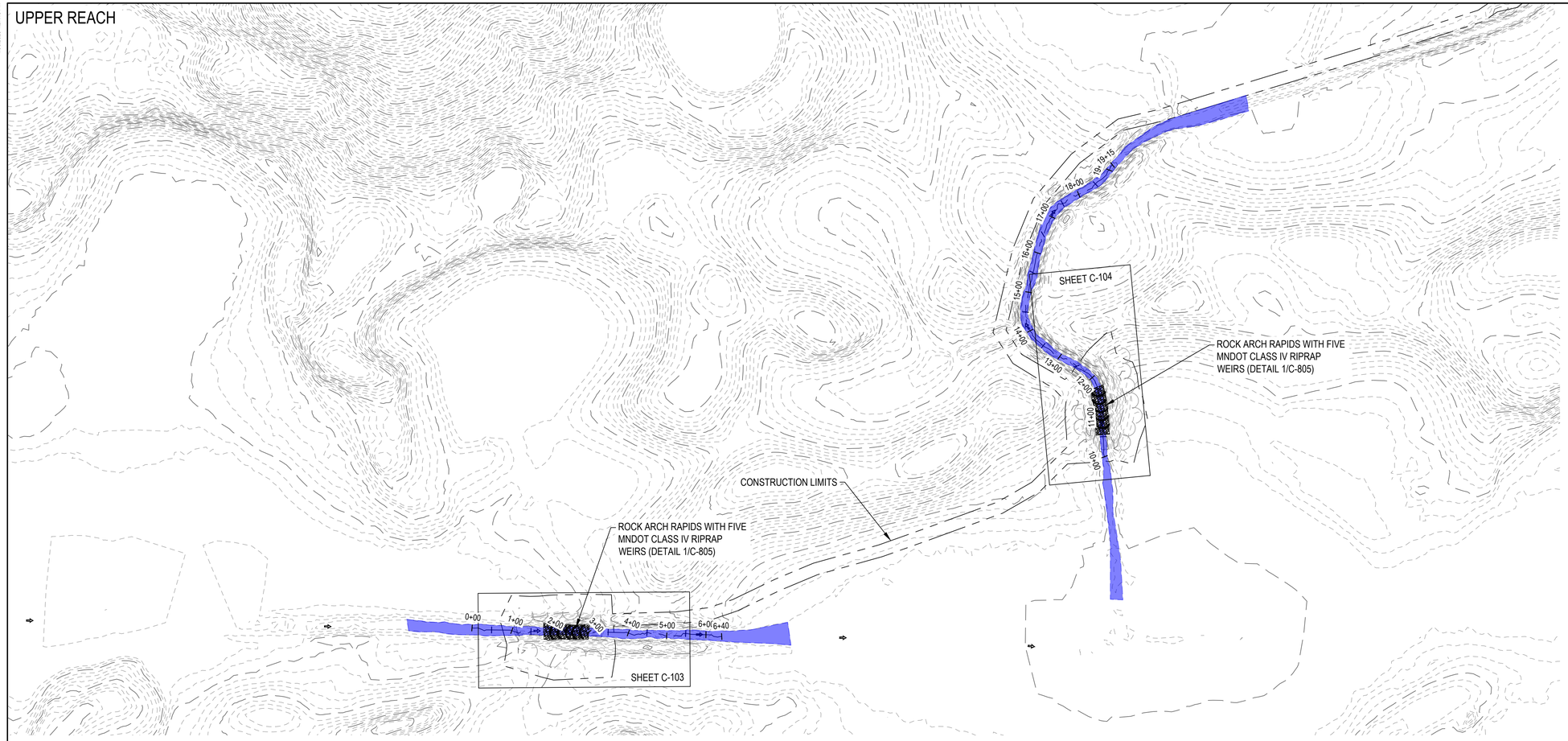
SHEET TITLE:
EXISTING CONDITIONS AND REMOVALS PLAN (3 OF 3)

SHEET NO.:
C-004

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## UPPER REACH



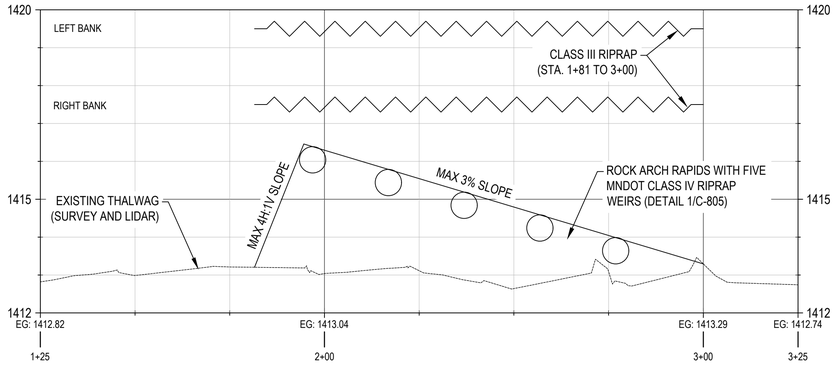

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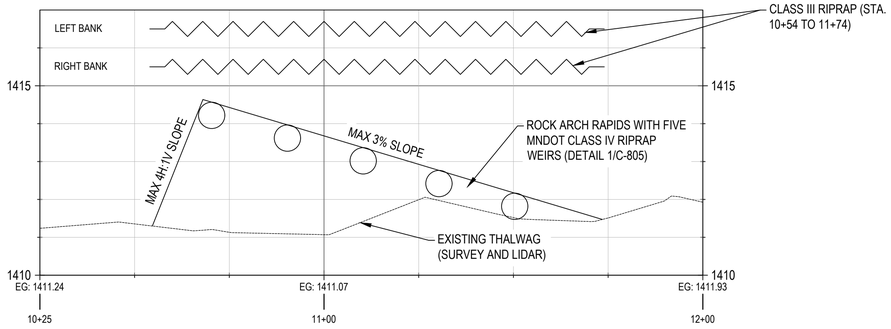
## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- 901 — PROPOSED MINOR CONTOUR
- 900 — PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- MNDOT RIPRAP




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(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

# CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT

RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

| ISSUE NO: | DESCRIPTION: | DATE: |
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NOT FOR CONSTRUCTION

LICENSE NO.: 56108
DATE: 01/31/2025

PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025

ISSUE NO.: 1

SHEET TITLE:
OVERALL GRADING AND EROSION CONTROL PLAN (UPPER REACH)

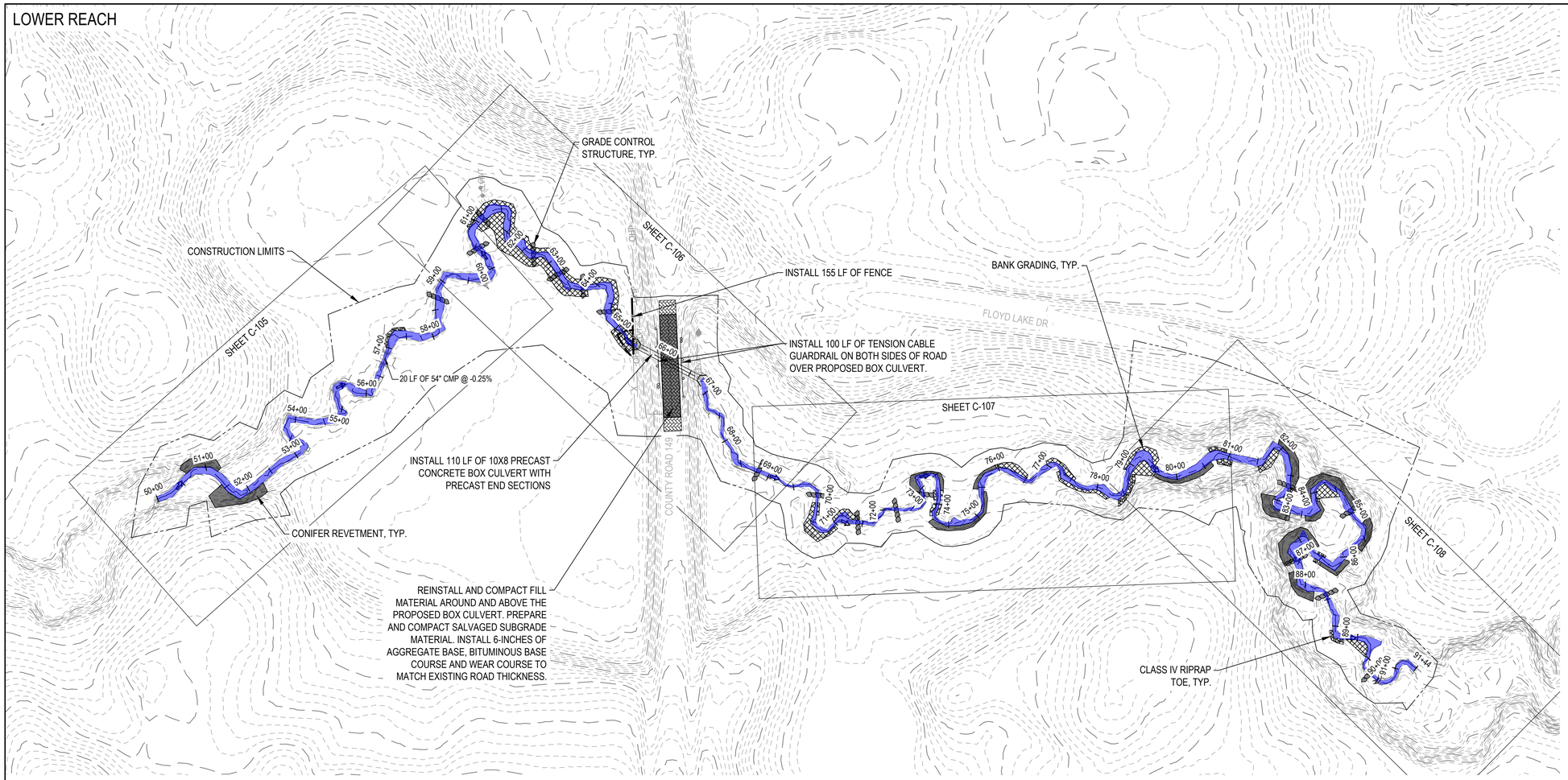
SHEET NO.:
C-101

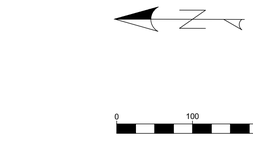
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# LOWER REACH



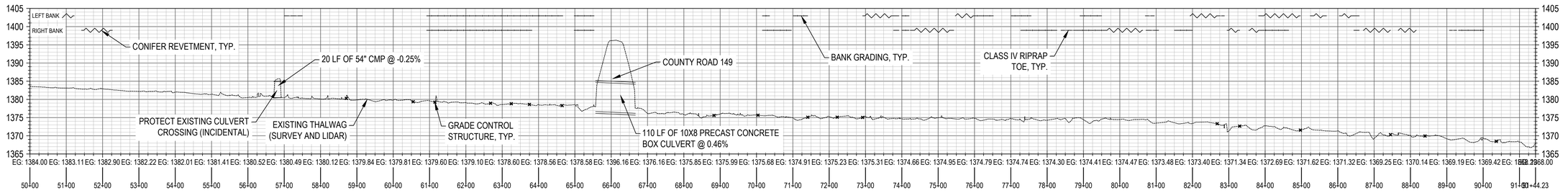




## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM.

## LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- BANK GRADING
- CONIFER REVETMENT
- GRADE CONTROL STRUCTURE (MNDOT CLASS IV RIPRAP)
- MNDOT CLASS IV RIPRAP TOE
- REINSTALL SALVAGED FENCE
- INSTALL BITUMINOUS PAVEMENT




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DETROIT LAKES, MN 56501

# CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT

RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

| ISSUE NO.: | DESCRIPTION: | DATE: |
|---|---|---|
| 1 | 30% CONSTRUCTION DRAWINGS | 01/31/2025 |

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

LICENSE NO.: 56108

DATE: 01/31/2025

PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025

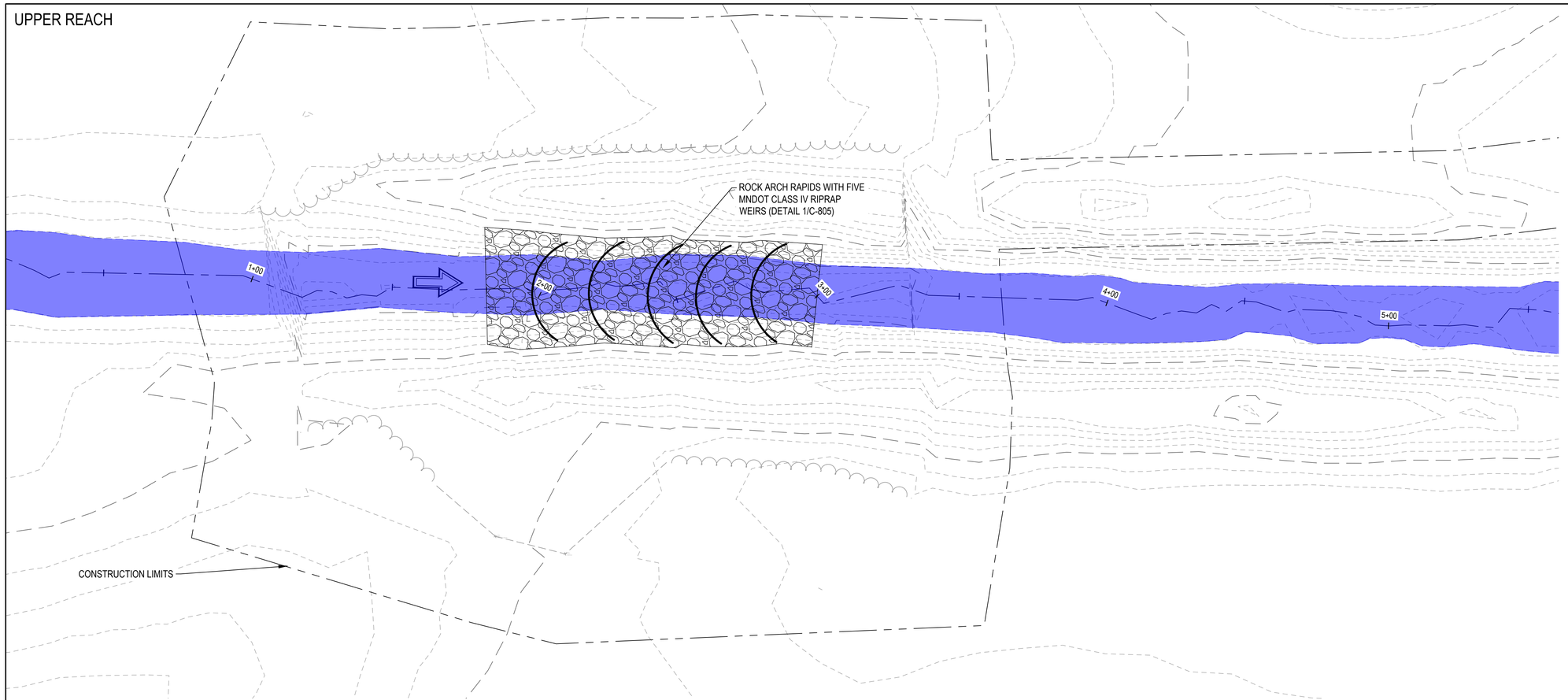
ISSUE NO.: 1

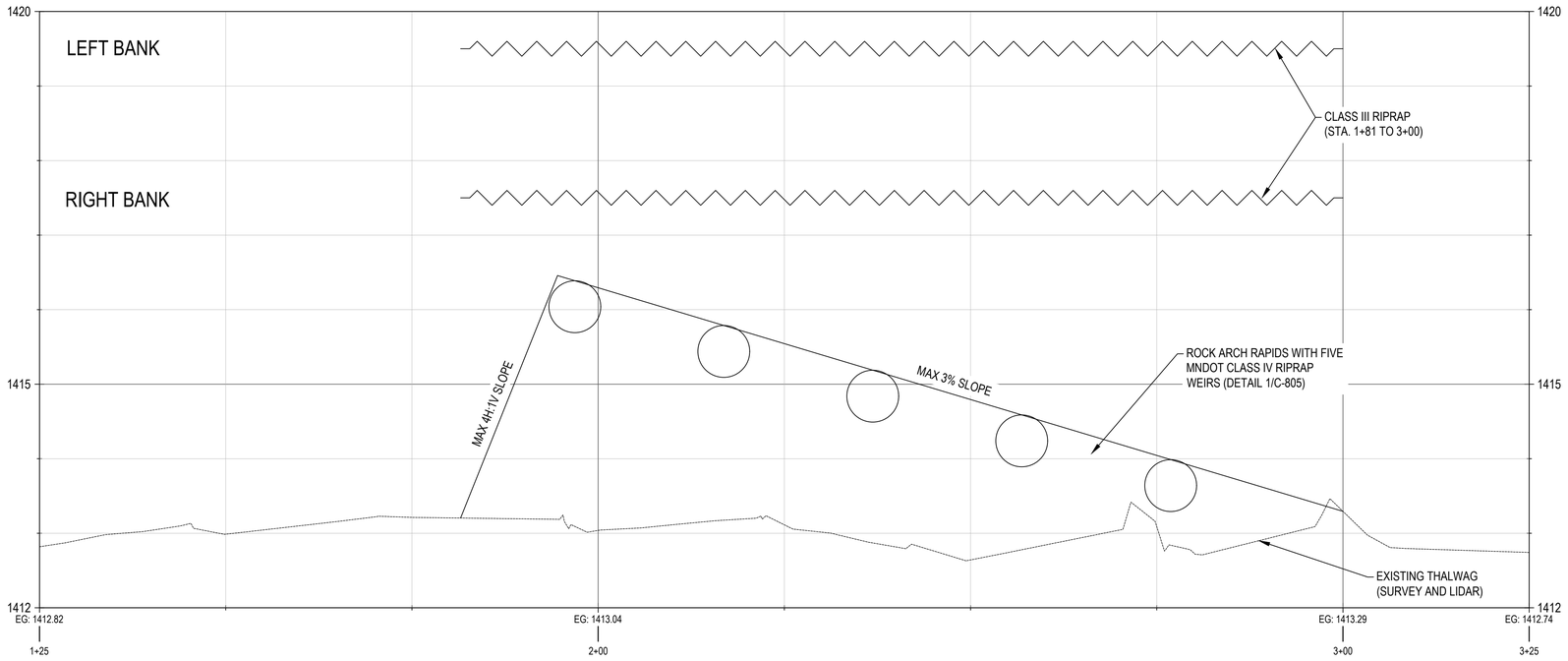
SHEET TITLE:
OVERALL GRADING AND EROSION CONTROL PLAN (LOWER REACH)

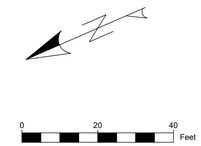
SHEET NO.:
C-102

1/30/2025 12:03:3 PM

## UPPER REACH




## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- 901 — PROPOSED MINOR CONTOUR
- 900 — PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- MNDOT RIPRAP

Stantec

ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:

Pelican River watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:
# CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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NOT FOR CONSTRUCTION

LICENSE NO.: 56108

DATE: 01/31/2025

PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025

ISSUE NO.: 1

SHEET TITLE:
GRADING AND EROSION CONTROL PLAN (1 OF 6)

SHEET NO.:
C-103

\\ad298.pshod1shared_projects\227707144\drafting\project_name\5_DESIGN\1_CAD\3 PLANSHEET\227707144 C-101 GRADING AND EROSION CONTROL PLAN.dwg 1/30/2025 FESIK, JOSEPH

1/30/2025 1:28:08 PM

UPPER REACH

CONSTRUCTION LIMITS

ROCK ARCH RAPIDS WITH FIVE
MNDOT CLASS IV RIPRAP
WEIRS (DETAIL 1/C-805)

10+00

11+00

12+00

13+00

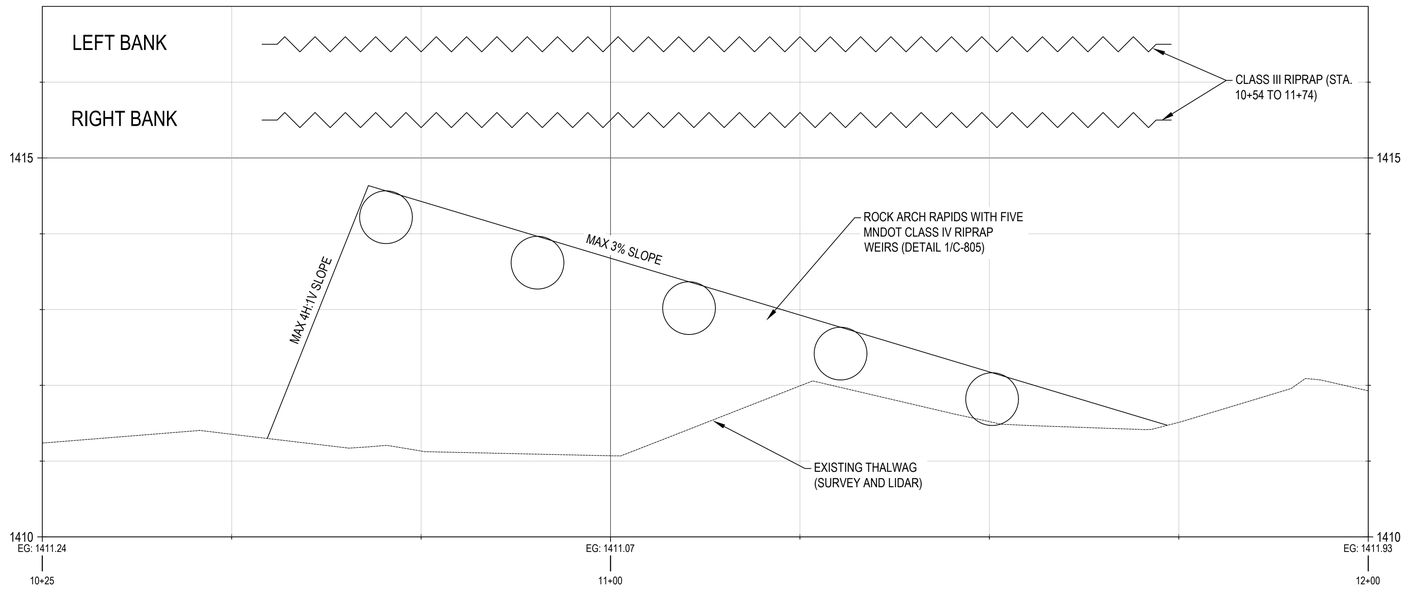
0 20 40 Feet

## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- 901 — PROPOSED MINOR CONTOUR
- 900 — PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- MNDOT RIPRAP




Stantec

ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:

Pelican River watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

# CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT

RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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NOT FOR CONSTRUCTION

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DATE: 01/31/2025

PROJECT NO.: 227707144

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|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025

ISSUE NO.: 1

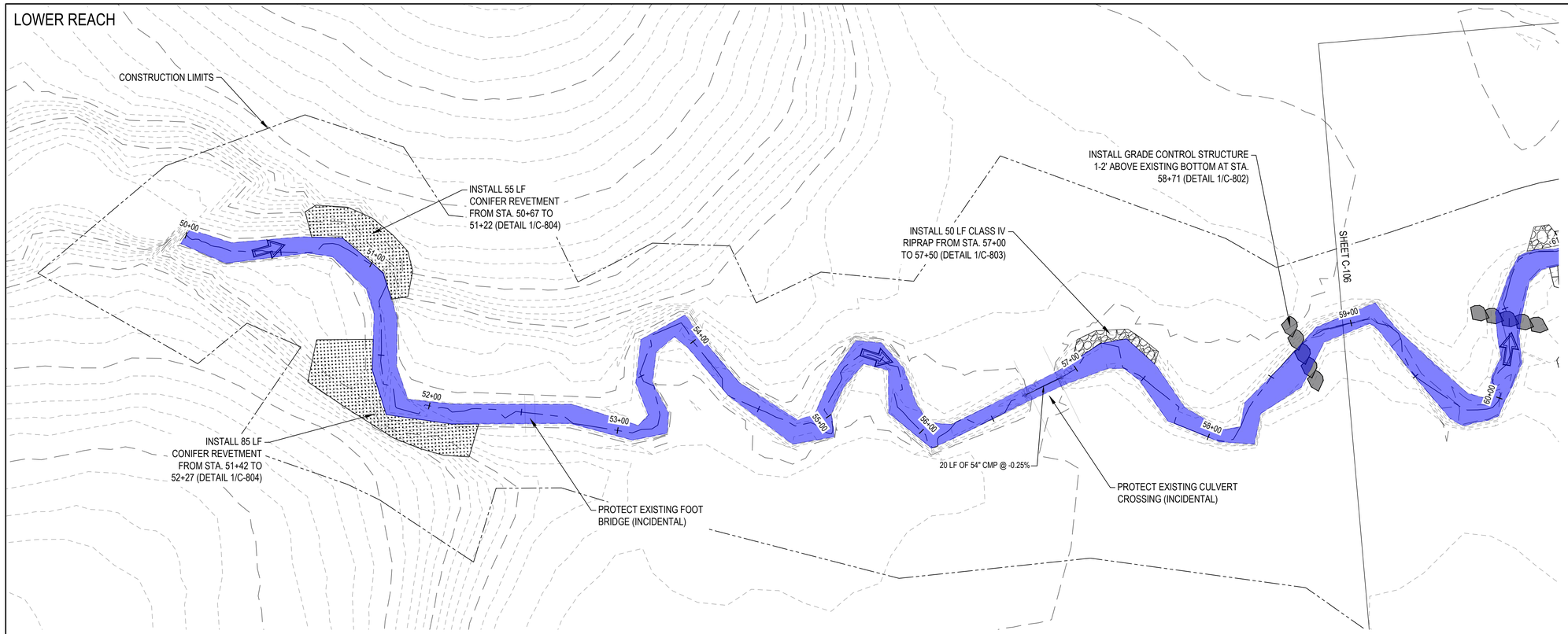
SHEET TITLE:
GRADING AND EROSION CONTROL PLAN (2 OF 6)

SHEET NO.:
C-104

\\us2088-pwfsvr01\shared_projects\227707144\drafting\project_name\5_DESIGN\1_CAD\3-PLANSHEETS\227707144 C-101 GRADING AND EROSION CONTROL PLAN.dwg 1/30/2025 PESW, JOSEPH

1/30/2025 1:25:41 PM

## LOWER REACH

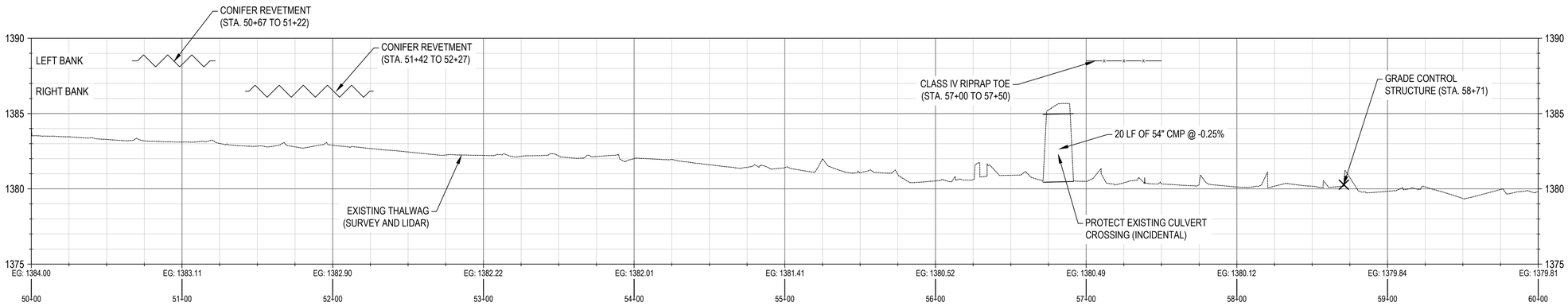



## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM .

## LEGEND

- EXISTING MINOR CONTOUR (901)
- EXISTING MAJOR CONTOUR (900)
- PROPOSED MINOR CONTOUR (901)
- PROPOSED MAJOR CONTOUR (900)
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- BANK GRADING
- CONIFER REVETMENT
- GRADE CONTROL STRUCTURE (MNDOT CLASS IV RIPRAP)
- MNDOT CLASS IV RIPRAP TOE




Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:
# CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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DATE: 01/31/2025

NOT FOR CONSTRUCTION

PROJECT NO.: 227707144

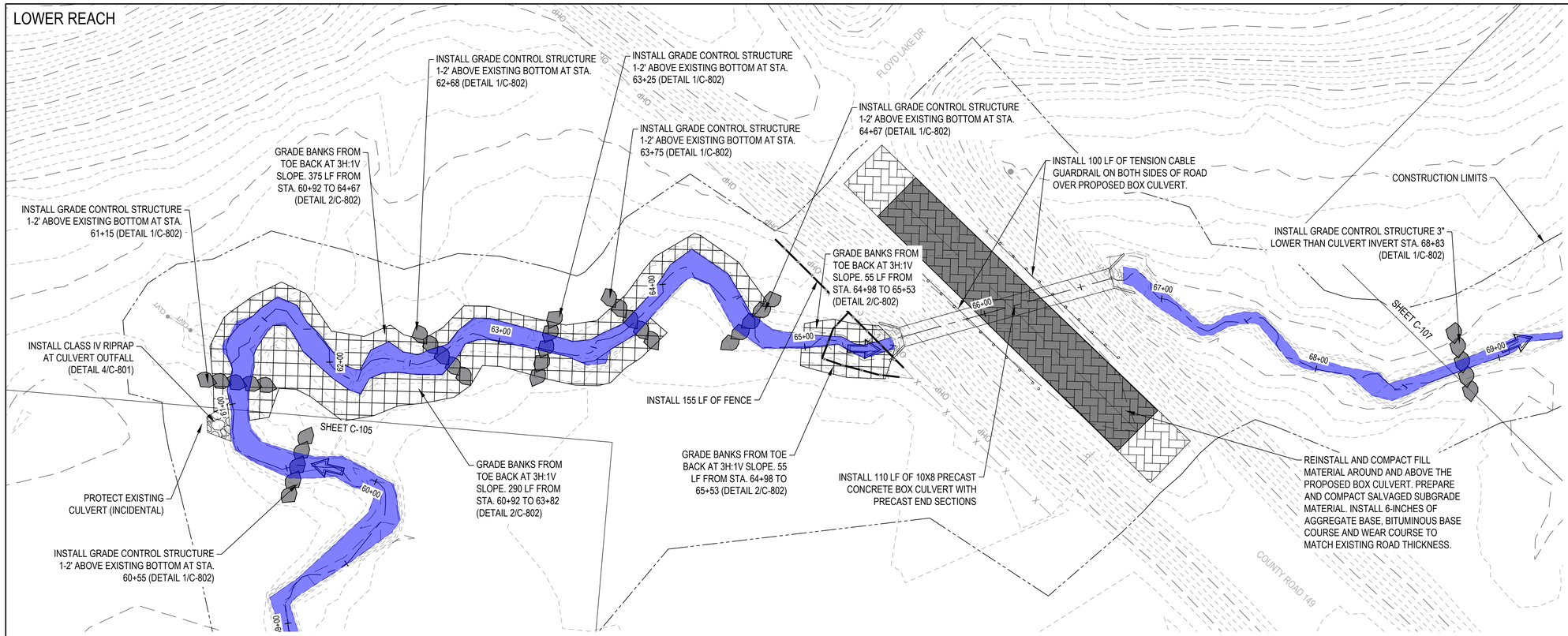
| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

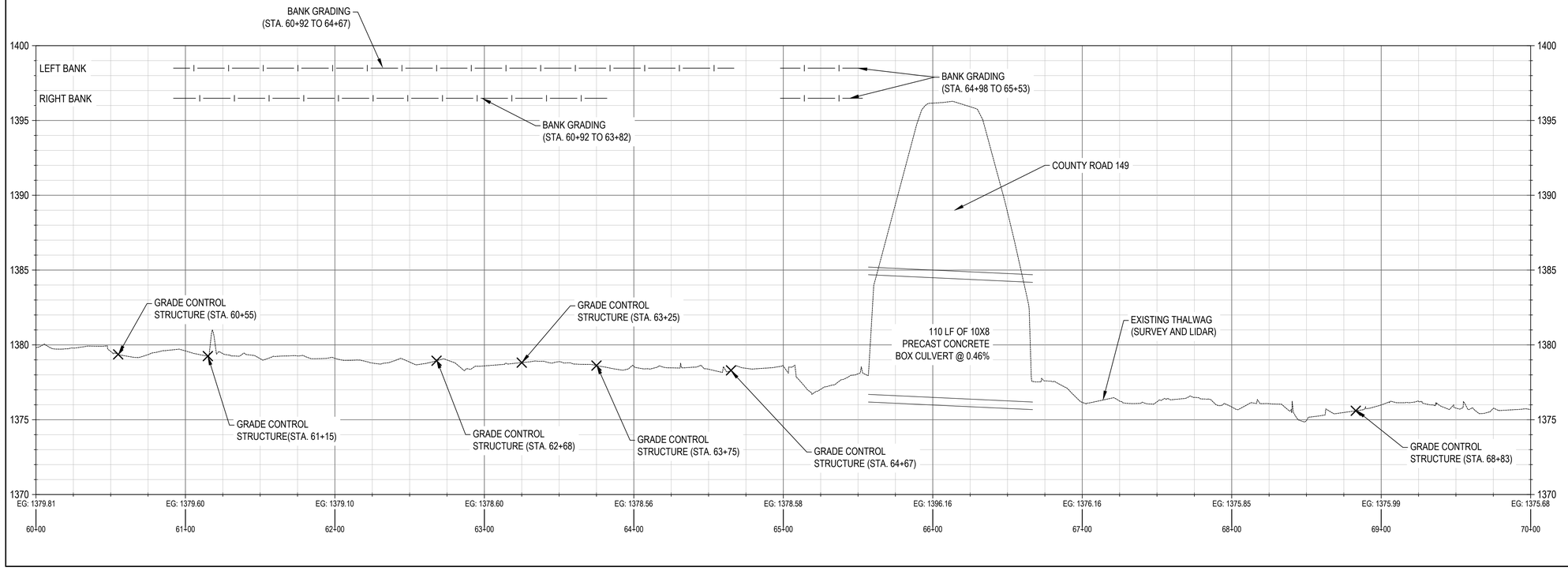
ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: GRADING AND EROSION CONTROL PLAN (3 OF 6)
SHEET NO.: C-105

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1/30/2025 12:41 PM

## LOWER REACH




0 30 60 Feet

## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM.

## LEGEND

- EXISTING MINOR CONTOUR (901)
- EXISTING MAJOR CONTOUR (900)
- PROPOSED MINOR CONTOUR (901)
- PROPOSED MAJOR CONTOUR (900)
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- BANK GRADING
- CONIFER REVETMENT
- GRADE CONTROL STRUCTURE (MNDOT CLASS IV RIPRAP)
- MNDOT CLASS IV RIPRAP TOE
- REINSTALL SALVAGED FENCE
- INSTALL BITUMINOUS PAVEMENT

Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:
# CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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PROJECT NO.: 227707144

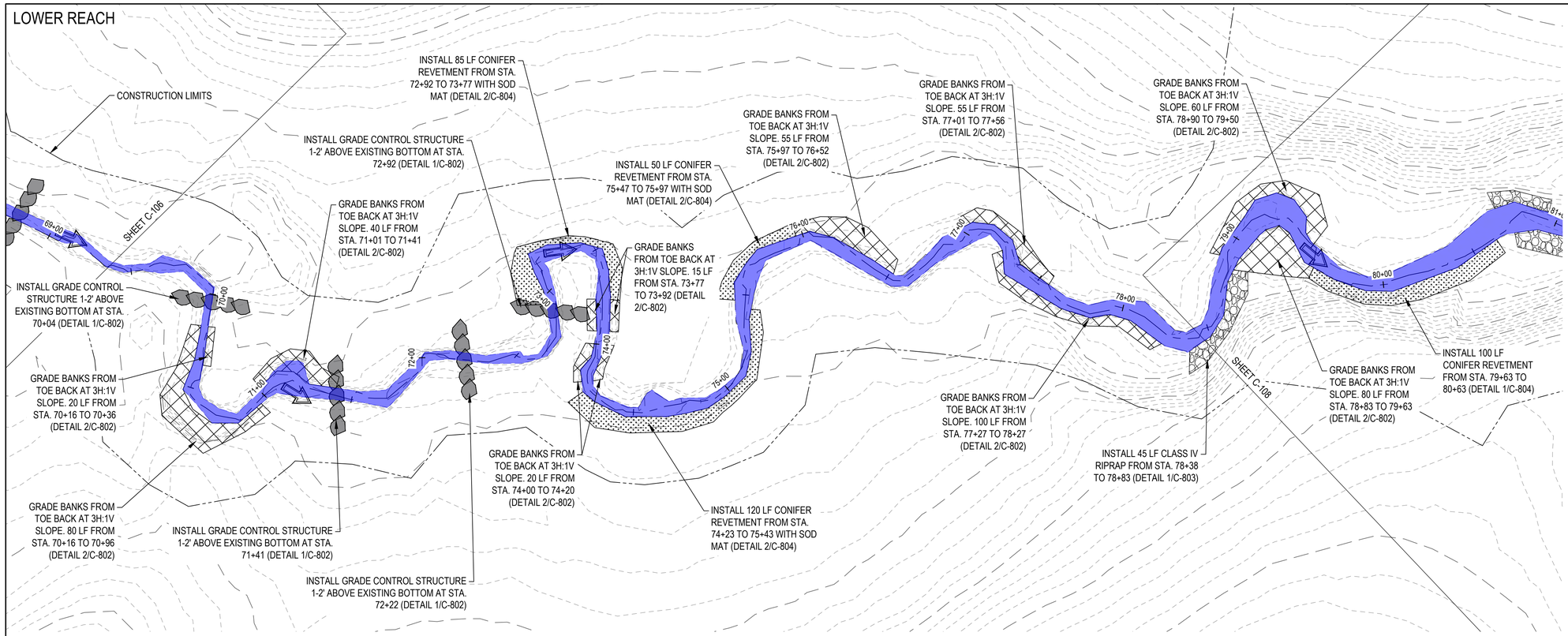
| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

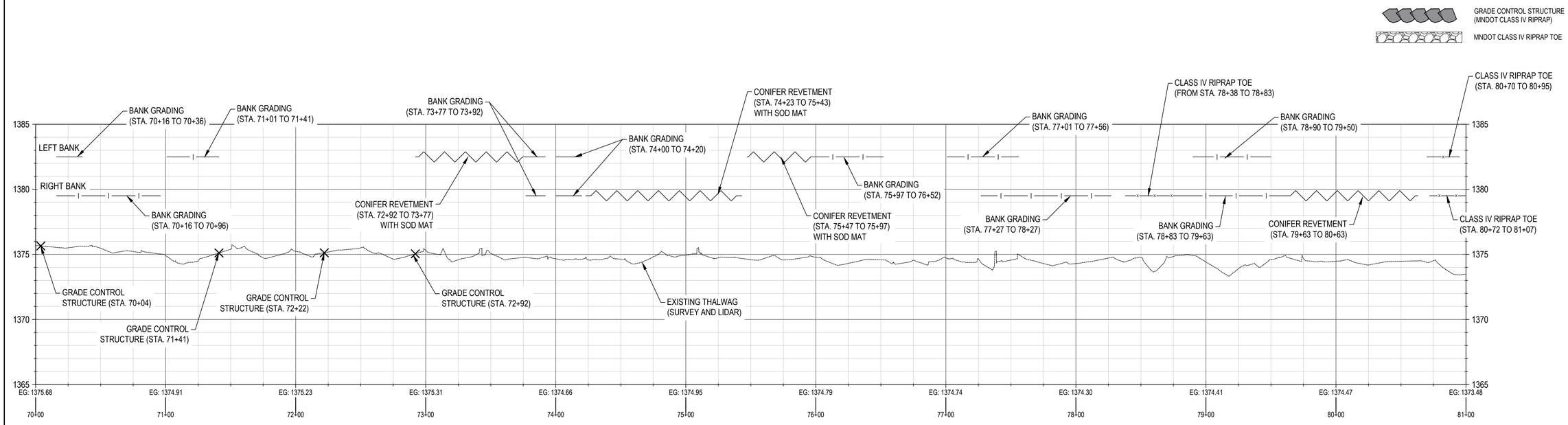
ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: GRADING AND EROSION CONTROL PLAN (4 OF 6)
SHEET NO.: C-106

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1/30/2025 12:53 PM

## LOWER REACH




0 30 60 Feet

## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM.

## LEGEND

- EXISTING MINOR CONTOUR (901)
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- CONSTRUCTION LIMITS
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- FLOW DIRECTION
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- FLOTATION SILT CURTAIN
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- BANK GRADING
- CONIFER REVETMENT
- GRADE CONTROL STRUCTURE (MNDOT CLASS IV RIPRAP)
- MNDOT CLASS IV RIPRAP TOE

Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
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DETROIT LAKES, MN 56501

PROJECT TITLE:
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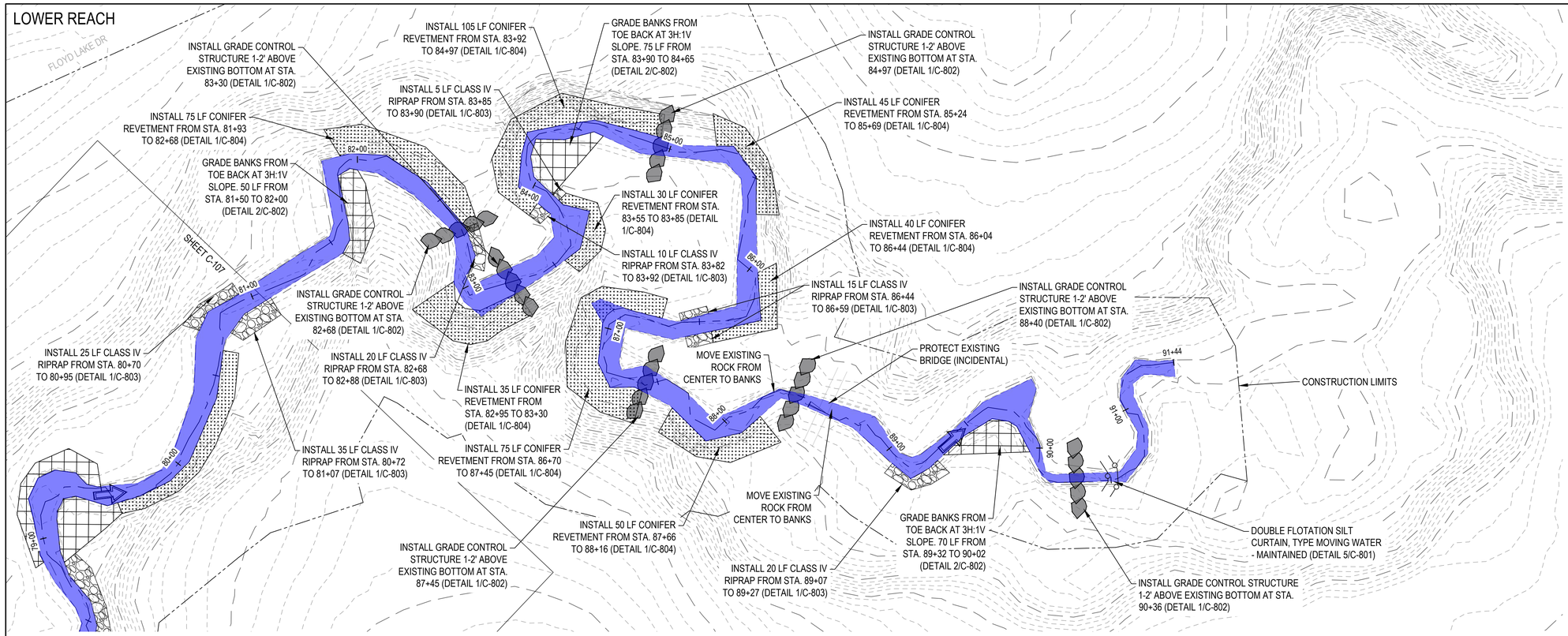
| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

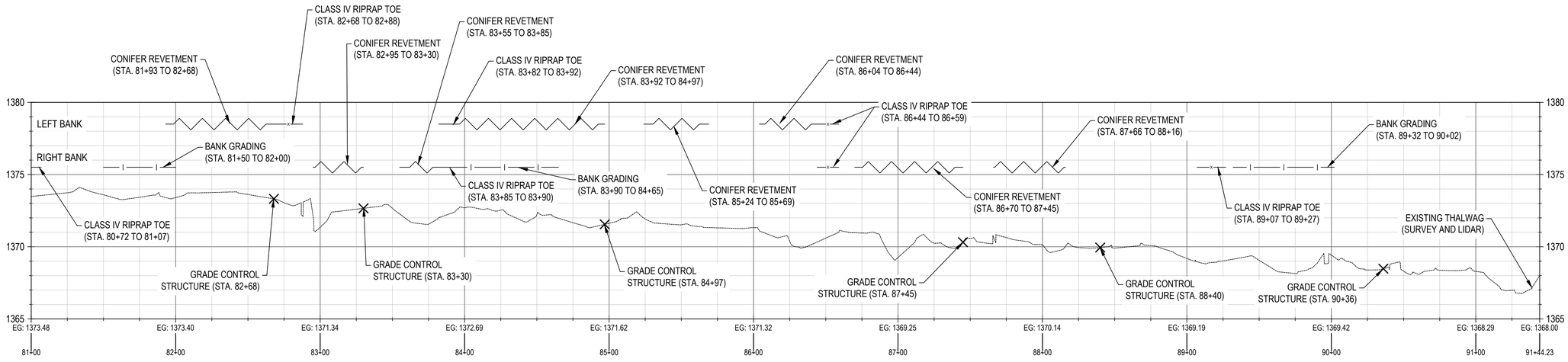
ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: GRADING AND EROSION CONTROL PLAN (5 OF 6)
SHEET NO.: C-107

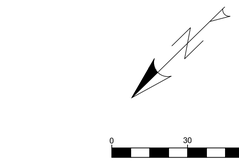
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## LOWER REACH




## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CREEK LEFT AND RIGHT ARE DETERMINED BY LOOKING DOWNSTREAM.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
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- 901 — PROPOSED MINOR CONTOUR
- 900 — PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- BANK GRADING
- CONIFER REVETMENT
- GRADE CONTROL STRUCTURE (MNDOT CLASS IV RIPRAP)
- MNDOT CLASS IV RIPRAP TOE

Stantec
ONE CARLSON PARKWAY N
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(P): (763) 479-4200

CLIENT:
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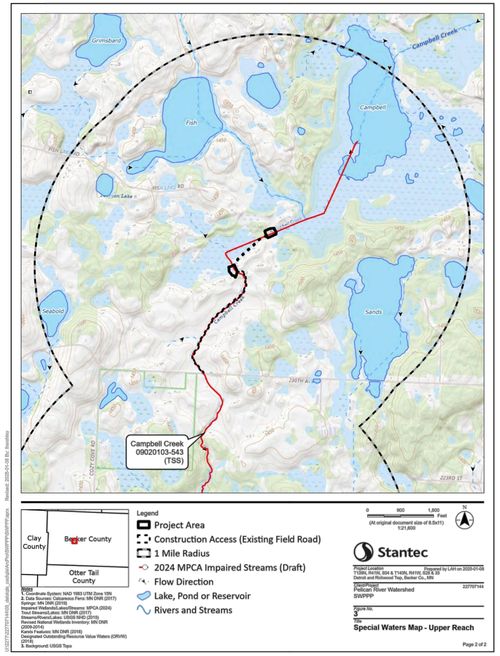
| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: GRADING AND EROSION CONTROL PLAN (6 OF 6)
SHEET NO.: C-108

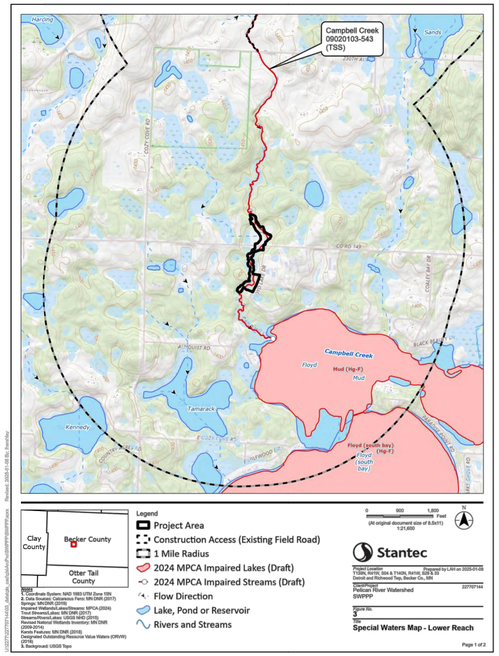
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10/9/2025 1:30:00 PM

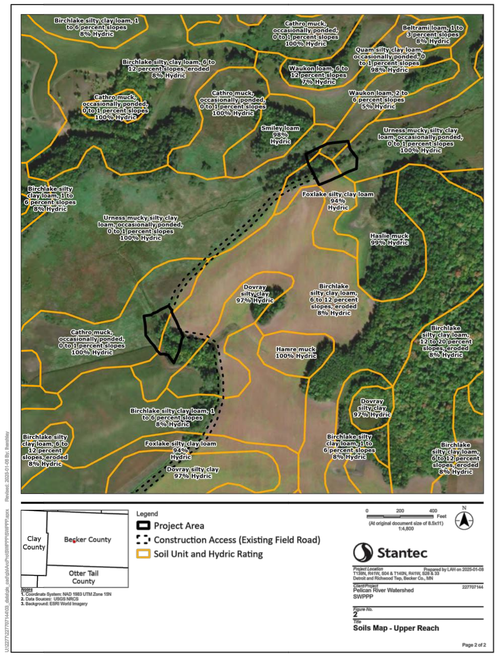
## IMPAIRED WATERS MAP (UPPER REACH)



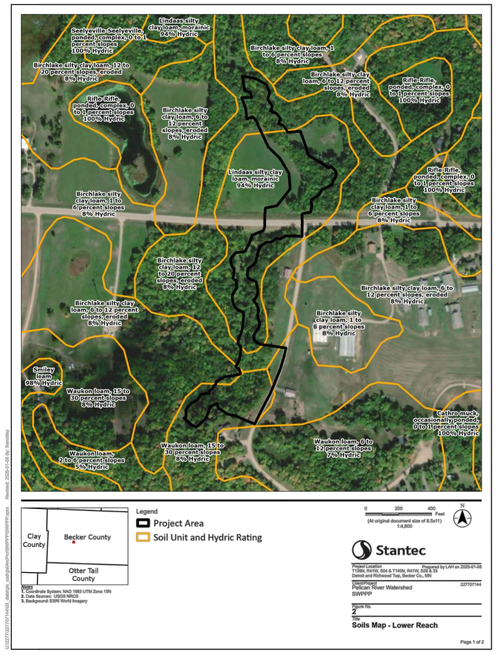

## IMPAIRED WATERS MAP (LOWER REACH)




## SOILS MAP (UPPER REACH)




## SOILS MAP (LOWER REACH)




## CERTIFICATION

IN ACCORDANCE WITH SECTION 21 OF THE GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NPDES, THE PREPARER OF THIS DOCUMENT WAS TRAINED UNDER THE UNIVERSITY OF MINNESOTA EROSION AND SEDIMENT CONTROL CERTIFICATION PROGRAM. JOSEPH R. PESIK'S CERTIFICATION IN DESIGN OF SWPPP IS VALID THROUGH MAY 31, 2026.

Joey Pesik

## PROJECT INFORMATION

PROJECT NAME: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
PROJECT LOCATION: CAMPBELL CREEK NORTH AND SOUTH OF COUNTY ROAD 149 AND NORTH OF 230TH STREET.
PROJECT TYPE: STREAM BANK STABILIZATION.
TOTAL AREA DISTURBED BY CONSTRUCTION: APPROXIMATELY 5.45 ACRES. THE TOTAL SITE AREA IS APPROXIMATELY 15.37 ACRES.

ESTIMATED CONSTRUCTION DATES: WINTER 2025 - SUMMER 2026. DNR WORK IN-WATER RESTRICTIONS PROHIBIT IN-CHANNEL WORK FOR CAMPBELL CREEK, A PUBLIC WATER, DURING FISH SPAWNING FROM MARCH 15 - JUNE 15.

CUMULATIVE IMPERVIOUS SURFACE/PERMANENT STORMWATER MANAGEMENT REQUIREMENTS:
THE PROJECT WILL NOT INCREASE IMPERVIOUS SURFACE. THERE IS NO PERMANENT STORMWATER MANAGEMENT REQUIRED AS PART OF THIS PROJECT.

PARTY RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE SITE (OWNER): PELICAN RIVER WATERSHED DISTRICT
CONTACT: TBD
CONTACT PHONE: TBD
CONTACT EMAIL: TBD

PARTY RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP (CONTRACTOR): TBD
CONTRACTOR: TBD
CONTRACTOR PHONE: TBD
CONTRACTOR EMAIL: TBD

CONTRACTOR SHALL PROVIDE A CHAIN OF RESPONSIBILITY WITH ALL OPERATORS ON THE SITE FOR INCORPORATION INTO THIS SWPPP DOCUMENT TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE (THROUGH FINAL STABILIZATION AND NOT SUBMITTAL). CONTRACTOR SHALL ALSO PROVIDE DOCUMENTATION OF PERSONNEL TRAINING IN ACCORDANCE WITH THE PERMIT FOR INCORPORATION INTO THIS SWPPP DOCUMENT AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. CONTRACTOR IS RESPONSIBLE FOR KEEPING A FINAL SWPPP DOCUMENT, CONTAINING THE INFORMATION REQUIRED ABOVE, AT THE CONSTRUCTION SITE FOR THE DURATION OF THE PROJECT.

## SWPPP DOCUMENTS

THE SWPPP IS COMPOSED OF, BUT NOT LIMITED TO, THE BELOW PROJECT DOCUMENTS. THESE DOCUMENTS SHALL BE KEPT ON THE PROJECT SITE AT ALL TIMES THROUGHOUT CONSTRUCTION. THE SWPPP SHALL BE AMENDED BY THE PERSON RESPONSIBLE TO INCLUDE ANY DOCUMENTS NECESSARY TO ENSURE ADHERENCE TO THE GENERAL PERMIT.

CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT BY STANTEC DATED JANUARY 2025

RECORD RETENTION - THE SWPPP, ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS MUST BE KEPT ONSITE DURING CONSTRUCTION; THE CONSTRUCTION DRAWINGS ARE INCORPORATED HEREIN BY REFERENCE, AND A COPY OF THE PLAN SET SHOULD BE KEPT ON-SITE WITH THE SWPPP RECORDS. THE OWNER MUST RETAIN A COPY OF THE SWPPP ALONG WITH THE FOLLOWING RECORDS FOR THREE (3) YEARS AFTER SUBMITTAL OF THE NOTICE OF TERMINATION:

1. ANY OTHER PERMITS REQUIRED FOR THE PROJECT;
2. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION;
3. ALL PERMANENT OPERATIONS AND MAINTENANCE AGREEMENTS THAT HAVE BEEN IMPLEMENTED, INCLUDING ALL RIGHT OF WAY, CONTRACT, COVENANTS AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE; AND
4. ALL REQUIRED CALCULATIONS FOR DESIGN OF THE TEMPORARY AND PERMANENT STORMWATER MANAGEMENT SYSTEMS.

## INSPECTIONS

THE INSPECTION LOG WILL BE COMPLETED BY THE CONTRACTOR FOR THE CONSTRUCTION SITE.
INSPECTOR(S): TBD - TRAINING DOCUMENTATION (PER SECTION 21.2 OF THE PERMIT) WILL BE INCORPORATED INTO THIS SWPPP AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. THE CONTRACTOR WILL MAKE CORRECTIONS OR REPAIRS REQUIRED TO COMPLY WITH THE PERMIT.

INSPECTIONS AT THE SITE WILL BE COMPLETED IN ACCORDANCE WITH THE PERMIT AS FOLLOWS:
ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND,
WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

1. THE INDIVIDUAL PERFORMING INSPECTIONS MUST BE TRAINED AS REQUIRED BY SECTION 21.3 OF THE PERMIT. TRAINING DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR FOR INCORPORATION INTO THE SWPPP. INSPECTIONS MUST INCLUDE STABILIZED AREAS, EROSION PREVENTION AND SEDIMENT CONTROL BMPS. CORRECTIVE ACTIONS MUST BE IDENTIFIED AND DATE OF CORRECTION MUST BE NOTED AS IDENTIFIED IN SECTION 11.1 OF THE PERMIT. ANY OFFSITE DISCHARGE MUST BE DOCUMENTED AS IDENTIFIED IN SECTION 11.1 OF THE PERMIT. ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED WITHIN SEVEN (7) CALENDAR DAYS. AN INSPECTION LOG IS ALSO ATTACHED; THE INSPECTION LOG AND SWPPP MUST BE KEPT ON-SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT.

AT A MINIMUM, THE FOLLOWING SHALL BE COMPLETED DURING EACH INSPECTION:
-RECORD DATE AND TIME OF INSPECTION.
-RECORD RAINFALL RECORDS SINCE THE MOST RECENT INSPECTION.
-INSPECT THE SITE FOR EXCESS EROSION AND SEDIMENTATION.
-INSPECT THE SITE FOR DEBRIS, TRASH, AND SPILLS.
-INSPECT TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES.
-INSPECT CONSTRUCTION ENTRANCES FOR SEDIMENT TRACKING ONTO PUBLIC STREETS.
-RECORD RECOMMENDED REPAIRS AND MODIFICATIONS TO EROSION AND SEDIMENT CONTROLS.
-RECOMMEND ANY NECESSARY CHANGES TO THIS SWPPP.
-RECORD REPAIRS AND MODIFICATIONS IMPLEMENTED SINCE PREVIOUS INSPECTIONS.
-INSPECT THE ADJACENT STREETS AND CURB AND GUTTER FOR SEDIMENT, LITTER, AND CONSTRUCTION DEBRIS.

THE GENERAL CONTRACTOR MUST UPDATE THE SWPPP, INCLUDING THE JOBSITE BINDER AND SITE MAPS, TO REFLECT THE PROGRESS OF CONSTRUCTION ACTIVITIES AND GENERAL CHANGES TO THE PROJECT SITE. UPDATES SHALL BE MADE DAILY TO TRACK PROGRESS WHEN ANY OF THE FOLLOWING ACTIVITIES OCCUR: BMP INSTALLATION, MODIFICATION OR REMOVAL, CONSTRUCTION ACTIVITIES (E.G. PAVING, SEWER INSTALLATION, ETC), CLEARING, GRUBBING, GRADING, OR TEMPORARY AND PERMANENT STABILIZATION.

THE CONTRACTOR MAY UPDATE OR MODIFY THE SWPPP WITHOUT ENGINEER APPROVAL IN AN EMERGENCY SITUATION TO PREVENT SEDIMENT DISCHARGE OR PROTECT WATER QUALITY. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO ENSURE COMPLIANCE WITH THE PERMIT AND PROTECTION OF DOWNSTREAM WATER QUALITY.

## GENERAL SWPPP NOTES

DEWATERING IS NOT ANTICIPATED TO BE REQUIRED DURING THIS PROJECT.

SEE EROSION CONTROL AND GRADING PLAN (SHEETS C-101 TO C-108) FOR MAP INFORMATION REGARDING SECTION 5.9 OF THE GENERAL PERMIT. IN LIEU OF THE DEPICTION OF FLOW PATHS AND DRAINAGE AREAS ON THE EROSION CONTROL PLANS, THESE CONDITIONS WILL BE DESCRIBED. THE DIRECTION OF FLOW, GENERALLY, FOLLOWS A PERPENDICULAR LINE FROM THE OUTER LIMITS OF DISTURBANCE TO COON CREEK. ADDITIONALLY, THE SITE IS CONTAINED WITHIN THE DIRECT DRAINAGE AREA OF COON CREEK.

THIS SWPPP SHALL BE AMENDED BY THE CONTRACTOR IN ACCORDANCE WITH THE PERMIT AS NECESSARY TO INCLUDE ADDITIONAL REQUIREMENTS, TO CORRECT PROBLEMS IDENTIFIED, OR TO ADDRESS SITUATIONS PER SECTION 6.1 OF THE GENERAL PERMIT.

THE PROJECT WILL DISTURB MORE THAN 5 ACRES THAT PROMOTE DRAINAGE TO A COMMON LOCATION. THEREFORE A TEMPORARY SEDIMENT BASIN WILL BE REQUIRED. THIS SWPPP SHALL BE AMENDED BY THE CONTRACTOR IN ACCORDANCE WITH THE GENERAL PERMIT TO INCLUDE TEMPORARY SEDIMENTATION BASINS, IF THEY BECOME NECESSARY. BASINS, IF DESIGNED BY THE CONTRACTOR, SHALL ACCOMMODATE NO LESS THAN 3,600 CUBIC FEET OF LIVE STORAGE PER ACRE OF CONTRIBUTING DRAINAGE AREA. BASIN OUTLETS SHALL BE DESIGNED TO WITHDRAW WATER FROM THE SURFACE OF THE BASIN, PREVENT SHORT-CIRCUITING AND THE DISCHARGE OF FLOATING DEBRIS. BASINS SHALL HAVE A STABILIZED EMERGENCY OVERFLOW LOCATION AND BE DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS TO THE EXTENT PRACTICAL.

FINAL STABILIZATION:
ALL PERVIOUS AREAS DISTURBED BY CONSTRUCTION AS DESIGNATED WILL RECEIVE VEGETATIVE COVER ACCORDING TO THE PLANS AND SPECIFICATIONS AND WITHIN THE SPECIFIED VEGETATIVE TIME SCHEDULE. FINAL STABILIZATION WILL OCCUR WHEN THE SITE HAS A UNIFORM VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE RESTORED PERVIOUS AREAS. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS (SUCH AS SEDIMENT CONTROL LOGS (BIOROLLS)) MUST BE REMOVED AS PART OF THE SITE FINAL STABILIZATION. ALL SEDIMENT MUST BE CLEANED OUT OF CONVEYANCES AND TEMPORARY SEDIMENTATION BASINS IF APPLICABLE. NOTICE OF TERMINATION (NOT) MUST BE SUBMITTED WITHIN 30 DAYS OF FINAL STABILIZATION.

## EROSION AND SEDIMENT CONTROL

PRIOR TO ANY SITE DISTURBANCE, AND AS REQUIRED AS CONSTRUCTION PROGRESSES, ANY PERMIT REQUIRED EROSION PREVENTION MEASURES AND THE SEDIMENT CONTROL DEVICES (TEMPORARY CONSTRUCTION ENTRANCE AND BIOLOGS) SHOWN ON THE CONSTRUCTION DRAWINGS WILL BE INSTALLED AT THE SITE.

ALL EXPOSED SOIL AREAS, WILL INITIATE STABILIZATION IMMEDIATELY AND COMPLETE STABILIZATION WITHIN 24 HOURS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. EXPOSED SOIL AREAS MUST HAVE TEMPORARY EROSION PROTECTION ( EROSION CONTROL BLANKET AND SEED) OR PERMANENT COVER YEAR ROUND.

CONTRACTOR SHALL IMPLEMENT APPROPRIATE CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, HORIZONTAL SLOPE GRADING, AND OTHER CONSTRUCTION PRACTICES THAT MINIMIZE EROSION WHEN PRACTICAL. THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM A CONSTRUCTION SITE, OR DIVERTS WATER AROUND A SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. STABILIZATION MUST BE COMPLETED WITHIN 24 HOURS OF CONNECTING TO A SURFACE WATER. PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER.

SWPPP IMPLEMENTATION, PHASING, AND SEQUENCE OF CONSTRUCTION:
BMP AND EROSION CONTROL INSTALLATION SEQUENCE SHALL BE AS FOLLOWS:

1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AND INSTALL TEMPORARY EROSION CONTROL.
2. PREPARE TEMPORARY STORAGE, PARKING, AND PHASING AREAS.
3. PERFORM DEMOLITION TASKS.
4. TEMPORARILY STABILIZE DISTURBED AREAS THAT WILL BE INACTIVE FOR 24 HOURS OR MORE AS REQUIRED BY NPDES OR CONSTRUCTION STORMWATER PERMIT.
5. PERFORM CONSTRUCTION TASKS IN PHASES TO MINIMIZE SOIL DISTURBANCE. EACH PHASE SHOULD BE COMPLETED AND STABILIZED WITHIN 24 HOURS.

SEDIMENT CONTROL PRACTICES MUST MINIMIZE SEDIMENT FROM ENTERING SURFACE WATERS. THE FOLLOWING MEASURES WILL BE TAKEN AS SEDIMENT CONTROL PRACTICES IN ORDER TO MINIMIZE SEDIMENTS FROM ENTERING SURFACE WATERS:

1. INSTALLATION OF SEDIMENT CONTROL PRACTICES ON ALL DOWN GRADIENT PERIMETERS PRIOR TO LAND DISTURBING ACTIVITIES. ALL PRACTICES WILL BE RE-INSTALLED AT THE END OF EACH WORK DAY.
2. WAKE PROTECTION SHALL BE INSTALLED ALONG THE CAMPBELL CREEK BANKS AT ANY STREAM CROSSING THROUGHOUT THE DURATION OF THE PROJECT.
3. STABILIZATION OF EXPOSED SOILS COMPLETED WITHIN 24 HOURS FOR AREAS THAT HAVE TEMPORARILY OR PERMANENTLY CEASED WORK.
4. VEHICLE TRACKING BMP AT CONSTRUCTION SITE ENTRANCE/EXIT. STREET SWEEPING SHALL BE PERFORMED IF VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES WITHIN THE DISTURBANCE LIMITS AND ON ADJACENT STREETS WITHIN 24 HOURS OF DISCOVERY PER THE PERMIT.
5. STREET SWEEPING IS NOT TO BE USED AS A PRIMARY BMP FOR SEDIMENT TRACKING. IF SEDIMENT IS TRACKED OFFSITE, WORK WILL CEASE UNTIL PROPER EROSION CONTROL AND SEDIMENT CONTROL DEVICES ARE INSTALLED AND/OR BEING MAINTAINED TO PREVENT TRACKING BEYOND THE SITE'S PERIMETER (CONTAINMENT AREA). ALL STREET SWEEPING MUST BE PERFORMED UTILIZING A PICK-UP SWEEPER. IF NECESSARY WATER WILL ALSO BE USED TO CLEAN UP THE STREETS PRIOR TO BEING SWEPT TO ENSURE THEY ARE FULLY CLEANED.
6. INSTALL DOWN GRADIENT PERIMETER CONTROL FOR ANY ONSITE STOCKPILES. IF THE STOCKPILE IS WITHIN 100-FT OF CAMPBELL CREEK, DOUBLE PERIMETER CONTROL SHALL BE INSTALLED.

THE FOLLOWING GUIDELINES WILL BE USED TO DETERMINE IF POLLUTION CONTROL DEVICES REQUIRE MAINTENANCE, REPAIR, OR REPLACEMENT:
-IF SEDIMENT CONTROL DEVICES SUCH AS SILT FENCE OR BIOLOGS ARE FILLED TO 1/3 THE HEIGHT OF THE FENCE OR LOG, REMOVE ALL SEDIMENT WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.
-IF THE CONSTRUCTION ENTRANCE(S) ARE FILLED WITH SEDIMENT EITHER REPLACE THE ENTRANCE OR ADD ADDITIONAL ENTRANCE WITH 24 HOURS OF DETECTION OR NOTIFICATION.
-IF THE SEDIMENT CONTROL DEVICES ARE DAMAGED RESULTING IN A LOSS OF FUNCTIONALITY.
-IF SEDIMENT FROM THE SITE IS OBSERVED ON ADJACENT STREETS OR OTHER PROPERTIES, THE INSPECTOR SHALL IDENTIFY THE SOURCE AND DISCHARGE LOCATION OF THE SEDIMENT AND INSTRUCT TO IMPLEMENT ADDITIONAL EROSION AND SEDIMENT CONTROLS AT THOSE LOCATIONS TO PREVENT FUTURE DISCHARGES.
-IF BUILDING MATERIALS, CHEMICALS, OR GENERAL REFUSE IS BEING USED, STORED, DISPOSED OF, OR OTHERWISE MANAGED INAPPROPRIATELY, CORRECT SUCH DEFECTS WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.

## POLLUTION PREVENTION MEASURES

SOLID WASTE:
SOLID WASTE, INCLUDING BUT NOT LIMITED TO, COLLECTED ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTE, INCLUDING ALL TRASH ONSITE, MUST BE REGULARLY DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

HAZARDOUS MATERIALS:
HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCE MUST BE PROPERLY STORED INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MCPA REGULATIONS.

CONSTRUCTION EQUIPMENT/VEHICLES:
EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE. REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS SHALL BE TAKEN. ADEQUATE SUPPLIES MUST BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS; CONDUCT FUELING IN A CONTAINED AREA UNLESS INFEASIBLE.

CONCRETE WASHOUT AREA: CONCRETE WASHOUT WILL NOT BE PERMITTED ONSITE.

FERTILIZERS AND LANDSCAPE MATERIALS MUST BE UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY.

## IMPAIRED WATERS, SPECIAL WATERS, AND WETLANDS

THIS PROJECT IS LOCATED WITHIN CAMPBELL CREEK AN IMPAIRED WATER AND ULTIMATELY DISCHARGES INTO ANOTHER IMPAIRED WATER, FLOYD LAKE. CAMPBELL CREEK AND FLOYD LAKE ARE LOCATED WITHIN ONE MILE OF THE PROJECT LOCATION AND ARE LISTED AS IMPAIRED FOR AQUATIC CONSUMPTION DUE TO MERCURY AIN FISH TISSUE (FLOYD LAKE) AND TSS (CAMPBELL CREEK). THERE ARE NO CURRENT APPROVED TMDLS FOR THESE WATER BODIES. DISCHARGE TO AN IMPAIRED WATER REQUIRES IMPLEMENTATION OF SECTION 23.1 OF THE PERMIT AS INCORPORATED INTO THIS SWPPP DOCUMENT.

0 SF OF WETLANDS WILL BE MITIGATED AS PART OF THIS PROJECT.

SITE SOILS - SITE SOILS ARE SHOWN ON THIS SHEET. THIS PROJECT IS NOT LOCATED IN A KARST AREA.

## ESTIMATED BMP QUANTITIES AND INSTALLATION SCHEDULE

THE ADJACENT TABLE INDICATES THE ESTIMATED MATERIAL QUANTITIES NECESSARY TO IMPLEMENT THE TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPS IDENTIFIED IN THIS SWPPP AND ON THE CONSTRUCTION DRAWINGS. TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPS WILL BE INSTALLED/CONSTRUCTED WHEN NECESSARY AS CONSTRUCTION ACTIVITIES PROGRESS AND IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS.

MAINTAIN AND REPLACE BMPS DURING THE EXECUTION OF THE PROJECT AS REQUIRED TO CONTINUE SWPPP COVERAGE DURING CONSTRUCTION

ESTIMATED BMP QUANTITIES

| ITEM | QUANTITY | UNIT |
|---|---|---|
| TEMPORARY ROCK CONSTRUCTION ENTRANCE | 4 | EA |
| BIOROLLS (SEDIMENT CONTROL LOGS) | 10100 | LF |
| FLOTATION SILT CURTAIN | 45 | LF |
| SEED AND EROSION CONTROL BLANKET | 5.45 | AC |

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ONE CARLSON PARKWAY N
SUITE 100
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(P): (763) 479-4200

CLIENT:
PELICAN RIVER watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

| ISSUE NO: | DESCRIPTION: | DATE: |
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NOT FOR CONSTRUCTION

LICENSE NO.: 56108
DATE: 01/31/2025

PROJECT NO.: 227707144

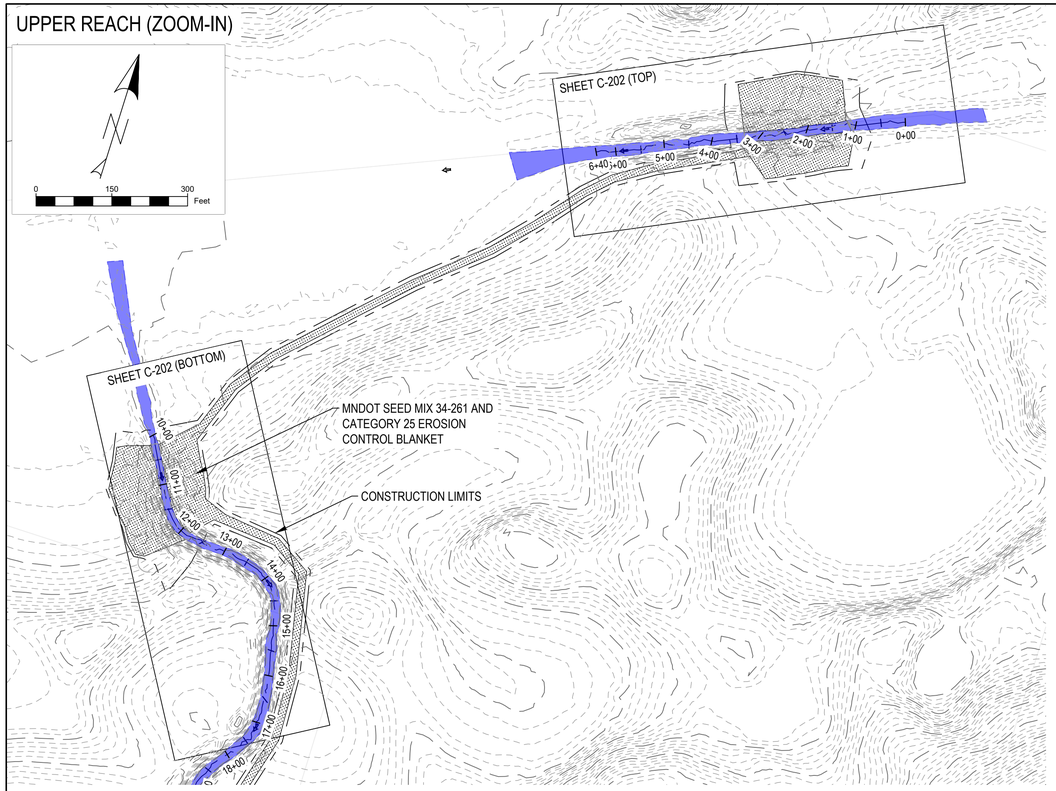
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ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: SWPPP
SHEET NO.: C-109

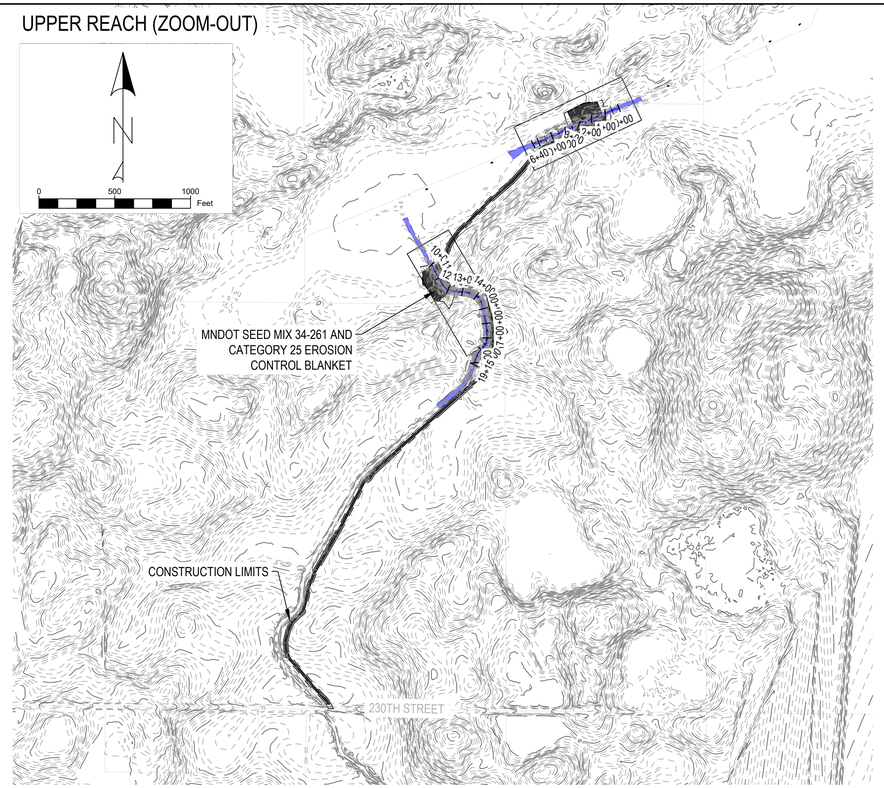
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## UPPER REACH (ZOOM-IN)




## UPPER REACH (ZOOM-OUT)



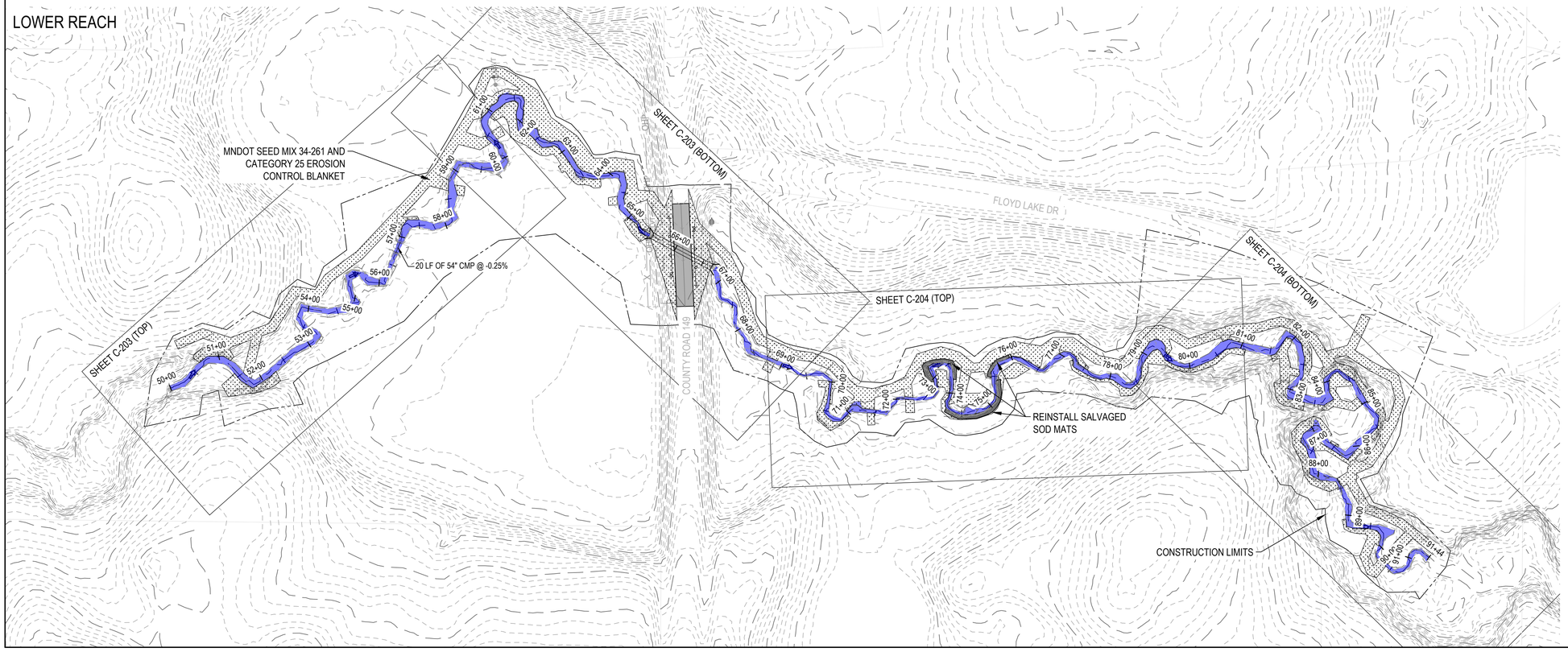

## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- 901 — PROPOSED MINOR CONTOUR
- 900 — PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- MNDOT SEED MIX 34-261 AND ECB CAT. 25
- REINSTALL SALVAGED SOD MATS

## LOWER REACH




Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:
CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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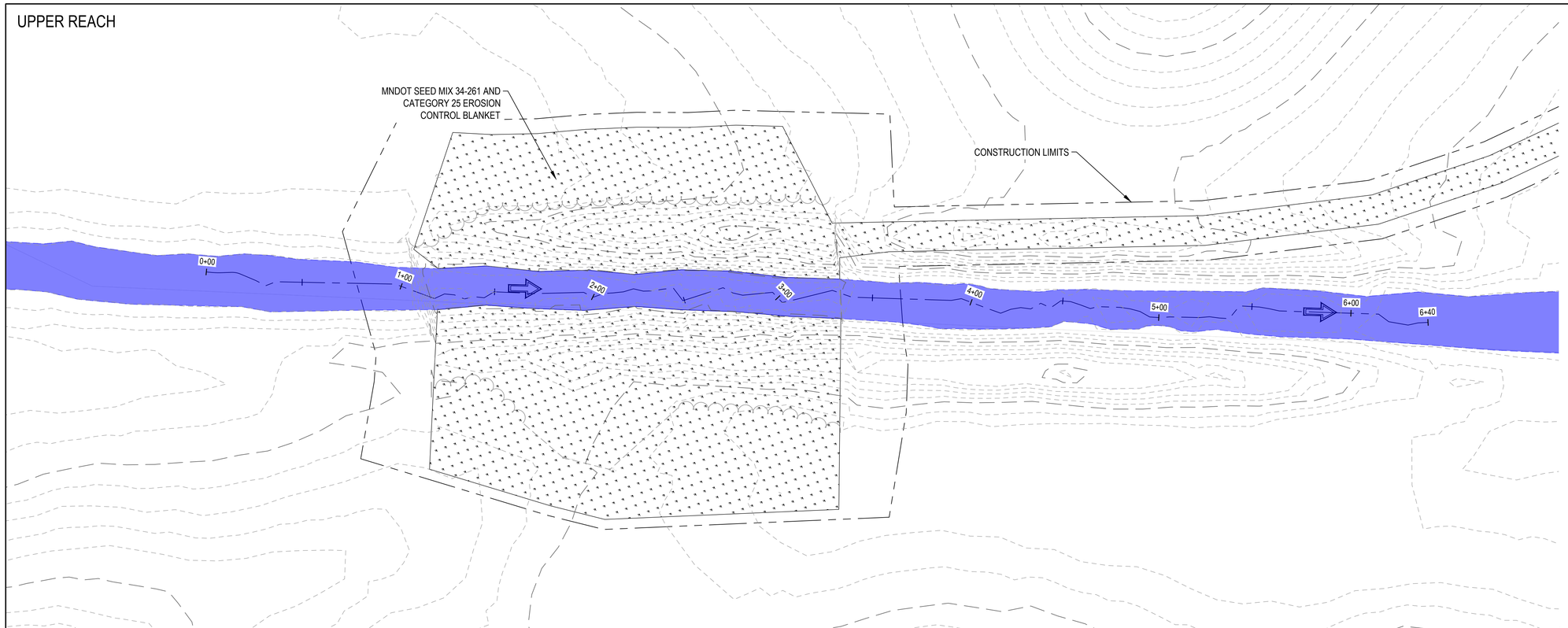
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ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: OVERALL RESTORATION PLAN
SHEET NO.: C-201

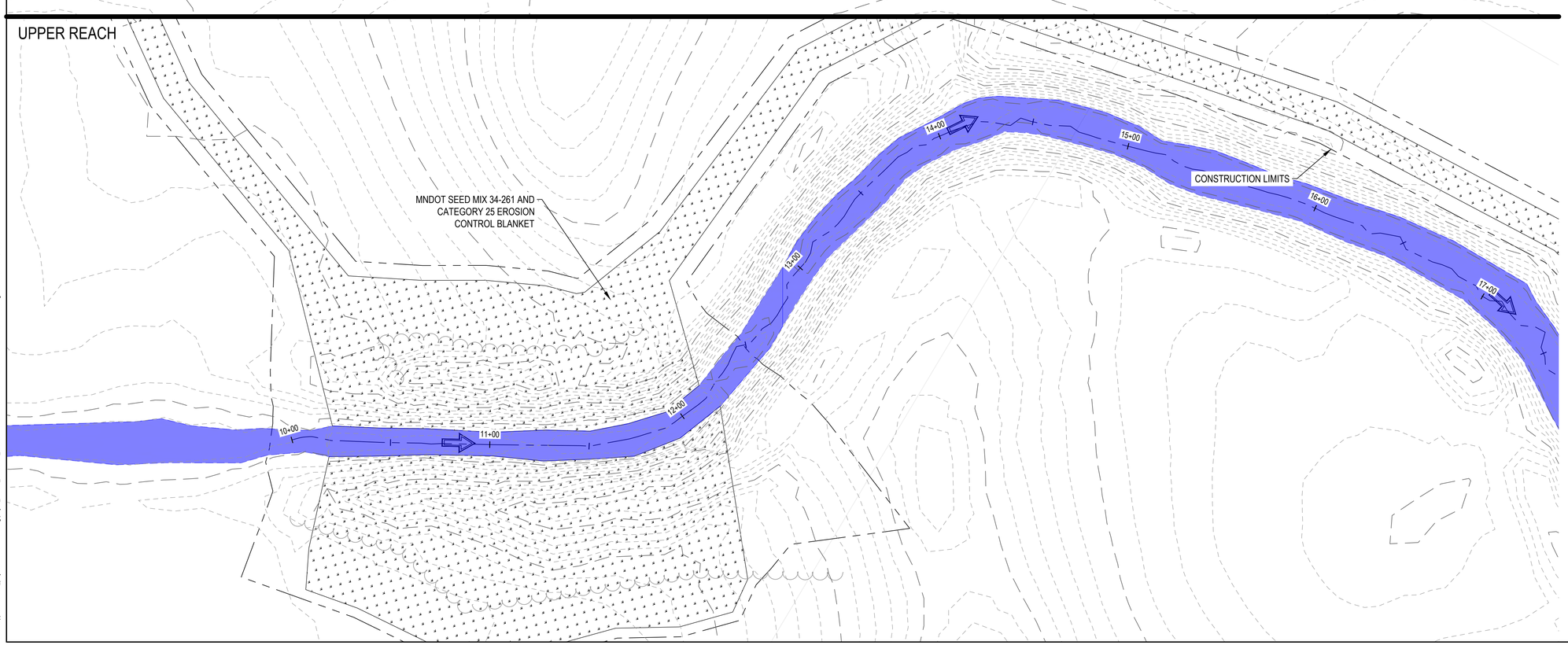
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UPPER REACH




UPPER REACH




0 30 60 Feet

## NOTES

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## LEGEND

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- 900 — PROPOSED MAJOR CONTOUR
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- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- MNDOT SEED MIX 34-261 AND ECB CAT. 25
- REINSTALL SALVAGED SOD MATS

Stantec

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PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:

Pelican River watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:
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RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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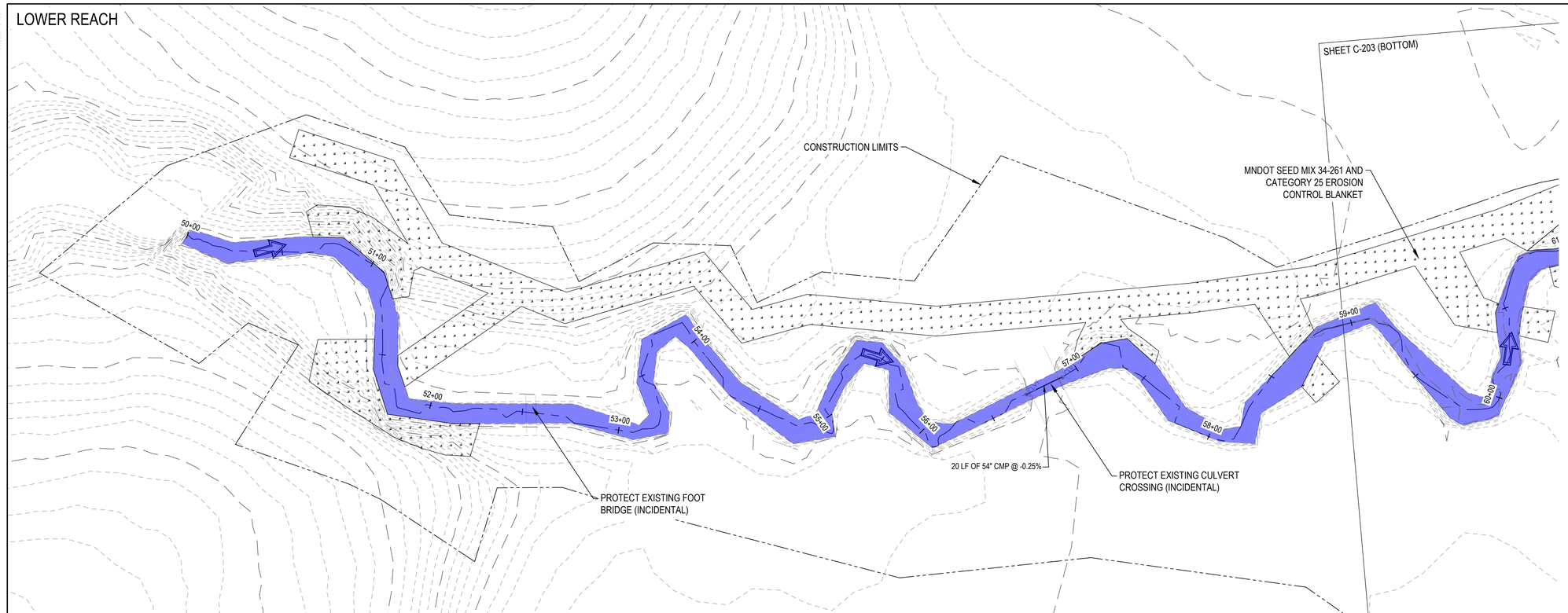
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RESTORATION PLAN
(1 OF 3)

SHEET NO.:
C-202

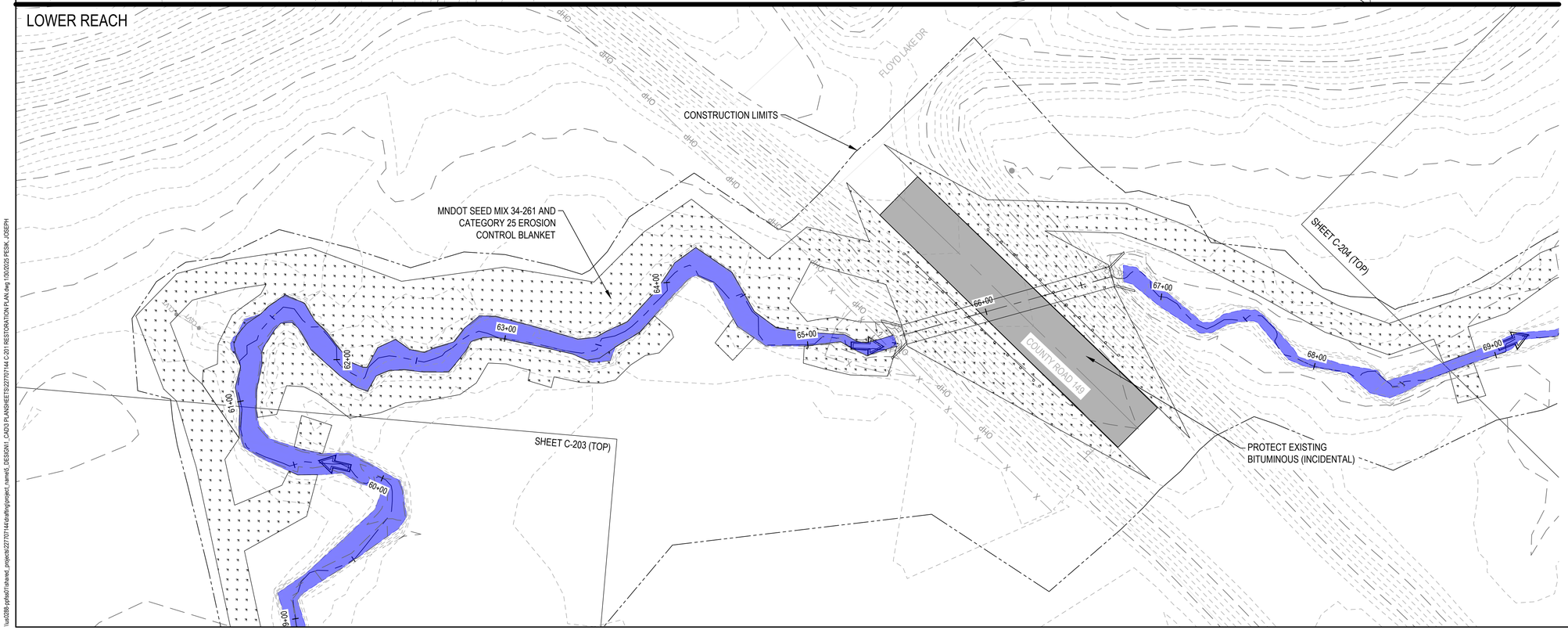
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LOWER REACH




LOWER REACH




0 30 60 Feet

## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

## LEGEND

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- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
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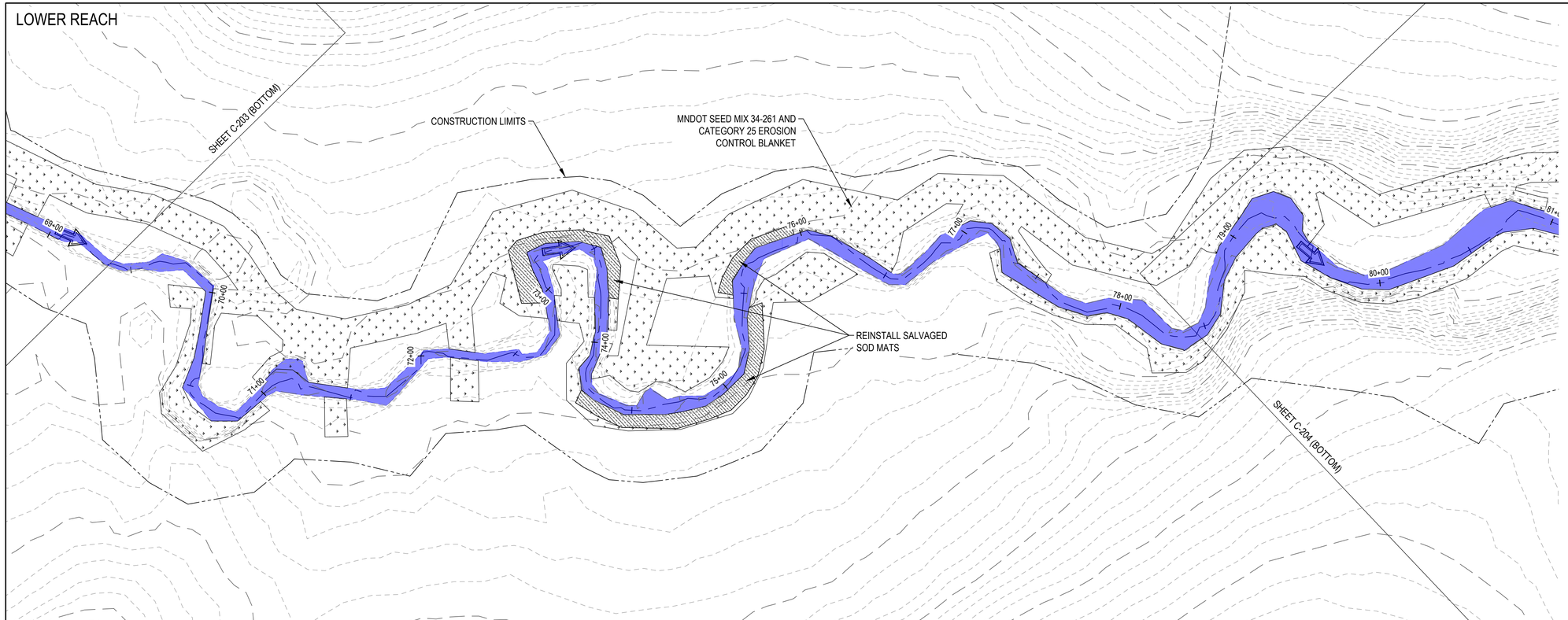
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RESTORATION PLAN
(2 OF 3)

SHEET NO.:
C-203

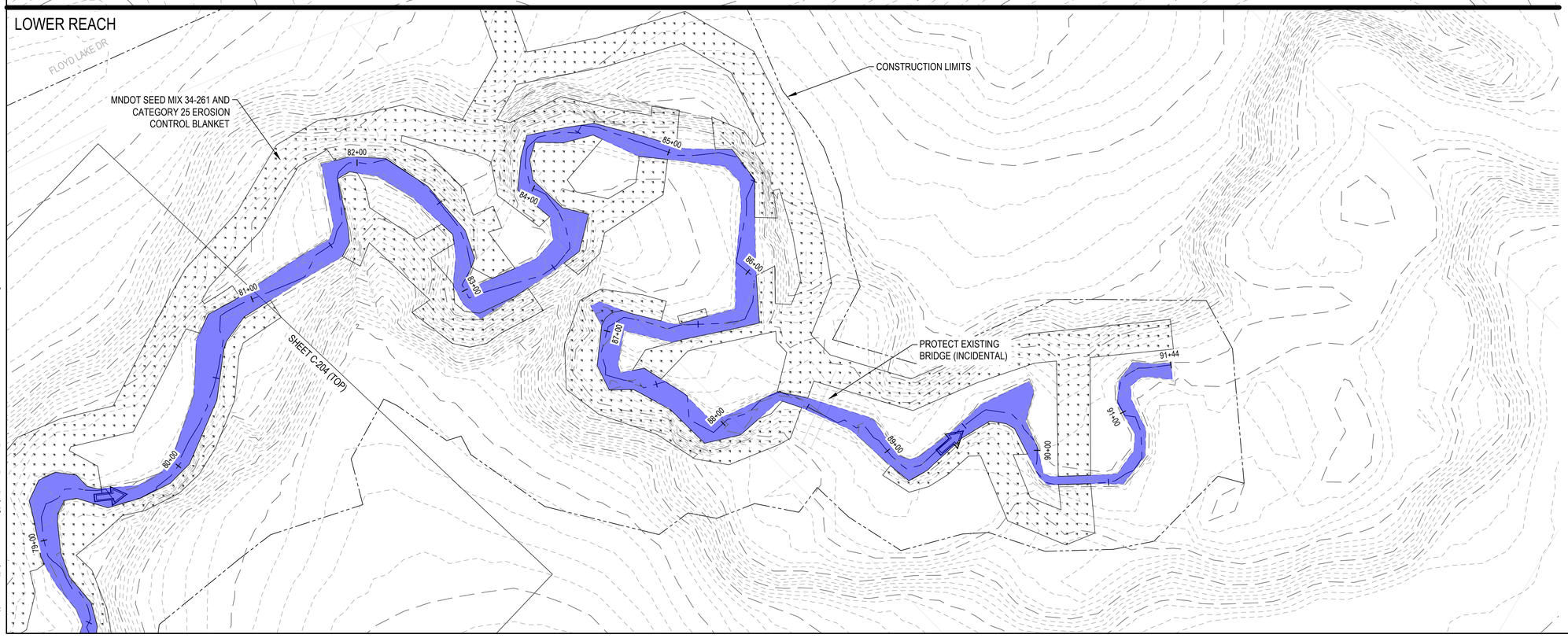
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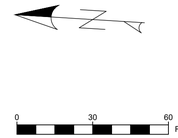
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## LOWER REACH




## LOWER REACH



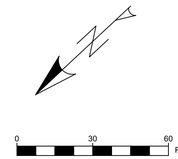




## NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

## LEGEND

- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- 901 — PROPOSED MINOR CONTOUR
- 900 — PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- MNDOT SEED MIX 34-261 AND ECB CAT. 25
- REINSTALL SALVAGED SOD MATS




Stantec

ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:

Pelican River watershed district

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:

CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT

RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

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LICENSE NO.: 56108

DATE: 01/31/2025

PROJECT NO.: 227707144

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|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025

ISSUE NO.: 1

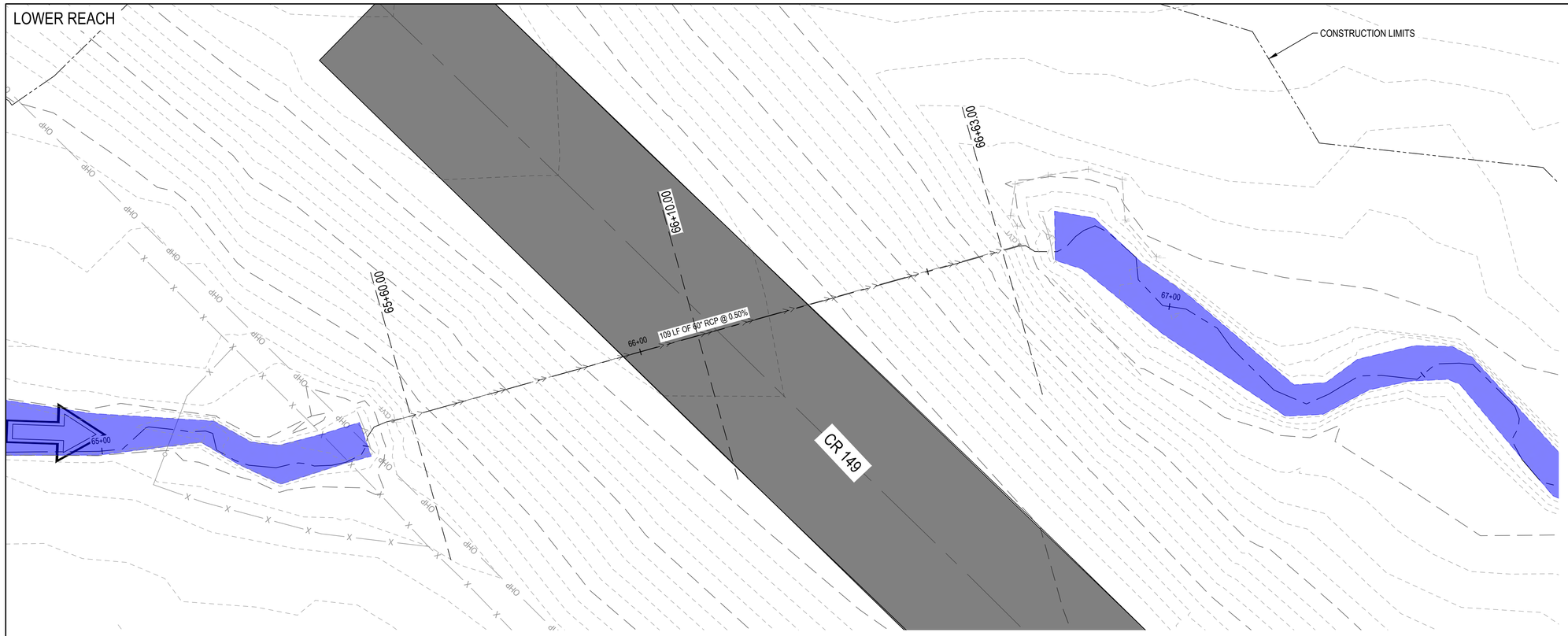
SHEET TITLE:
RESTORATION PLAN
(3 OF 3)

SHEET NO.:
C-204

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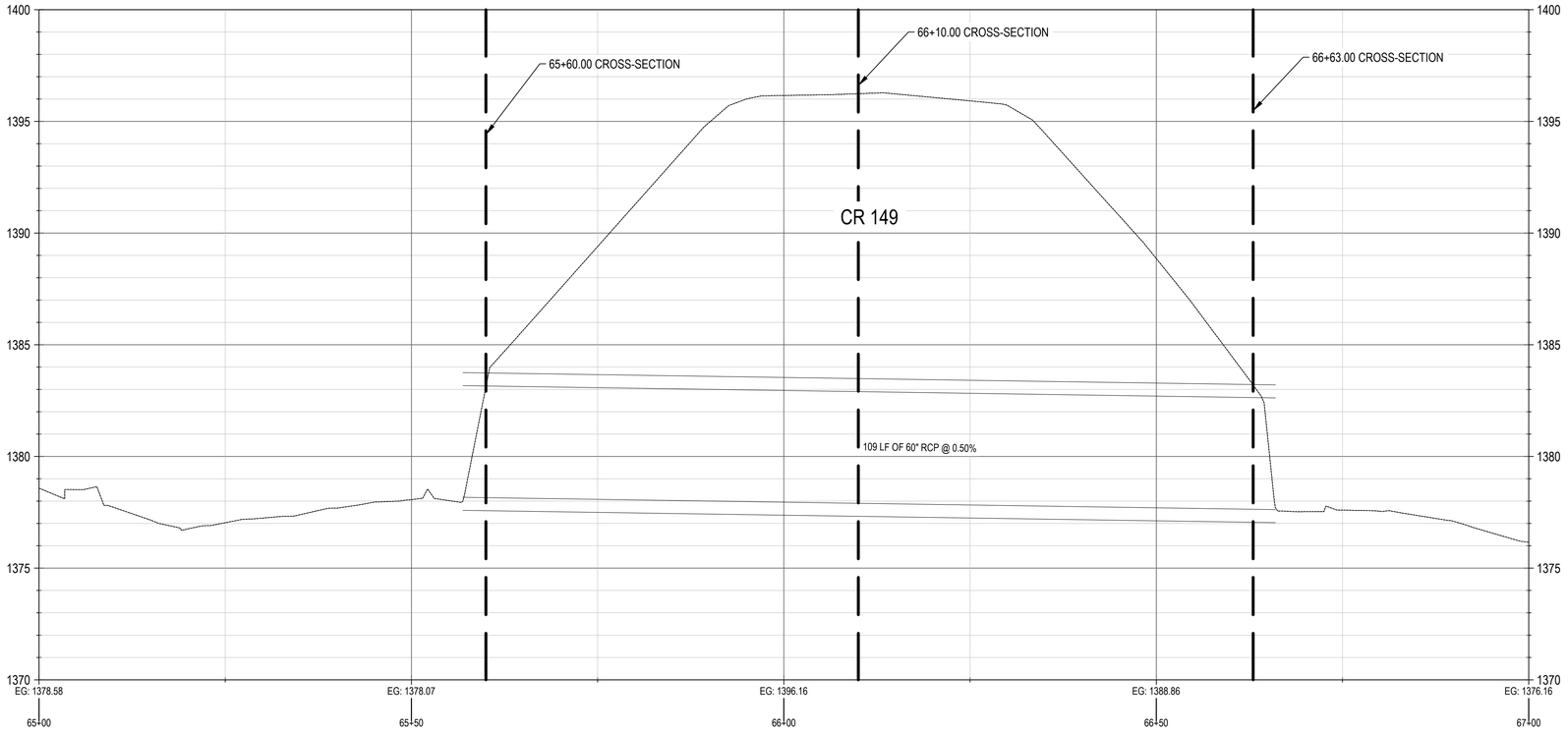

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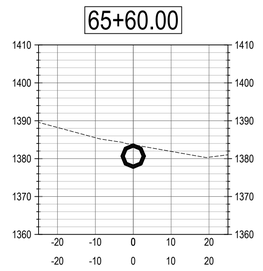
## NOTES

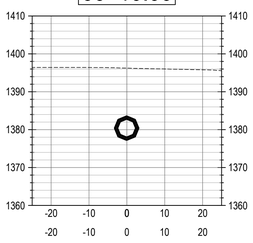
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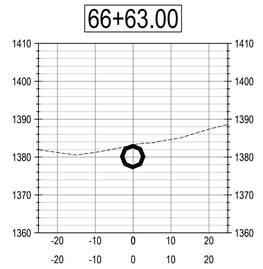
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- CONSTRUCTION LIMITS
- CAMPBELL CREEK
- EXISTING BITUMINOUS TRAIL/ROAD
- FLOW DIRECTION
- EXISTING INLET PIPE
- FLOTATION SILT CURTAIN
- SEDIMENT CONTROL LOGS
- BANK GRADING
- TREE REVETMENT
- GRADE CONTROL STRUCTURE (MNDOT CLASS IV RIPRAP)
- MNDOT CLASS IV RIPRAP TOE





Stantec

ONE CARLSON PARKWAY N
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(P): (763) 479-4200


CLIENT:

PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE: CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
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| JRP | EM | JOAA |

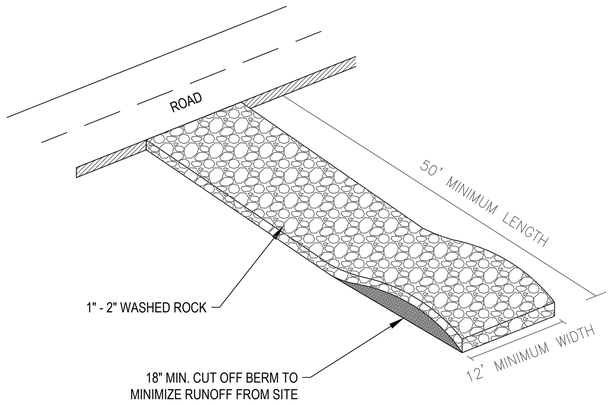
ISSUE DATE: 01/31/2025

ISSUE NO.: 1

SHEET TITLE:
EXISTING STORM SEWER PLAN

SHEET NO.:
C-501

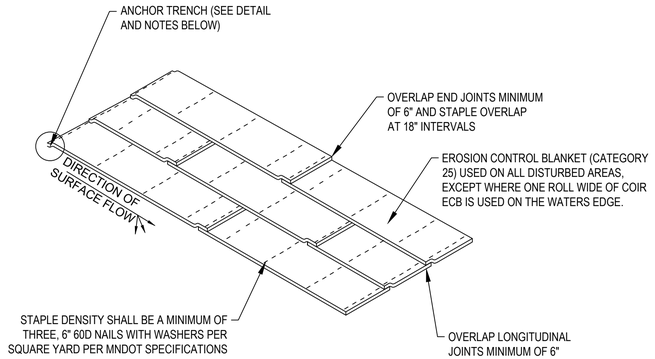
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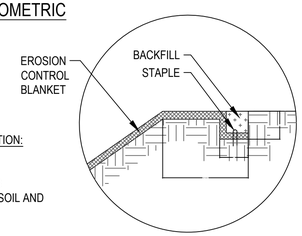

ISOMETRIC

NOTES:
1. FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH ROCK.
2. ENTRANCE MUST BE MAINTAINED TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS.
3. FUGITIVE ROCKS SHALL BE REMOVED FROM ADJACENT ROADWAYS DAILY OR MORE FREQUENTLY AS NECESSARY.

1 C-801 **TEMPORARY ROCK CONSTRUCTION ENTRANCE**
NOT TO SCALE



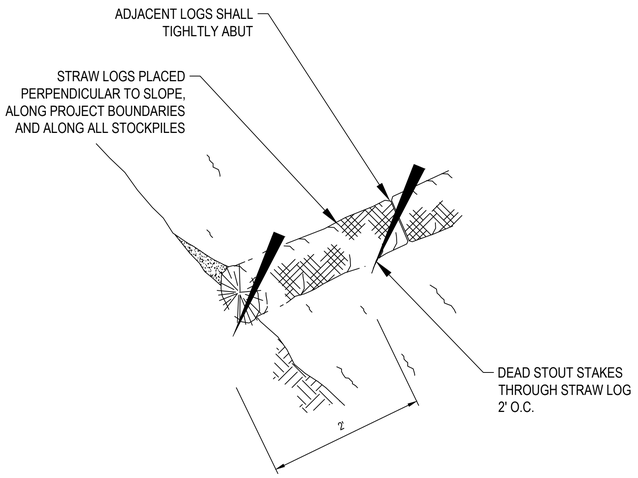

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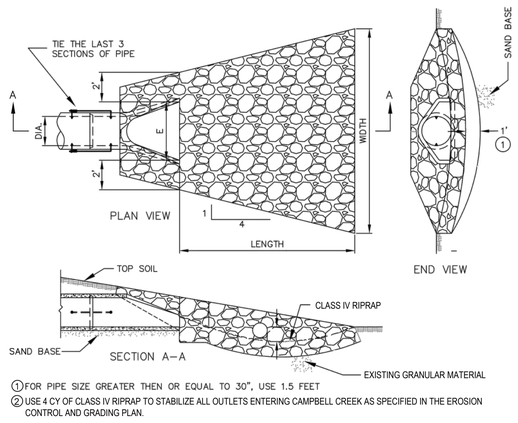

ANCHOR TRENCH INSTALLATION:
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT

ANCHOR TRENCH DETAIL

2 C-801 **EROSION CONTROL BLANKET INSTALLATION**
NOT TO SCALE

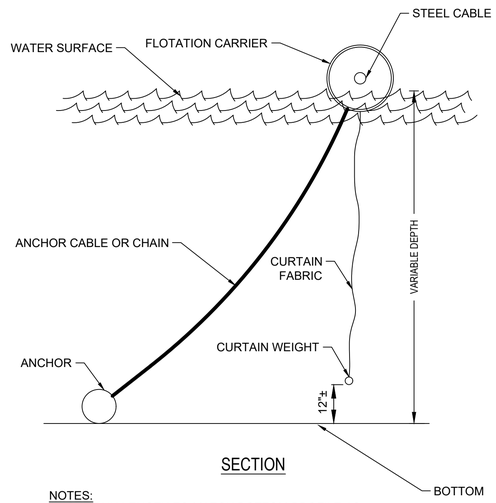



3 C-801 **BIOROLL (SEDIMENT CONTROL LOG)**
NOT TO SCALE




① FOR PIPE SIZE GREATER THEN OR EQUAL TO 30", USE 1.5 FEET
② USE 4 CY OF CLASS IV RIPRAP TO STABILIZE ALL OUTLETS ENTERING CAMPBELL CREEK AS SPECIFIED IN THE EROSION CONTROL AND GRADING PLAN.

4 C-801 **RIPRAP OUTLET PROTECTION**
NOT TO SCALE




SECTION

NOTES:
1. CURTAIN LENGTH TO MATCH BOTTOM PROFILE AS CLOSELY AS POSSIBLE.
2. MAXIMUM INTERVAL FOR SPACING OF WEIGHT IS 15'.

5 C-801 **FLOTATION SILT CURTAIN**
NOT TO SCALE

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(P): (763) 479-4200

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DETROIT LAKES, MN 56501

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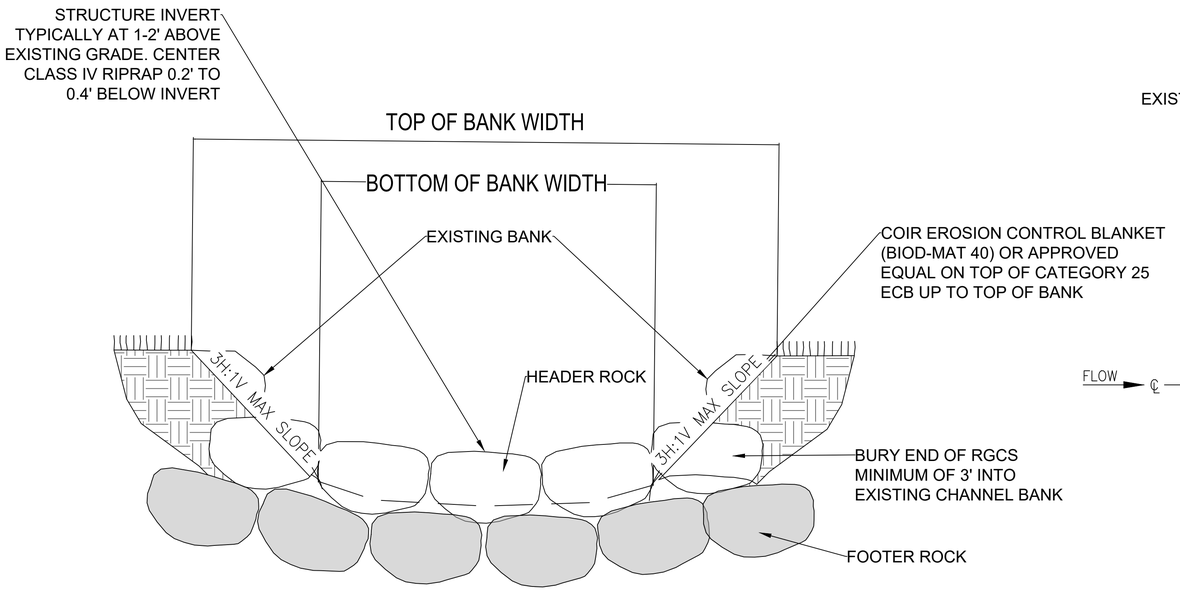
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SHEET TITLE: DETAILS
SHEET NO.: C-801

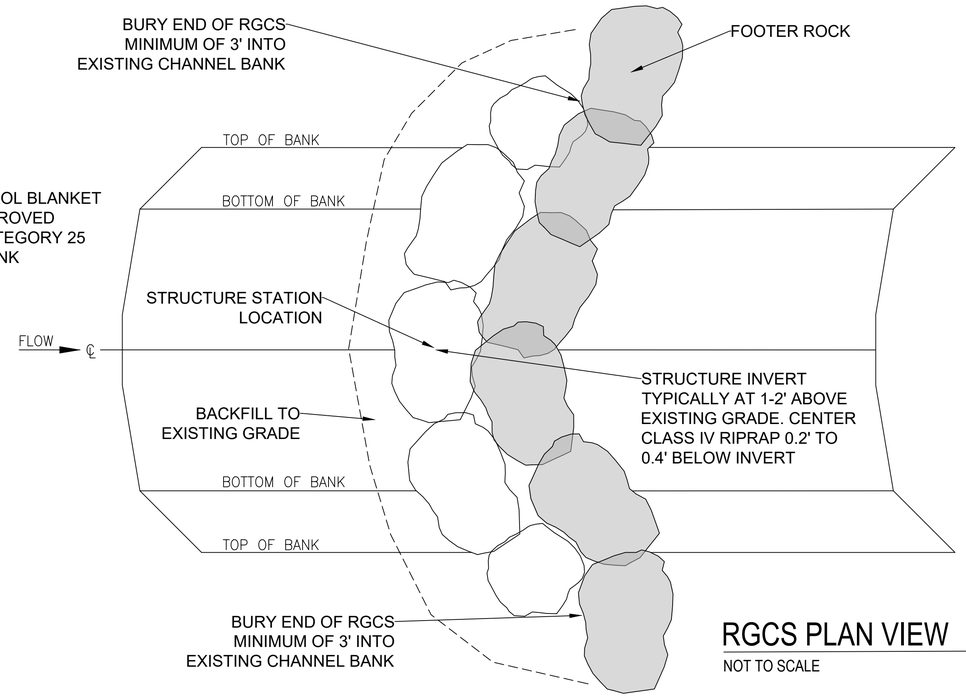
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C-802

## ROCK GRADE CONTROL STRUCTURE (RGCS)

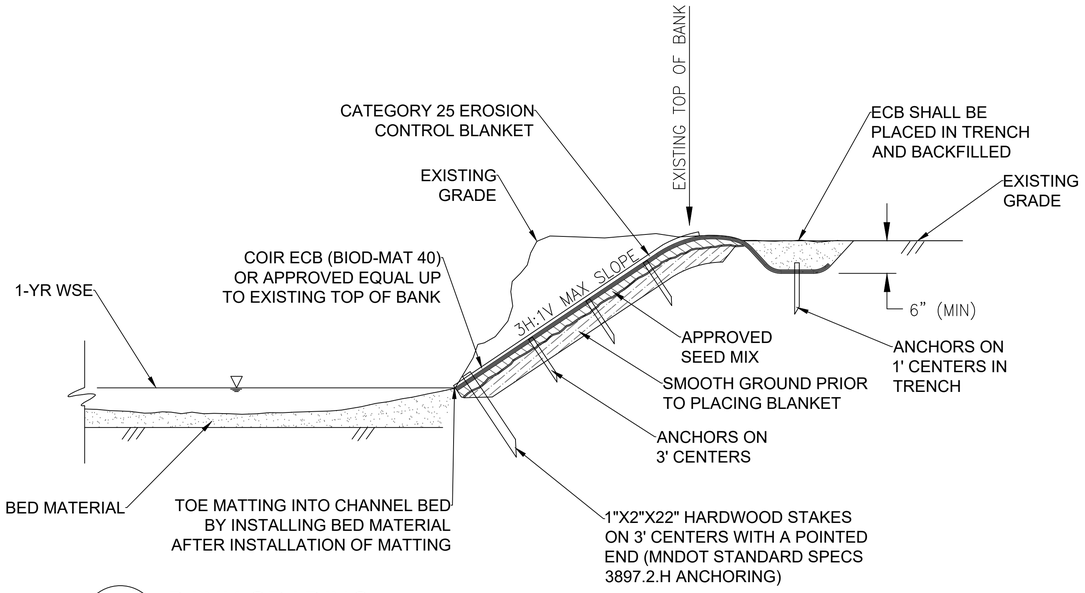
NOT TO SCALE




## RGCS PLAN VIEW

NOT TO SCALE

| STATION |
|---|
| 58+71 |
| 60+55 |
| 61+15 |
| 62+68 |
| 63+25 |
| 63+75 |
| 64+67 |
| 68+83 |
| 70+04 |
| 71+41 |
| 72+22 |
| 72+92 |
| 82+68 |
| 83+30 |
| 84+97 |
| 87+45 |
| 88+40 |
| 90+36 |




2
C-802

## BANK GRADING

NOT TO SCALE

| *CREEK SIDE | START STATION | END STATION | LENGTH (FT) |
|---|---|---|---|
| RIGHT | 60+92 | 63+82 | 290 |
| LEFT | 60+92 | 64+67 | 375 |
| RIGHT | 64+98 | 65+53 | 55 |
| LEFT | 64+98 | 65+53 | 55 |
| RIGHT | 70+16 | 70+96 | 80 |
| LEFT | 70+16 | 70+36 | 20 |
| LEFT | 71+01 | 71+41 | 40 |
| RIGHT | 73+77 | 73+92 | 15 |
| LEFT | 73+77 | 73+92 | 15 |
| RIGHT | 74+00 | 74+20 | 20 |
| LEFT | 74+00 | 74+20 | 20 |
| LEFT | 75+97 | 76+52 | 55 |
| LEFT | 77+01 | 77+56 | 55 |
| RIGHT | 77+27 | 78+27 | 100 |
| RIGHT | 78+83 | 79+63 | 80 |
| LEFT | 78+90 | 79+50 | 60 |
| RIGHT | 81+50 | 82+00 | 50 |
| RIGHT | 83+90 | 84+65 | 75 |
| RIGHT | 89+32 | 90+02 | 70 |

* CREEK SIDE IS BASED ON LOOKING DOWNSTREAM IN THE DIRECTION OF FLOW.

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ONE CARLSON PARKWAY N
SUITE 100
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(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
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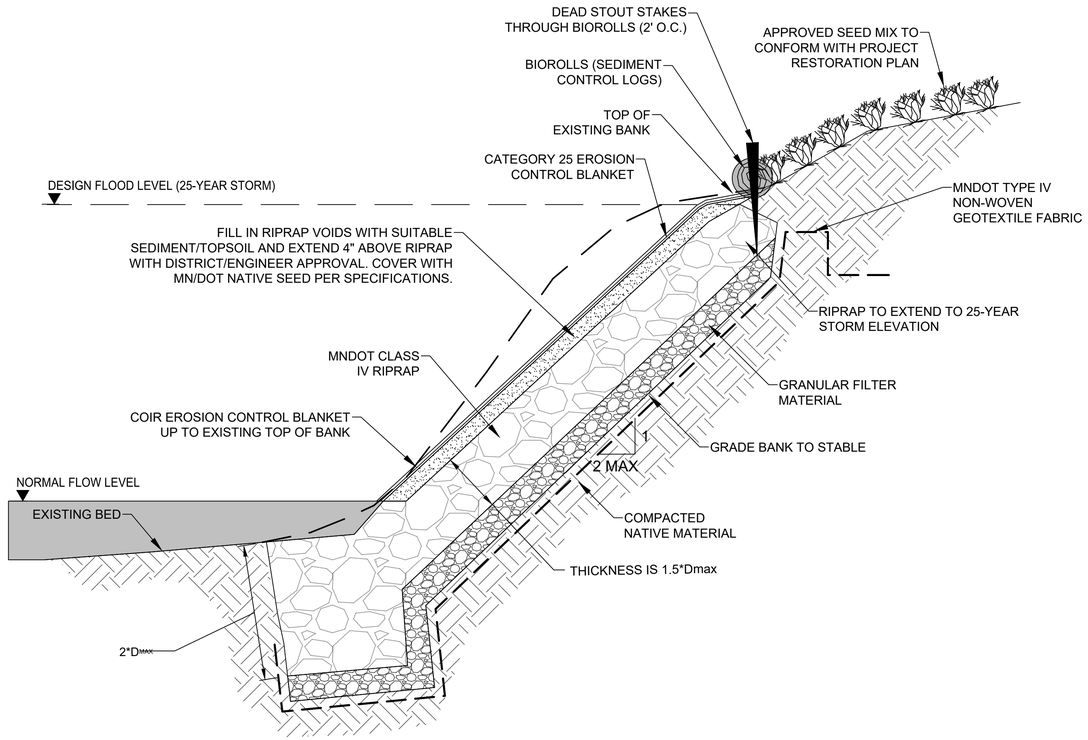
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SHEET NO.: C-802

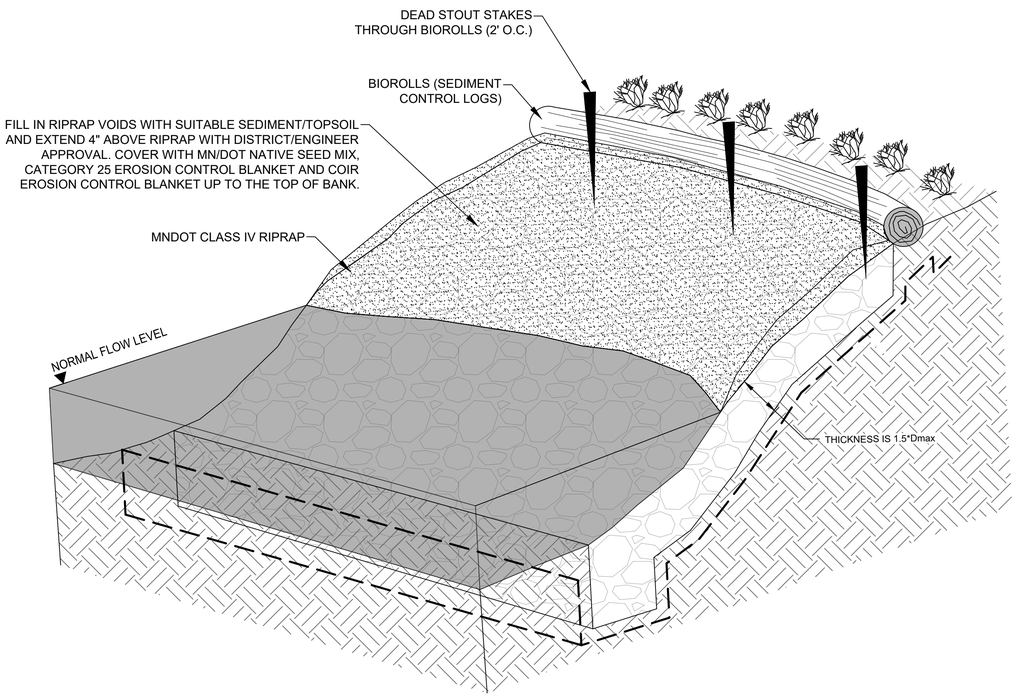
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| *CREEK SIDE | START STATION | END STATION | LENGTH (FT) | TOE ELEV. (FT) | 25-YEAR STORM ELEV. (FT) | TOTAL HEIGHT (FT) | THICKNESS (FT) | RIPRAP QUANTITY (CY) |
|---|---|---|---|---|---|---|---|---|
| LEFT | 57+00 | 57+50 | 50 | | | | | |
| RIGHT | 78+38 | 78+83 | 45 | | | | | |
| LEFT | 80+70 | 80+95 | 25 | | | | | |
| RIGHT | 80+72 | 81+07 | 35 | | | | | |
| LEFT | 82+68 | 82+88 | 20 | | | | | |
| LEFT | 83+82 | 83+92 | 10 | | | | | |
| RIGHT | 83+85 | 83+90 | 5 | | | | | |
| LEFT | 86+44 | 86+59 | 15 | | | | | |
| RIGHT | 86+44 | 86+59 | 15 | | | | | |
| RIGHT | 89+07 | 89+27 | 20 | | | | | |
| * CREEK SIDE IS BASED ON LOOKING DOWNSTREAM IN THE DIRECTION OF FLOW. | | | | | | | | |

1. GRADE BANK TO STABLE PRIOR TO BEDDING AND RIPRAP PLACEMENT
   - MAX 2H:1V FOR ANGULAR (BLAST) ROCK
2. ROCK / RIPRAP SIZE, DESIGN WATER LEVEL, AND GRANULAR BEDDING MATERIAL SPECIFICATIONS TO BE DETERMINED BY A QUALIFIED PROFESSIONAL DURING DETAILED DESIGN.
3. KEY UPSTREAM END OF ROCKS / RIPRAP INTO BANK CONTOURS TO FORM A SMOOTH TRANSITION FROM EXISTING BANK TO RESTORED BANK.
4. ALL APPROVED SEED USED IN RESTORATION TO BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND RESTORATION PLAN.




1 / C-803 MNDOT CLASS IV RIPRAP TOE - CROSS SECTION
NOT TO SCALE




ISOMETRIC VIEW
NOT TO SCALE

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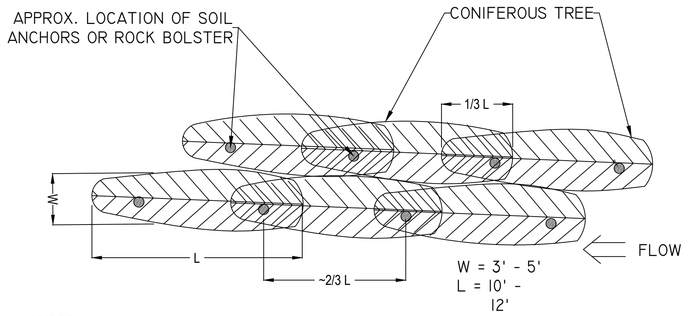
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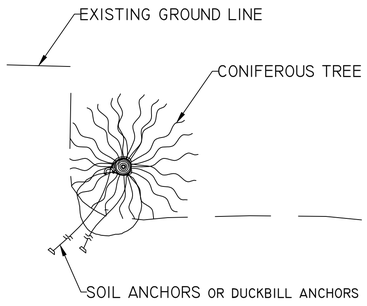
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SHEET NO.: C-803

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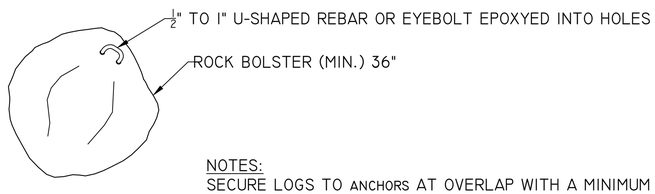



NOTES:
OVERLAP CONIFERS BY $\frac{1}{4}$ TO $\frac{1}{3}$ LENGTH IN A SHINGLE-LIKE ARRANGEMENT. SECURE AT OVERLAP WITH THREE WRAPS OF 12 GAGE WIRE OR $\frac{1}{8}$" CABLE AND CLAMP SECURELY. ANCHOR WITH A MINIMUM OF TWO SETS OF SOIL ANCHORS OR DUCKBILL ANCHORS PER TRUNK AS PER SPECIFICATIONS. START AT TOE OF BANK. IF ADDITIONAL ROWS ARE REQUIRED, OFFSET BY NOT MORE THAN TREE WIDTH. PRESS ROWS TIGHT TOGETHER. CABLE ROWS TOGETHER WITH 12 GAGE WIRE OR $\frac{1}{8}$" CABLE AND CLAMP.

PLAN




SECTION




NOTES:
SECURE LOGS TO ANCHORS AT OVERLAP WITH A MINIMUM OF THREE WRAPS AT 1/8-1/4" DIAMETER GALVANIZED NON-GREASED, WIRE ROPE.

ROCK BOLSTER DETAIL

1 / C-804 CONIFER REVETMENT
NOT TO SCALE

| *CREEK SIDE | START STATION | END STATION | LENGTH |
|---|---|---|---|
| LEFT | 50+67 | 51+22 | 55 |
| RIGHT | 51+45 | 52+27 | 82 |
| LEFT | 72+90 | 73+77 | 87 |
| RIGHT | 74+23 | 75+46 | 123 |
| LEFT | 75+49 | 75+97 | 48 |
| RIGHT | 79+63 | 80+60 | 97 |
| LEFT | 81+90 | 82+68 | 78 |
| RIGHT | 82+95 | 83+30 | 35 |
| RIGHT | 83+54 | 83+85 | 31 |
| LEFT | 83+92 | 84+97 | 105 |
| LEFT | 85+24 | 85+69 | 45 |
| LEFT | 86+05 | 86+44 | 39 |
| RIGHT | 86+71 | 87+45 | 74 |
| RIGHT | 87+66 | 88+14 | 48 |

* CREEK SIDE IS BASED ON LOOKING DOWNSTREAM IN THE DIRECTION OF FLOW.

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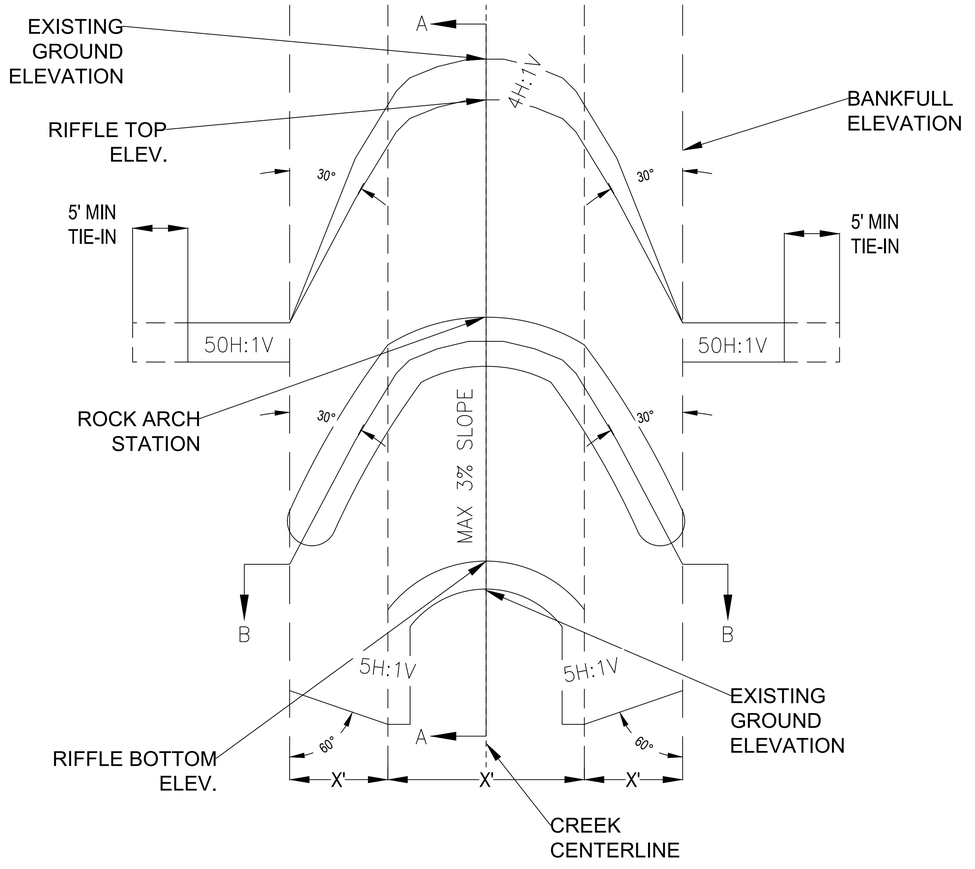
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LICENSE NO.: 56108
DATE: 01/31/2025

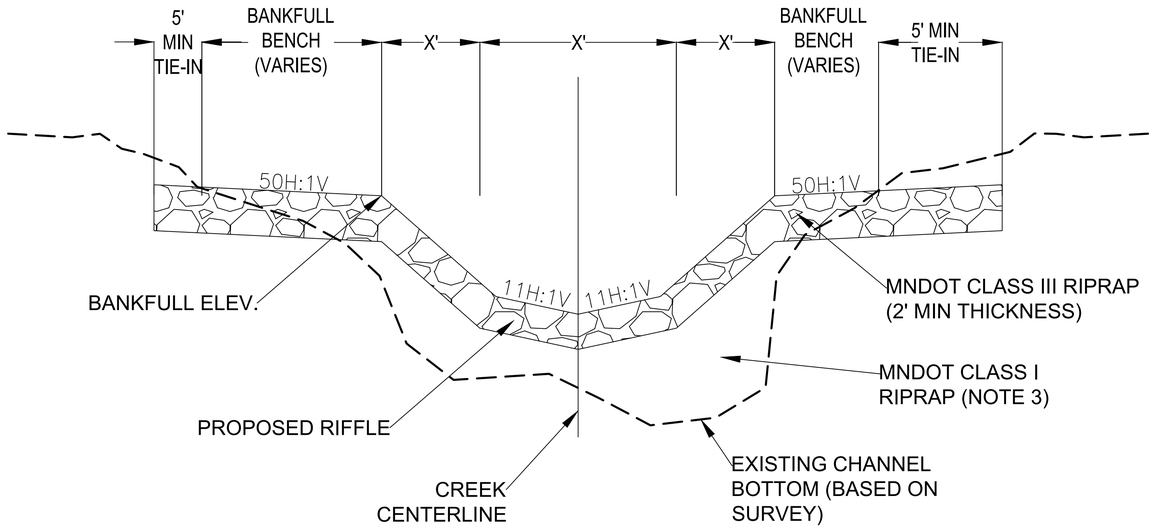
PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: DETAILS
SHEET NO.: C-804

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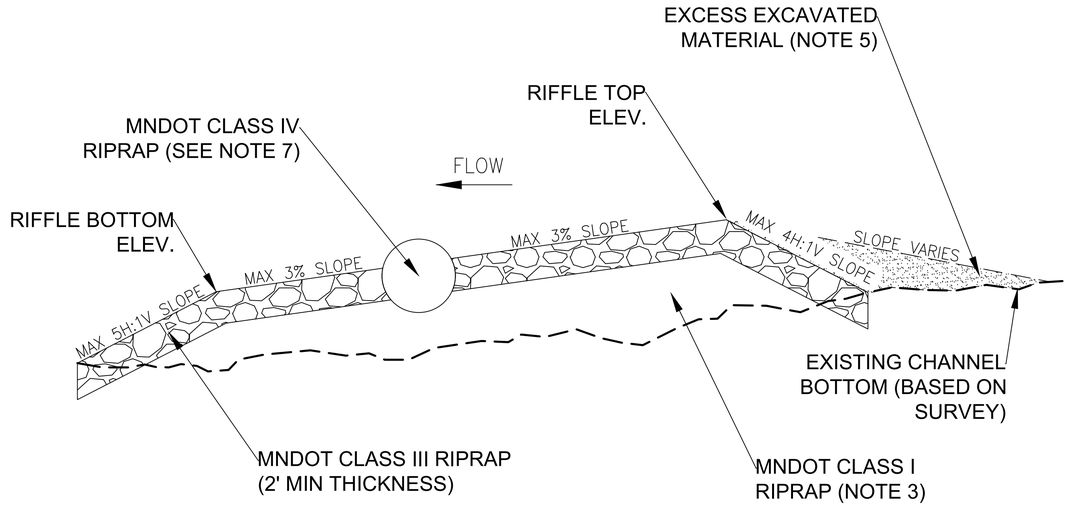




## RIFFLE DETAIL

NOT TO SCALE

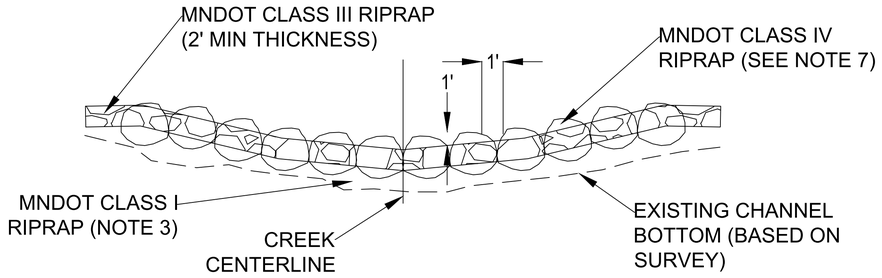
1 / C-805 ROCK ARCH RAPIDS

NOT TO SCALE




## SECTION A-A (CHANNEL CENTERLINE)

NOT TO SCALE




## SECTION B-B (CHANNEL CENTERLINE)

NOT TO SCALE

| RIFFLE TOP STA. | RIFFLE TOP ELEV. | RIFFLE BOTTOM STA. | RIFFLE BOTTOM ELEV. | EXISTING GROUND ELEV. UPSTREAM | EXISTING GROUND ELEV. DOWNSTREAM | BANKFULL ELEVATION | NUMBER OF ROCK ARCHES | ROCK ARCH #1 STA. | ROCK ARCH #2 STA. | ROCK ARCH #3 STA. | ROCK ARCH #4 STA. | ROCK ARCH #5 STA. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1+94 | 1416.5 | 3+00 | 1413.3 | 1413.2 | 1413.3 | | 5 | 1+97 | 2+17 | 2+37 | 2+57 | 2+77 |
| 10+68 | 1414.6 | 11+74 | 1411.5 | 1411.3 | 1411.5 | | 5 | 10+70 | 10+90 | 11+10 | 11+30 | 11+50 |

NOTES:

1. CHANNEL EXCAVATION MAY BE REQUIRED TO INSTALL THE 2-FOOT MINIMUM THICKNESS OF MNDOT CLASS III RIPRAP. ALL CHANNEL EXCAVATION IS INCIDENTAL TO THE MNDOT CLASS III RIPRAP BID ITEM.
2. MNDOT CLASS I RIPRAP SHALL BE SPREAD EVENLY OVER THE RIFFLE AFTER INSTALLATION OF CLASS III RIPRAP AT AN EQUIVALENT RATE TO PRODUCE A 6-INCH THICKNESS OVER THE EXTENT OF THE MNDOT CLASS III RIPRAP.
3. MNDOT CLASS I RIPRAP SHALL BE USED TO CONSTRUCT A SUBBASE AT A GRADE PARALLEL TO THE BOTTOM OF THE MNDOT CLASS III RIPRAP RIFFLE.
4. MNDOT CLASS III RIPRAP AT THE DOWNSTREAM END OF THE RIFFLE SHALL BE KEYED INTO THE EXISTING CHANNEL BOTTOM TO A MINIMUM DEPTH OF 2-FEET.
5. TEMPORARILY STOCKPILE EXCAVATED MATERIAL FROM THE CHANNEL TO BE INSTALLED IMMEDIATELY UPSTREAM OF THE RIFFLE ON THE 4H:1V SLOPE ONCE THE ROCK ARCH RAPIDS ARE COMPLETED.
6. TIE-IN SHALL BE CONSTRUCTED A MINIMUM OF 5-FEET HORIZONTALLY INTO EXISTING BANKS.
7. CLASS IV RIPRAP WILL BE SET 1-FOOT ABOVE THE FINISHED GRADE OF MNDOT CLASS III RIPRAP RIFFLE.

Stantec
ONE CARLSON PARKWAY N
SUITE 100
PLYMOUTH, MN 55447
(P): (763) 479-4200

CLIENT:
Pelican River watershed district
PELICAN RIVER WATERSHED DISTRICT
211 HOLMES ST. WEST
WELLS-FARGO BLDG (SUITE 201)
DETROIT LAKES, MN 56501

PROJECT TITLE:
CAMPBELL CREEK STREAM STABILIZATION AND FLOOD STORAGE PROJECT
RICHWOOD TOWNSHIP AND DETROIT TOWNSHIP, BECKER COUNTY, MINNESOTA

| ISSUE NO: | DESCRIPTION: | DATE: |
|---|---|---|
| 1 | 30% CONSTRUCTION DRAWINGS | 01/31/2025 |

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NOT FOR CONSTRUCTION

LICENSE NO.: 56108
DATE: 01/31/2025

PROJECT NO.: 227707144

| DWN BY: | CHK'D BY: | APP'D BY: |
|---|---|---|
| JRP | EM | JOAA |

ISSUE DATE: 01/31/2025
ISSUE NO.: 1
SHEET TITLE: DETAILS
SHEET NO.: C-805

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# Appendix C
## MDH Well Log Reports and Stratigraphic Records

Minnesota Unique Well Number

**471297**

**County** Becker
**Quad** Richwood
**Quad ID** 259A

**MINNESOTA DEPARTMENT OF HEALTH**

# WELL AND BORING REPORT

*Minnesota Statutes Chapter 1031*

**Entry Date** 04/03/1992
**Update Date** 08/22/2014
**Received Date**

| Well Name | Township | Range | Dir | Section | Subsection |
|---|---|---|---|---|---|
| JOHNSON, | 140 | 41 | W | 33 | DDCBCC |

**Elevation** 1420 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

**Address**

C/W RR 3 BOX 160 DETROIT LAKES MN 56501

**Stratigraphy Information**

| Geological Material | From | To (ft.) | Color | Hardness |
|---|---|---|---|---|
| SOIL | 0 | 1 | BLACK | SOFT |
| SANDY CLAY | 1 | 23 | BROWN | MEDIUM |
| CLAY | 23 | 72 | BLUE | MEDIUM |
| SAND AND GRAVEL | 72 | 91 | BROWN | MEDIUM |
| SAND | 91 | 97 | GRAY | MEDIUM |

**Remarks**

**Well Depth** 97 ft. **Depth Completed** 97 ft. **Date Well Completed** 08/26/1991

**Drill Method** Non-specified Rotary **Drill Fluid** Bentonite

**Use** domestic **Status** Active

**Well Hydrofractured?** Yes ☐ No ☐ **From** **To**

**Casing Type** Single casing **Joint**
**Drive Shoe?** Yes ☐ No ☒ **Above/Below** 1 ft.

| Casing Diameter | | Weight | | Hole Diameter | |
|---|---|---|---|---|---|
| 4 in. To 93 ft. | | 1.9 lbs./ft. | | 7 in. To 97 ft. | |

**Open Hole** From ft. To ft.

**Screen?** ☒ **Type** stainless **Make** JOHNSON

| Diameter | Slot/Gauze | Length | Set | |
|---|---|---|---|---|
| 3 in. | 12 | 5 ft. | 93 ft. | 97 ft. |

**Static Water Level**

56 ft. land surface Measure 08/26/1991

**Pumping Level (below land surface)**

56 ft. 2 hrs. Pumping at 20 g.p.m.

**Wellhead Completion**

Pitless adapter manufacturer MONITOR Model 6PS
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

**Grouting Information** Well Grouted? ☒ Yes ☐ No ☐ Not Specified

| Material | Amount | From | To |
|---|---|---|---|
| neat cement | 0 | 0 ft. | 50 ft. |

**Nearest Known Source of Contamination**

100 feet North Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

**Pump** ☐ Not Installed Date Installed 08/26/1991
Manufacturer's name WEBTROL
Model Number 3W HP 0.5 Volt 230
Length of drop pipe 72 ft Capacity 10 g.p. Typ Submersible

**Abandoned**

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

**Variance**

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

**Miscellaneous**

First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitized - scale 1:24,000 or larger (Digitizing Table)
System UTM - NAD83, Zone 15, Meters X 281921 Y 5197169
Unique Number Verification Name on mailbox Input Date 01/15/1998

**Angled Drill Hole**

**Well Contractor**

| Licensee Business | Lic. or Reg. No. | Name of Driller |
|---|---|---|
| Krueger Well Co. | 03034 | KRUEGER, B. |

Minnesota Unique Well Number

**714870**

**County** Becker
**Quad** Richwood
**Quad ID** 259A

**MINNESOTA DEPARTMENT OF HEALTH**

# WELL AND BORING REPORT

*Minnesota Statutes Chapter 1031*

**Entry Date** 04/25/2006
**Update Date** 09/12/2013
**Received Date** 12/13/2005

| Well Name | Township | Range | Dir | Section | Subsection |
|---|---|---|---|---|---|
| LAKES | 139 | 41 | W | 4 | ACACAD |

**Elevation** 1395 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

**Address**

Contact 920 WASHINGTON AV DETROIT LAKES MN 56501

**Stratigraphy Information**

| Geological Material | From | To (ft.) | Color | Hardness |
|---|---|---|---|---|
| CLAY | 0 | 7 | BROWN | SOFT |
| SAND | 7 | 14 | BROWN | SOFT |
| CLAY | 14 | 30 | BROWN | SOFT |
| SAND | 30 | 50 | BROWN | SOFT |
| SAND | 50 | 90 | GRAY | SOFT |

**Remarks**

**Well Depth** 90 ft. **Depth Completed** 90 ft. **Date Well Completed** 09/06/2005

**Drill Method** Non-specified Rotary **Drill Fluid** Other

**Use** domestic **Status** Active

**Well Hydrofractured?** Yes ☐ No ☒ **From** **To**

**Casing Type** Single casing **Joint**

**Drive Shoe?** Yes ☐ No ☐ **Above/Below**

| Casing Diameter | Weight | Hole Diameter |
|---|---|---|
| 4 in. To 86 ft. | lbs./ft. | 8 in. To 90 ft. |

**Open Hole** From ft. To ft.

**Screen?** ☒ **Type** stainless **Make** JOHNSON

| Diameter | Slot/Gauze | Length | Set |
|---|---|---|---|
| 4 in. | 20 | 4 ft. | 86 ft. 90 ft. |

**Static Water Level**

32 ft. land surface Measure 09/06/2005

**Pumping Level (below land surface)**

80 ft. 1 hrs. Pumping at 100 g.p.m.

**Wellhead Completion**

Pitless adapter manufacturer MAASS Model 4J-1

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

**Grouting Information** Well Grouted? ☒ Yes ☐ No ☐ Not Specified

| Material | Amount | From | To |
|---|---|---|---|
| high solids bentonite | | ft. 30 | ft. |

**Nearest Known Source of Contamination**

feet Direction Type

Well disinfected upon completion? ☐ Yes ☐ No

**Pump** ☐ Not Installed Date Installed 09/06/2005

Manufacturer's name AERMOTOR

Model Number T12-50 HP 0.5 Volt 230

Length of drop pipe 40 ft Capacity 12 g.p. Typ Submersible

**Abandoned**

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

**Variance**

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

**Miscellaneous**

First Bedrock Aquifer Quat. buried

Last Strat sand-gray Depth to Bedrock ft

Located by Minnesota Department of Health

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 281765 Y 5196489

Unique Number Verification Info/GPS from data Input Date 05/08/2007

**Angled Drill Hole**

**Well Contractor**

Neyens Well Drilling Inc. 56713 NEYENS, J.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

**729557**

**County** Becker
**Quad** Richwood
**Quad ID** 259A

**MINNESOTA DEPARTMENT OF HEALTH**

# WELL AND BORING REPORT

*Minnesota Statutes Chapter 1031*

**Entry Date** 09/27/2007
**Update Date** 09/12/2013
**Received Date** 06/06/2007

| Well Name | Township | Range | Dir | Section | Subsection |
|---|---|---|---|---|---|
| WESTBROOK, | 139 | 41 | W | 4 | ACACDB |

**Elevation** 1385 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

**Address**

Well FLOYD LAKE ACRES DETROIT LAKES MN 56501

**Stratigraphy Information**

| Geological Material | From | To (ft.) | Color | Hardness |
|---|---|---|---|---|
| TOPSOIL | 0 | 2 | BLACK | |
| CLAY | 2 | 30 | YELLOW | |
| GRAVEL & CLAY | 30 | 50 | BROWN | |
| GRAVEL | 50 | 70 | GRAY | |
| SAND | 70 | 90 | GRAY | |

**Remarks**

**Well Depth** 90 ft. **Depth Completed** 84 ft. **Date Well Completed** 01/10/2007

**Drill Method** Non-specified Rotary **Drill Fluid** Qwik gel

**Use** domestic **Status** Active

**Well Hydrofractured?** Yes ☐ No ☒ **From** **To**

**Casing Type** Single casing **Joint**
**Drive Shoe?** Yes ☐ No ☒ **Above/Below**

| Casing Diameter | | Weight |
|---|---|---|
| 4 | in. To 80 ft. | lbs./ft. |

**Open Hole** From ft. To ft.

**Screen?** ☒ **Type** stainless **Make** JOHNSON

| Diameter | Slot/Gauze | Length | Set | |
|---|---|---|---|---|
| 4 in. | 10 | 4 ft. | 80 ft. | 84 ft. |

**Static Water Level**
28 ft. land surface Measure 01/10/2007

**Pumping Level (below land surface)**
31 ft. 2 hrs. Pumping at 20 g.p.m.

**Wellhead Completion**
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

**Grouting Information** Well Grouted? ☒ Yes ☐ No ☐ Not Specified

| Material | Amount | From | To |
|---|---|---|---|
| high solids bentonite | 3 Sacks | 10 ft. | 60 ft. |

**Nearest Known Source of Contamination**
70 feet South Direction Sewer Type
Well disinfected upon completion? ☒ Yes ☐ No

**Pump** ☒ Not Installed Date Installed
Manufacturer's name
Model Number HP Volt
Length of drop pipe ft Capacity g.p. Typ

**Abandoned**
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

**Variance**
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

**Miscellaneous**
First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Department of Health
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 281742 Y 5196465
Unique Number Verification Info/GPS from data Input Date 05/08/2007

**Angled Drill Hole**

**Well Contractor**
Vareberg Well Drilling 1482 ROBERTSON
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

**767665**

**County** Becker
**Quad** Richwood
**Quad ID** 259A

**MINNESOTA DEPARTMENT OF HEALTH**

# WELL AND BORING REPORT

*Minnesota Statutes Chapter 1031*

**Entry Date**
**Update Date** 05/09/2014
**Received Date** 10/27/2008

| Well Name | Township | Range | Dir | Section | Subsection |
|---|---|---|---|---|---|
| GROSSMAN, | 139 | 41 | W | 4 | ABCCDC |

**Elevation** 1397 **Elev. Method** LiDAR 1m DEM (MNDNR)

**Address**

Well 21878 FLOYD LAKE DR DETROIT LAKES MN 56501

**Stratigraphy Information**

| Geological Material | From | To (ft.) | Color | Hardness |
|---|---|---|---|---|
| TOP SOIL | 0 | 1 | BROWN | SOFT |
| CLAY | 1 | 30 | BROWN | HARD |
| SAND & GRAVEL | 30 | 55 | BROWN | SOFT |
| SAND | 55 | 68 | GRAY | SOFT |

**Remarks**

**Well Depth** 68 ft. **Depth Completed** 68 ft. **Date Well Completed** 10/22/2008

**Drill Method** Non-specified Rotary **Drill Fluid** Bentonite

**Use** domestic **Status** Active

**Well Hydrofractured?** Yes ☐ No ☒ **From** **To**

**Casing Type** Single casing **Joint**
**Drive Shoe?** Yes ☐ No ☒ **Above/Below**

| Casing Diameter | Weight | Hole Diameter |
|---|---|---|
| 4 in. To 64 ft. | 1 lbs./ft. | 6.7 in. To 68 ft. |

**Open Hole** From ft. To ft.

**Screen?** ☒ **Type** stainless **Make** JOHNSON

| Diameter | Slot/Gauze | Length | Set |
|---|---|---|---|
| 4 in. | 12 | 4 ft. | 64 ft. 68 ft. |

**Static Water Level**
39 ft. land surface Measure 10/15/2008

**Pumping Level (below land surface)**
63 ft. 1 hrs. Pumping at 40 g.p.m.

**Wellhead Completion**
Pitless adapter manufacturer MONITOR Model SNAPPY
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

**Grouting Information** Well Grouted? ☒ Yes ☐ No ☐ Not Specified

| Material | Amount | From | To |
|---|---|---|---|
| bentonite | 4.5 Sacks | 0 ft. | 50 ft. |

**Nearest Known Source of Contamination**
25 feet North Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

**Pump** ☐ Not Installed Date Installed 10/22/2008
Manufacturer's name SCHAEFER
Model Number 1Y12P05 HP 0.5 Volt 230
Length of drop pipe 50 ft Capacity 10 g.p. Typ Submersible

**Abandoned**
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

**Variance**
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

**Miscellaneous**
First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 281548 Y 5196662
Unique Number Verification Site Plan Input Date 04/15/2014

**Angled Drill Hole**

**Well Contractor**
Elsner Well Drilling, Inc. 1374 ELSNER, J.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

**788457**

**County** Becker
**Quad** Richwood
**Quad ID** 259A

**MINNESOTA DEPARTMENT OF HEALTH**

# WELL AND BORING REPORT

*Minnesota Statutes Chapter 1031*

**Entry Date** 01/09/2013
**Update Date** 05/09/2014
**Received Date** 07/17/2012

| Well Name | Township | Range | Dir | Section | Subsection |
|---|---|---|---|---|---|
| MCCOLLUM, | 139 | 41 | W | 4 | ACADAD |

**Elevation** 1383 **Elev. Method** LiDAR 1m DEM (MNDNR)

**Address**

Contact 1262 170TH AV BEJOU MN 56516
Well 21774 FLOYD LAKE DR DETROIT LAKES MN 56501

**Stratigraphy Information**

| Geological Material | From | To (ft.) | Color | Hardness |
|---|---|---|---|---|
| TOPSOIL | 0 | 1 | BLACK | SOFT |
| SANDY CLAY | 1 | 11 | YELLOW | SOFT |
| CLAY | 11 | 37 | YELLOW | MEDIUM |
| GRAVEL | 37 | 74 | YELLOW | MEDIUM |

**Remarks**
DRILLING FLUID: SUPER GEL-X.

**Well Depth** 74 ft. **Depth Completed** 74 ft. **Date Well Completed** 05/16/2012

**Drill Method** Non-specified Rotary **Drill Fluid** Other

**Use** domestic **Status** Active

**Well Hydrofractured?** Yes ☐ No ☒ **From** **To**

**Casing Type** Single casing **Joint**
**Drive Shoe?** Yes ☐ No ☒ **Above/Below**

| Casing Diameter | Weight | Hole Diameter |
|---|---|---|
| 4 in. To 66 ft. | lbs./ft. | 6.7 in. To 74 ft. |

**Open Hole** From ft. To ft.

**Screen?** ☒ **Type** stainless **Make** JOHNSON

| Diameter | Slot/Gauze | Length | Set |
|---|---|---|---|
| 2 in. | 18 | 8 ft. | 66 ft. 74 ft. |

**Static Water Level**
27 ft. land surface Measure 05/16/2012

**Pumping Level (below land surface)**
74 ft. 2 hrs. Pumping at 40 g.p.m.

**Wellhead Completion**
Pitless adapter manufacturer BAKER Model 4A0
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

**Grouting Information** Well Grouted? ☒ Yes ☐ No ☐ Not Specified

| Material | Amount | From | To |
|---|---|---|---|
| bentonite | 3 Sacks | 8 ft. | 50 ft. |

**Nearest Known Source of Contamination**
50 feet East Direction Septic tank/drain field Type
Well disinfected upon completion? ☒ Yes ☐ No

**Pump** ☐ Not Installed Date Installed 07/17/2012
Manufacturer's name SCHAEFER
Model Number HP 0.5 Volt 230
Length of drop pipe 40 ft Capacity 10 g.p. Typ Submersible

**Abandoned**
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

**Variance**
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

**Miscellaneous**
First Bedrock Aquifer Quat. buried
Last Strat gravel (+larger)-yellow Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 281873 Y 5196497
Unique Number Verification Site Plan Input Date 04/15/2014

**Angled Drill Hole**

**Well Contractor**
Brovold Wells 2149 BROVOLD, K.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

**798506**

**County** Becker
**Quad** Richwood
**Quad ID** 259A

**MINNESOTA DEPARTMENT OF HEALTH**

# WELL AND BORING REPORT

*Minnesota Statutes Chapter 1031*

**Entry Date** 10/16/2013
**Update Date** 09/02/2014
**Received Date** 09/23/2013

| Well Name | Township | Range | Dir | Section | Subsection |
|---|---|---|---|---|---|
| BECKMAN, | 139 | 41 | W | 4 | ACCCBD |

**Elevation** 1367 **Elev. Method** LiDAR 1m DEM (MNDNR)

**Address**

Contact 21965 32 CH ROCHERT MN 56578
Well 25540 ALMQUIST RD DETROIT LAKES MN 56501

**Stratigraphy Information**

| Geological Material | From | To (ft.) | Color | Hardness |
|---|---|---|---|---|
| TOP SOIL | 0 | 1 | BLACK | SOFT |
| CLAY | 1 | 27 | YELLOW | HARD |
| CLAY | 27 | 32 | BLUE | SOFT |
| GRAVEL | 32 | 62 | BROWN | SOFT |
| SAND | 62 | 70 | GRAY | SOFT |

**Remarks**

| Well Depth | Depth Completed | Date Well Completed |
|---|---|---|
| 70 ft. | 68 ft. | 09/06/2013 |

**Drill Method** Non-specified Rotary **Drill Fluid** Bentonite

**Use** domestic **Status** Active

**Well Hydrofractured?** Yes ☐ No ☒ **From** **To**

**Casing Type** Single casing **Joint**
**Drive Shoe?** Yes ☐ No ☒ **Above/Below**

| Casing Diameter | Weight | Hole Diameter |
|---|---|---|
| 4 in. To 64 ft. | 1 lbs./ft. | 6.7 in. To 68 ft. |

**Open Hole** From ft. To ft.

**Screen?** ☒ **Type** stainless **Make** JOHNSON

| Diameter | Slot/Gauze | Length | Set |
|---|---|---|---|
| 4 in. | 15 | 4 ft. | 64 ft. 68 ft. |

**Static Water Level**
9 ft. land surface Measure 08/16/2013

**Pumping Level (below land surface)**
63 ft. 1 hrs. Pumping at 80 g.p.m.

**Wellhead Completion**
Pitless adapter manufacturer MONITOR Model SNAPPY
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

**Grouting Information** Well Grouted? ☒ Yes ☐ No ☐ Not Specified

| Material | Amount | From | To |
|---|---|---|---|
| bentonite | 4 Sacks | ft. | 50 ft. |

**Nearest Known Source of Contamination**
feet Direction Type
Well disinfected upon completion? ☒ Yes ☐ No

**Pump** ☐ Not Installed Date Installed 09/06/2013
Manufacturer's name SCHAEFER
Model Number LY12P05 HP 0.5 Volt 230
Length of drop pipe 40 ft Capacity 10 g.p. Typ Submersible

**Abandoned**
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

**Variance**
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

**Miscellaneous**
First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 281519 Y 5196303
Unique Number Verification Address verification Input Date 09/02/2014

**Angled Drill Hole**

**Well Contractor**
Elsner Well Drilling, Inc. 1374 MONROE, S.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

**837052**

**County** Becker
**Quad** Richwood
**Quad ID** 259A

**MINNESOTA DEPARTMENT OF HEALTH**

# WELL AND BORING REPORT

*Minnesota Statutes Chapter 1031*

**Entry Date** 02/27/2019
**Update Date** 11/08/2019
**Received Date** 09/12/2018

| Well Name | Township | Range | Dir | Section | Subsection |
|---|---|---|---|---|---|
| HESTIKIN, DAVE | 139 | 41 | W | 4 | ACBDBA |

**Elevation** 1374.7 **Elev. Method** LiDAR 1m DEM (MNDNR)

**Address**

C/W 21844 FLOYD LAKE DR DETROIT LAKES MN 56501

**Stratigraphy Information**

| Geological Material | From | To (ft.) | Color | Hardness |
|---|---|---|---|---|
| SAND | 0 | 28 | BROWN | SOFT |
| SAND | 28 | 57 | GRAY | SOFT |

**Remarks**

| Well Depth | Depth Completed | Date Well Completed |
|---|---|---|
| 57 ft. | 57 ft. | 08/03/2018 |

**Drill Method** Non-specified Rotary **Drill Fluid** Bentonite

**Use** domestic **Status** Active

**Well Hydrofractured?** Yes ☐ No ☒ **From** **To**

**Casing Type** Single casing **Joint**
**Drive Shoe?** Yes ☐ No ☒ **Above/Below**

| Casing Diameter | Weight | Hole Diameter |
|---|---|---|
| 4 in. To 53 ft. | lbs./ft. | 6.5 in. To 0 ft. |

**Open Hole** From ft. To ft.

**Screen?** ☒ **Type** telescoping **Make** JOHNSON

| Diameter | Slot/Gauze | Length | Set | |
|---|---|---|---|---|
| 4 in. | 20 | 4 ft. | 53 ft. | 57 ft. |

**Static Water Level**
50 ft. null Measure 08/03/2018

**Pumping Level (below land surface)**
12 ft. 1 hrs. Pumping at 50 g.p.m.

**Wellhead Completion**
Pitless adapter manufacturer MONITOR Model 4AO
☐ Casing Protection ☒ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

**Grouting Information** Well Grouted? ☒ Yes ☐ No ☐ Not Specified

| Material | Amount | From | To |
|---|---|---|---|
| bentonite | 2 Sacks | ft. | 40 ft. |

**Nearest Known Source of Contamination**
70 feet Northwes Direction Sewer Type
Well disinfected upon completion? ☒ Yes ☐ No

**Pump** ☐ Not Installed Date Installed 08/03/2018
Manufacturer's name STARITE
Model Number 10SS50 HP 0.5 Volt 230
Length of drop pipe 30 ft Capacity 10 g.p. Typ Submersible

**Abandoned**
Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

**Variance**
Was a variance granted from the MDH for this well? ☐ Yes ☒ No

**Miscellaneous**
First Bedrock Aquifer
Last Strat Depth to Bedrock ft
Located by Minnesota Department of Health
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 281617 Y 5196520
Unique Number Verification Info/GPS from data Input Date 07/26/2018

**Angled Drill Hole**

**Well Contractor**
Krueger Water Wells, Inc. 2132 KRAFT, C.
Licensee Business Lic. or Reg. No. Name of Driller

# Appendix D
## MNDNR Natural Heritage Review Letter

DEPARTMENT OF NATURAL RESOURCES

# Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

**Project Name:** Campbell Creek Stream Stabilization and Flood Storage Project

**Project Proposer:** Pelican River Watershed District (PRWD)

**Project Type:** Natural Resource Management, Water Resources

**Project Type Activities:** Waterbody or watercourse impacts (e.g., dewatering, discharge, excavation, fill, runoff, sedimentation, changes in hydrology));Wetland impacts (e.g., dewatering, tiling, drainage, discharge, excavation, fill, runoff, sedimentation, changes in hydrology)

**TRS:** T139 R41 S4, T140 R41 S28, T140 R41 S33

**County(s):** Becker

**DNR Admin Region(s):** Northwest

**Reason Requested:** State EAW

**Project Description:** The Project, located in Detroit Lakes, Becker County, would address the phosphorous (TP) and sediment (TSS) pollution loading issues in Campbell Creek ...

**Existing Land Uses:** The Lower Reach Project Area consists of the Campbell Creek waterway north and south of CR 149, and includes landscaped grasses, deciduous canopy, and ...

**Landcover / Habitat Impacted:** Both Project Areas include the Campbell Creek waterway and associated riparian wetlands, along with some landscaped grasses, deciduous canopy, and grassland. ...

**Waterbodies Affected:** Nearby waterbodies include North Floyd Lake to the south of the Lower Reach Project Area, Campbell Lake upstream of the Upper Reach Project Area, and Sands ...

**Groundwater Resources Affected:** The Project Area is not within a Wellhead Protection Area (WPA) or a Drinking Water Supply Management Area (DWSMA). The Project is expected to improve ...

**Previous Natural Heritage Review:** No

**Previous Habitat Assessments / Surveys:** No

## SUMMARY OF AUTOMATED RESULTS

| Category | Results | Response By Category |
|---|---|---|
| **Project Details** | No Comments | No Further Review Required |
| **Ecologically Significant Area** | Comments | Potential Local Conservation Value<br>Protected Wetlands: Calcareous Fens |
| **State-Listed Endangered or Threatened Species** | No Comments | No Further Review Required |
| **State-Listed Species of Special Concern** | Comments | Recommendations |

| Category | Results | Response By Category |
|---|---|---|
| **Federally Listed Species** | No Records | Visit IPaC For Federal Review |

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

January 7, 2025

Project ID: MCE #2025-00004

Lily Hershley
Stantec
1800 Pioneer Creek Center
Maple Plain, MN 55359

RE: Automated Natural Heritage Review of the proposed Campbell Creek Stream Stabilization and Flood Storage Project
See Cover Page for location and project details.

Dear Lily Hershley,

As requested, the above project has been reviewed for potential effects to rare features. Based on this review, the following rare features may be adversely affected by the proposed project:

*Ecologically Significant Area*

- The Minnesota Biological Survey (MBS) has identified one or more Sites of Biodiversity Significance within or adjacent to the project boundary. Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Factors taken into account during the ranking process include the number of rare species documented within the site, the quality of the native plant communities in the site, the size of the site, and the context of the site within the landscape.

  Areas with Potential Local Conservation Value - The proposed project may impact one or more areas that have local conservation value. These areas are ranked as Below in the MBS Sites of Biodiversity Significance layer, and are retained in the layer as negative data. These areas do not meet the minimum biodiversity threshold for statewide significance but may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat.
- One or more calcareous fens have been documented in the vicinity of the proposed project. A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota. Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. Calcareous fens are fragile and may be impacted by activities within the fen, activities that affect surface water flows (e.g., stormwater flow/runoff, erosion), or activities that affect groundwater hydrology (e.g.,

groundwater pumping, contamination, or discharge). For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet. To minimize stormwater impacts, please refer to the Minnesota Pollution Control Agency's General Principles for Erosion Prevention and Sediment Control in the Minnesota Stormwater Manual. Please note that calcareous fens are "Special Waters" and a buffer zone may be required.

Depending on the distance to the calcareous fen(s), additional guidance may be provided below if you indicated that potential project activities include wetland impacts or groundwater impacts. **If you did not correctly identify wetland or groundwater impacts as part of your project, this impact analysis may be incorrect.**

*State-Listed Endangered or Threatened Species*

No state-listed endangered or threatened species have been documented in the vicinity of the project.

*State-Listed Species of Special Concern*

| Taxonomic Group | Common Name | Scientific Name | Water Regime | Habitat | Federal Status |
|---|---|---|---|---|---|
| Vertebrate Animal | Mudpuppy | Necturus maculosus | | Deep Water Zone of Lake, Littoral Zone of Lake, Medium Rivers and Streams, Large Rivers | |

- The above table identifies state-listed species of special concern that have been documented in the vicinity of your project. If suitable habitat for any of these species occurs within your project footprint or activity impact area, the project may negatively impact those species. To avoid impacting state-listed species of special concern, the DNR recommends modifying the location of project activities to avoid suitable habitat or modifying the timing of project activities to avoid the presence of the species. Please visit the DNR Rare Species Guide for more information on the habitat use of these species and recommended measures to avoid or minimize impacts. Species-specific comments, if any, appear below.

*Federally Listed Species*

The Natural Heritage Information System does not contain any records for federally listed species within one mile of the proposed project. Please note, however, that not all federally listed species are tracked within the NHIS. To ensure compliance with federal law, please conduct a federal regulatory review using the U.S. Fish and Wildlife Service's online Information for Planning and Consultation (IPaC) tool.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota’s rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and the project description provided on the cover page. If project details change or construction has not occurred within one year, please resubmit the project for review before initiating project activities.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential impacts to these rare features. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

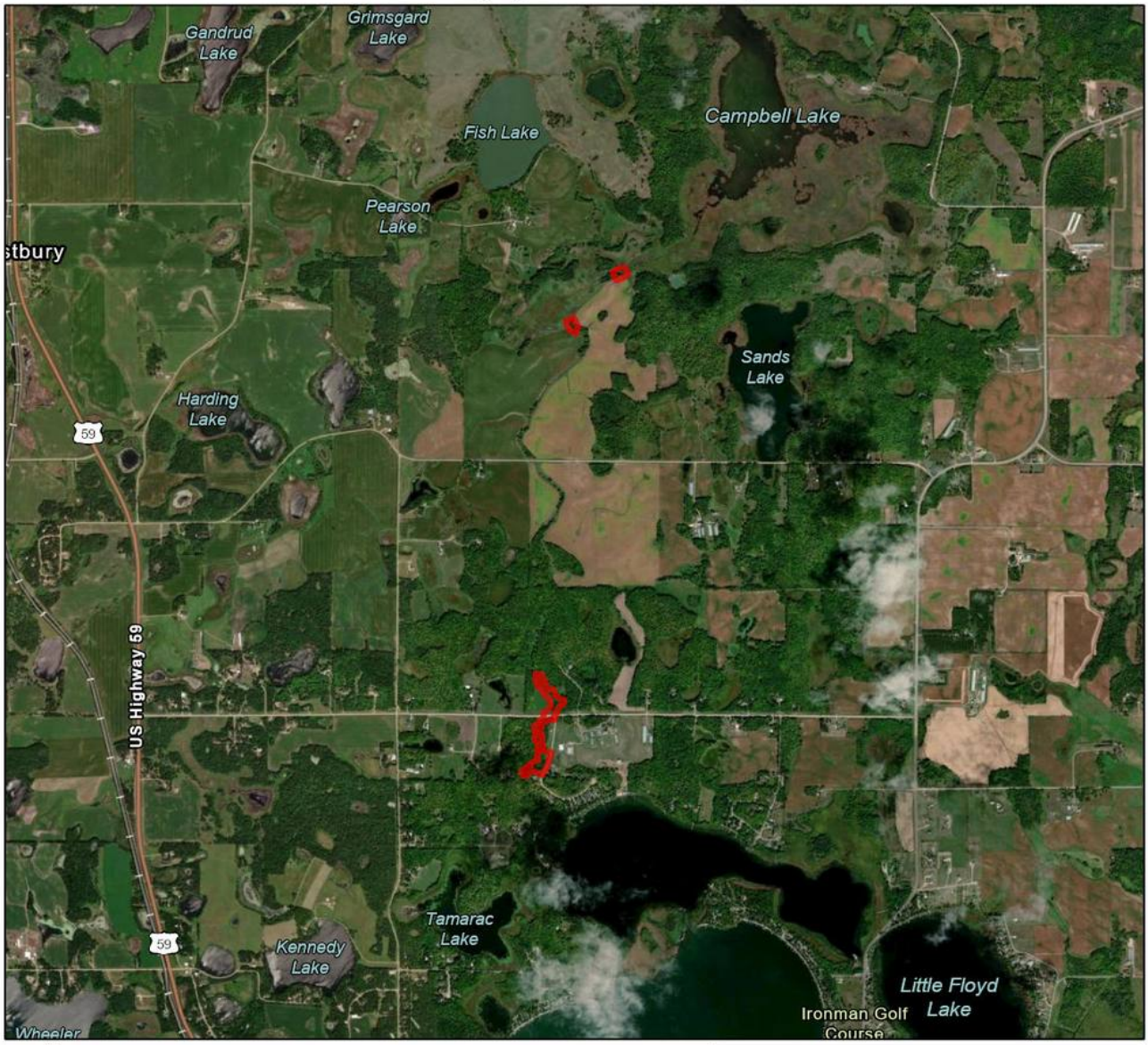
Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely, *The Natural Heritage Review Team* Natural Heritage Review Program
Review.NHIS@state.mn.us

Links: USFWS Information for Planning and Consultation (IPaC) tool
Information for Planning and Consultation (IPaC) tool
DNR Regional Environmental Assessment Ecologist Contact Info
https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

# mpbell Creek Stream Stabilization and Flood Storage Proj

## Aerial Imagery With Locator Map




N
W E
S

0 0.25 0.5 1 1.5 2 Miles

Project Boundary




Project Type: Natural Resource Management, Water Resources

Project Size (acres): 12.07

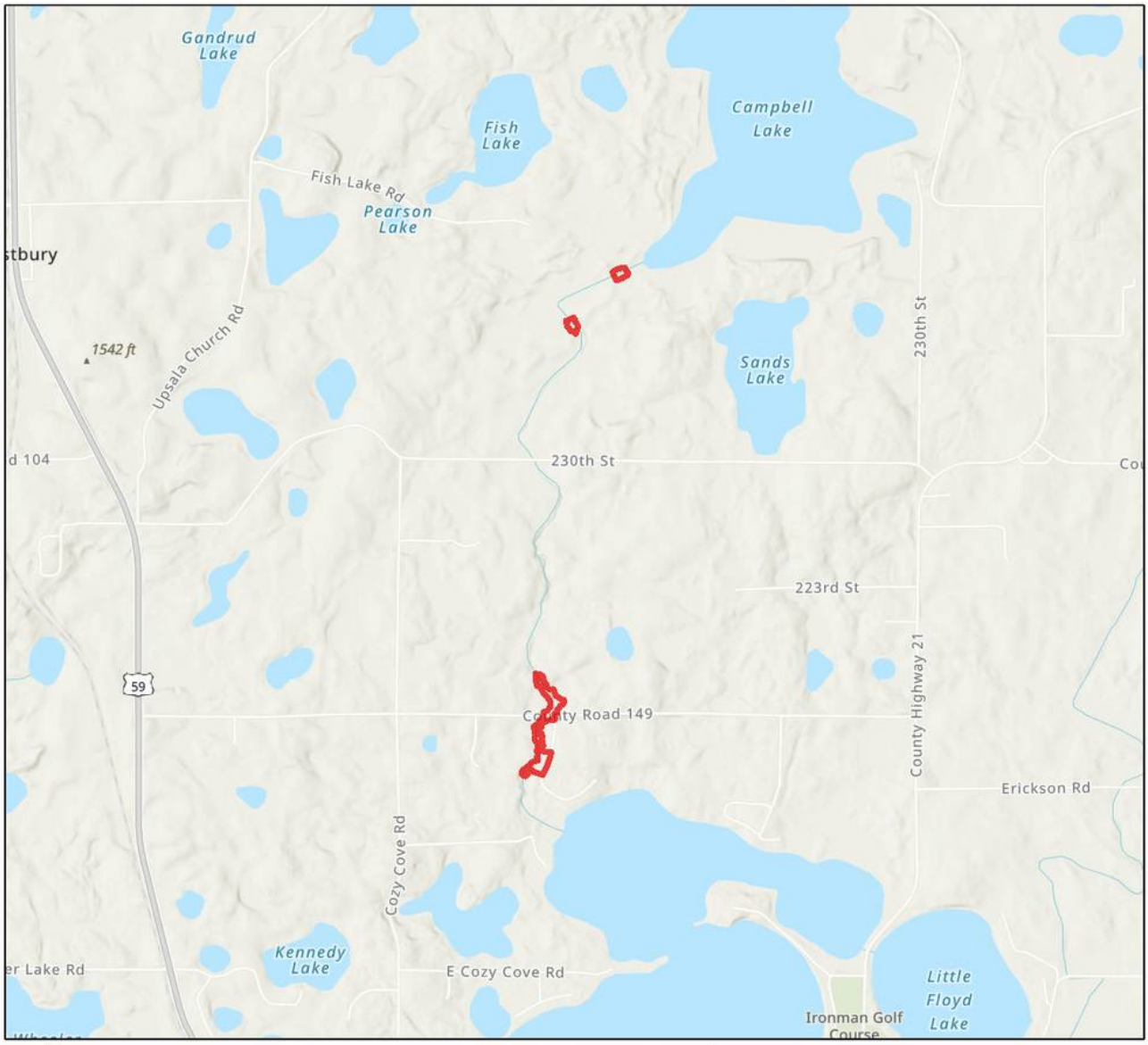
County(s): Becker

TRS: T139 R41 S4, T140 R41 S28, T140 R41 S33

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Earthstar Geographics
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

# mpbell Creek Stream Stabilization and Flood Storage Proj

## USA Topo Basemap With Locator Map




N
W E
S

0 0.25 0.5 1 1.5 2 Miles

Project Boundary




Project Type: Natural Resource Management, Water Resources

Project Size (acres): 12.07

County(s): Becker

TRS: T139 R41 S4, T140 R41 S28, T140 R41 S33

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, NASA, NGA, USGS, FEMA
Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

# Appendix E
## USFWS Species List and Concurrence Letter

# United States Department of the Interior

FISH AND WILDLIFE SERVICE

Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 02/20/2025 16:01:04 UTC
Project Code: 2025-0058944
Project Name: Campbell Creek Stabilization and Flood Storage Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

**Threatened and Endangered Species**

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

**Consultation Technical Assistance**

Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, USDA Rural Development projects, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

We recommend running the project (if it qualifies) through our **Minnesota-Wisconsin Federal Endangered Species Determination Key (Minnesota-Wisconsin ("D-key"))**. A demonstration video showing how-to access and use the determination key is available. Please note that the Minnesota-Wisconsin D-key is the third option of 3 available d-keys. D-keys are tools to help Federal agencies and other project proponents determine if their proposed action has the potential to adversely affect federally listed species and designated critical habitat. The Minnesota-Wisconsin D-key includes a structured set of questions that assists a project proponent in determining whether a proposed project qualifies for a certain predetermined consultation outcome for all federally listed species found in Minnesota and Wisconsin (except for the northern long-eared bat- see below), which includes determinations of “no effect” or “may affect, not likely to adversely affect." In each case, the Service has compiled and analyzed the best available information on the species’ biology and the impacts of certain activities to support these determinations.

If your completed d-key output letter shows a "No Effect" (NE) determination for all listed species, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.

For Federal projects with a “Not Likely to Adversely Affect” (NLAA) determination, our concurrence becomes valid if you do not hear otherwise from us after a 30-day review period, as indicated in your letter.

If your d-key output letter indicates additional coordination with the Minnesota-Wisconsin Ecological Services Field Office is necessary (i.e., you get a “May Affect” determination), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of the key; ESA compliance cannot be concluded using the key for “May Affect” determinations unless otherwise indicated in your output letter.

**Note: Once you obtain your official species list, you are not required to continue in IPaC with d-keys, although in most cases these tools should expedite your review.** If you choose to make an effects determination on your own, you may do so. If the project is a Federal Action, you may want to review our section 7 step-by-step instructions before making your determinations.

**Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species**

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

**Northern Long-Eared Bats**
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected. For bat activity dates, please review Appendix L in the Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A monoculture stand of shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

*If none of the above activities are proposed*, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC

species list report for your records.

*If any of the above activities are proposed*, and the northern long-eared bat appears on the user's species list, the federal project user will be directed to either the northern long-eared bat and tricolored bat range-wide D-key or the Federal Highways Administration, Federal Railways Administration, and Federal Transit Administration Indiana bat/Northern long-eared bat D-key, depending on the type of project and federal agency involvement. Similar to the Minnesota-Wisconsin D-key, these d-keys helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. Additional information about available tools can be found on the Service's northern long-eared bat website.

**Whooping Crane**
Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of Whooping Cranes in the Eastern United States."

**Other Trust Resources and Activities**
*Bald and Golden Eagles* - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. It is the responsibility of the project proponent to survey the area for any migratory bird nests. If there is an eagle nest on-site while work is on-going, eagles may be disturbed. We recommend avoiding and minimizing disturbance to eagles whenever practicable. If you cannot avoid eagle disturbance, you may seek a permit. A nest take permit is always required for removal, relocation, or obstruction of an eagle nest. For communication and wind energy projects, please refer to additional guidelines below.

*Migratory Birds* - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

*Communication Towers* - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

*Transmission Lines* - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

*Wind Energy* - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

**State Department of Natural Resources Coordination**
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. **Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.**

*Minnesota*
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

*Wisconsin*
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

# OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Minnesota-Wisconsin Ecological Services Field Office**
3815 American Blvd East
Bloomington, MN 55425-1659
(952) 858-0793

# PROJECT SUMMARY

Project Code: 2025-0058944
Project Name: Campbell Creek Stabilization and Flood Storage Project
Project Type: Restoration / Enhancement of Waterbody
Project Description: Pelican River Watershed District proposes to conduct rehabilitation activities within portions of Campbell Creek in Becker County, MN. The Project goals include stabilization of eroded streambanks, reduced sediment delivery to Floyd Lake, improved flood storage, and improved fish passage. Proposed activities include bank grading, conifer revetments, grade control structures, riprap toes, rock arch rapids, and culvert replacement.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.916345,-95.86057685124952,14z



Counties: Becker County, Minnesota

# ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

| NAME | STATUS |
|---|---|
| Gray Wolf *Canis lupus*<br>Population: MN<br>There is **final** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/4488 | Threatened |

## INSECTS

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus*<br>There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/9743 | Proposed Threatened |
| Suckley's Cuckoo Bumble Bee *Bombus suckleyi*<br>Population:<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/10885 | Proposed Endangered |

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

# USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

# BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

---

1. The Bald and Golden Eagle Protection Act of 1940.

2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

**Measures for Proactively Minimizing Eagle Impacts**
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

**Ensure Your Eagle List is Accurate and Complete**
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Dec 1 to Aug 31 |

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper

Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (■)

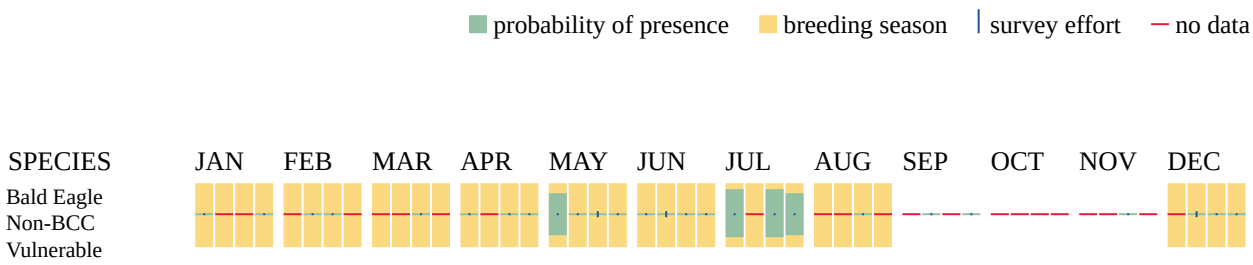
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

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Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory

birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Dec 1 to Aug 31 |
| Black Tern *Chlidonias niger surinamenisis*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/3093 | Breeds May 15 to Aug 20 |
| Black-billed Cuckoo *Coccyzus erythropthalmus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9399 | Breeds May 15 to Oct 10 |
| Chimney Swift *Chaetura pelagica*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9406 | Breeds Mar 15 to Aug 25 |
| Grasshopper Sparrow *Ammodramus savannarum perpallidus*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/8329 | Breeds Jun 1 to Aug 20 |
| Long-eared Owl *asio otus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/3631 | Breeds Mar 1 to Jul 15 |
| Rusty Blackbird *Euphagus carolinus*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/9478 | Breeds elsewhere |

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

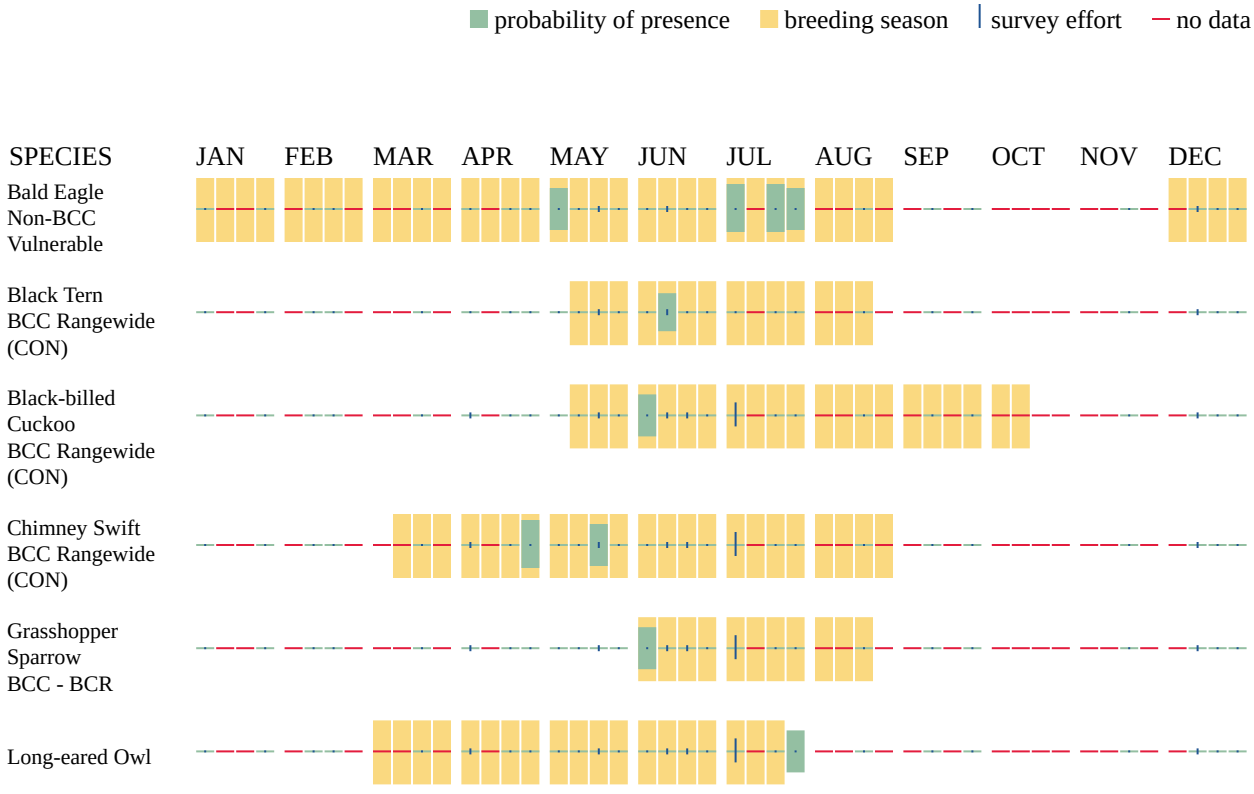
**Probability of Presence** (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.



BCC Rangewide (CON)

Rusty Blackbird
BCC - BCR



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A

RIVERINE

- R5UBH
- R5UBFx

FRESHWATER EMERGENT WETLAND

- PEM1Ad
- PEM1Cd

# IPAC USER CONTACT INFORMATION

Agency: County of Becker
Name: Mia Bauer
Address: One Carlson Parkway
Address Line 2: Suite 100
City: Plymouth
State: MN
Zip: 55447
Email mia.bauer@stantec.com
Phone: 6124273725

# LEAD AGENCY CONTACT INFORMATION

Lead Agency: Environmental Protection Agency

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
3815 American Blvd East
Bloomington, MN 55425-1659
Phone: (952) 858-0793

In Reply Refer To: 02/20/2025 15:52:47 UTC
Project code: 2025-0058944
Project Name: Campbell Creek Stabilization and Flood Storage Project

Subject: Verification letter for 'Campbell Creek Stabilization and Flood Storage Project' for specified threatened and endangered species that may occur in your proposed project location consistent with the Minnesota-Wisconsin Endangered Species Determination Key (Minnesota-Wisconsin DKey).

Dear Mia Bauer:

The U.S. Fish and Wildlife Service (Service) received on **February 20, 2025** your effect determination(s) for the 'Campbell Creek Stabilization and Flood Storage Project' (Action) using the Minnesota-Wisconsin DKey within the Information for Planning and Consultation (IPaC) system. You have submitted this key to satisfy requirements under Section 7(a)(2). The Service developed this system in accordance of with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.).

Based on your answers and the assistance of the Service's Minnesota-Wisconsin DKey, you made the following effect determination(s) for the proposed Action:

| Species | Listing Status | Determination |
|---|---|---|
| Gray Wolf (*Canis lupus*) | Threatened | NLAA |
| Monarch Butterfly (*Danaus plexippus*) | Proposed Threatened | No effect |

**Determination Information**

The Service will notify you within 30 calendar days if we determine that this proposed Action does not meet the criteria for a "may affect, not likely to adversely affect" (NLAA) determination for Federally listed species in Minnesota and Wisconsin. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the Minnesota-Wisconsin Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, the Minnesota-Wisconsin Ecological Services Field Office may request additional information to verify the effects determination reached through the Minnesota-Wisconsin DKey.

## Additional Information

**Sufficient project details:** Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

**Future project changes:** The Service recommends that you contact the Minnesota-Wisconsin Ecological Services Field Office or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

## Species-specific information

**Gray Wolf:** Please notify the Service if there is observed gray wolf activity during project implementation that could indicate a den or rendezvous site in close proximity (e.g., multiple wolves observed).

**Bald and Golden Eagles:** Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “… to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

The following species and/or critical habitats may also occur in your project area and **are not** covered by this conclusion:

- Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Proposed Endangered

**Coordination with the Service is not complete if additional coordination is advised above for any species.**

**Action Description**
You provided to IPaC the following name and description for the subject Action.

**1. Name**

Campbell Creek Stabilization and Flood Storage Project

**2. Description**

The following description was provided for the project 'Campbell Creek Stabilization and Flood Storage Project':

> Pelican River Watershed District proposes to conduct rehabilitation activities within portions of Campbell Creek in Becker County, MN. The Project goals include stabilization of eroded streambanks, reduced sediment delivery to Floyd Lake, improved flood storage, and improved fish passage. Proposed activities include bank grading, conifer revetments, grade control structures, riprap toes, rock arch rapids, and culvert replacement.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@46.916345,-95.86057685124952,14z



# QUALIFICATION INTERVIEW

1. This determination key is intended to assist the user in evaluating the effects of their actions on Federally listed species in Minnesota and Wisconsin. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Additionally, this key DOES NOT cover wind development, purposeful take (e.g., for research or surveys), communication towers that have guy wires or are over 450 feet in height, aerial or other large-scale application of any chemical (such as insecticide or herbicide), and approval of long-term permits or plans (e.g., FERC licenses, HCP's).

   Click **YES** to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

   *Yes*
2. Is the action being funded, authorized, or carried out by a Federal agency?

   *Yes*
3. Are you the Federal agency or designated non-federal representative?

   *Yes*
4. Does the action involve the installation or operation of wind turbines?

   *No*
5. Does the action involve purposeful take of a listed animal?

   *No*
6. Does the action involve a new communications tower?

   *No*
7. Does the activity involve aerial or other large-scale application of ANY chemical, including pesticides (insecticide, herbicide, fungicide, rodenticide, etc)?

   *No*
8. Will your action permanently affect local hydrology?

   *No*
9. Will your action temporarily affect local hydrology?

   *Yes*
10. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new stormwater outfall discharge, dams, other in-stream work, etc.)?

    *Yes*

11. Does your project have the potential to impact the riparian zone or indirectly impact a stream/river (e.g., cut and fill; horizontal directional drilling; construction; vegetation removal; pesticide or fertilizer application; discharge; runoff of sediment or pollutants; increase in erosion, etc.)?

    **Note:** Consider all potential effects of the action, including those that may happen later in time and outside and downstream of the immediate area involved in the action.

    Endangered Species Act regulation defines "effects of the action" to include all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (50 CFR 402.02).

    *Yes*

12. Will your action disturb the ground or existing vegetation?

    **Note:** This includes any off-road vehicle access, soil compaction (enough to collapse a rodent burrow), digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application (herbicide, fungicide), vegetation management (including removal or maintenance using equipment or prescribed fire), cultivation, development, etc.

    *Yes*

13. Will your action include spraying insecticides?

    *No*

14. Does your action area occur entirely within an already developed area?

    **Note:** Already developed areas are already paved, covered by existing structures, manicured lawns, industrial sites, or cultivated cropland, AND do not contain trees that could be roosting habitat. Be aware that listed species may occur in areas with natural, or semi-natural, vegetation immediately adjacent to existing utilities (e.g. roadways, railways) or within utility rights-of-way such as overhead transmission line corridors, and can utilize suitable trees, bridges, or culverts for roosting even in urban dominated landscapes (so these are not considered "already developed areas" for the purposes of this question). If unsure, select NO..

    *No*

15. Is there any potential for the action to harm wolves directly (e.g., mammal trapping, poison bait), or indirectly (e.g., increasing vehicle use that may result in vehicle strikes, exposure to potential human persecution)?

    *No*

16. [Hidden Semantic] Does the action area intersect the Threatened gray wolf AOI?

    **Automatically answered**

    *Yes*

17. [Hidden Semantic] Does the action area intersect the monarch butterfly species list area?

    **Automatically answered**

    *Yes*

18. Under the ESA, monarchs remain warranted but precluded by listing actions of higher priority. The monarch is a candidate for listing at this time. The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary.

    If your project will have no effect on monarch butterflies (for example, if your project won't affect their habitat or individuals), then you can make a "no effect" determination for this project.

    Are you making a "no effect" determination for monarch?

    *No*

19. Is this project funded, authorized, or carried out by the U.S. Fish and Wildlife Service?

    *No*

# IPAC USER CONTACT INFORMATION

Agency: County of Becker
Name: Mia Bauer
Address: One Carlson Parkway
Address Line 2: Suite 100
City: Plymouth
State: MN
Zip: 55447
Email mia.bauer@stantec.com
Phone: 6124273725

# LEAD AGENCY CONTACT INFORMATION

Lead Agency: Environmental Protection Agency

# Appendix F
## Greenhouse Gas Analysis Calculations

**Campbell Creek Restoration Project**
**GHG Emissions Summary**

| | | Scenario A - Business Park/Warehouses | | | |
|---|---|---|---|---|---|
| **Scope** | **Source** | **$CO_2$ (ton/yr)** | **$CH_4$ (ton/yr)** | **$N_2O$ (ton/yr)** | **$CO_2e$ (ton/yr)** |
| **Direct Emissions** | | | | | |
| Scope 1 | Construction - Mobile Sources Onroad - Gasoline and Diesel | 10 | 0.0001 | 0.0003 | 10 |
| Scope 1 | Construction - Mobile Sources Non-road - Diesel | 13 | 0.001 | 0.001 | 13 |
| Scope 1 | Operations - Stationary Combustion - Natural Gas | 0 | 0.0000 | 0.00000 | 0 |
| Scope 1 | Operations - Mobile Sources - Gasoline and Diesel | 0 | 0.000 | 0.000 | 0 |
| **Indirect Emissions** | | | | | |
| Scope 2 | Purchased Electricity | 0 | 0.00 | 0.000 | 0 |
| Scope 2 | Waste - Operations | | | | 0 |
| **Atmospheric Removals of GHGs** | | | | | |
| Scope 1 - Sinks | Land Use (CO2 Removals to Terrestrial Storage) | | | | 0 |
| **Total** | | **23** | **0.0** | **0.00** | **23** |

Lifetime 1,153

Construction Emissions
Mobile Source Information

| | | | |
|---|---|---|---|
| Construction | 1.0 Years (estimate) | Daily trips | 126 |
| Project Lifetime | 50 Years (estimate) | | |

| | | | | | | | | | Annual | | Total for Project | | Emission Factors[4] | | | Total Emissions (ton) | | | | Emissions Annualized over Project Lifetime (50 yrs) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onroad/Off-Road | Vehicle Type[1] | Number of Vehicles per Day[2] | Fuel Type | Vehicle Year[2] | VMT (miles per day, per vehicle)[3] | Miles per Gallon[4] | Fuel Usage (gal/day, all vehicles) | Days Per Year[2] | Miles Traveled (mi/yr, all vehicles) | Fuel Usage (gal/yr, all vehicles) | Miles Traveled (mi) | Fuel Usage (gal) | CO2 (kg/gal) | CH4 (g/mile) | N2O (g/mile) | CO2 (short ton) | CH4 (short ton) | N2O (short ton) | CO2e (short ton) | CO2 (short ton/yr) | CH4 (short ton/yr) | N2O (short ton/yr) | CO2e (short ton/yr) |
| Onroad | Light Duty Vehicles - Laborers (commute) | 30 | Gas | 2011 | 20 | 21.4 | 28.08 | 365 | 219,000 | 10,249 | 219,000 | 10,249 | 8.78 | 0.0071 | 0.0046 | 98.99 | 0.0017 | 0.00111 | 99 | 2.0 | 0.00003 | 0.00002 | 1.987 |
| | Heavy Duty Trucks - Dump Trucks (onsite and offsite) | 12 | Diesel | 2011 | 60 | 7.6 | 94.74 | 365 | 262,800 | 34,579 | 262,800 | 34,579 | 10.21 | 0.0095 | 0.0431 | 388.36 | 0.0027 | 0.0125 | 392 | 7.8 | 0.00005 | 0.0002 | 7.843 |
| | | | | | | | | | | | | | | | Total | 487 | 0.004 | 0.014 | 491 | 9.7 | 0.00009 | 0.0003 | 9.8 |

1. Vehicle types are defined by the Federal Highway Administration (FHWA). Light duty vehicle, short wheel base replaces the old category passenger car and includes passenger cars, light trucks, vans and sport utility vehicles with a wheelbase (WB) equal to or less than 121 inches. Light duty, long wheel base replaces "Other 2-axle, 4-tire vehicle and includes large passenger cars, vans, pickup trucks, and sport/utility vehicles with wheelbases larger than 121 inches. Light Duty Vehicles includes all vehicles in the short and long wheel base category.

2. Estimates based on similar project.

3. Assumed, based on the national average age of cars and light trucks on the road in 2021 (https://www.usatoday.com/story/money/cars/2022/05/24/average-american-car-12-years-old/9907901002/).

4. For light duty vehicles, based on 1995-2020: U.S. Department of Transportation, Federal Highway Administration, Highway Statistics (Washington, DC: Annual Issues), table VM-1, available at http://www.fhwa.dot.gov/policyinformation/statistics.cfm as of Dec. 29, 2021. For heavy duty vehicles, average miles per gallon values from the U.S. Department of Transportation, Federal Highway Administration, Highway Statistics 2020 (November 2022), Table VM-1.

5. Emission factors based on the U.S. EPA's Emission Factors Hub (https://www.epa.gov/climateleadership/ghg-emission-factors-hub, updated June 2024).

| | | | | | | | | | Emission Factors[4] | | | Total Project Emissions | | | | Emissions Annualized over Project Lifetime (50 yrs) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Onroad/Offroad | Vehicle Type | Number of Vehicles[1] | Fuel type | Engine Size (hp)[1] | Consumption Rate (gal per hp-hr)[2] | Hours per Year[3] | Total Gallons per Year | Total Gallons for Project | CO2 (kg/gal) | CH4 (g/gal) | N2O (g/gal) | CO2 (short ton) | CH4 (short ton) | N2O (short ton) | CO2e (short ton) | CO2 (short ton/yr) | CH4 (short ton/yr) | N2O (short ton/yr) | CO2e (short ton/yr) |
| Off-road | Crane | 0 | Diesel | 250 | 0.05 | 2,080 | 0 | 0 | 10.21 | 1.01 | 0.94 | 0.00 | 0.000 | 0.000 | - | - | - | - | - |
| | Backhoe | 0 | Diesel | 125 | 0.05 | 2,080 | 0 | 0 | 10.21 | 1.01 | 0.94 | 0.00 | 0.000 | 0.000 | - | - | - | - | - |
| | Loader | 0 | Diesel | 250 | 0.05 | 2,080 | 0 | 0 | 10.21 | 1.01 | 0.94 | 0.00 | 0.000 | 0.000 | - | - | - | - | - |
| | Excavator | 2 | Diesel | 250 | 0.05 | 2,080 | 52,000 | 52,000 | 10.21 | 1.01 | 0.94 | 584.01 | 0.058 | 0.054 | 601 | 11.7 | 0.0012 | 0.0011 | 12.0 |
| | Skid Steer | 1 | Diesel | 50 | 0.05 | 2,080 | 5,200 | 5,200 | 10.21 | 1.01 | 0.94 | 58.40 | 0.006 | 0.005 | 60 | 1.2 | 0.0001 | 0.0001 | 1.2 |
| | Total | 3 | | | | | 57,200 | 57,200 | | | Total | 642 | 0.064 | 0.059 | 662 | 12.8 | 0.00127 | 0.0012 | 13.2 |

1. Estimates given by civil team.
2. Off-road mobile source fuel usage based on South Coast Air Quality Management District CEQA Air Quality Handbook, Table A9-3E.
3. Based on 8 hr/day, 5 day/wk, 52 wk/yr.
4. Emission factors based on the U.S. EPA's Emission Factors Hub (https://www.epa.gov/climateleadership/ghg-emission-factors-hub, updated June 2024).