

Repair Report

County Ditch No. 23

Le Sueur County, Minnesota

Date: March 2023

ISG Project No.: 17-20141



Architecture
Engineering
Environmental
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EXECUTIVE SUMMARY

Le Sueur County Ditch 23 (CD 23) is a large drainage system with 16,096-acres which is drained by multiple public open ditch and tile networks as well as private tile systems and drainage ditches. CD 23 serves as the outlet for many public drainage systems that include Le Sueur CD 6, CD 16, CD 21, and CD 5. The watershed which is benefitted by CD 23 drainage system is 7,453-acres. CD 23 drains into an unnamed watercourse and eventually outlets into the public watercourse Le Sueur Creek. The watershed is gentle rolling hills and is mainly comprised of agricultural land, wooded areas, and pasture.

Investigation through survey, drone, and site visits, found most of the CD 23 systems to be in disrepair including but not limited to sediment accumulation, side slope failures, culverts in deteriorating condition, and vegetation within banks and buffers. An option was presented to landowners that included comprehensive repairs to the system. Comprehensive repairs were outlined in this report as Option 2.

Through multiple landowner meetings in November 2019, March 2020, December 2021, and March 2022, landowners provided feedback which primarily consisted of prioritizing repair locations to reduce the scope of work and associated costs. Following the March 2022 landowner meeting, a mailed notice was sent to landowners adjacent to CD 23 public open ditch to request and inform where priority repairs are needed. Six landowners responded and requested repairs. All the requested repairs were included in priority repairs in addition to two additional repair locations added by the Engineering. The additional areas include the replacement of the Mareks Lake outlet structure and Spur 8 side slope repairs. Priority repairs were outlined in this report as Option 1.

Through investigation of the system and multiple discussions with landowners, additional repairs have been investigated but will not be pursued at this time. The findings were outlined throughout this report. The additional repairs include preliminary costs and concepts for multipurpose drainage management (MDM) practices including storage and alternative side inlets. The Le Sueur Soil and Water Conservation District (SWCD) applied for Board of Water and Soil Resource Multipurpose Drainage Management Clean Water Funds grant to install 47 alternative side inlets. Unfortunately, the grant was not awarded for the system. The Drainage Authority and county staff will continue to pursue grants for installation of storage, alternative side inlets, and other MDM practices.

In addition, there was concerns with the outlet of CD 23, the unnamed watercourse. The outlet was analyzed for clearing of obstructions such as trees jams, trees within the banks, and beaver dams one mile downstream of the CD 23 outlet. Discussions with private landowners that are not included in the benefit role of the CD 23 system favored continuing discussions and implementation of storage to reduce impacts to downstream areas through less flooding, and less erosive flows. Landowners in this location favored managing tree removals and removing log jams privately.

The Engineer recommends completing priority repair outlined in Option 1 to CD 23. Two approaches were considered for the construction timeline which included 1). constructing priority repairs as one construction contract over one construction season and 2). constructing the priority repairs in three construction contracts over three years. The Engineer recommends completing the priority repairs as one project as there is material, planning, coordination, and mobilization cost savings as well as inflation considerations for yearly rising construction costs. Constructing priority repairs outlined in Option 1 is estimated to cost \$365,043 when completing the repairs as one project saving a potential \$80,895 as compared to the \$445,938 project cost when completing the repairs in phases over three years.

It is recommended to continue efforts to address repairs systematically on the lower priority areas that are in disrepair and not included in Option 1, particularly the many culverts that are in the system. Many of the system culverts are in poor condition and are susceptible to erosion. Continuing efforts to repair and replace culverts by doing smaller repair projects per year could reduce the financial burden on landowners. Comprehensive repairs are outlined in Option 2 with estimated cost of approximately \$2,002,170 for open ditch repairs and approximately \$1,608,290 to \$1,850,430 for both priority 1 and priority 2 culverts depending on approach of material usage. Comprehensive repairs that are outlined can be used as a guide for future repair projects.

SYSTEM WATERSHED

Le Sueur County Ditch No. 23 (CD 23) is a 16,069-acre watershed located east of the City of Le Center. The watershed lies in Montgomery, Lexington, and Cordova Townships in Le Sueur County and includes a portion of the City of Le Center. The benefitting landowner watershed for CD 23 drainage system is 7,453-acres. CD 23 is primarily drained by the Main open ditch. The Main open ditch contains four open ditch spurs, Spur 2, Spur 2 Stub, Spur 8, Spur 9, and Spur 10 Cutback as well as subsurface drainage tile including the Main tile, Spur 1, Spur 3, Spur 4, Spur 11, and Spur 12.

Five other drainage systems drain into CD 23, Le Sueur CD 6, CD 16, CD 21, and CD 50. Le Sueur CD 6 supplies an outlet for the public water, Greenleaf Lake, in the SE $\frac{1}{4}$ Section 19 of Montgomery Township and drains generally north and west. CD 6 Main open ditch outlets into Spur 8 open ditch of CD 23 at County Road 136 in the SW $\frac{1}{4}$ Section 7 of Montgomery Township. Le Sueur CD 16 systems comprises of open ditch and flows through public water, Borer Lake. CD 16 outlets into CD 6 in the SE $\frac{1}{4}$ of Section 18 of Montgomery Township. Le Sueur CD 50 open ditch system begins in the NE $\frac{1}{4}$ of Section 11 of Cordova Township and generally drains north and west to its outlet into an Unnamed public watercourse located at the crossing of County Road 110 in the NW $\frac{1}{4}$ of Section 3 of Cordova Township. Le Sueur CD 21 open ditch system begins in SE $\frac{1}{4}$ of Section 33 of Lexington Township and generally flows north, while crossing County Road 110 twice. CD 21 outlets into an Unnamed public watercourse approximately 1,500 feet downstream of the Highway 99 crossing. The Unnamed public watercourse in which CD 50 and CD 21 drain into outlets into Spur 10 Cutback open ditch of CD 23 in the NW $\frac{1}{4}$ of Section 28 of Lexington Township. Le Sueur CD 26 open ditch system flows west from the City of Le Center. CD 26 open ditch outlets into a private ravine that drains in CD 23 Main open ditch.

The outlet of CD 23 is located at West Prairie Street along the east-west section line between Section 19 and Section 30 of Lexington Township and outlets into the Unnamed watercourse. The Unnamed watercourse was removed from the public watercourse determination by

commissioner's order. The watercourse continues to flow southwest and outlets into DNR Public Watercourse Le Sueur Creek 145-feet east of County Road 113. Three public water basins are located within the CD 23 watershed, Mud Lake, Mareks Lake, and Sautter Lake. Mud Lake is located in Section 11 and 12 of Lexington Township online of the Main open ditch. Mareks Lake outlets into Spur 2 open ditch in the NW ¼ of Section 25 of Lexington Township. Sautter Lake is located in Section 27 and 28 of Lexington Township and is offline of the public ditch system. See Public Waters, Public and Conservation Lands Map in Appendix B.

The watershed is mainly comprised of agricultural lands and open ground pasture. The soils within the watershed consist of hydrologic soil classification type "C" and "D". These soils have low infiltration rates and high runoff potential which can contribute to sloughing and erosion of the ditch slopes. The topography throughout the watershed is gently rolling with an elevation difference of approximately 115-feet. Watershed maps are available in Appendix B to display the boundary for the CD 23 system.

HISTORY

The county provided records of the CD 23 system showing that the ditch was established in 1904. The establishment of the ditch included construction of the Main open ditch, Spur 1, Spur 2, Spur 3, and Branch A and B of Spur 2 open ditches. In 1968, an improvement was completed which deepened and widened the existing open ditches, added open ditch Spur 8, Spur 9, Spur 10 Cutback, and Spur 2 Stub, and added public drainage tiles Spur 5, Spur 6, Spur 11, Spur 12, Branch 1 of Spur 9, and Branch D of Spur 9. Although the improvement deepened and widened the open ditch, there was still limited grade at the outlet of the ditch with 0.00% legal grade established for 10,200-feet of the Main open ditch. During the improvement there were petitions for elimination of open ditch Spur 9 and Spur 10. Spur 9 was not eliminated from the final amended engineer's report and Spur 10 was modified for cleaning of only 600-feet of the spur and was called Spur 10 Cutback. The remaining channel upstream of Spur 10 Cutback is an Unnamed Public Watercourse. Some additional work has been done on the system including brush and tree cleaning in 1986 and erosion damage repairs in 1994 with FEMA aid.

Recent repairs have been completed on the system. In 2021, there was replacement of a couple of culverts and armoring for erosion protection. Additionally, there was repair work completed in 2022 which included bank repairs and armoring of Crossing #13.

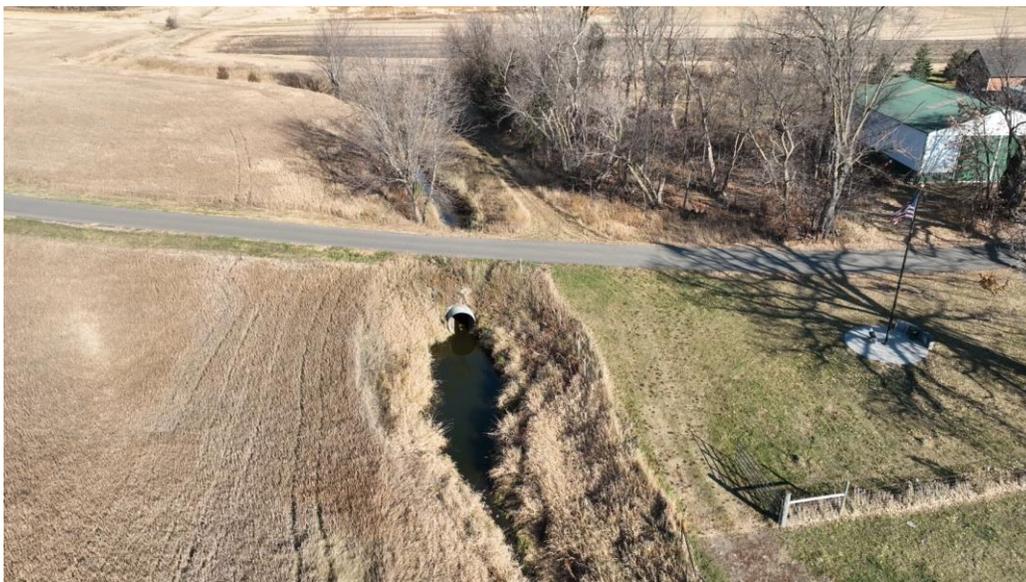


Figure 1: Crossing #13 prior to 2022 repairs to sloughing and erosion protection

Redetermination of Benefits

A redetermination of benefits for CD 23 was completed and approved by the Drainage Authority in 2021. The redetermination of benefits included assessments to the benefitted landowners in the CD 23 watershed and acquisition of the 16.5-foot buffers along all public open ditches. In total, the buffers included acquisition of approximately 56.6-acres of land with an estimated associated cost of \$347,000. The redetermination of benefits included outlet fees for the public drainage systems that drain directly into CD 23 including Le Sueur CD 6 and CD 21. CD 26 did not receive an outlet fee due to the location of the CD 26 outlet near the CD 23 system outlet and limited length of CD 23 ditch utilized for benefit. The benefits as determined from the viewers were approximately \$12,900,000.

Early Coordination and Preliminary Reports

A preliminary repair report was completed in July 2018. The preliminary repair report included assessment of the condition of ditch, legal grade, culvert sizing, and recommended repairs with associated cost. ISG had multiple landowner meetings prior to the submission of the report. Landowner meetings took place in November 2019, March 2020, and December 2021. Following the December 2021 landowner meeting, a draft repair report was submitted, and the findings were presented to the landowners in March 2022. The draft repair report has been updated herein to include feedback from landowners and the Drainage Authority from various meetings as well as update changes due to work that has already been completed on the ditch in recent years and changes in construction costs.

Additional coordination with the DNR was completed in junction with repair items impacting public waters, such as the Mareks Lake structure replacement. A public waters permit has not been submitted and will be coordinated upon approval from the Drainage Authority.

Investigation of External Sources of Funding and Technical Assistance

Section 103E.015, Subd. 1a of the Drainage Code requires that an investigation of external sources of funding and technical assistance be conducted prior to the Engineer's report for repair. The funding can be used for wetland preservation or restoration or creation of water quality improvements, flood control, or alternative measures. The sources of funding authorized under the drainage statute can be used outside the benefited area but must be used in the watershed of the system.

The investigation of external sources of funding and technical assistance for CD 23 was conducted by ISG and county staff on behalf of the Drainage Authority. The following describes the results of that investigation.

1. Soil and Water Conservation District (SWCD)
2. Board of Water and Soil Resources (BWSR) – Multipurpose Drainage Management (MDM) - Clean Water Funds
3. Department of Natural Resources - Conservation Partners Legacy
4. US Fish and Wildlife Services

The Mareks Lake outlet structure is currently dilapidated and in need of replacement. The public water basin provides high quality habitat and ability for water storage with the replacement of the outlet structure. Multiple avenues of funding were explored to assist in funding the replacement of the structure. The Le Sueur County SWCD, Drainage Authority, and ISG met with the DNR to discuss the possibility of applying for the DNR – Conservation Partners Legacy (CPL) grant for the replacement of the Mareks Lake structure. There was limited historical data on the structure's installation or ownership. There was also no water quality data or fish or macroinvertebrate monitoring for Mareks Lake. Due to limited public access and limited monitoring data, there is little evidence of its value as a habitat resource and with no public access there is little public recreational value to the basin. Therefore, there was a low likelihood of receiving the grant based on the CPL grant goals. Continued discussions of available funding sources for Mareks Lake took place with the US Fish and Wildlife Service. There was interest in utilizing the basin for local storage by raising the maintained pool area. There was limited interest from landowners adjacent to Mareks Lake due to possible impacts to lands and drainage around the lake.

The Le Sueur County SWCD applied for \$81,190.75 through the BWSR Multipurpose Drainage Management - Clean Water Funds for fiscal year 2023. The grant proposal included the construction of 47 ASI throughout the ditch systems in areas that have experience gully erosion or may provide temporary storage for 24-48 hours. In total, the ASIs would provide an estimated 117 acre-feet of storage, 23.5 tons per year sediment reduction, 70.5 tons per year soil savings, and 141 pounds per year phosphorus reduction. Unfortunately, the grant proposal did not score high enough to receive funding. There is a possibility if there is a continued interest to submit a grant proposal for next year's submission in fiscal year 2024. The grant proposal will be reviewed to ensure its competitiveness and alignment with the grant's goals.

Additional areas for storage implementation including wetland restorations, wetland enhancements, and storage areas have been identified with interested landowners. Concepts with preliminary cost estimates have been included in the repair report.

Potential locations and additional BMPs are shown on the Multipurpose Drainage Management map in Appendix B and will be presented to landowners. More detailed concepts for storage with cost estimates will be reviewed with landowners to provide comment and direction moving forward. Furthermore, additional BMPs can be implemented with this project, if requested.

SYSTEM INVENTORY

This document has been prepared using the original CD 23 drawings and alignment maps provided by Le Sueur County, a topographic survey done by ISG in August 2017, LiDAR contours, Minnesota Department of Natural Resources (DNR) Watershed lines, and drone and aerial photographs. A map illustrating the CD 23 repair options can be found in Appendix B. An inventory of items needing repair was accomplished for CD 23 using the results of drone flights and topographic survey. Additional photos and video from drone flight can be provided upon request.

The following paragraphs describe the various types of damage that have been observed on CD 23.

Sediment Deposition + Vegetation Growth

A review of the cross-sections in the repair plans indicates that the existing ditch bottom widths and side slopes vary widely due to sedimentation and side slope damage. When the existing and legal profiles are compared, sediment accumulation on average is 0.5-feet with areas identified up to 2-feet above legal grade.

Deposited sediment provides an opportunity for vegetation growth in the bottom of the channel. The effects of vegetation in the ditch vary depending on the type present. Sediment, grasses, and cattails in the ditch bottom can impede water flow leading to localized flooding during storm events. Sediment deposits along with vegetation growth can cause the ditch to meander potentially eroding side slopes.



Figure 2: Sediment and vegetation growth in center Spur 2 open ditch at Sta. 105+00



Figure 3: Sediment and vegetation growth in center of Spur 9 open ditch at Sta. 75+00

Buffers

The Minnesota Buffer Law States that there must be 50-foot buffers along lakes, rivers, and stream and 16.5-foot (1-rod) buffer on public ditches. The CD 23 open ditch system is required to follow the buffer law and incorporate a 16.5-foot buffer along the entirety of the open ditch. A majority of CD 23 complies with the Minnesota Buffer Law. However, there are a few select landowners that are out of compliance with buffer installation and establishment. Buffer strips help prevent sediment from entering the ditch as well as sloughing of the ditch side slopes.



Figure 4: Limited buffers on the Mainline open ditch

Trees and Shrubs

Trees and shrubs growing in or falling into a ditch restrict flow. The trees also provide a canopy across ditch banks and buffers creating poor conditions for grasses and other native vegetation in the buffer to grow. This makes the ditch more susceptible to erosion. Perennial grass along the ditch bank and on side slopes provides dense root growth, creating stable banks and reducing erosion. The following photos show examples of tree and shrub in the open ditch or within the 16.5-foot buffer.



Figure 5: Trees and brush on ditch banks and in buffer area on the Mainline open ditch at Sta. 3+00



Figure 6: Trees on ditch banks and in buffer areas on Spur 2 open ditch at Sta. 86+00



Figure 7: Trees within buffer on Spur 9 open ditch at Sta. 19+00

Outlets + Intakes

Many tile outlets within the open ditch are failing and causing or have the potential to cause erosion. Examples of failing tile outlets would include bent, broken, covered, crushed, or completely washed away tile outlets. Almost all tile outlets do not have riprap to protect the ditch banks.



Figure 8: Erosion at tile outlet



Figure 9: Erosion at tile outlet

Sloughing

Sloughing was identified at various locations along the ditch. Sloughing occurs when the bank of a ditch shears and collapses into the ditch. The main causes of sloughing include overland flow overtopping the ditch bank, lack of buffer vegetation, steep side slopes, and meandering of the ditch. When sloughing occurs, it deposits sediment in the ditch restricting flow. Sloughing was identified at various locations along the ditches in CD 23. The figures below show areas of sloughing.



Figure 10: Sloughing on Mainline open ditch in NW ¼ SW ¼ of Section 23 of Lexington Township



Figure 11: Sloughing on the Mainline open ditch at Sta. 313+00



Figure 12: Sloughing on Spur 8 open ditch at Sta. 7+00

Ditch Bank Erosion and Washouts

Gully erosion through the banks of the ditch was identified and is causing substantial deposition of sediment to the open ditch and adjacent landscape. Gully erosion occurs when runoff becomes concentrated and cuts through the ditch bank. These uncontrolled inlets become the avenue for sediment disposition in the ditch. Gully erosion can be seen in the figures below.



Figure 13: Gully erosion on Mainline open ditch in NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 23 of Lexington Township



Figure 14: Bank washouts on Spur 9 open ditch at Sta. 60+00

Field + Road Culvert Crossings

County Ditch No. 23 had a total of 37 culvert crossings. The culvert crossings consist of 11 road crossings, 9 driveway crossings, and 17 field crossings. The sizes range from 120-inch to 42-inch and a majority consist of corrugated metal pipe (CMP). Crossings throughout the ditch system were found to be in varying levels of deterioration, undersized, unmaintained, and unprotected. Many of the culverts are in poor condition, while some appear to have adequate conditions for their use. The figures below display deteriorating culverts on CD 23 open ditch.



Figure 15: Outlet of CD 23. Erosion around 102-inch culvert at West Prairie Street (Crossing #1)



Figure 16: Erosion occurring around dual 84-inch culverts in NE 1/4 NW 1/4 of Section 28 of Lexington Township. (Crossing #6)



Figure 17: Rusting 96-inch culvert with little cover in NE 1/4 NE 1/4 of Section 28 in Lexington Township on Mainline (Crossing #7)



Figure 18: 84-inch Culvert/bridge in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 27 of Lexington Township on Mainline (Crossing #8)



Figure 19: Sloughing on Main ditch in NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 27 of Lexington Township (Crossing #9)



Figure 20: 72-inch culvert showing signs of erosion at County Road 125 crossing on Mainline. (Culvert #18)



Figure 21: Restricted flow in 48-inch culvert in SW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 26 of Lexington Township on Spur 9 (Crossing #27)



Figure 22: Separated joint in 42-inch culvert at Minnesota State Highway 99 crossing on Spur 9 (Culvert #30)



Figure 23: 48-inch Culvert showing signs of erosions the need for ditch cleaning at 376th Street crossing on Spur 2 (Culvert #37)

Bridge Crossings

There are 4 bridge crossings on CD 23 Main open ditch, Crossings # 2 through Crossing #5. Crossing #3 and Crossing #5 supply crossings for County Road 114 and CSAH 11, respectively. Both of road crossings are graded for road travel and are in good condition. Crossing #2 through Crossing # 4 are field bridge crossings.

Tiles

There are 6 spurs of subsurface tile in the CD 23 system, Main tile, Spur 1, Spur 3, Spur 4, Spur 11, and Spur 12. The Main tile is a continuation of the Main open ditch located in Section 12 of Lexington Township. The Main tile drains to the south for approximately 2,660-feet with a 12-, 14-, and 16-inch tile at a grade of 0.15%. Spur 11 is a lateral of the Main tile and consists of 340-feet of 8-inch tile.

Spur 1 tile is located in Section 11 of Lexington Township and outlets into the Main open ditch. Spur 1 tile generally drains southeast for approximately 3,880-feet with 10-, 12-, 14-, and 16-inch tile at grades of 0.40% and 0.12%.

Spur 3 is located in Section 14 of Lexington Township and drains southeast to its outlet into the Main open ditch. Spur 3 consists of 2,400-feet of 12-inch tile with grades of 0.20%, 1.30%, and 0.15%.

Spur 4 is located in Section 27 of Lexington Township and drains north to its outlet into the Main open ditch. Spur 4 is approximately 650-feet in length and consists of 14-inch tile at 0.20% and 1.00% grades.

Spur 12 is located in Section 13 and 14 of Lexington Township. Spur 12 generally drains west and outlets into the Main open ditch. Spur 12 consists of 2,300-feet of 12-inch tile with grades of 0.50%, 1.90%, and 0.25%.

The tile spurs were additions to the CD 23 system during the improvement in 1968, making the tiles 53 years old. The conditions of the tiles are unknown, although are assumed to be deteriorating due to general aging and the evolution of farming practices since 1968. There were landowner concerns on the Main tile, Spur 11, and Spur 4 tiles from input received during the landowner meetings. There may be subsidence due to peat soil in these areas. Additional investigation is needed in order to determine if subsidence has occurred and/or to determine the condition of the tile. Currently, there are no plans to repair any public tiles unless landowner comments request or are petitioned

Capacity Analysis

The capacity of agricultural drainage conveyance infrastructure is expressed as a drainage coefficient in inches per day (in/day); the depth of water over the entire area of the upstream watershed that a ditch, tile, or culvert can drain in 24-hours. While for a ditch system like CD 23, a drainage coefficient of 1.0 in/day is recommended, the present repair must not exceed the capacity of the As Constructed or Subsequently Improved Condition (ACSIC) of the system established in the during the 1968 improvement. The drainage coefficients for the CD 23 were calculated based on the ACSIC culvert crossings. Table 1 summarizes the maximum capacity of the culverts throughout the watershed as if they were in new condition with no sediment accumulation or blockages. The culverts were evaluated for drainage coefficients as well as their condition.

TABLE 1. CULVERT CROSSINGS CAPACITIES

Crossing #	Station	Location	Existing Size (in)	Existing Slope	Existing Drainage Coefficient (in/day)	Existing Material	Existing Condition
1	0+00	Main - W Prairie St.	102	-1.35%	0.09	CMP	POOR
2	16+00	Main - Private Bridge	NONE	NONE	NONE	NONE	NONE
3	45+00	Main - County Road 114	NONE	NONE	NONE	NONE	NONE
4	64+00	Main - Private Bridge	NONE	NONE	NONE	NONE	NONE
5	78+00	Main - CSAH 11	NONE	NONE	NONE	NONE	NONE
6	103+00	Main - Field Crossing	DUAL 84	-0.92% & 0.08%	0.22	CMP	OK
7	129+00	Main - Field Crossing	96	-0.29%	0.08	CMP	POOR
8	142+70	Main - Hunting Preserve	84	1.12%	0.90	CMP	POOR
9	157+14	Main - Field Crossing	84	-5.14%	0.09	CMP	OK
10	171+00	Main - Field Crossing	72	-3.53%	0.06	CMP	OK
11	195+30	Main - Field Crossing	72	0.08%	0.22	CMP	POOR
12	217+10	Main - CSAH 5	10'X8'	0.31%	3.59	RCP	GOOD
13	235+41	Main - Driveway	60	0.02%	0.07	CMP	OK
14	244+06	Main - Driveway	60	-0.10%	0.05	CMP	OK
15	264+13	Main - Driveway	72	0.67%	0.65	CMP	OK
16	284+86	Main - Field Crossing	72	-0.25%	0.08	CMP	OK / POOR
17	307+61	Main - Field Crossing	72	-0.17%	0.11	CMP	OK / POOR
18	331+14	Main - County Road 125	72	-0.12%	0.12	CMP	OK / POOR
19	374+27	Main - Driveway	72	-0.16%	0.14	CMP	OK
20	383+96	Main - Field Crossing	42	-0.14%	0.43	CMP	POOR

Crossing #	Station	Location	Existing Size (in)	Existing Slope	Existing Drainage Coefficient (in/day)	Existing Material	Existing Condition
21	6+12	Spur 8 - Driveway	60	1.16%	1.00	CMP	OK
22	23+85	Spur 8 - County Road 136	60	0.30%	1.01	RCP	GOOD
23	13+06	Spur 9 - CSAH 5	60	1.56%	4.23	RCP	GOOD
24*	38+30	Spur 9 - 380th St	72	0.12%	1.08	CMP	OK
25*	69+40	Spur 9 - Driveway	54	0.88%	1.70	CMP	GOOD
26*	73+79	Spur 9 - Field Crossing	72	0.16%	1.56	CMP	OK
27	79+76	Spur 9 - Field Crossing	48	0.57%	1.03	CMP	POOR
28	121+28	Spur 9 - MN HWY 99	42	-0.23%	0.21	RCP	GOOD
29	127+25	Spur 9 - Driveway	48	0.09%	0.51	CMP	OK
30	151+31	Spur 9 - MN HWY 99	42	0.29%	2.35	RCP	POOR
31	164+16	Spur 9 - Driveway	48	3.56%	7.73	CMP	OK
32	174+44	Spur 9 - Field Crossing	42	0.33%	1.68	CMP	OK
33	13+45	Spur 2 - Field Crossing	54	-2.21%	0.17	CMP	POOR
34	22+17	Spur 2 - Field Crossing	48	0.73%	1.11	CMP	GOOD
35	45+35	Spur 2 - County Road 158	54	0.95%	2.27	CMP	OK - POOR
36	70+18	Spur 2 - Field Crossing	48	-1.57%	0.22	CMP	GOOD
37	82+89	Spur 2 - 376th St	48	-1.04%	0.34	CMP	POOR
38	96+93	Spur 2 - Field Crossing	48	-0.87%	0.41	CMP	POOR
39	4+53	Branch A - 376th St	36	-0.51%	0.39	CMP	POOR
40	8+25	Branch A - Field Crossing	36	0.63%	3.15	CMP	POOR
41	5+20	Branch B - Field Crossing	42	-1.13%	0.55	CMP	OK - POOR

* Needs to be lowered to legal grade elevation

The existing culverts within the CD 23 watershed are generally below the recommended 1.0 inch/day drainage coefficient for culverts. Many of the culverts are in poor condition with backfall, damage, or significant erosion and scouring near the culverts.

It should be noted that the ACSIC tile capacities listed in Table 2 assume that the drainage tiles are functioning as originally designed. It is assumed that the actual drainage coefficient is less due to general wearing over the lifetime of the tile. CD 23 was improved in 1968 making it 53 years since the tiles were installed. This is approximately half of the expected lifetime for drainage tiles. The ACSIC for a majority of the tiles are below the recommended 0.50 in/day drainage coefficient.

TABLE 2. TILE CAPACITIES

Area	ACSIC Size (in)	ACSIC Slope (%)	Drainage Area (Acres)	ACSIC Drainage Coefficient (in/day)
Main	16	0.15%	159.2	0.45
	14	0.15%	132.9	0.37
	12	0.15%	74.0	0.45
Spur 1	16	0.40%	284.0	0.41
	16	0.12%	265.7	0.24
	14	0.12%	254.0	0.17
	12	0.12%	203.9	0.14
	10	0.12%	152.6	0.12
Spur 3	12	0.20%	165.5	0.23
	12	1.30%	134.7	0.72
	12	0.15%	125.9	0.26
	10	0.15%	2.2	9.21
Spur 4	14	0.20%	3973.7	0.01
	14	1.00%	3951.8	0.03
Spur 11	8	0.20%	36.2	0.36
Spur 12	12	0.50%	431.7	0.14
	12	1.90%	381.0	0.31
	12	0.25%	379.3	0.11

REPAIRS

Below lists the items considered in the two options presented for repair. Option 1 includes priority repairs, only considering some of the damaged areas of the systems that require immediate attention. These areas have been brought forth from concerned from landowners and areas recommended by the Engineer. Option 2 considers a more comprehensive approach to repairing CD 23, repairing a majority of the damaged areas within the system.

COEFFICIENT OF DRAINAGE

The capacity of agricultural tile is expressed as a drainage coefficient which is defined as the depth of water over the entire area of the upstream watershed that a tile or ditch can drain in a 24-hour period (inches per day (in/day)). In a repair, the system can only be repaired back to its As Constructed or Subsequently Improved Condition unless a hydraulic study has been ordered and accomplished by the engineer.

DITCH CLEANING

For ditch systems like CD 23, cleaning is recommended every 8 to 10 years. The topographic survey revealed that a majority of the ditch has accumulated sediment in the channel bottom above the ACSIC grade. The accumulated sediment has led to vegetation growth. It has also caused the flow channel to meander causing slope erosion.

TREE REMOVAL

Trees, brush, and shrubs were identified along the banks of the ditches throughout the watershed. To prevent future erosion of the ditch banks the present repair will include removing these obstructions. Areas where cleaning is to take place, vegetation and trees will need to be removed in order to access the ditch.

SLOUGH REPAIRS

The drone and topographic survey revealed significant ditch slope sloughing and erosion throughout the entire ditch system. Slough repairs included restoring the bank's side slope and stabilizing with erosion control blanket, mulch, or riprap. In some locations dewatering the side slope may be necessary to stabilize and may be necessary to include toe drains. Areas will be determined during construction.

TILE OUTLET REPAIR

All tile outlets that enter a public open ditch may be considered for replacement or repair. Some of the tile outlets are in good shape and only require riprap protection. However, some tiles are bent, broken, or completely washed away causing erosion to the ditch banks. The repair of a damaged tile outlet will consist of replacing it with a section of new tile and placing riprap protection per the detail found in the Preliminary Repair Plans.

ALTERNATIVE SIDE INLETS AS REPAIR

Early ditch systems were designed to allow water to enter the ditch by sheet flow or, as flows were concentrated, via field drainageways. However, the latter would allow for head cutting (erosion along the drainageways) up into the field. To remedy the head cutting, the original (traditional)

side inlet was designed as a pipe from the field through the ditch berm to the ditch. While this eliminated the head cutting, any sediment laden water from the surrounding field was allowed to go directly through the pipe to the ditch.

Recently, Alternative Side Inlets (ASI) have been proposed for locations along the ditch where concentrated flows are encountered. While there are a number of different types of ASIs, they all are designed to reduce sediment transport from the field to the ditch. They are characterized by two things: 1. temporary ponding of water to settle out sediment (using one of many different intakes including rock filters), and 2. energy dissipation (some using drop structures and others by use of rock filters or rock weirs).

There are two types of ASIs that are presented in the repair options: an ASI or Alternative Side Inlet with Riprap Overflow (ASIRO). Both types have their intakes located as completely in the ditch buffer as possible to reduce potential damage during field operations. The ditch berm with or without riprap, along with a restricted intake, creates a temporary pond. When large concentrations of flow are coming to a particular ASI, rip rap will be used to form an emergency overflow, creating an ASIRO. Sediment and field residue that accumulates around the ASI's intake will need to be removed periodically.

There are funding options available to aid in paying for ASI or ASIRO placement. See Investigation of Sources of External Funds section.

BUFFER

Chapter 103E requires the placement of 16.5-foot (1-rod) buffers on all ditches when viewers are appointed. The Minnesota Buffer Law (103F.48) states that there must be a 50-foot buffer along lakes, rivers, and streams and a 16.5-foot (1-rod) buffer on public ditches. A redetermination of benefits was recently completed in which acquisition of the 16.5-foot buffer area is included. A majority of the buffers are established along the CD 23 open ditches. However, there are a few locations where buffers have not been installed or established. During the repair, establishment of the buffer's may be included in the project to accelerate the rate of compliance with the Buffer Law. Buffer areas that are disturbed from construction will be seeded after final grading of the spoils on top of the ditch bank.

EROSION CONTROL

Required temporary erosion control will consist of silt fence or bio-roll around all surface intakes, ponds and ditches until vegetation is established. The temporary erosion control will be maintained throughout the construction process according to the Minnesota Pollution Control Agency (MPCA) regulations. Permanent erosion control may consist of riprap around tile outlets into ditches as well as at the upstream and downstream end of ditch culvert crossings. Seeding and erosion control blanket may be placed on all disrupted areas around road crossings. All disturbed vegetation throughout the project will be reseeded with the appropriate seed mix and mulch. An Erosion Control Plan will be developed before final construction plans are complete.

CULVERT CROSSINGS

CD 23 has 36 culvert crossings, and many are in poor condition and have reached the end of their expected life use. Road crossings are recommended to be replaced in reinforced concrete pipe (RCP) with aprons on the upstream and downstream ends. In lieu of corrugated metal pipe (CMP) crossings, field and driveway crossings are recommended to be replaced with RCP or High-Performance Polypropylene Pipe (PP) for long-term durability and consideration of cost effectiveness. All culverts slated to be replaced will have seeding, erosion control, and riprap sized and placed on the upstream and downstream ends of culverts.

Not all culverts within the system are in poor condition and some will be left in place and maintained. Riprap will be placed on the upstream and downstream ends of the culverts left in place. Riprap will protect the culverts, roads, driveways, and field accesses from erosive flows, scouring, and downcutting. The riprap extents have been sized based off the expected peak flows to its location to ensure adequate protection.

Option 1: Priority Repairs

Option 1 outlines priority repairs for the CD 23 system. After the March 2022 landowner meeting, feedback from the landowners primarily consisted of prioritizing repairs to reduce the scope of the repair work and associated costs. A mailed notice was sent to landowners adjacent to the public open ditch in order to request and inform where priority repairs area needed. Six landowners responded with requested repairs. All repairs requested by landowners are included in Option 1: Priority Repairs, except for repairs that were already completed in December of 2022.

Additional repairs that were not requested by landowners include the replacement of the Mareks Lake outlet structure. ISG also identified significant erosion along Spur 8 open ditch that has potential to impact the roadway parallel to the ditch, County Road 125. These repairs are also included as priority repairs in Option 1.

A summary of Option 1 priority repairs includes armoring five culverts crossing and replacing one driveway culvert crossing. There is 13,434 linear feet of open ditch cleaning including 5,187 linear feet of Mainline open ditch, 6,976 linear feet of Spur 2 open ditch, and 1,271 linear feet of Spur 8 open ditch. Priority repairs include approximately 3,000 linear feet of side slope repairs of which three will include installation of alternative side inlets to prevent future erosion. Significant areas of erosion on Spur 8 open ditch along County Road 125 will include side slope repairs with riprap to prevent future erosion. Lastly, the Mareks Lake outlet structure will be replaced with a concrete drop structure. All areas that are disturbed will be re-seeded with appropriate seed mix and erosion control.

Below outlines the details of the repair items and areas included in Option 1. Detailed plans are included in Appendix A that outlined priority repairs for the system.

1. MAINLINE CROSSING #14 – DRIVEWAY CROSSING PROTECTION (KROCAK REPAIRS)

Concern: Driveway wash out

Location: Mainline open ditch station 264+00, Crossing #14

Proposed Repair: Side slope repairs and armoring culvert with riprap



Figure 24: Downstream End of Culvert Crossing #14

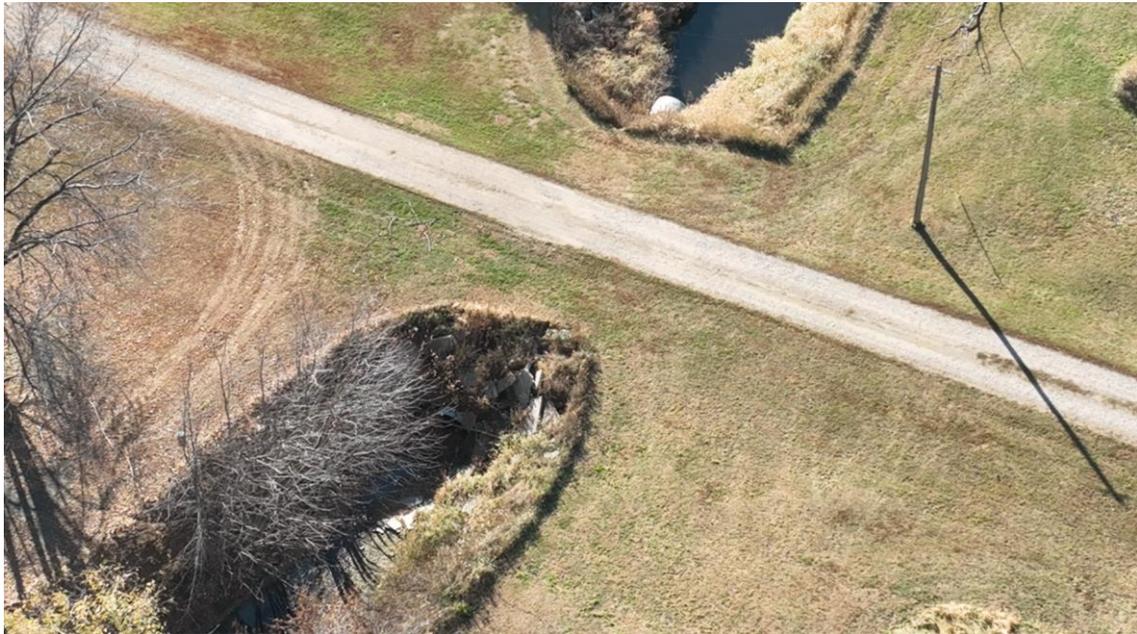


Figure 25: Upstream End of Culvert Crossing #14

2. MAINLINE SIDE SLOPE REPAIRS (STAUBER REPAIRS)

Concern: Erosion on side slopes of bank

Location: Mainline open ditch station 314+00 to 331+00

Proposed Repair: Side slope repairs and alternative side inlets



Figure 26: Bank Repairs and ASIs

3. MAINLINE OPEN DITCH CLEANING (JINDRA REPAIRS)

Concern: Sediment Accumulation

Location: Mainline open ditch station 331+00 to 383+50

Proposed Repair: Open ditch cleaning, tree removal, and side slope repairs



Figure 27: Mainline Open Ditch Cleaning Location



Figure 28: Mainline Open Ditch Cleaning Location



Figure 29: Mainline Open Ditch Cleaning Location



Figure 30: Mainline Open Ditch Cleaning Location

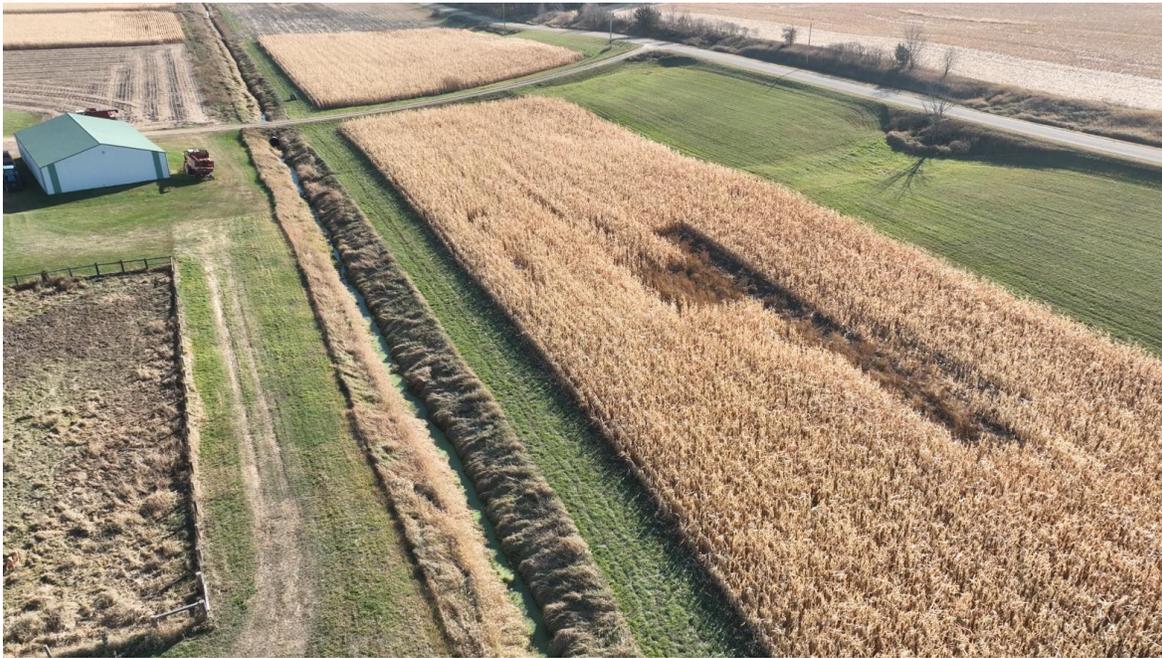


Figure 31: Mainline Open Ditch Cleaning Location



Figure 32: Mainline Open Ditch Cleaning Location

4. MAINLINE CROSSING #19 – DRIVEWAY CROSSING CULVERT REPLACEMENT (JINDRA REPAIRS)

Concern: Driveway culvert in need of replacement

Location: Mainline open ditch station 374+00, Crossing #19

Proposed Repair: Remove and replace culvert and armor with riprap

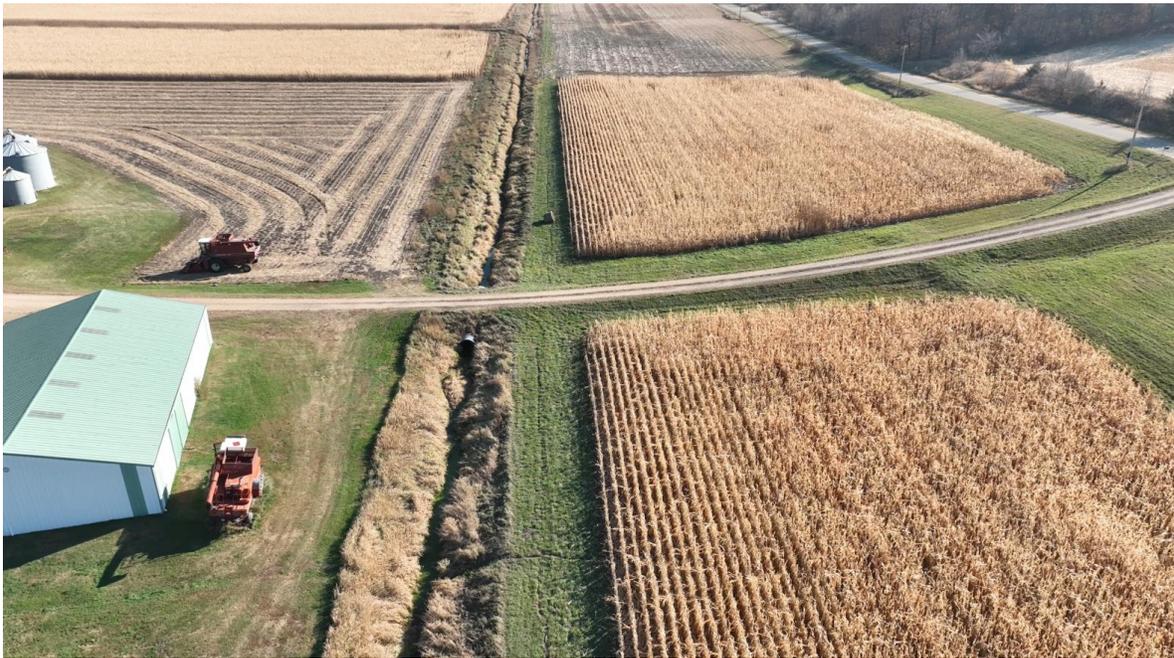


Figure 33: Culvert Crossing #19

5. SPUR 8 OPEN DITCH – CLEANING AND BANK REPAIRS

Concern: Side slope erosion along County Road 125

Location: Spur 8 open ditch station 00+00 to 23+50

Proposed Repair: Side slope repairs, side slope armoring, open ditch cleaning, armoring culvert crossing #22.



Figure 34: Spur 8 Open Ditch Side Slope Failures



Figure 35: Spur 8 Open Ditch Side Slope Failures



Figure 36: Spur 8 Open Ditch Side Slope Failures Along County Road 125

6. SPUR 9 OPEN DITCH CROSSING #31 – DRIVEWAY CULVERT PROTECTION (HOLEY REPAIRS)

Concern: Sloughing around driveway to point of becoming dangerous with amount of sediment that has eroded over the past years

Location: Spur 9 open ditch station 163+75, Crossing #31

Proposed Repair: Side slope repairs and armoring culvert with riprap



Figure 37: Spur 9 Open Ditch Crossing #31 Driveway Crossing

7. SPUR 2 OPEN DITCH CLEANING (SRNEC REPAIRS)

Concern: Sediment accumulation and slide in on the open ditch that have restricted flow

Location: Spur 2 open ditch station 0+00 to 45+00

Proposed Repair: Open ditch cleaning and side slope repairs



Figure 38: Spur 2 Open Ditch Cleaning

8. MAREKS LAKE OULTET STRUCTURE REPLACEMENT

Mareks Lake, a public water under the jurisdiction of the Department of Natural Resources, is located at the upstream end of Spur 2. Currently there is a dilapidated 48-inch CMP drop structure that acts as the outlet for the lake. The structure is failing in many locations. Therefore, the lake is draining out at a lower elevation than as designed. The outlet pipe of the outlet structure is also broken. A large hole is also present near the outlet structure. The damaged structure is most likely the cause of the large hole. Figure 39 and Figure 40 illustrate the current condition of the outlet structure and hole. Minnesota DNR completed a survey report in December 2017 which established an Ordinary High Water (OHW) elevation at 1045.66 NAVD 88 (1045.66 NGVD 29).

As part of the repair, the existing broken outlet structure will be removed and replaced with a 60-inch concrete drop structure with 36-inch outlet pipe. The top of the drop structure will be set approximately one foot below the OHW elevation, 1044.50. Due to erosion, there are large scour holes around the structure. Approximately 25 cubic yards of common borrow and 35 cubic yards of riprap will be used to stabilize and protect the berm from erosion. A public waters permit is needed before work can take place on the Mareks Lake structure replacement.



Figure 39: Existing 48-inch CMP outlet structure for Mareks Lake



Figure 40: Large hole adjacent to Mareks Lake outlet structure



Figure 41: Mareks Lake

Option 2: Comprehensive Repairs

Option 2 was provided in the draft report in December 2021. Option 2 included all areas in need of repair including ditch cleaning, tree removal, slough repairs, tile outlet repairs, alternative side inlets, seeding, erosion control, and culvert replacements. Many options were provided for culvert replacements and included various materials including concrete, corrugated metal, and plastic pipes as well as prioritizing culverts based on their condition into priority 1 and priority 2 categories.

While Option 1 includes only the priority repairs, it is anticipated that repairs will need to be continued to be worked on throughout the system in the coming years. The comprehensive repairs listed can be used as a guide to implement future repair items.

DITCH CLEANING

Option 2 repairs will include cleaning the ditch to legal grade and cross section using ACSIC bottom widths from 4-feet to 16-feet wide on the main open ditch and all of its open ditch spurs.

TREE REMOVAL

An estimated 12 acres of heavy brush and tree clearing and included all trees and heavy brush within 16.5-feet of the top of the public open ditches. Removals will be predicated on the condition of the vegetation along the ditch banks at time of construction, increasing the amounts in the estimates.

SLOUGH REPAIRS

Option 2 repairs will include reestablishing a stable ditch bank where sloughs or erosion has occurred as well as seeding the repaired area. It is estimated that there are approximately 9,755 linear feet of slough repair necessary on the system; 4,985 on the Main open ditch and a total of 4,770 along the open ditch spurs. Additional slough repairs may be necessary based on the condition of the banks at the time of construction.

TILE OUTLET REPAIR

All tile outlets for entering the ditch for Option 2 repairs will be replaced or repaired. Some of the tile outlets are in good shape and only require riprap protection. However, some tiles are bent, broken, or completely washed away causing erosion to the ditch banks. The repair of a damaged tile outlet will consist of replacing it with a section of new tile and placing riprap protection.

ALTERNATIVE SIDE INLETS AS REPAIR

There are 39 ASI and 8 ASIRO slated for installation during the present Option 2 repair project. Additional ASIs may be necessary as construction progresses.

CULVERT CROSSINGS

CD 23 has 36 culvert crossings, and many are in poor condition and have reached the end of their expected life use. Culverts that are in poor condition, have inverted slopes, or are above legal grade are recommended to be replaced. In order to allow for an economical approach, the culverts that were determined to need replacement were divided into Priority 1 and Priority 2 replacement categories. The culverts may be replaced phases or completed together in one repair as determined by the Drainage Authority based on the engineer, landowner and county staff input. Priority 1 culverts were determined as those with inverted slopes, culverts placed above legal grade elevation, or in poor condition. Priority 2 culverts were culverts that were identified to have adequate hydraulic efficiency however are reaching the end of their expected life use. It has been determined that the culverts will need to be replaced in the next 3-5 years.

Road crossings are recommended to be replaced in reinforced concrete pipe (RCP) with aprons on the upstream and downstream ends. In lieu of corrugated metal pipe (CMP) crossings, field and driveway crossings are recommended to be replaced with RCP or High-Performance Polypropylene Pipe (PP) for long-term durability and consideration of cost effectiveness. All culverts slated to be replaced will have seeding, erosion control, and riprap sized and placed on the upstream and downstream ends of culverts.

Not all culverts within the system are in poor condition and some will be left in place and maintained. Riprap will be placed on the upstream and downstream ends of the culverts left in place. Riprap will protect the culverts, roads, driveways, and field accesses from erosive flows, scouring, and downcutting. The riprap extents have been sized based off the expected peak flows to its location to ensure adequate protection.

Table 3 and 4 display the proposed culvert capacities for open ditch crossings and culvert replacements. The replacements provide two options. The first replaces all culverts with all RCP culverts, and the second is a combination of RCP and Polypropylene (PP) culverts

TABLE 3. PROPOSED DITCH CULVERT REPLACEMENTS – ALL RCP CULVERTS

Crossing #	Station	Location	Existing Condition	Priority Level	Existing Size (in)	Existing Slope	Proposed Material	Proposed Size (in)	Proposed Slope	Existing Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
1	0+00	Main - W Prairie St.	POOR	Priority 1	102	-1.35%	RCP	10'x6'	0.21%	0.09	1.01
2	16+00	Main - Private Bridge	Bridge								
3	45+00	Main - County Road 114	Bridge								
4	64+00	Main - Private Bridge	Bridge								
5	0	Main - CSAH 11	Bridge								
6	103+00	Main - Field Crossing	OK	Priority 1	Dual 84	-0.92% & 0.08%	RCP	Dual 84	0.21%	0.22	1.01
7	129+00	Main - Field Crossing	POOR	Priority 1	96	-0.29%	RCP	96	0.38%	0.08	1.01
8	142+70	Main - Hunting Preserve Road	POOR	Priority 1	84	1.12%	RCP	78 x 122	0.19%	0.90	1.02
9	157+14	Main - Field Crossing	OK	Priority 1	84	-5.14%	RCP	84	0.35%	0.09	0.98
10	171+00	Main - Field Crossing	OK	Priority 1	72	-3.53%	RCP	72	0.35%	0.06	0.67
11	195+30	Main - Field Crossing	POOR	Priority 1	72	0.08%	RCP	72	0.35%	0.22	0.86
12	217+10	Main - CSAH 5	GOOD	-	8'x10'	0.31%	-	-	0.00%	3.59	-
13	235+41	Main - Driveway	OK	Priority 2	60	0.02%	RCP	72	0.54%	0.07	1.10
14	244+06	Main - Driveway	OK	Priority 1	60	-0.10%	RCP	72	0.35%	0.05	0.89
15	264+13	Main - Driveway	OK	Priority 2	72	0.67%	RCP	72	0.35%	0.65	0.91
16	284+86	Main - Field Crossing	OK / POOR	Priority 1	72	-0.25%	RCP	72	0.35%	0.08	0.92
17	307+61	Main - Field Crossing	OK / POOR	Priority 1	72	-0.17%	RCP	72	0.23%	0.11	1.01
18	331+14	Main - County Road 125	OK / POOR	Priority 1	72	-0.12%	RCP	72	0.18%	0.12	1.00
19	374+27	Main - Driveway	OK	Priority 1	72	-0.16%	RCP	72	0.14%	0.14	1.00
20	383+96	Main - Field Crossing	POOR	Priority 1	42	-0.14%	RCP	42	0.10%	0.43	2.59
21	6+12	Spur 8 - Driveway	OK	Priority 2	60	1.16%	RCP	60	1.16%	1.00	1.93
22	23+85	Spur 8 - County Road 136	GOOD	-	60	0.30%	-	-	-	1.01	-
23	13+06	Spur 9 - CSAH 5	GOOD	-	60	1.56%	-	-	-	4.23	-
24	38+30	Spur 9 - 380th St	OK	Priority 2	72	0.12%	RCP	60	0.13%	1.08	1.32
25*	69+40	Spur 9 - Driveway	GOOD	-	54	0.88%	-	-	-	1.70	-
26	73+79	Spur 9 - Field Crossing	OK	Priority 2	72	0.16%	RCP	60	0.09%	1.56	1.39
27	79+76	Spur 9 - Field Crossing	POOR	Priority 1	48	0.57%	RCP	48	0.15%	1.03	1.02
28	121+28	Spur 9 - MN HWY 99	GOOD	-	42	-0.23%	-	-	-	0.21	-
29	127+25	Spur 9 - Driveway	OK	Priority 2	48	0.09%	RCP	48	0.10%	0.51	1.01
30	151+31	Spur 9 - MN HWY 99	POOR	Priority 1	42	0.29%	RCP	42	0.30%	2.35	-
31	164+16	Spur 9 - Driveway	OK	Priority 2	48	3.56%	RCP	48	1.64%	7.73	10.09
32	174+44	Spur 9 - Field Crossing	OK	Priority 2	42	0.33%	RCP	48	0.05%	1.68	1.79
33	13+45	Spur 2 - Field Crossing	POOR	Priority 1	54	-2.21%	RCP	54	0.10%	0.17	1.05
34*	22+17	Spur 2 - Field Crossing	GOOD	-	48	0.73%	-	-	-	1.11	-
35	45+35	Spur 2 - County Road 158	OK - POOR	Priority 2	54	0.95%	RCP	54	0.45%	2.27	3.00
36*	70+18	Spur 2 - Field Crossing	GOOD	-	48	-1.57%	-	-	-	0.22	-
37	82+89	Spur 2 - 376th St	POOR	Priority 1	48	-1.04%	RCP	48	0.10%	0.34	2.07
38	96+93	Spur 2 - Field Crossing	POOR	Priority 1	48	-0.87%	RCP	48	0.10%	0.41	2.51
39	4+53	Branch A - 376th St	POOR	Priority 1	36	-0.51%	RCP	36	0.10%	0.39	2.35
40	8+25	Branch A - Field Crossing	POOR	Priority 1	36	0.63%	RCP	36	0.10%	3.15	2.42
41	5+20	Branch B - Field Crossing	OK - POOR	Priority 1	42	-1.13%	RCP	42	0.05%	0.55	2.37

Shaded in gray are culverts that will not be replaced.

*Replaced in 2019

TABLE 4. PROPOSED DITCH CULVERT REPLACEMENTS –RCP/PP CULVERTS REPLACEMENTS

Crossing #	Station	Location	Existing Condition	Priority Level	Existing Size (in)	Existing Slope	Proposed Material	Proposed Size (in)	Proposed Slope	Existing Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
1	0+00	Main - W Prairie St.	POOR	Priority 1	102	-1.35%	RCP	10'x6'	0.21%	0.09	1.01
2	16+00	Main - Private Bridge	Bridge								
3	45+00	Main - County Road 114	Bridge								
4	64+00	Main - Private Bridge	Bridge								
5	0	Main - CSAH 11	Bridge								
6	103+00	Main - Field Crossing	OK	Priority 1	Dual 84	-0.92% & 0.08%	RCP	Dual 84	0.21%	0.22	1.01
7	129+00	Main - Field Crossing	POOR	Priority 1	96	-0.29%	RCP	96	0.38%	0.08	1.01
8	142+70	Main - Hunting Preserve Road	POOR	Priority 1	84	1.12%	RCP	78 x 122	0.19%	0.90	1.02
9	157+14	Main - Field Crossing	OK	Priority 1	84	-5.14%	RCP	84	0.35%	0.09	0.98
10	171+00	Main - Field Crossing	OK	Priority 1	72	-3.53%	RCP	72	0.35%	0.06	0.67
11	195+30	Main - Field Crossing	POOR	Priority 1	72	0.08%	RCP	72	0.35%	0.22	0.86
12	217+10	Main - CSAH 5	GOOD	-	8'x10'	0.31%	-	-	-	3.59	-
13	235+41	Main - Driveway	OK	Priority 2	60	0.02%	RCP	72	0.54%	0.07	1.10
14	244+06	Main - Driveway	OK	Priority 1	60	-0.10%	RCP	72	0.35%	0.05	0.89
15	264+13	Main - Driveway	OK	Priority 2	72	0.67%	RCP	72	0.35%	0.65	0.91
16	284+86	Main - Field Crossing	OK / POOR	Priority 1	72	-0.25%	RCP	72	0.35%	0.08	0.92
17	307+61	Main - Field Crossing	OK / POOR	Priority 1	72	-0.17%	RCP	72	0.25%	0.11	1.05
18	331+14	Main - County Road 125	OK / POOR	Priority 1	72	-0.12%	RCP	72	0.18%	0.12	1.00
19	374+27	Main - Driveway	OK	Priority 1	72	-0.16%	RCP	72	0.15%	0.14	1.04
20	383+96	Main - Field Crossing	POOR	Priority 1	42	-0.14%	PP	42	0.10%	0.43	2.59
21	6+12	Spur 8 - Driveway	OK	Priority 2	60	1.16%	PP	60	1.16%	1.00	1.93
22	23+85	Spur 8 - County Road 136	GOOD	-	60	0.30%	-	-	-	1.01	-
23	13+06	Spur 9 - CSAH 5	GOOD	-	60	1.56%	-	-	-	4.23	-
24	38+30	Spur 9 - 380th St	OK	Priority 2	72	0.12%	RCP	60	0.13%	1.08	1.32
25*	69+40	Spur 9 - Driveway	GOOD	-	54	0.88%	-	-	-	1.70	-
26	73+79	Spur 9 - Field Crossing	OK	Priority 2	72	0.16%	PP	60	0.09%	1.56	1.39
27	79+76	Spur 9 - Field Crossing	POOR	Priority 1	48	0.57%	PP	48	0.15%	1.03	1.02
28	121+28	Spur 9 - MN HWY 99	GOOD	-	42	-0.23%	-	-	-	0.21	-
29	127+25	Spur 9 - Driveway	OK	Priority 2	48	0.09%	PP	48	0.10%	0.51	1.01
30	151+31	Spur 9 - MN HWY 99	POOR	Priority 1	42	0.29%	RCP	42	0.30%	2.35	2.40
31	164+16	Spur 9 - Driveway	OK	Priority 2	48	3.56%	PP	48	1.64%	7.73	10.09
32	174+44	Spur 9 - Field Crossing	OK	Priority 2	42	0.33%	PP	48	0.05%	1.68	1.79
33	13+45	Spur 2 - Field Crossing	POOR	Priority 1	54	-2.21%	PP	48	0.18%	0.17	1.02
34*	22+17	Spur 2 - Field Crossing	GOOD	-	48	0.73%	-	-	-	1.11	-
35	45+35	Spur 2 - County Road 158	OK - POOR	Priority 2	54	0.95%	RCP	54	0.45%	2.27	3.00
36*	70+18	Spur 2 - Field Crossing	GOOD	-	48	-1.57%	-	-	-	0.22	-
37	82+89	Spur 2 - 376th St	POOR	Priority 1	48	-1.04%	RCP	48	0.10%	0.34	2.07
38	96+93	Spur 2 - Field Crossing	POOR	Priority 1	48	-0.87%	PP	48	0.10%	0.41	2.51
39	4+53	Branch A - 376th St	POOR	Priority 1	36	-0.51%	RCP	36	0.10%	0.39	2.35
40	8+25	Branch A - Field Crossing	POOR	Priority 1	36	0.63%	PP	36	0.10%	3.15	2.42
41	5+20	Branch B - Field Crossing	OK - POOR	Priority 1	42	-1.13%	PP	42	0.05%	0.55	2.37

Fences

Landowners have been sent notices where fences were identified within the open ditch cross section or within the 16.5 buffer easement. Fences are encouraged to be moved out of the construction easement right of way (30-feet from the top of ditch) for maintenance of the drainage system. Coordination with the contractor and engineer is encouraged on the removing, disposing, or replacement of fences.

Storage

A multipurpose drainage management plan includes an analysis for inclusion of water storage practices within the watershed. Storage slows the flow of water and protects the drainage system from erosion. Storage in the middle or upper watershed can help to reduce downstream impacts and flooding allowing for timing of drainage to be spaced and not compound near the outlet. Storage implementation may come in many forms including wetland restorations or storage basins.

Landowners have come forward that are open to considering implementing storage along the ditch. Additionally, Marek’s Lake outlet structure will increase storage capacity and evapotranspiration within the public water basin. Potential storage areas have been identified in a map in Appendix B. Initial design exhibits considering elevation, grades, and inlets and outlet configuration to determine the feasibility and benefits of the storage locations. Additional landowners may come forward with the idea of implementing storage into the system.

Storage is a priority in the watershed to reduce flooding and impacts to downstream landowner. The SWCD and Drainage Authority will continue to work with landowners to implement and seek funding sources to implement storage on the system. Additional soil health such as cover crops or reduced/no tillage, wetland restoration, or other conservation practice offline of the ditch system can be implemented to help with soil water retention and water storage in the upper watershed.



Figure 42: Les Hartwig storage location on Main open ditch at Sta. 232+00



Figure 43: Bromstrom storage location on Spur 9 open ditch at Sta. 185+00



Figure 44: Witter storage location on Mainline open ditch at Sta. 115+00

Downstream of CD 23 – Unnamed Watercourse

A survey was completed half a mile downstream of the CD 23 outlet in the Unnamed watercourse. Although sediment has accumulated in the Unnamed Watercourse, there were no areas found that would cause major flow restrictions due to sediment accumulation. It was noted that there were many fallen trees, large debris, and evidence of beaver dams in the Unnamed Watercourse that have impacts to flow.

Wetland Impacts

The CD 23 watershed does not have any listed public water wetlands within its boundary. A Level 1 wetland delineation was completed in the areas where repairs are slated to take place on CD 23. The delineation included identifying potential wetland characteristics using LiDAR, soil data, historical aeriels, and drone photos that showed open water areas, perennial flooded areas, wetland grasses, or other indicators of wetland hydrology.

The potential wetland areas are identified on the plans available in Appendix B. Spoils will not be placed in wetland areas from open ditch cleaning or repair work. Spoils in these areas will be placed in areas that were not identified as potential wetlands in the Level 1 wetland delineation. No increase in drainage capacity will occur in the identified areas therefore no impacts to wetlands are anticipated.

Public Waters

The watershed includes three public waters. Mud and Mareks Lakes are along the alignment of CD 23 open ditch or directly adjacent. Sautter Lake is offline of the open ditch while still within the CD 23 watershed. A map, *Public Waters and Lands Maps*, displays the locations of the public waters in Appendix B. No excavation or placement of spoils is to place in the public waters.

Public Utility, Benefit, or Welfare

In accordance with Section 103E.015, Subd. 2, and on behalf of the Drainage Authority, the Engineer has throughout this report considered whether the present repair will be of public utility, benefit, or welfare.

Below lists the evidence of the required process of consideration of public benefit, utility, and/or welfare:

1. The repair will restore the as built or subsequently improved condition of the CD 23 open ditch. The repair will reduce lower water elevation in the open ditch and reduce flooding in adjacent lands where cleaning open ditch.
2. The banks on CD 23 contain many sloughs, scours, downcutting, washouts, gullies, and bank failures. The repair includes many side slope repairs and bank stabilization repairs. In doing so will protect the banks from future rain events and erosion to downstream waters.
3. The repair will replace the dilapidated outlet structure on Mareks Lake, a public water. The new structure will provide structural integrity for the outlet of the public water and restore historic outfall. The restoration of the outfall will increase the current maintained water allowing for additional storage and provide habitat value to the area.
4. A Multipurpose Drainage Management Plan was created for the CD 23 system. The plan includes projects to be considered by the landowners in the CD 23 watershed with potential to be completed. The SWCD has been promoting upland practices that are beyond the Drainage Authority's jurisdiction such as cover crops, no till, and nutrient management.

5. The Multipurpose Drainage Management Plan also includes storage locations for potential wetland restorations and storage basins. Storage slows the flow of water, protects the drainage system from erosion, and reduces flooding impacts. Storage is a priority in the watershed to reduce flooding and impacts to downstream landowners. The SWCD and Drainage Authority will continue to work with landowners to implement and seek funding sources.
6. The repair analysis found 47 ASIs or ASIROs along the open ditch portions of CD 23. It is anticipated that the ASIs and ASIROs will provide approximately 117 acre-feet of storage, 23.5 tons per year sediment reduction, 70.5 tons per year soil savings, and 141 pounds per year phosphorus reduction entering the ditch proving water quality benefits to the ditch and downstream waters, such as Le Sueur Creek and the Minnesota River. Select ASIs were included in the priority repairs. The SWCD and Drainage Authority will continue to work with landowners to implement and seek funding for the remaining ASIs.
7. The present repairs have taken into consideration the existing wetlands and Public Waters, avoiding impact whenever possible.

Having applied appropriate consideration, the Engineer believes that the CD 23 Repair will be of public utility, benefit, and welfare.

REPAIR COST ESTIMATE

The proposed repair will bring the system back to its As Constructed or Subsequently Improved Condition. Table 5 through 11 summarizes the cost of the repair project options. Detailed cost estimates are included in Appendix C.

Option 1: Priority Repair Cost Estimate

Option 1 outlines the costs for constructing priority repairs on CD 23. Two different approaches were considered for a construction timeline. Option 1A outlines the cost for constructing the repairs with one construction contract at one time. Option 1B outlines completing the same construction repairs to CD 23, however, the repairs would be constructed in three phases over three years. The construction contracts were phased yearly at approximately \$150,000 per year with some variability to accommodate combinations of project types and locations. Landowner requested repairs were prioritized to be completed first.

While there are some benefits of having smaller construction projects as they can be easier to manage and potentially allows more contractors to bid on the project, there are cost savings to consider with doing a larger repair project. Cost savings can be realized with lower mobilization costs, less time from staff and engineers to plan and coordinate, and other factors such as inflation. Inflation of construction materials have significant increase in the last years due to lingering economic impacts of the COVID pandemic. Based on past and ongoing experiences with similar types and location of drainage projects, construction costs are not expected to fall. Construction of one larger project may be assessed to landowners in phases to lessen the yearly financial burden to landowners. Cost saving are approximately \$80,895 or 22% reduction when compared to completing the priority repairs as one project.

OPTION 1A: PRIORITY REPAIR COST ESTIMATE

TABLE 5. OPTION 1A PRIORITY REPAIRS OPEN DITCH COST ESTIMATE

Area	Repair Cost
Crossing #14 - Driveway Crossing (Krocak Repairs)	\$ 21,051
Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Sauber Repairs)	\$ 13,705
Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)	\$ 78,993
Crossing #19 - Driveway Crossing (Jindra Repairs)	\$ 46,548
Spur 8 Open Ditch Cleaning and Side Slope Repairs	\$ 73,529
Crossing #31 - Driveway Crossing (Holey Repairs)	\$ 12,978
Spur 2 Open Ditch Cleaning and Side Slope Repairs (Srnc Repairs)	\$ 51,396
Mareks Lake Outlet Structure Replacement	\$ 66,843
Total Project Costs	\$ 365,043

OPTION 1B: PHASED PRIORITY REPAIR COST ESTIMATE

TABLE 6. OPTION 1B PHASED PRIORITY REPAIRS OPEN DITCH COST ESTIMATE

Area	Repair Cost
Year 1	
Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)	\$ 88,839
Crossing #19 - Driveway Crossing (Jindra Repairs)	\$ 52,530
Year 1 Subtotal	\$ 141,369
Year 2	
Crossing #14 - Driveway Crossing (Krocak Repairs)	\$ 25,267
Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Saubert Repairs)	\$ 16,006
Crossing #31 - Driveway Crossing (Holey Repairs)	\$ 15,185
Spur 2 Open Ditch Cleaning and Side Slope Repairs (Srncac Repairs)	\$ 62,676
Year 2 Subtotal	\$ 119,134
Year 3	
Spur 8 Open Ditch Cleaning and Side Slope Repairs	\$ 97,168
Mareks Lake Outlet Structure Replacement	\$ 88,267
Year 3 Subtotal	\$ 185,434
Total Project Costs	\$ 445,938

Option 2: Open Ditch Repair Cost Estimates

TABLE 7. OPTION 2 COMPREHENSIVE OPEN DITCH COST ESTIMATE

Area	Repair Cost
Main Open Ditch	\$ 1,103,052
Spur 2 Open Ditch	\$ 254,694
Spur 2 Branch A Open Ditch	\$ 37,941
Spur 2 Branch B Open Ditch	\$ 27,120
Spur 8 Open Ditch	\$ 64,323
Spur 9 Open Ditch	\$ 497,147
Spur 10 Open Ditch	\$ 17,889
Total Open Ditch Repair Cost	\$ 2,002,166
Downstream Unnamed Stream - Tree Snags	\$ 243,698
Total Open Ditch Repair Cost w/ Downstream Restriction Removals	\$ 2,245,863

Option 2 Culvert Repair Cost Estimate

CULVERT PRIORITIZATION

There are 36 culverts within the CD 23 system, and many are in poor condition and reaching the end of their expected life use. In order to allow for an economical approach, the culverts were prioritized into Priority 1 and Priority 2 culverts and could be completed in phases. Priority 1 culverts are culverts determined to be in poor condition. In lieu of RCP pipes, an alternative cost estimate for high-performance polypropylene pipe (PP) was completed for field crossings and driveway accesses.

Not all culverts within the system are in poor condition and some will be left in place and maintained. Riprap will be placed on the upstream and downstream ends of the culverts left in place. Riprap will protect the culverts, roads, and field accesses from erosive peak flows, scouring, and downcutting. The riprap extents have been sized based off the expected peak flows to its location to ensure adequate protection.

ROAD AUTHORITY COSTS

Basic to understanding of Road Authority costs associated with a drainage project is that the road authority is responsible for their road crossings. To that end the road authority is responsible for the cost to replace the crossing as it was originally installed within their right of way. Therefore, if a culvert is within a road right of way is in disrepair and replaced with the repair project, the costs are the responsibility of the appropriate road

authority. All road authority culverts are recommended to be installed utilizing reinforced concrete pipe (RCP) with aprons on the upstream and downstream ends of the pipe.

Priority 1 Culverts

TABLE 8. PRIORITY 1 CULVERT COST ESTIMATE

Priority 1 Culverts	RCP Costs	RCP & PP Costs	Cost Savings
Main W Prairie Street (Crossing #1)	\$ 140,054	\$ 140,054	\$ -
Main Field Crossing (Crossing #6)	\$ 107,948	\$ 107,948	\$ -
Main Field Crossing (Crossing #7)	\$ 72,459	\$ 72,459	\$ -
Main Hunting Preserve Ln (Crossing #8)	\$ 95,173	\$ 95,173	\$ -
Main Private Field Crossing (Crossing #9)	\$ 49,170	\$ 49,170	\$ -
Main Field Crossing (Crossing #10)	\$ 50,971	\$ 50,971	\$ -
Main Field Crossing (Crossing #11)	\$ 56,557	\$ 56,557	\$ -
Main Private Driveway Crossing (Crossing #14)	\$ 56,926	\$ 56,926	\$ -
Main Field Crossing (Crossing # 16)	\$ 45,384	\$ 45,384	\$ -
Main Field Crossing (Crossing # 17)	\$ 45,384	\$ 45,384	\$ -
Main County Road 125 (Crossing # 18)	\$ 88,383	\$ 88,383	\$ -
Main Driveway Crossing (Crossing # 19)	\$ 56,926	\$ 56,926	\$ -
Main Field Crossing (Crossing # 20)	\$ 39,176	\$ 19,376	\$ 19,801
Spur 9 Field Crossing (Crossing #27)	\$ 30,324	\$ 16,605	\$ 13,719
Spur 9 Highway 99 (Crossing #30)	\$ 82,398	\$ 82,398	\$ -
Spur 2 Field Crossing (Crossing #33)	\$ 49,018	\$ 28,478	\$ 20,540
Spur 2 County Road 141 (Crossing # 37)	\$ 67,836	\$ 67,836	\$ -
Spur 2 Field Crossing (Crossing #38)	\$ 38,702	\$ 19,510	\$ 19,192
Branch A of Spur 2 County Road 141 (Crossing #39)	\$ 32,432	\$ 32,432	\$ -
Branch A of Spur 2 Field Crossing (Crossing #40)	\$ 18,587	\$ 15,690	\$ 2,896
Branch B of Spur 2 Field Crossing (Crossing #41)	\$ 35,452	\$ 18,126	\$ 17,326
<i>Road Crossings Costs</i>	\$ 271,048	\$ 271,048	\$ -
<i>Landowner Crossings Costs</i>	\$ 988,212	\$ 894,738	\$ 93,474
Total Project Costs	\$ 1,259,260	\$ 1,165,786	\$ 93,474

Priority 2 Culverts

TABLE 9. PRIORITY 2 CULVERT COST ESTIMATE

Priority 2 Culverts	RCP Costs	RCP & PP Costs	Cost Savings
Main Driveway Crossing (Crossing # 13)	\$ 56,926	\$ 56,926	\$ -
Main Driveway Crossing (Crossing #15)	\$ 78,218	\$ 78,218	\$ -
Spur 8 Driveway Crossing (Crossing # 21)	\$ 52,491	\$ 29,732	\$ 22,759
Spur 9 380th Street (Crossing # 24)	\$ 81,387	\$ 81,387	\$ -
Spur 9 Field Crossing (Crossing #26)	\$ 75,396	\$ 39,995	\$ 35,400
Spur 9 Driveway Crossing (Crossing #29)	\$ 64,224	\$ 28,565	\$ 35,660
Spur 9 Driveway Crossing (Crossing #31)	\$ 51,650	\$ 24,222	\$ 27,428
Spur 9 Field Crossing (Crossing #32)	\$ 51,280	\$ 23,853	\$ 27,427
Spur 2 County Road 158 (Crossing #35)	\$ 79,599	\$ 79,599	\$ -
<i>Road Crossings Cost</i>	\$ 160,986	\$ 160,986	\$ -
<i>Landowner Crossing Costs</i>	\$ 430,185	\$ 281,511	\$ 148,674
Total Project Costs for Landowners	\$ 591,171	\$ 442,497	\$ 148,674

The total open ditch repair cost for CD 23 is approximately \$2,002,166 with an additional \$243,698 for removal of trees and other obstructions such as beaver dams and tree jams downstream of CD 23. Priority 1 culvert replacement ranges from approximately \$1,165,789 to \$1,259,260, and Priority 2 culvert replacements costs ranges from approximately \$442,497 to \$591,171 depending on the approach of material usage. Additional costs consideration may be included in a repair for tile repairs and inclusion of storage.

Additional Cost Considerations

Additional considerations were made while inspecting and analyzing CD 23. While the items below are not included in the repair plans consideration from the Drainage Authority and landowners may constitute further analysis, engineering, and plans for inclusion in the repair.

PRELIMINARY TILE REPAIR COST ESTIMATE

Although the public drainage tiles for CD 23 are not included in the proposed repair project, Table 10 displays a preliminary cost estimate for the replacement of the subsurface drain tiles. Preliminary cost estimates were provided in this report in order to facilitate any conversations with landowners and the Drainage Authority. The conditions of the tiles are unknown, however, if input from the public or the Drainage Authority that the public tiles are in disrepair, repairs may be considered in the future. Televising of the CD 23 tiles could be completed to determine the condition of the tiles and if they should be repaired at this time.

TABLE 10. PRELIMINARY TILE COST ESTIMATE

Area	Repair Cost
Main Tile	\$ 141,257
Spur 1 Tile	\$ 196,519
Spur 3 Tile	\$ 114,120
Spur 4 Tile	\$ 33,438
Spur 11 Tile	\$ 18,504
Spur 12 Tile	\$ 110,344
Total Tile Repair Cost	\$ 614,183

PRELIMINARY STORAGE COST ESTIMATE

Landowners have been identified with willingness to consider storage along the open ditch. In addition, Marek's Lake, a public water basin, has been proposed to replace the and restore runoff elevation increasing storage and evapotranspiration. Preliminary concepts for storage basins or wetland restoration in these areas have been considered with associated costs. The cost includes excavation, outlet structures, land acquisition, and temporary damages as necessary. The concepts are in the preliminary stages and landowner input is encouraged.

TABLE 11. POTENTIAL STORAGE COST ESTIMATE

Area	Repair Cost
Mareks Lake Enhancement	\$ 66,843
Brostrom Storage	\$ 351,940
ASIs	\$ 149,793

Other Project Related Costs

All drainage projects have indirect costs that must be accounted for in project cost estimates and used in cost benefit analyses. They include costs related to Drainage Authority administration; topographic survey; reports, plans and specifications; and construction staking and administration.

SUMMARY OF FINDINGS, CONCLUSIONS, + RECOMMENDATIONS

The majority of CD 23 is above the legal ditch grade with sediment and vegetation accumulation. There are also multiple areas of bank failures, washouts, and areas of erosion throughout the ditch banks. The system contains areas with heavy vegetation to be cleared of in the buffer area to maintain access to the ditch for maintenance. There are 36 culverts on the system with a majority in poor or deteriorating condition.

Ditch systems of this size typically are cleaned and repaired every 8 to 10 years. The topographic survey revealed major repair items throughout the open ditch, proving the system need of a repair. Multiple information meetings with landowners were held to discuss the preliminary findings, as well as the findings as outlined in this report. Options outlined included comprehensive repairs to the system that have been outlined in Option 2. In addition, the condition of the downstream channel of CD 23, storage and other MDM practices, and the condition of the public tile systems were presented with associated costs.

During the multiple landowner meeting, landowners primarily expressed concerns with costs and feasibility of the project. The feedback concluded with prioritizing repairs to reduce the scope of repair work and associated costs into smaller more manageable repair projects. A notice was sent to landowners following the March 2022 landowner meeting to notify the Engineer and Drainage Authority of repairs that are a priority to landowners adjacent to the public open ditch. Six landowners responded and all requested repairs were included in Option 1: Priority Repairs. Two additional repair areas were added based on the Engineer's recommendations and included Mareks Lake outlet structure replacement and Spur 8 open ditch side slope repairs.

The Engineering recommends completing the priority repairs outlined in Option 1 to CD 23 with estimated cost of approximately \$365,043. Due to cost saving potential, the Engineer recommends completing the repair as one construction contract. It is recommended to continue efforts to address repairs systematically to address lower priority areas that are in disrepair, particularly the many culverts in CD 23. Many of the culverts are in poor condition and are susceptible to erosion. Continuing efforts to repair and replace culverts by doing smaller repair projects per year could reduce the financial burden on landowners. Comprehensive repairs are outlined in Option 2 with estimated cost of approximately \$2,002,170 for open ditch repairs and approximately \$1,608,290 to \$1,850,430 for both priority 1 and priority 2 culverts depending on approach of material usage. Comprehensive repairs that are outlined can be used as a guide for future repair projects.

In accordance with Section 103E.715 REPAIR BY PETITION, Subd. 2, Whereas the engineer has ascertained the As Constructed or Subsequently Improved Condition (ACSIC) of the System, and whereas the engineer has shown the necessary repairs, and whereas the engineer has shown the proposed repair to be of public utility, benefit, and welfare per Section 103E.015, Subd. 2, and whereas the engineer has provided estimated costs of the repairs, and whereas the engineer has, on behalf of the drainage authority, investigated potential external sources of funds and technical assistance, and whereas the engineer has provided plans for the repair, therefore the engineer recommends the proposed Option 1 Priority Repair project to the Drainage Authority for approval.

Appendix A: Preliminary Repair Plans

LE SUEUR COUNTY COUNTY DITCH No. 23 REPAIR

LE CENTER, MINNESOTA

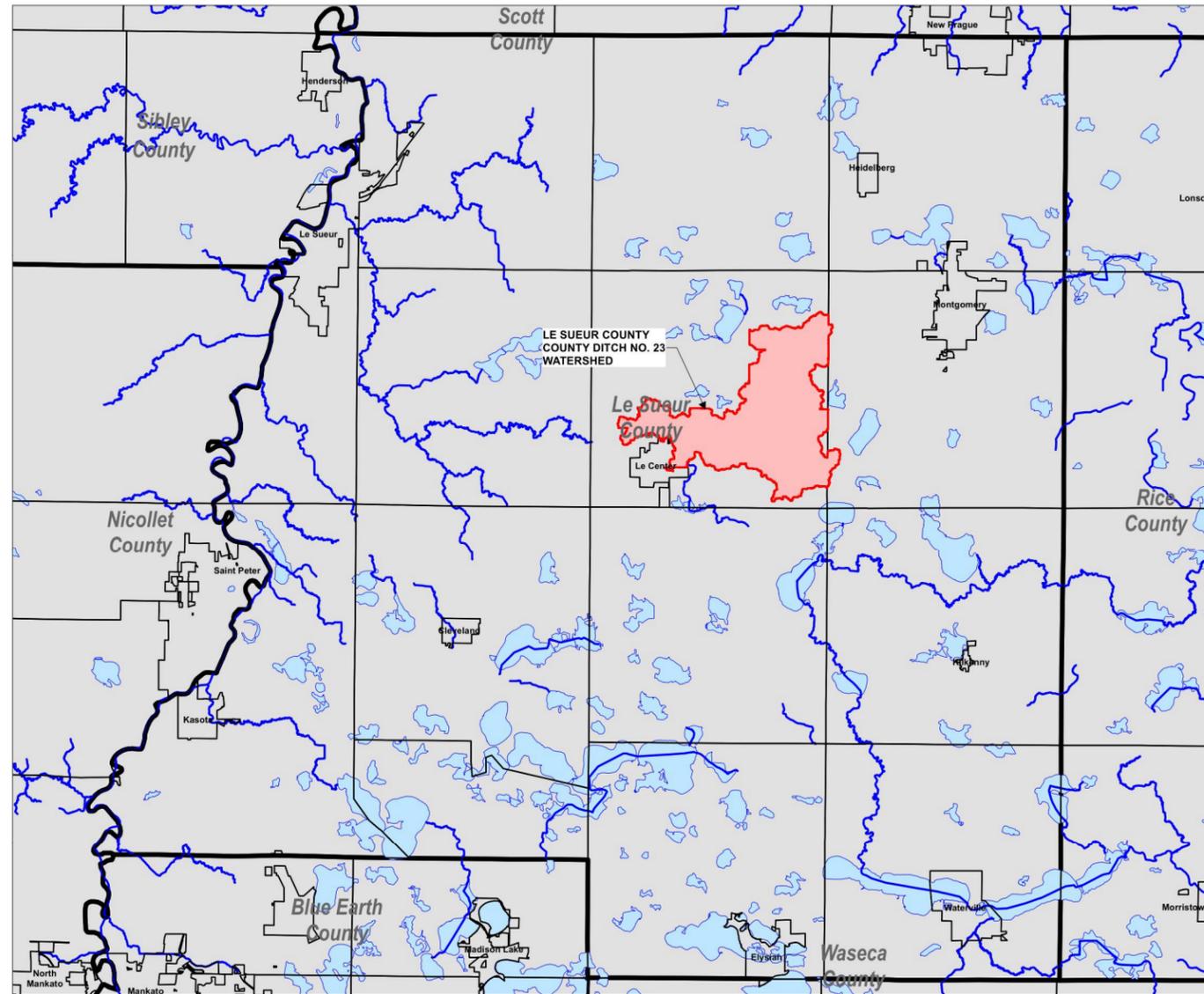
PRELIMINARY CONSTRUCTION PLANS

ISG PROJECT # 17-20141



LEGEND

EXISTING	
	WATERSHED BOUNDARY
	CITY LIMITS
	SECTION LINE
	QUARTER SECTION LINE
	RIGHT OF WAY LINE
	PROPERTY / LOTLINE
	EASEMENT LINE
	ACCESS CONTROL
	WATER EDGE
	WETLAND BOUNDARY
	FENCE LINE
	EXISTING OPEN DITCH
	CULVERT
	TILE
	PRIVATE TILE
	WATER
	GAS
	OVERHEAD ELECTRIC
	UNDERGROUND ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND TV
	OVERHEAD UTILITY
	UNDERGROUND UTILITY
	UNDERGROUND FIBER OPTIC
	CONTOUR (MAJOR)
	CONTOUR (MINOR)
	DECIDUOUS TREE
	CONIFEROUS TREE
	TREE LINE
	DROP INTAKE
	HYDRANT
	POWER POLE
PROPOSED	
	EASEMENT
	PROPOSED OPEN DITCH
	OPEN DITCH REPAIR
	CULVERT (RCP)
	CULVERT (CMP)
	CULVERT (HDPE)
	TILE
	TILE (PIPE WIDTH)
	PRIVATE TILE
	WATER
	GAS
	OVERHEAD ELECTRIC
	UNDERGROUND ELECTRIC
	UNDERGROUND TV
	CONTOUR (MAJOR)
	CONTOUR (MINOR)
	DROP INTAKE
	SLOUGH REPAIR
	SPOIL PLACEMENT
	TREE CLEARING
	REMOVE TREE
	BUFFER



LOCATION MAP

SHEET INDEX

- 1 TITLE
- 2 NOTES
- 3 QUANTITIES AND SCHEDULES
- 4 OVERALL WATERSHED
- 5 LANDOWNER MAP (WEST)
- 6 LANDOWNER MAP (CENTRAL)
- 7 LANDOWNER MAP (EAST)
- 8 TREE REMOVALS
- 9 DETAILS
- 10 DETAILS
- 11 DETAILS
- 12 DETAILS
- 13 S-1 MAREKS OUTLET STRUCTURE DETAIL
- 14 MAINLINE PROFILE
- 15 MAINLINE PROFILE
- 16 MAINLINE PROFILE
- 17 MAINLINE PROFILE
- 18 SPUR 9 PROFILE
- 19 SPUR 2 PROFILE
- 20 SPUR 2 PROFILE
- 21 SPUR 2 PROFILE
- 22 SPUR 8 PROFILE

GIS DISCLAIMER:

INFORMATION FOR THE BOUNDARY / LOT LINES, AND UNDERGROUND UTILITIES SHOWN WAS DERIVED FROM DIGITAL DATABASES AND IS FOR INFORMATIONAL PURPOSES ONLY. DATA MAY NOT HAVE BEEN PREPARED FOR, OR BE SUITABLE FOR: LEGAL, ENGINEERING, OR SURVEYING PURPOSES.

1. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS, WHICH INCLUDE, BUT ARE NOT LIMITED TO, THE OWNER - CONTRACTOR AGREEMENT, THE PROJECT MANUAL (WHICH INCLUDES GENERAL SUPPLEMENTARY CONDITIONS AND SPECIFICATIONS), DRAWINGS OF ALL DISCIPLINES AND ALL ADDENDA, MODIFICATIONS AND CLARIFICATIONS ISSUED BY THE ARCHITECT/ENGINEER.
2. CONTRACT DOCUMENTS SHALL BE ISSUED TO ALL SUBCONTRACTORS BY THE GENERAL CONTRACTOR IN COMPLETE SETS IN ORDER TO ACHIEVE THE FULL EXTENT AND COMPLETE COORDINATION OF ALL WORK.
3. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
4. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
5. DETAILS SHOWN ARE INTENDED TO BE INDICATIVE OF THE PROFILES AND TYPE OF DETAILING REQUIRED THROUGHOUT THE WORK. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO DETAILS SHOWN, WHERE SPECIFIC DIMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMINED, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
6. ALL MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, CLEANED AND CONDITIONED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. IN CASE OF DISCREPANCIES BETWEEN MANUFACTURERS' INSTRUCTIONS AND THE CONTRACT DOCUMENTS, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
7. ALL DISSIMILAR METALS SHALL BE EFFECTIVELY ISOLATED FROM EACH OTHER TO AVOID GALVANIC CORROSION.
8. THE LOCATION AND TYPE OF ALL INPLACE UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY AND ARE ACCURATE AND COMPLETE TO THE BEST OF THE KNOWLEDGE OF I & S GROUP, INC. (ISG). NO WARRANTY OR GUARANTEE IS IMPLIED. THE CONTRACTOR SHALL VERIFY THE SIZES, LOCATIONS AND ELEVATIONS OF ALL INPLACE UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM PLAN.
9. THE CONTRACTOR IS TO CONTACT "GOPHER STATE ONE CALL" FOR UTILITY LOCATIONS, MINIMUM 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION / CONSTRUCTION (1-800-252-1166).

PROJECT INDEX:

OWNER:
LE SUEUR COUNTY
DRAINAGE AUTHORITY
88 SOUTH PARK AVENUE
LE CENTER, MINNESOTA 56057
PH: 507-357-2251

PROJECT ADDRESS / LOCATION:
SECTIONS 11-15/19-30/32-36,
LEXINGTON, TWP.
SECTIONS 2-5/10-11,
CORDOVA, TWP.
SECTIONS 7-8/16-20/39-31,
MONTGOMERY, TWP.
LE SUEUR COUNTY, MINNESOTA

MANAGING OFFICE:

MANKATO OFFICE
115 E HICKORY STREET
SUITE 300
MANKATO, MN 56001
PHONE: 507.387.6651
FAX: 507.387.3583
PROJECT MANAGER: CHUCK BRANDEL
EMAIL: CHUCK.BRANDEL@ISGINC.COM

SPECIFICATIONS REFERENCE
ALL CONSTRUCTION SHALL COMPLY WITH THE LE SUEUR COUNTY REQUIREMENTS AND MNDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2020 EDITION, AND THE STANDARD SPECIFICATIONS FOR SANITARY SEWER, STORM DRAIN AND WATERMAIN AS PROPOSED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA 2013, UNLESS DIRECTED OTHERWISE.
PROJECT DATUM
HORIZONTAL COORDINATES HAVE BEEN REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), 1996 ADJUSTMENT (NAD83/1996) ON THE LE SUEUR COUNTY COORDINATE SYSTEM, IN U.S. SURVEY FEET.
ELEVATIONS HAVE BEEN REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
RTK GPS METHODS WERE USED TO ESTABLISH HORIZONTAL AND VERTICAL COORDINATES FOR THIS PROJECT.

B.M. ELEVATION=1053.54
2.0 MILES NW OF LE CENTER, 1.5 MILES N
ALONG CR-11 FROM INTERSECTION OF CR-11
AND TH-99, THEN 1 MILE E ON CR-126
TOPOGRAPHIC SURVEY
THIS PROJECT'S TOPOGRAPHIC SURVEY CONSISTS
OF DATA COLLECTED ON AUGUST 2017 BY ISG.

PROJECT
LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR
LE CENTER MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	17-20141
CAD FILE NAME	20141 TITLE
DRAWN BY	SMW
DESIGNED BY	BG/CJB
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	--/--
CLIENT PROJECT NO.	-

TITLE
TITLE
SHEET
1 OF 22

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 IN THE STATE OF MINNESOTA.
PRELIMINARY NOT FOR CONSTRUCTION
CHARLES J. BRANDEL

DATE: _____ LIC. NO. 43359

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GENERAL PROJECT NOTES:

- DURING CONSTRUCTION, CONTRACTOR SHALL MAINTAIN A DRAINAGE OUTLET FOR THE ENTIRE CD 23 PROJECT AREA.
- ALL PIPE DIMENSIONS REFERENCED IN THE PLANS REFER TO THE INSIDE DIAMETER.
- RODENT GUARDS SHALL BE INSTALLED ON ALL OUTLETS 18" AND SMALLER. (INCIDENTAL TO RESPECTIVE BID ITEMS).
- ALL ROAD SIGNAGE, COORDINATION, AND TRAFFIC CONTROL SIGNAGE SHALL BE INCIDENTAL TO ROAD RESTORATIONS AND SHALL CONFORM TO LOCAL ROAD AUTHORITY PERMITS AND REGULATIONS.
- THE CONTRACTOR SHALL SUBMIT A WINTER CONSTRUCTION PLAN FOR SITE STABILIZATION, EROSION PREVENTION, AND SEDIMENT CONTROL IF THE PROJECT IS NOT COMPLETED BY OCTOBER 15 OF THE GIVEN CONSTRUCTION SEASON, UNLESS APPROVED BY THE ENGINEER. THE PLAN SHALL BE DEVELOPED TO SPECIFICALLY ADDRESS SHUTDOWN PROCEDURES OR ACTIVE CONSTRUCTION PLANS.
- ALL DEWATERING FOR THE PROJECT IS INCIDENTAL.
- PRODUCT MATERIAL SHALL BE AS SPECIFIED IN THE PLANS, IF NO SPECIFIC MATERIAL IS CALLED OUT, MATERIAL SHALL CONFORM TO THE APPROVED PRODUCT LIST IN THE APPROPRIATE SPECIFICATION.
- ALL EFFORTS SHALL BE MADE DURING CONSTRUCTION TO SEPARATE SOIL TYPES. BACKFILL SHALL BE COMPACTED PRIOR TO PLACEMENT OF TOPSOIL, EXCEPT THE TOP TWO (2) FEET, FOR WHICH COMPACTION SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. TOPSOIL SHALL BE PLACED TO A MINIMUM DEPTH OF 18", OR UNIFORM TO THE TOPSOIL DEPTH OF THE SURROUNDING AREA UNLESS SPECIFIED ELSEWHERE IN THE PLANS. EXCAVATED SPOILS SHALL BE SPREAD EVENLY IN CONSTRUCTION AREA AS TO NOT IMPEDE DRAINAGE. ALL EFFORTS SHALL BE MADE TO KEEP TOPSOIL ON TOP AND SEPARATED. NO TOPSOIL SHALL BE PLACED IN THE TRENCH BELOW 2' FROM EXISTING GROUND UNLESS APPROVED BY THE ENGINEER.
- ALL SPOIL LEVELING, GRADING, AND RESTORATION OF DISTURBED AREAS SHALL BE IN ACCORDANCE TO THE CONTRACT DOCUMENTS AND SHALL BE INCIDENTAL TO THE WORK UNLESS OTHERWISE SPECIFIED.
- HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL SHALL ONLY BE COMPLETED AS NECESSARY FOR SAFE CONSTRUCTION PRACTICES AND WITHIN THE ALLOWED CONSTRUCTION EASEMENT, UNLESS APPROVED BY THE ENGINEER. TREE REMOVAL AND GRUBBING SHALL BE INCIDENTAL TO HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL BID ITEM.
- TREES CALLED OUT AS "REMOVE TREE" SHALL BE PAID FOR BY EACH OCCURRENCE. IF TREES ARE NOT CALLED OUT IN THE CONSTRUCTION DOCUMENTS AS REMOVE TREE, THEN THE REMOVAL SHALL BE PAID FOR BY THE ACRE AS HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL.
- AGGREGATE SURFACE SHALL BE INCIDENTAL TO CROSSING OR ROAD RESTORATION.
- RIPRAP QUANTITIES ARE ESTIMATED. ADDITIONAL QUANTITY MAY BE REQUIRED BY THE ENGINEER. ALL RIPRAP QUANTITIES SHALL BE PAID BY THE CUBIC YARD INSTALLED, UNLESS RIPRAP IS INCIDENTAL TO A SEPARATE PAY ITEM. ALL EXCAVATION AND GEOTEXTILE FABRIC SHALL BE INCIDENTAL TO RESPECTIVE BID ITEM.
- ALL WORK SHALL BE DONE IN 2,500 LF SECTIONS, UNLESS APPROVED OF BY THE ENGINEER. PRIOR TO COMMENCING ON A NEW SECTION, ALL WORK IN THE PREVIOUS SECTION MUST BE COMPLETED IN ADHERENCE WITH THE CONTRACT DOCUMENTS. THE ENGINEER RESERVES THE RIGHT TO CEASE OPERATIONS AND/OR WITHHOLD PAYMENT UNTIL COMPLIANCE HAS BEEN ACHIEVED.
- EXISTING TILES THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED AT NO COST TO THE PROJECT, UNLESS OTHERWISE SPECIFIED.
- ALL SIGNS AND MARKERS SHALL BE PROTECTED OR REMOVED AND REINSTALLED AT NO ADDITIONAL COST TO THE PROJECT, UNLESS OTHERWISE SPECIFIED. THE ENGINEER SHALL BE NOTIFIED OF ANY SIGNS OR MARKERS IN POOR CONDITION PRIOR TO REMOVAL.
- THE DRAINAGE AUTHORITY TAKES NO AUTHORITY OVER OR RESPONSIBILITY FOR ANY AND ALL PRIVATE TILE SHOWN ON THESE PLANS. PRIVATE TILE LOCATIONS HAVE BEEN SUPPLIED BY LANDOWNERS FOR USE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL PAY ALL DAMAGES OUTSIDE OF THE AGREED UPON EASEMENT IN AN AMOUNT OF \$1,200 PER ACRE OF DISTURBANCE, AS MEASURED BY THE ENGINEER.
- MAJOR UTILITY CROSSING IS ONLY APPLICABLE TO RURAL WATER LINES, WINDMILL TRANSMISSION LINES, OR GAS LINES UNLESS OTHERWISE APPROVED BY THE ENGINEER PRIOR TO CROSSING. ALL OTHER UTILITY CROSSINGS ARE INCIDENTAL TO OPEN DITCH CLEANING.

UTILITY NOTES:

- THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THE UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED: STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA.

GENERAL OPEN DITCH NOTES:

- UNLESS OTHERWISE NOTED, CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITY TO WITHIN A 33-FOOT WIDE AREA ALONG TOP OF DITCH ALIGNMENTS. DISTURBANCE THROUGH ROAD CROSSINGS, ROAD DITCHES, AND GRASS BUFFERS SHALL BE LIMITED TO THE TRENCH WIDTH NECESSARY FOR SAFE CONSTRUCTION PRACTICES.
- A 16.5-FOOT GRASS STRIP SHALL BE ESTABLISHED IN AREAS THAT DO NOT HAVE AN EXISTING 16.5-FOOT GRASS STRIP. FINAL SEEDING SHALL OCCUR AFTER ALL WORK HAS BEEN COMPLETED IN THE AREA AND SHALL COMPLY WITH THE CONTRACT DOCUMENTS. TEMPORARY SEEDING MAY BE REQUIRED AND SHALL BE INCIDENTAL.
- DITCH CLEANING SHALL BE PERFORMED ON THE SIDE OF THE DITCH THAT IS THE LOWEST FOR THE GREATEST DISTANCE ALONG THE OPEN DITCH SEGMENT. DITCH CLEANING SPOILS SHALL BE PLACED AND LEVELED (INCIDENTAL) WITHIN THE 16.5-FOOT WIDE GRASS STRIP FROM THE TOP OF DITCH SLOPE UNLESS OTHERWISE DETERMINED BY THE ENGINEER.
- TOPSOIL IN TOPSOIL STRIP AREAS DESIGNATED ON THE PLANS SHALL BE STRIPPED PRIOR TO THE PLACEMENT OF FILL MATERIAL FROM DITCH EXCAVATION. TOPSOIL STRIP AREAS MAY ADJUST BASED ON ACTUAL TOPSOIL THICKNESS. RECLAIMING AND LEVELING OF THE TOPSOIL ON TOP OF THE SPOILS SHALL BE INCIDENTAL TO TOPSOIL STRIPPING.
- SHAPING AROUND SIDE INLETS, ASIS, ASIROS, AND CULVERT INLETS SHALL BE INCIDENTAL TO THEIR RESPECTIVE PAY ITEMS.
- ALL TILE OUTLETS SHALL BE LEFT IN PLACE. TILE OUTLETS THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED AT NO COST TO THE PROJECT, UNLESS OTHERWISE SPECIFIED. NO TILE OUTLET REPAIRS ARE ANTICIPATED FOR THE REPAIR PROJECT. KNOWN TILE OUTLET LOCATIONS ARE MARKED ON PLANS TO ASSIST CONTRACTOR IN LOCATING AND PROTECTING TILE OUTLETS.
- MISCELLANEOUS TREE CLEARING SHALL BE INCIDENTAL TO DITCH PAY ITEM(S), UNLESS SPECIFICALLY CALLED OUT IN THE PLANS.
- HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL IS REQUIRED ON DITCH SIDE SLOPES AND WITHIN THE 1-ROD BUFFER (UNLESS OTHERWISE SPECIFIED) AND WILL BE PAID FOR BY THE ACRE. APPROXIMATE LOCATIONS ARE INCLUDED ON THE MAP FOR REFERENCE. TREES SHALL BE CLEARED, GRUBBED, AND THE AREA AROUND THE TREE SPRAYED AFTER COMPLETE.
- DITCH BANKS SHALL BE SEEDED WITHIN TWO (2) DAYS OF FINISHED EXCAVATION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

GENERAL CULVERT NOTES:

- ALL CULVERTS SHALL BE CONSTRUCTED WITH CLASS III RCP ONLY, UNLESS OTHERWISE SPECIFIED ON PLANS OR APPROVED BY THE ENGINEER.
- ALL PIPE SECTIONS SHALL BE TIED TOGETHER, WATERTIGHT, GASKETED, AND TONGUE AND GROOVE DESIGN CONFORMING TO MnDOT 3006G. ALL JOINTS SHALL BE WRAPPED IN GEOTEXTILE FABRIC.
- WHEN A CULVERT SECTION IS TO BE REINSTALLED, THE CONTRACTOR MUST NOTIFY THE ENGINEER OF ANY CULVERT SECTIONS DEEMED NOT SALVAGEABLE PRIOR TO REMOVAL AND SHALL BE ADDRESSED BEFORE CULVERT WORK IS DONE.
- THE CONTRACTOR SHALL VERIFY PROPER POSITIONING OF THE CULVERT PRIOR TO COMMENCEMENT OF CONSTRUCTION. IF THE CULVERT POSITIONING IS NOT COMPATIBLE WITH THE FLOW OF THE DITCH WHEN STAKING IS COMPLETED, THE ENGINEER SHALL BE NOTIFIED.

ABBREVIATIONS

AC	ACRE	GA	GAUGE	PP	POLYPROPYLENE
ADD	ADDENDUM	GAL	GALLON	PSI	POUNDS PER SQUARE INCH
AGG	AGGREGATE	GPM	GALLONS PER MINUTE	PVC	POLYVINYL CHLORIDE
APPROX	APPROXIMATE	HDPE	HIGH DENSITY POLYETHYLENE	PVMT	PAVEMENT
BIT	BITUMINOUS	HORIZ	HORIZONTAL	QTY	QUANTITY
CAD	COMPUTER-AIDED DESIGN	HR	HOUR	RCP	REINFORCED CONCRETE PIPE
CFS	CUBIC FEET PER SECOND	HWL	HIGH WATER LEVEL	REBAR	REINFORCING BAR
CF	CUBIC FOOT	HWY	HIGHWAY	REM	REMOVE
CL	CENTERLINE	HYD	HYDRANT	ROW	RIGHT OF WAY
CMP	CORRUGATED METAL PIPE	I	INVERT	R/W	RIGHT OF WAY
CONC	CONCRETE	ID	INSIDE DIAMETER	SCH	SCHEDULE
CONST	CONSTRUCTION	IN	INCH	SF	SQUARE FOOT
CONT	CONTINUOUS	INV	INVERT	SPEC	SPECIFICATION
CR	COUNTY ROAD	LF	LINEAR FEET	SQ	SQUARE
CSAH	COUNTY STATE AID	LIN	LINEAR	STA	STATION
CY	CUBIC YARD	LS	LUMP SUM	SY	SQUARE YARD
DI	DROP INTAKE	MAX	MAXIMUM	TEMP	TEMPORARY
DIA	DIAMETER	MH	MANHOLE	THRU	THROUGH
DIM	DIMENSION	MIN	MINIMUM	TRANS	TRANSFORMER
EA	EACH	MISC	MISCELLANEOUS	TV	TELEVISION
ELEC	ELECTRICAL	NO	NUMBER	TYP	TYPICAL
ELEV	ELEVATION	NTS	NOT TO SCALE	UT	UTILITY, UNDERGROUND
EOF	EMERGENCY OVERTFLOW	NWL	NORMAL WATER LEVEL	UT	TELEPHONE
EQ	EQUAL	OC	ON CENTER	VCP	VITRIFIED CLAY PIPE
EX	EXISTING	OCEW	ON CENTER EACH WAY	W/O	WITHOUT
FDN	FOUNDATION	OH	OVERHEAD	W/	WITH
FPM	FEET PER MINUTE	OHWL	ORDINARY HIGH WATER	YD	YARD
FPS	FEET PER SECOND	OZ	OUNCE	YR	YEAR
FT	FOOT, FEET	PERF	PERFORATED		
		PL	PROPERTY LINE		



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 CHARLES J. BRANDEL
 DATE _____ LIC. NO. 43359

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PROJECT
LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR
 LE CENTER MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	17-17-20141
CAD FILE NAME	20141 NOTES-QTYS-SCHEDULES
DRAWN BY	SMW
DESIGNED BY	BG/CJB
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	--/--
CLIENT PROJECT NO.	-

TITLE
NOTES



**ALTERNATIVE SIDE INLETS (ASI) and ALTERNATIVE SIDE INLETS WITH RIPRAP OVERFLOW (ASIRO)
SCHEDULE**

ID #	STATION	LOCATION	INLET SIZE	OUTLET SIZE	DROP INLET DEPTH	DROP INLET LENGTH	INLET TYPE	MINIMUM OUTLET GRADE	RIPRAP (CY)
ASI-1	321+00	MAIN (W)	10"	10"	11'	50'	TRASH GRATE	3.0%	NA
ASI-2	327+50	MAIN (E)	10"	10"	9'	35'	TRASH GRATE	1.5%	NA
ASI-3	328+25	MAIN (W)	10"	10"	6'	50'	TRASH GRATE	1.0%	NA
ASI-4	11+25	SPUR 8 (E)	10"	10"	9.5'	25'	TRASH GRATE	1.0%	NA

RIPRAP Schedule											
Description				Upstream				Downstream			
ID	BRANCH (LOCATION)	CROSSING	STATION	MnDOT RIPRAP Size	Length (FT)	Width (FT)	Volume (CY)	MnDOT RIPRAP Size	Length (FT)	Width (FT)	Volume (CY)
#14	MAIN	DRIVEWAY	243+50	Class III	20	20	27	Class III	50	30	92
#19	MAIN	DRIVEWAY	347+00	Class III	20	20	30	Class III	24	20	33
#21	SPUR 8	DRIVEWAY	5+75	Class III	20	23	30	Class III	20	23	30
#22	SPUR 8	CR 136	23+50	NA	-	-	-	Class III	20	20	45
#31	SPUR 9	DRIVEWAY	164+15	Class III	20	20	28	Class III	20	20	28

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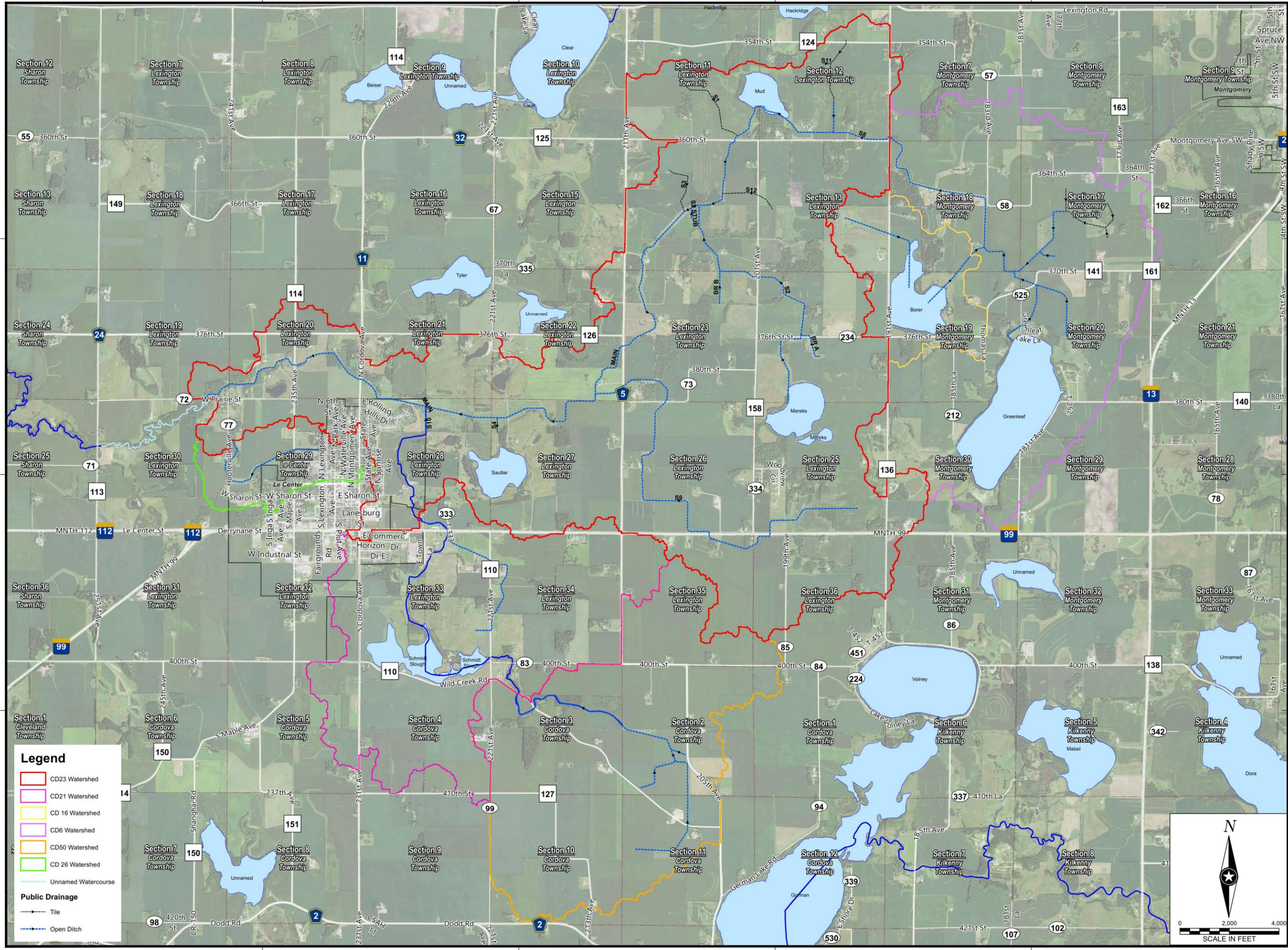
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COUNTY DITCH No. 23 REPAIR
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TITLE
QUANTITIES AND SCHEDULES



Legend

- CD23 Watershed
- CD21 Watershed
- CD16 Watershed
- CD6 Watershed
- CD50 Watershed
- CD26 Watershed
- Unnamed Watercourse
- Public Drainage**
- Tile
- Open Ditch

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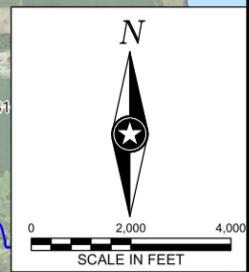
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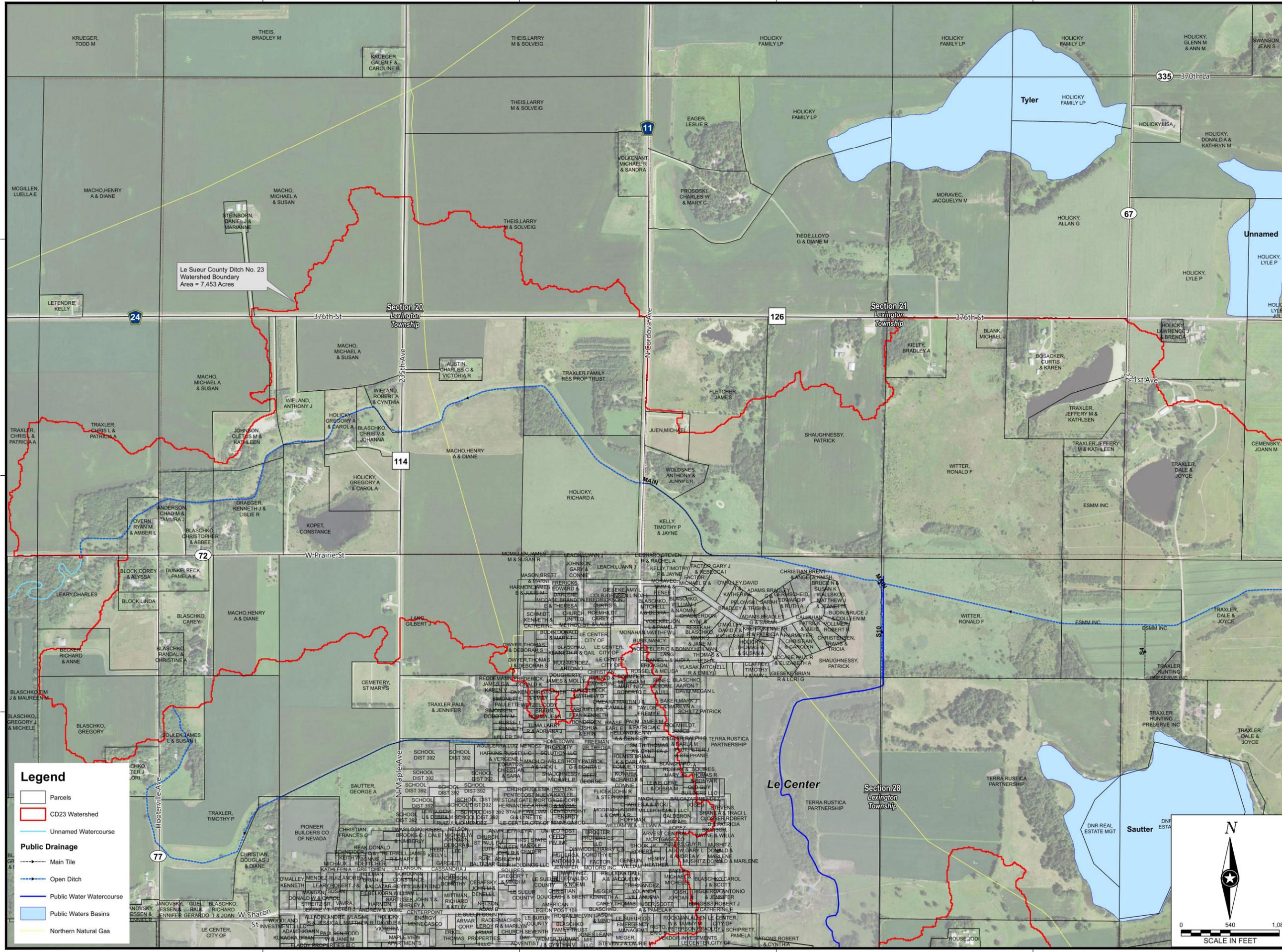
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COUNTY DITCH No. 23 REPAIR
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TITLE
OVERALL WATERSHED
 SHEET
4 OF 22





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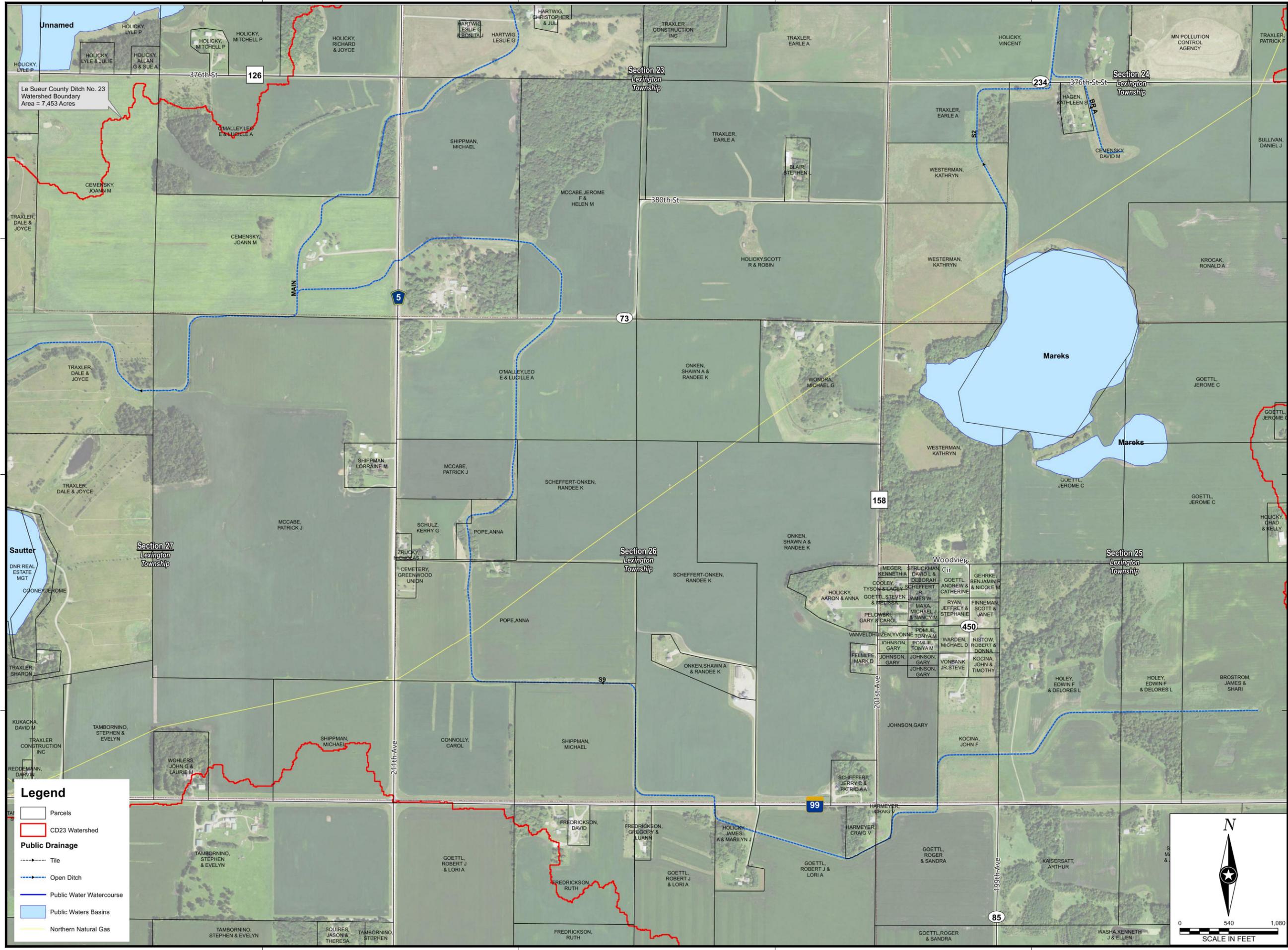
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**LE SUEUR COUNTY
COUNTY DITCH No.
23 REPAIR**

LE CENTER MINNESOTA

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TITLE
**LANDOWNER MAP
(WEST)**



Legend

- Parcels
- CD23 Watershed
- Public Drainage**
- Tile
- Open Ditch
- Public Water Watercourse
- Public Waters Basins
- Northern Natural Gas

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PROJECT

LE SUEUR COUNTY

COUNTY DITCH No. 23 REPAIR

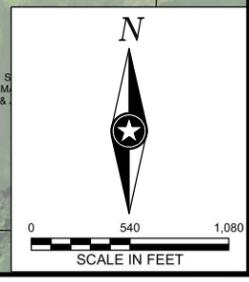
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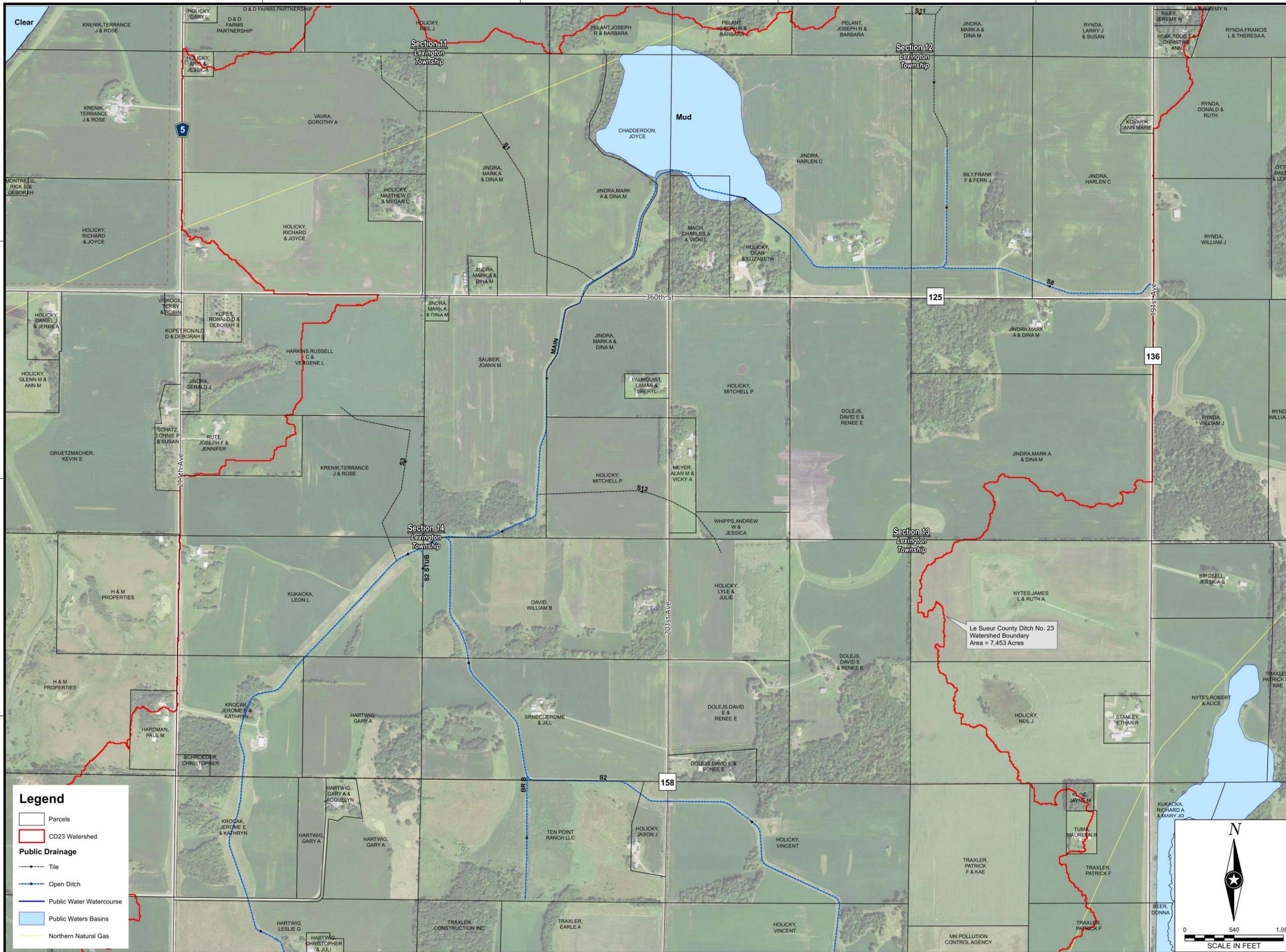
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TITLE

LANDOWNER MAP (CENTRAL)





Legend

- Parcels
- CD23 Watershed
- Public Drainage**
- Tile
- Open Ditch
- Public Water Watercourse
- Public Waters Basins
- Northern Natural Gas



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PROJECT
LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR
 LE CENTER MINNESOTA

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TITLE
LANDOWNER MAP (EAST)
 SHEET
7 OF 22

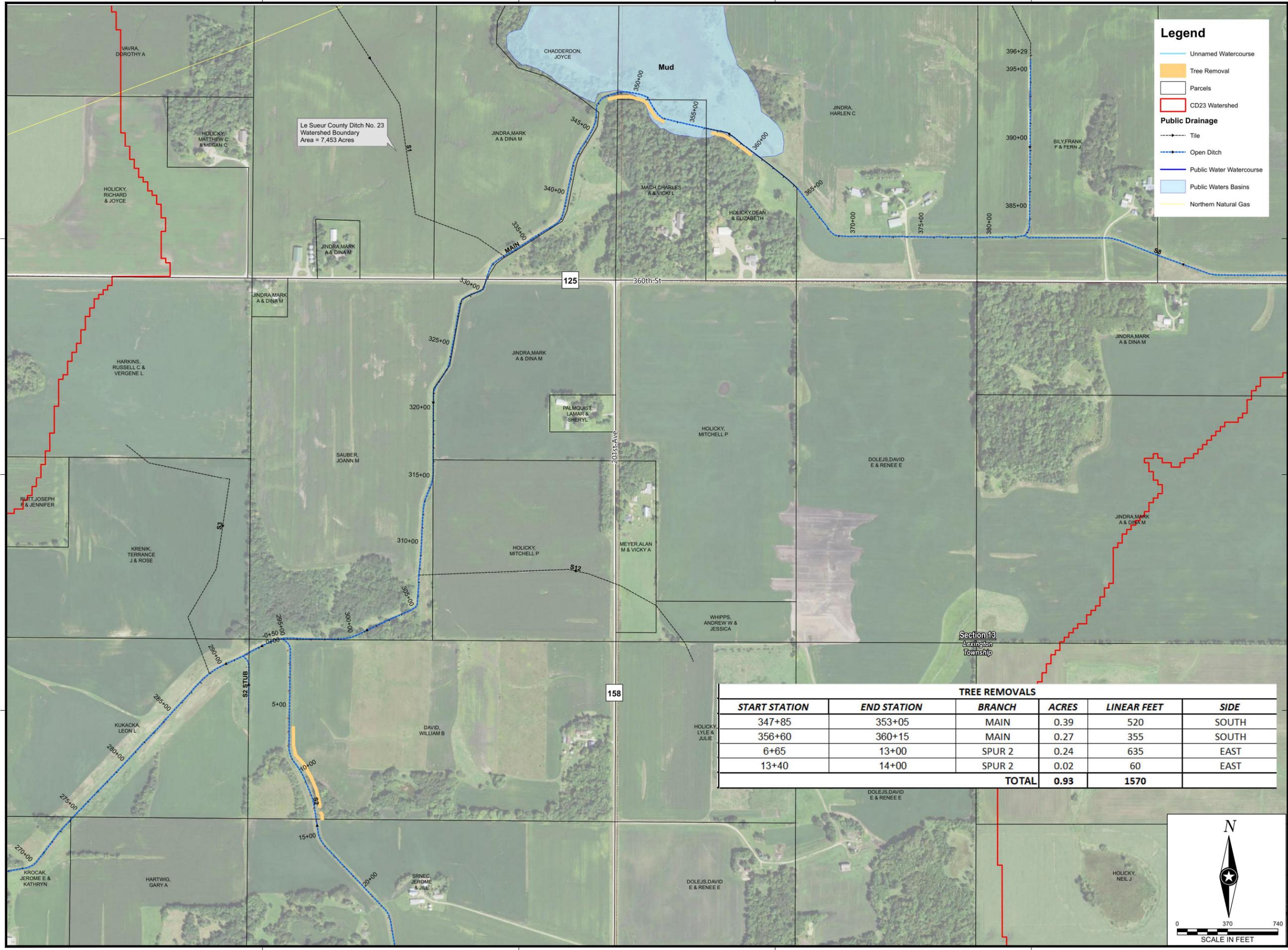


Legend

- Unnamed Watercourse
- Tree Removal
- Parcels
- CD23 Watershed

Public Drainage

- Tile
- Open Ditch
- Public Water Watercourse
- Public Waters Basins
- Northern Natural Gas



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PROJECT

LE SUEUR COUNTY

COUNTY DITCH No. 23 REPAIR

LE CENTER MINNESOTA

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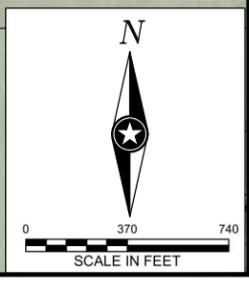
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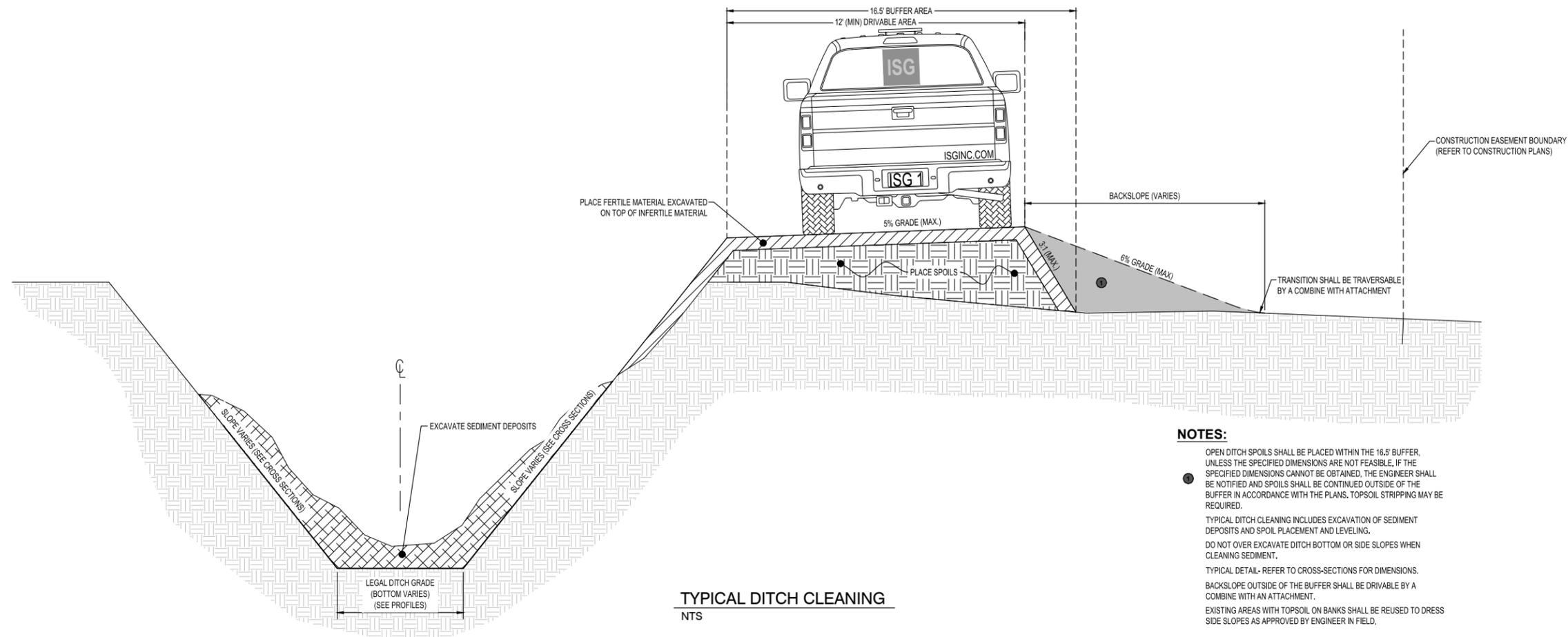
TREE REMOVALS

SHEET

8 OF 22

TREE REMOVALS					
START STATION	END STATION	BRANCH	ACRES	LINEAR FEET	SIDE
347+85	353+05	MAIN	0.39	520	SOUTH
356+60	360+15	MAIN	0.27	355	SOUTH
6+65	13+00	SPUR 2	0.24	635	EAST
13+40	14+00	SPUR 2	0.02	60	EAST
TOTAL			0.93	1570	





NOTES:

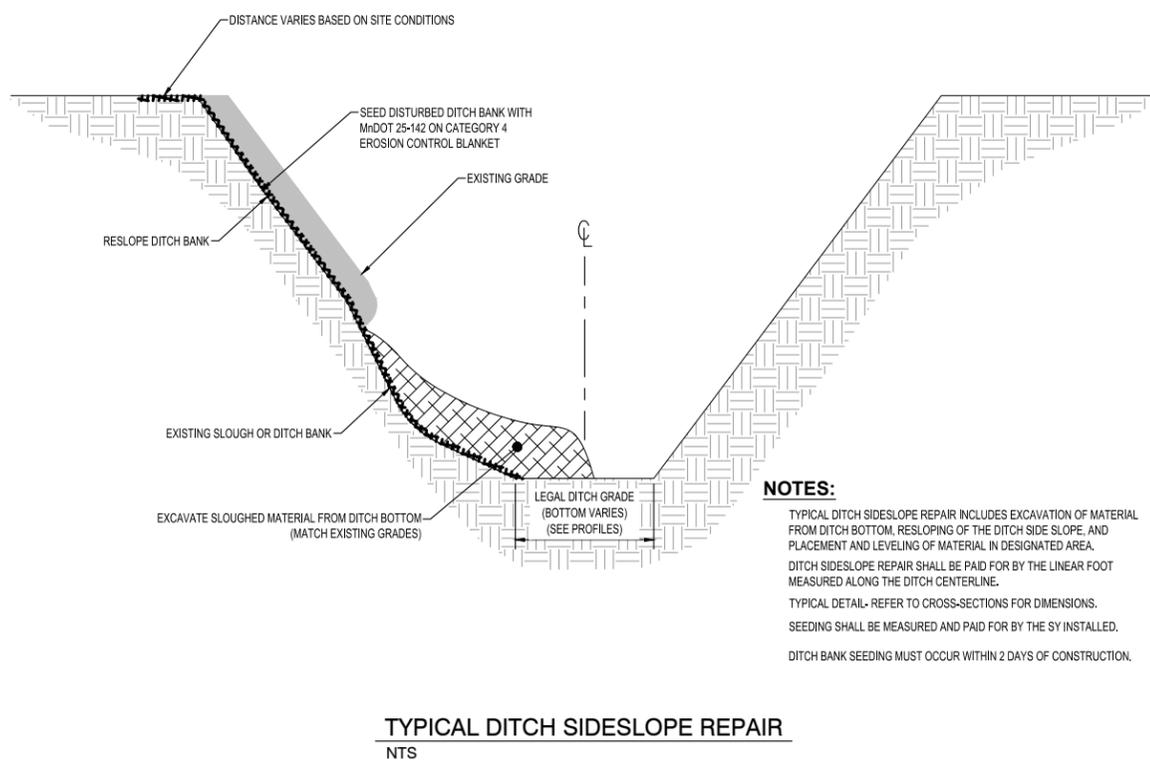
- OPEN DITCH SPOILS SHALL BE PLACED WITHIN THE 16.5' BUFFER, UNLESS THE SPECIFIED DIMENSIONS ARE NOT FEASIBLE. IF THE SPECIFIED DIMENSIONS CANNOT BE OBTAINED, THE ENGINEER SHALL BE NOTIFIED AND SPOILS SHALL BE CONTINUED OUTSIDE OF THE BUFFER IN ACCORDANCE WITH THE PLANS. TOPSOIL STRIPPING MAY BE REQUIRED.
- TYPICAL DITCH CLEANING INCLUDES EXCAVATION OF SEDIMENT DEPOSITS AND SPOIL PLACEMENT AND LEVELING.
- DO NOT OVER EXCAVATE DITCH BOTTOM OR SIDE SLOPES WHEN CLEANING SEDIMENT.
- TYPICAL DETAIL- REFER TO CROSS-SECTIONS FOR DIMENSIONS.
- BACKSLOPE OUTSIDE OF THE BUFFER SHALL BE DRIVABLE BY A COMBINE WITH AN ATTACHMENT.
- EXISTING AREAS WITH TOPSOIL ON BANKS SHALL BE REUSED TO DRESS SIDE SLOPES AS APPROVED BY ENGINEER IN FIELD.
- DITCH BANK SEEDING MUST OCCUR WITHIN 2 DAYS OF CONSTRUCTION.

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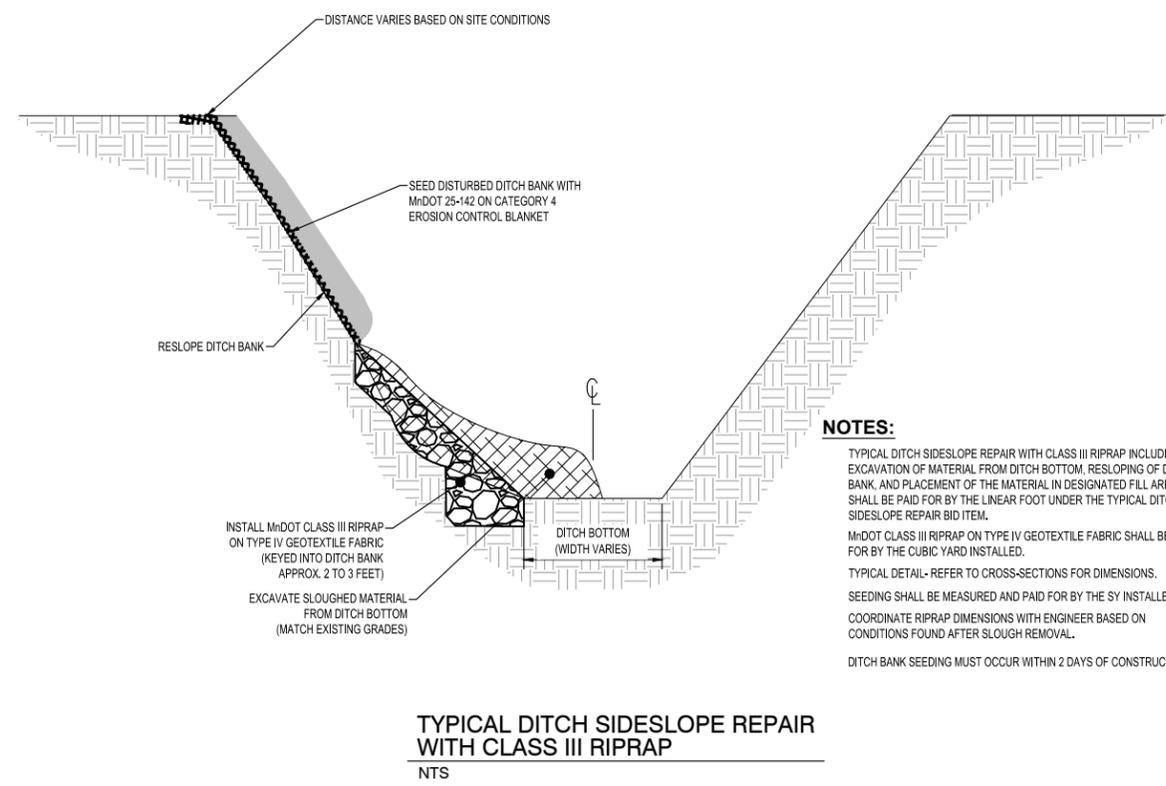
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NOTES:

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TYPICAL DITCH SIDESLOPE REPAIR
NTS



NOTES:

TYPICAL DITCH SIDESLOPE REPAIR WITH CLASS III RIPRAP INCLUDES EXCAVATION OF MATERIAL FROM DITCH BOTTOM, RESLOPING OF DITCH BANK, AND PLACEMENT OF THE MATERIAL IN DESIGNATED FILL AREA AND SHALL BE PAID FOR BY THE LINEAR FOOT UNDER THE TYPICAL DITCH SIDESLOPE REPAIR BID ITEM. MnDOT CLASS III RIPRAP ON TYPE IV GEOTEXTILE FABRIC SHALL BE PAID FOR BY THE CUBIC YARD INSTALLED. TYPICAL DETAIL- REFER TO CROSS-SECTIONS FOR DIMENSIONS. SEEDING SHALL BE MEASURED AND PAID FOR BY THE SY INSTALLED. COORDINATE RIPRAP DIMENSIONS WITH ENGINEER BASED ON CONDITIONS FOUND AFTER SLOUGH REMOVAL. DITCH BANK SEEDING MUST OCCUR WITHIN 2 DAYS OF CONSTRUCTION.

TYPICAL DITCH SIDESLOPE REPAIR WITH CLASS III RIPRAP
NTS

PROJECT

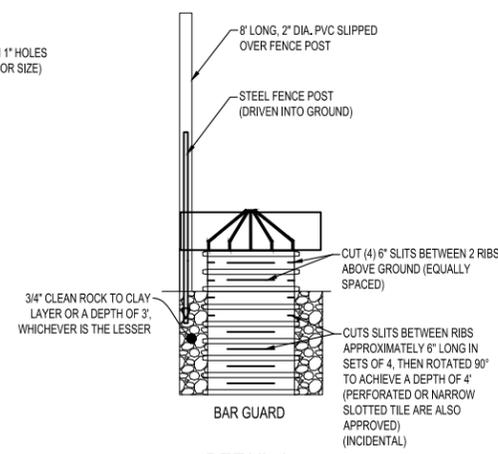
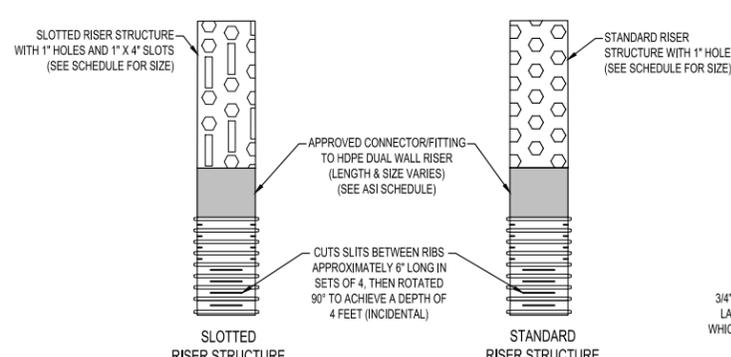
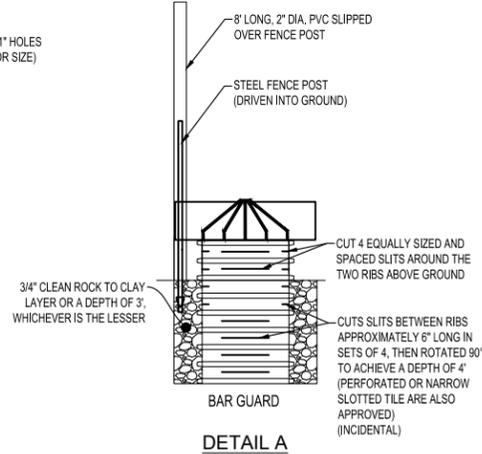
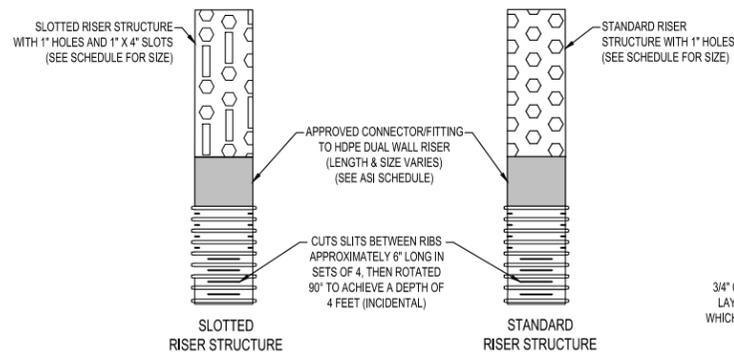
LE CENTER MINNESOTA

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DATE	DESCRIPTION	BY

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FILE NAME	20141 DETAILS
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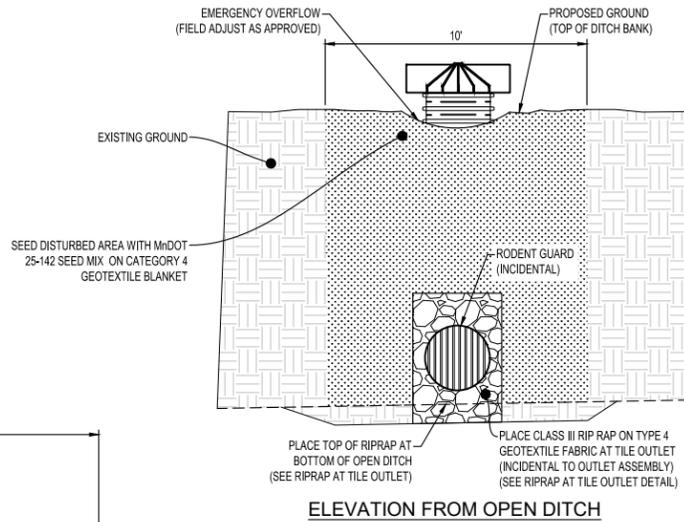
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DETAILS



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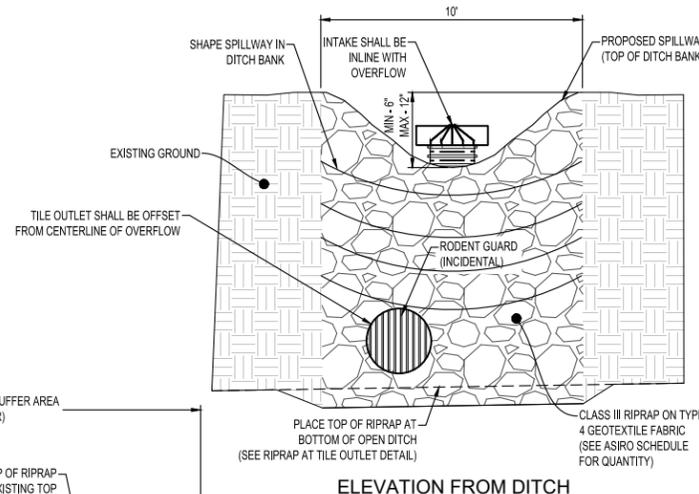
- INTAKE TYPE AND TILE SIZE VARIES PER ASI. (SEE SCHEDULE)
- RISER ASSEMBLY SHALL BE A SEPARATE PAY ITEM THAN THE OUTLET ASSEMBLY.
- ALL DISTURBED AREAS WITHIN BUFFER EASEMENT SHALL BE SEEDED WITH BUFFER BLEND SEED MIX ON CATEGORY 4 EROSION CONTROL BLANKET. (INCIDENTAL)
- ALL EFFORTS SHALL BE MADE TO SEPARATE SOIL TYPES. BACKFILL SHALL BE COMPACTED PRIOR TO PLACEMENT OF TOPSOIL, EXCEPT THE TOP TWO (2) FEET, FOR WHICH COMPACTION SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. TOPSOIL SHALL BE PLACED TO A MINIMUM DEPTH OF 6", OR UNIFORM TO THE TOPSOIL DEPTH OF THE SURROUNDING AREA. ALL EFFORTS SHALL BE MADE TO KEEP TOPSOIL ON TOP AND SEPARATED. NO TOPSOIL SHALL BE PLACED IN THE TRENCH BELOW 2' FROM EXISTING GROUND UNLESS APPROVED BY THE ENGINEER.
- ALL INTAKES SHALL BE WRAPPED WITH MNDOT TYPE 1 GEOTEXTILE FABRIC. (INCIDENTAL TO RISER ASSEMBLY)
- ALL SLITS CUT INTO RISER ARE INCIDENTAL TO RISER ASSEMBLY.
- ALL 3/4" CLEAN ROCK AND GRANULAR FOUNDATION MATERIAL IS INCIDENTAL TO RISER ASSEMBLY.
- ALL OUTLET RIPRAP IS INCIDENTAL TO OUTLET ASSEMBLY.
- INTAKES SHALL BE FIELD ADJUSTED BASED ON ACTUAL LOCATION OF LOW AREAS, AS DETERMINED BY THE ENGINEER.
- TILE OUTLET ASSEMBLY SHALL CONFORM TO STANDARD TILE INSTALLATION.
- SHAPING OF LOW AREA TO GRADE TO DROP INTAKE SHALL BE INCIDENTAL TO PAY ITEM.
- TRASH GRATE, ANTI-VORTEX PLATE, AND FENCE POST WITH PVC SHALL BE INCIDENTAL.
- TILE FLAGS (7" MIN) MAY BE SUBSTITUTED FOR FENCE POST WITH PVC.



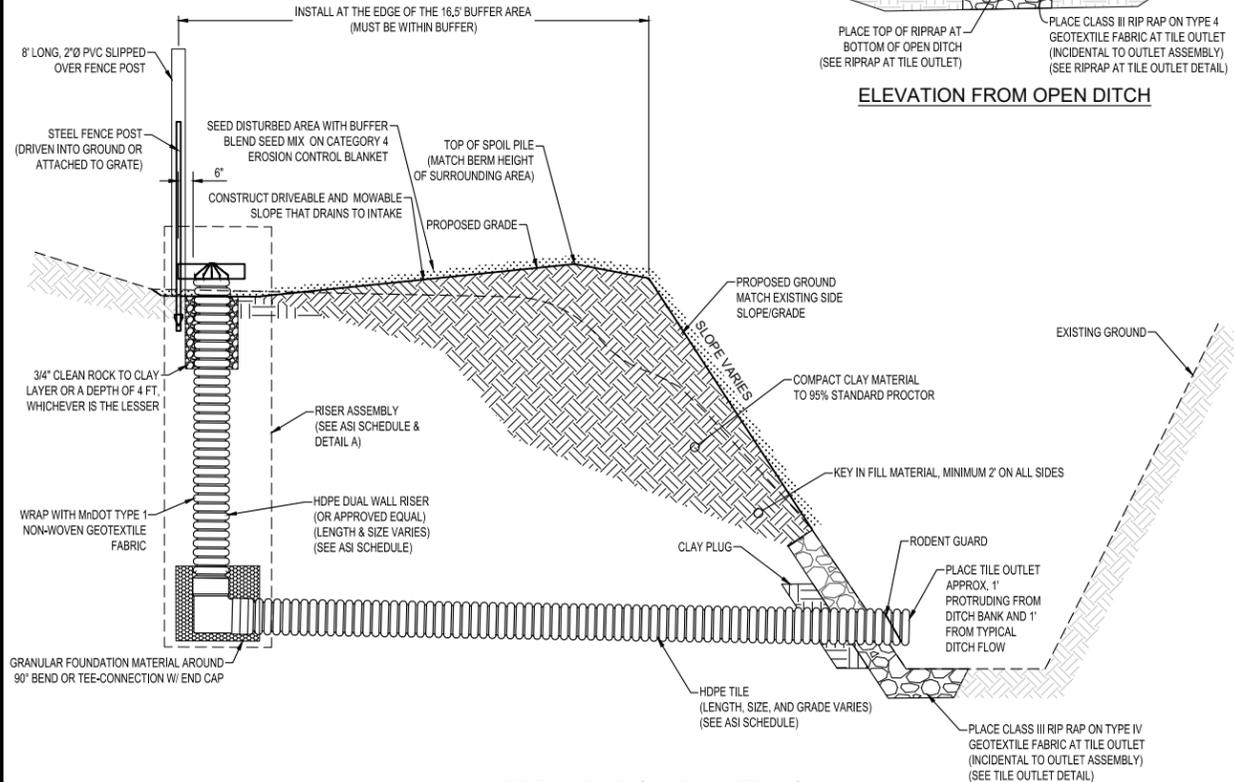
ELEVATION FROM OPEN DITCH

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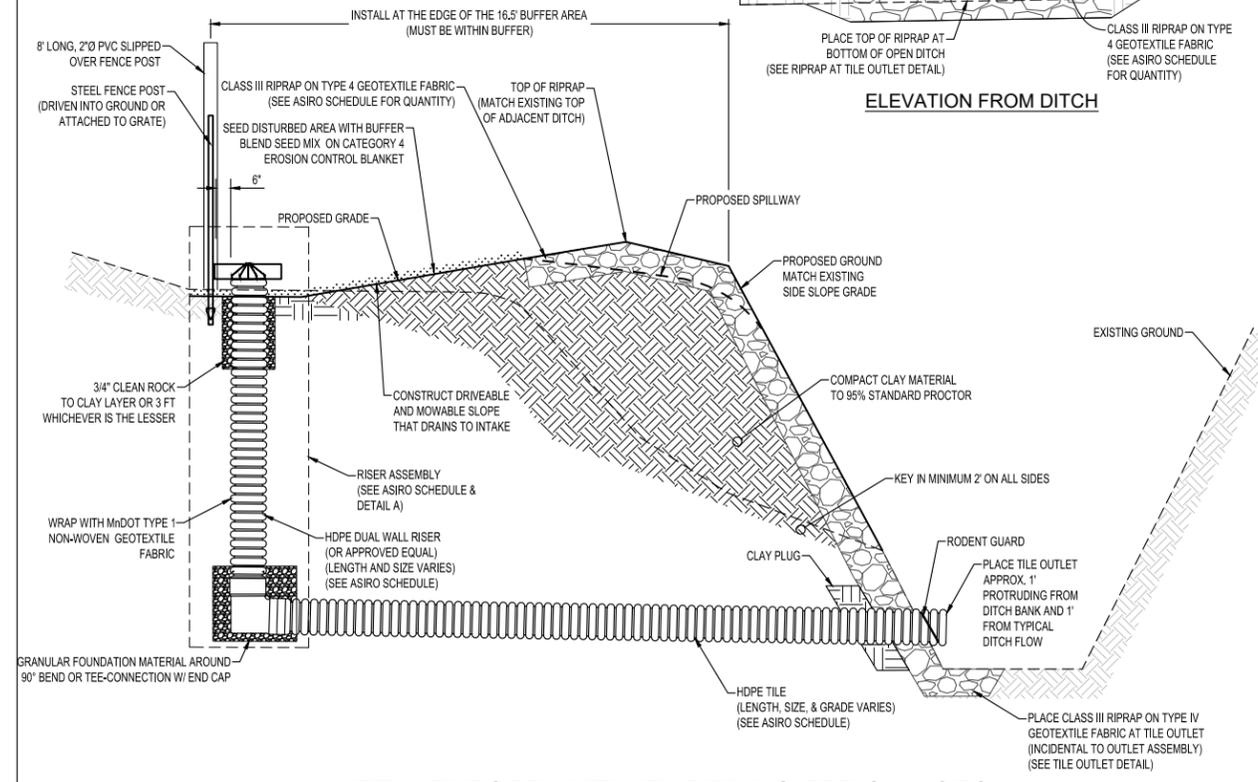
- INTAKE TYPE & TILE SIZE VARIES PER ASIRO. (SEE SCHEDULE)
- RISER ASSEMBLY SHALL BE A SEPARATE PAY ITEM THAN THE OUTLET ASSEMBLY.
- ALL DISTURBED AREAS WITHIN BUFFER EASEMENT SHALL BE SEEDED WITH BUFFER BLEND SEED MIX ON CATEGORY 4 EROSION CONTROL BLANKET. (INCIDENTAL)
- ALL EFFORTS SHALL BE MADE TO SEPARATE SOIL TYPES. BACKFILL SHALL BE COMPACTED PRIOR TO PLACEMENT OF TOPSOIL, EXCEPT THE TOP TWO (2) FEET, FOR WHICH COMPACTION SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. TOPSOIL SHALL BE PLACED TO A MINIMUM DEPTH OF 6", OR UNIFORM TO THE TOPSOIL DEPTH OF THE SURROUNDING AREA. ALL EFFORTS SHALL BE MADE TO KEEP TOPSOIL ON TOP AND SEPARATED. NO TOPSOIL SHALL BE PLACED IN THE TRENCH BELOW 2' FROM EXISTING GROUND UNLESS APPROVED BY THE ENGINEER.
- ALL INTAKES SHALL BE WRAPPED WITH MNDOT TYPE 1 GEOTEXTILE FABRIC. (INCIDENTAL TO RISER ASSEMBLY)
- ALL SLITS CUT INTO RISER ARE INCIDENTAL TO RISER ASSEMBLY.
- ALL 3/4" CLEAN ROCK AND GRANULAR FOUNDATION MATERIAL IS INCIDENTAL TO RISER ASSEMBLY.
- ALL OUTLET RIPRAP IS INCIDENTAL TO OUTLET ASSEMBLY
- INTAKES SHALL BE FIELD ADJUSTED BASED ON ACTUAL LOCATION OF LOW AREAS, AS DETERMINED BY THE ENGINEER.
- TILE OUTLET ASSEMBLY SHALL CONFORM TO STANDARD TILE INSTALLATION.
- SHAPING OF LOW AREA TO GRADE TO DROP INTAKE SHALL BE INCIDENTAL TO PAY ITEM.
- TRASH GRATE, ANTI-VORTEX PLAT, AND FENCE POST WITH PVC SHALL BE INCIDENTAL.
- TILE FLAGS (7" MIN) MAY BE SUBSTITUTED FOR FENCE POST WITH PVC.



ELEVATION FROM DITCH



ALTERNATIVE SIDE INLET (ASI)
NTS



ALTERNATIVE SIDE INLET WITH RIPRAP OVERFLOW (ASIRO)
NTS

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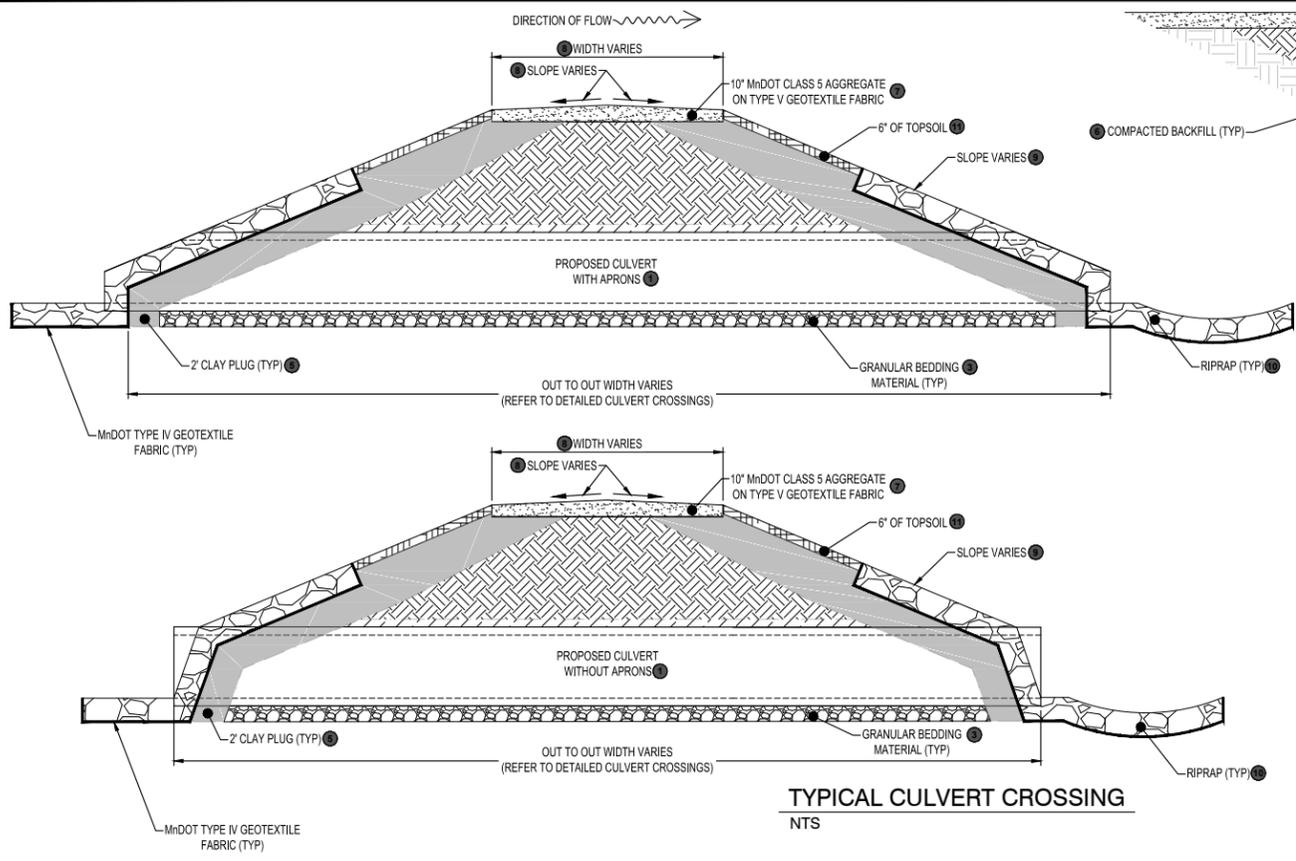
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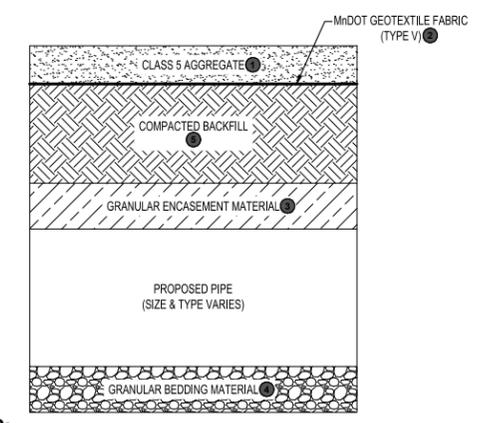
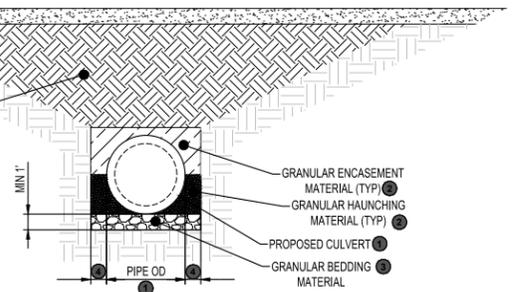
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TYPICAL CULVERT CROSSING
NTS

- NOTES:**
- TYPE AND SIZE VARIES. REFER TO DETAILED CULVERT CROSSINGS. ALL RCP PIPE SECTIONS SHALL BE TIED TOGETHER, WATERTIGHT, GASKETED, AND TONGUE AND GROOVE DESIGN CONFORMING TO MNDOT 3006G. ALL JOINTS SHALL BE WRAPPED IN GEOTEXTILE FABRIC. (INCIDENTAL)
 - GRANULAR ENCASEMENT MATERIAL AND GRANULAR HAUNCHING MATERIAL VARIES BASED ON CULVERT TYPE AND SHALL BE INCIDENTAL TO CULVERT INSTALLATION. REFER TO CONTRACT DOCUMENTS.
 - GRANULAR BEDDING MATERIAL SHALL BE PAID FOR BY THE CUBIC YARD INSTALLED.
 - TRENCH CLEARANCE WIDTHS SHALL COMPLY WITH MANUFACTURER RECOMMENDATIONS.
 - A CLAY PLUG SHALL BE CONSTRUCTED AND MECHANICALLY COMPACTED FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE CROSSING ON BOTH THE UPSTREAM AND DOWNSTREAM SIDES. THE MATERIAL SHALL BE IMPERVIOUS AND SHALL BE A MINIMUM OF 2 FEET IN THICKNESS. (INCIDENTAL)
 - COMPACTED BACKFILL SHALL BE PLACED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - SALVAGE & REPLACE EXISTING CROSSING SURFACE MATERIAL. ADDITIONAL CLASS 5 AGGREGATE MAY BE NEEDED TO MATCH EXISTING SECTION OR 10" MINIMUM FOR ROADWAYS (8" MINIMUM FOR FIELD CROSSINGS), WHICHEVER IS GREATER. (INCIDENTAL TO CROSSING).
 - WIDTH AND SLOPE OF AGGREGATE SURFACE SHALL MATCH EXISTING CONDITIONS, UNLESS OTHERWISE SPECIFIED IN THE DETAILED CULVERT CROSSINGS.
 - REFER TO DETAILED CULVERT CROSSINGS FOR ROAD AND DRAINAGE DITCH SLOPES.
 - RIPRAP SHALL BE MNDOT CLASS II PLACED ON TYPE IV GEOTEXTILE FABRIC, UNLESS OTHERWISE SPECIFIED IN THE PLANS. REFER TO TYPICAL CULVERT RIPRAP ARMOR DETAIL FOR DIMENSIONS.
 - THE CONTRACTOR SHALL VERIFY PROPER POSITIONING OF THE CULVERT PRIOR TO COMMENCEMENT OF CONSTRUCTION. IF THE CULVERT POSITIONING IS NOT COMPATIBLE WITH THE FLOW OF THE DITCH WHEN STAKING IS COMPLETED, THE ENGINEER SHALL BE NOTIFIED.
 - ALL GRANULAR HAUNCHING AND ENCASEMENT MATERIAL, CLASS 5 AGGREGATE, GEOTEXTILE FABRIC, CLAY PLUGS, EXCAVATION, ETC. SHALL BE INCIDENTAL.
 - THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN THE DISTURBED ROADS UNTIL THE PROJECT IS COMPLETED OR ROAD AUTHORITY HAS RESUMED CONTROL, WHICHEVER IS SOONER.
 - SEEDING AND EROSION CONTROL SHALL ADHERE TO THE CONTRACT DOCUMENTS.
 - A MINIMUM 6-INCHES OF TOPSOIL SHALL BE PLACED ON ROAD SIDE SLOPES FOR VEGETATION ESTABLISHMENT, INCIDENTAL TO CULVERT CONSTRUCTION.



- NOTES:**
- SALVAGE AND REPLACE EXISTING CROSSING SURFACE MATERIAL. THE ROAD SLOPE AND WIDTH SHALL MATCH EXISTING CONDITIONS. UNLESS OTHERWISE SPECIFIED, ADDITIONAL CLASS 5 AGGREGATE MAY BE NEEDED TO MATCH EXISTING SECTION OR 10" MINIMUM FOR ROADWAYS, WHICHEVER IS GREATER. (INCIDENTAL TO OPEN CUT AND RESTORE GRAVEL ROADWAY)
 - GEOTEXTILE FABRIC SHALL BE INCIDENTAL TO OPEN CUT AND RESTORE GRAVEL ROADWAY.
 - REFER TO PIPE BEDDING DETAILS.
 - REFER TO PIPE BEDDING DETAILS, MAY BE EXISTING GROUND DEPENDING ON INSTALLATION METHOD.
 - COMPACTED BACKFILL SHALL BE PLACED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- ROAD SLOPE AND WIDTH SHALL MATCH EXISTING CONDITIONS, UNLESS OTHERWISE SPECIFIED.
- DISTURBED SHOULDER AND ROAD DITCH SHALL BE SEEDING WITH MNDOT 25-142 ON CATEGORY 3 EROSION CONTROL BLANKET, UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN THE DISTURBED ROADS UNTIL THE PROJECT IS COMPLETED OR ROAD AUTHORITY HAS RESUMED CONTROL, WHICHEVER IS SOONER.

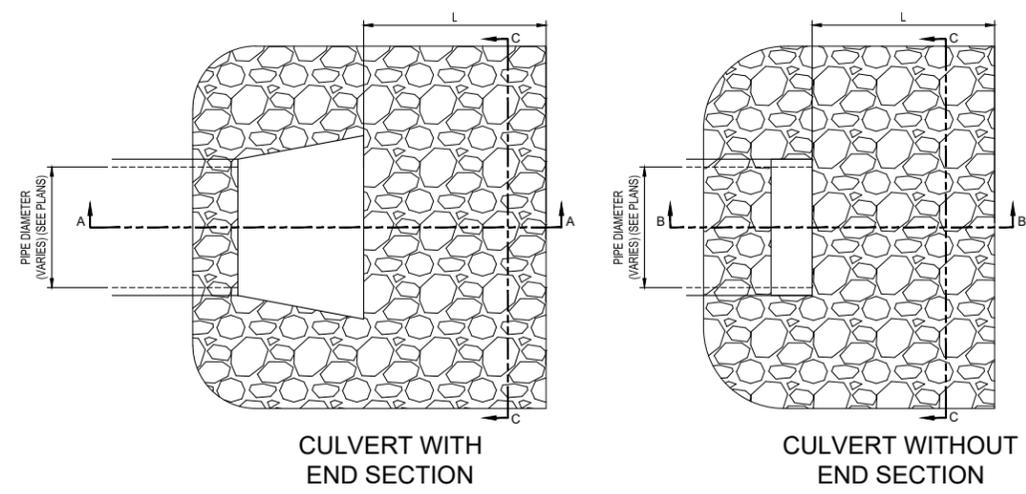
TILE GRAVEL ROAD CROSSING
NTS

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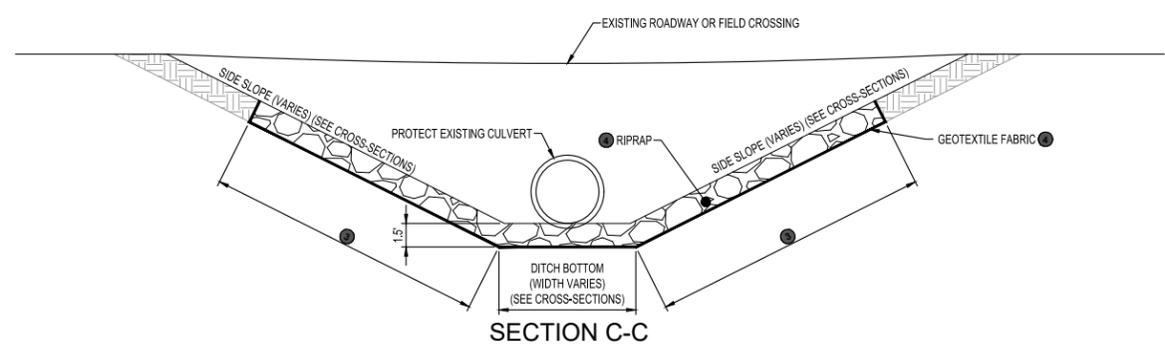
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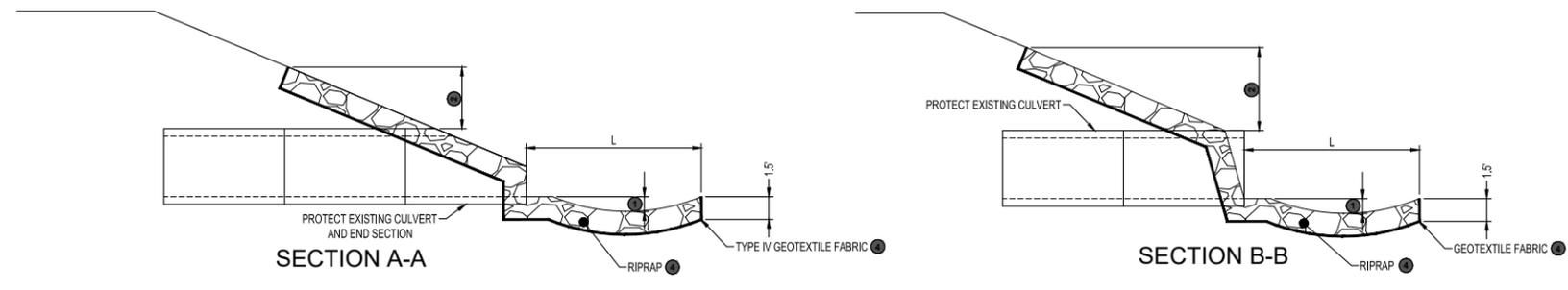
CULVERT WITH END SECTION

CULVERT WITHOUT END SECTION



SECTION C-C

- NOTES:**
- UPSTREAM END OF CULVERT: 0' (NO SUMP REQUIRED), DOWNSTREAM END OF CULVERT: 1' FOR PIPES LESS THAN 30" IN DIAMETER AND 1.5' FOR PIPES GREATER THAN OR EQUAL TO 30" IN DIAMETER.
 - RIPRAP HEIGHT SHALL BE A MINIMUM OF 2' ABOVE THE CULVERT. THE HEIGHT MAY BE ADJUSTED WITH APPROVAL FROM THE ENGINEER.
 - (W-DITCH BOTTOM WIDTH)/2 OR LENGTH NEEDED TO BE 2' ABOVE CULVERT, WHICHEVER IS GREATER.
 - RIPRAP SHALL BE MNDOT CLASS III PLACED ON TYPE IV GEOTEXTILE FABRIC UNLESS OTHERWISE SPECIFIED IN THE PLANS.
- L REFERS TO LENGTH AND W REFERS TO WIDTH IN THE RIPRAP SCHEDULE. THE LENGTH AND WIDTH FOR THE UPSTREAM ENDS SHALL BE COORDINATED WITH THE ENGINEER BASED ON THE ON-SITE CONDITIONS FOUND.
- REFER TO RIPRAP SCHEDULE OR PLANS FOR RIPRAP DIMENSIONS AND QUANTITIES.
- RIPRAP QUANTITIES ARE ESTIMATED. ADDITIONAL QUANTITY MAY BE REQUIRED BY ENGINEER. ALL RIPRAP QUANTITIES SHALL BE PAID BY THE CUBIC YARD INSTALLED.
- ALL RIPRAP SHALL BE PLACED BELOW LEGAL DITCH GRADE AND SHALL NOT INTERFERE WITH THE FLOW THROUGH THE CULVERT.
- ALL DIAMETERS REFERENCED ARE INSIDE DIAMETERS.



SECTION A-A

SECTION B-B

TYPICAL CULVERT RIPRAP ARMOR
NTS

PROJECT

LE CENTER MINNESOTA

REVISION SCHEDULE		
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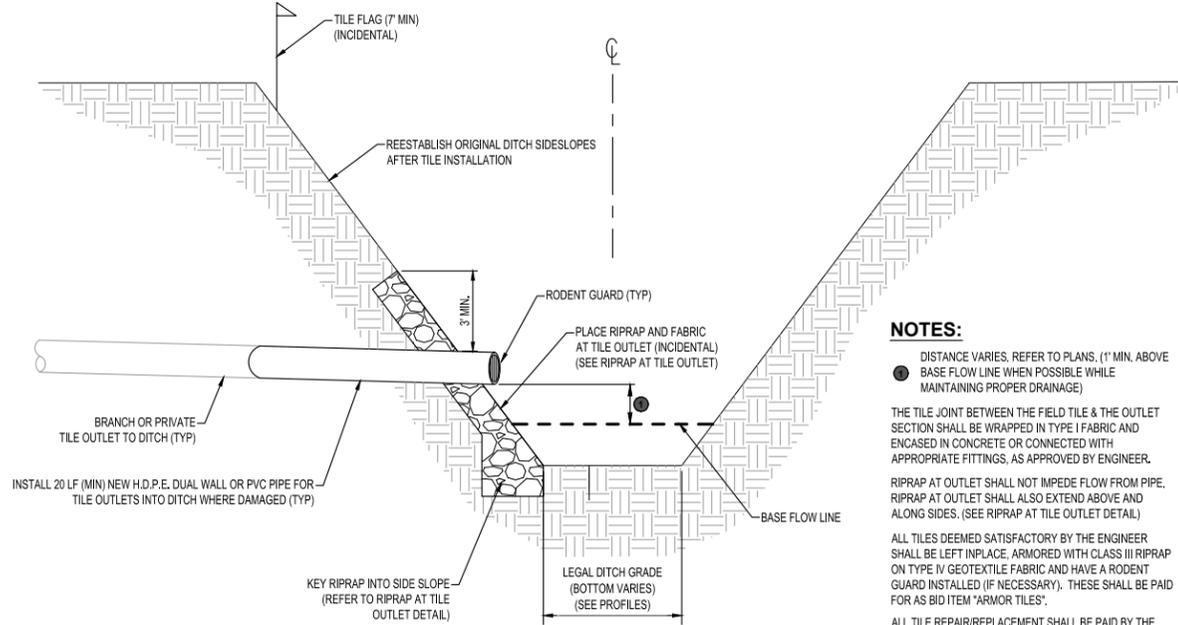
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FILE NAME	20141 DETAILS
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TITLE

DETAILS

SHEET

NOTE: ALL TILE OUTLETS AND FIELD INTAKES SHALL BE REPAIRED OR ARMORED

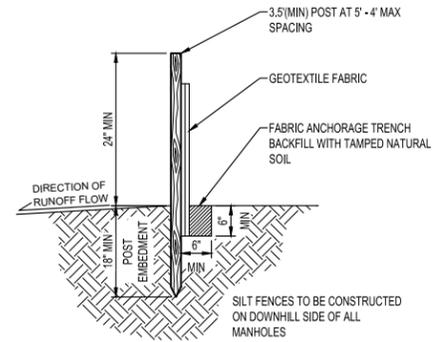


TYPICAL TILE OUTLET REPAIR

NTS

NOTES:

- 1 DISTANCE VARIES. REFER TO PLANS. (1' MIN. ABOVE BASE FLOW LINE WHEN POSSIBLE WHILE MAINTAINING PROPER DRAINAGE)
- 2 THE TILE JOINT BETWEEN THE FIELD TILE & THE OUTLET SECTION SHALL BE WRAPPED IN TYPE I FABRIC AND ENCASED IN CONCRETE OR CONNECTED WITH APPROPRIATE FITTINGS, AS APPROVED BY ENGINEER.
- 3 RIPRAP AT OUTLET SHALL NOT IMPEDE FLOW FROM PIPE. RIPRAP AT OUTLET SHALL ALSO EXTEND ABOVE AND ALONG SIDES. (SEE RIPRAP AT TILE OUTLET DETAIL)
- 4 ALL TILES DEEMED SATISFACTORY BY THE ENGINEER SHALL BE LEFT IN PLACE. ARMORED WITH CLASS III RIPRAP ON TYPE IV GEOTEXTILE FABRIC AND HAVE A RODENT GUARD INSTALLED (IF NECESSARY). THESE SHALL BE PAID FOR AS BID ITEM "ARMOR TILES".
- 5 ALL TILE REPAIR/REPLACEMENT SHALL BE PAID BY THE EACH PER DETAIL SHOWN.
- 6 RODENT GUARDS SHALL BE INSTALLED ON ALL TILE REPAIRS 18" AND SMALLER, AND ARE INCIDENTAL TO THE PAY ITEM.
- 7 ALL FITTINGS TO CONNECT EXISTING TILE SHALL BE INCIDENTAL TO TILE OUTLET REPAIR.
- 8 FENCE POST WITH 8' LONG PIECE OF PVC SLIPPED OVER IT MAY BE SUBSTITUTED FOR THE TILE FLAG.
- 9 REFER TO OPEN DITCH NOTES FOR ACCEPTABLE OUTLET MATERIAL TYPES.
- 10 SEEDING MUST OCCUR WITHIN 2 DAYS OF CONSTRUCTION. PAID BY SEEDING QUANTITY.

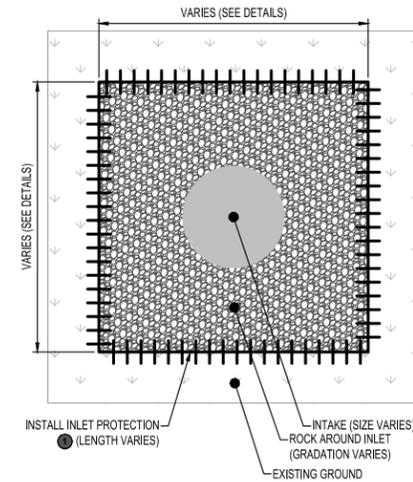


NOTES:

- 1 INSTALLATION, MAINTENANCE, AND REMOVAL OF SILT FENCE IN ACCORDANCE WITH CONTRACT DOCUMENTS SHALL BE INCIDENTAL TO THE BID ITEM.
- 2 SILT FENCE SHALL BE PAID FOR BY THE LF. REFER TO PAYMENT SCHEDULE IN CONTRACT DOCUMENTS.

SILT FENCE

NTS



NOTES:

- 1 INLET PROTECTION SHALL BE SILT FENCE, SEDIMENT CONTROL LOG, OR AN APPROVED EQUAL. INLET PROTECTION SHALL BE INSTALLED IN ACCORDANCE WITH CONTRACT DOCUMENTS.
- 2 INLET PROTECTION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- 3 INSTALLATION, MAINTENANCE, AND REMOVAL OF INLET PROTECTION IN ACCORDANCE WITH CONTRACT DOCUMENTS SHALL BE INCIDENTAL TO THE INSTALL INLET PROTECTION BID ITEM. (REFER TO PAYMENT SCHEDULE)

TYPICAL INLET PROTECTION

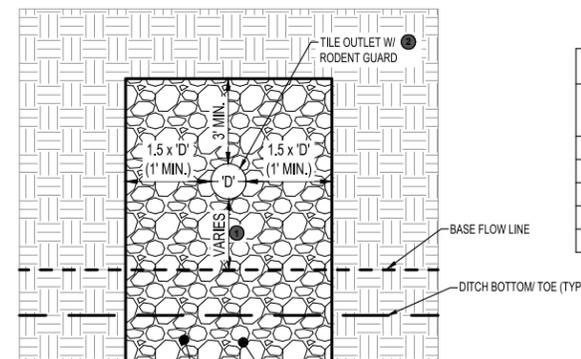
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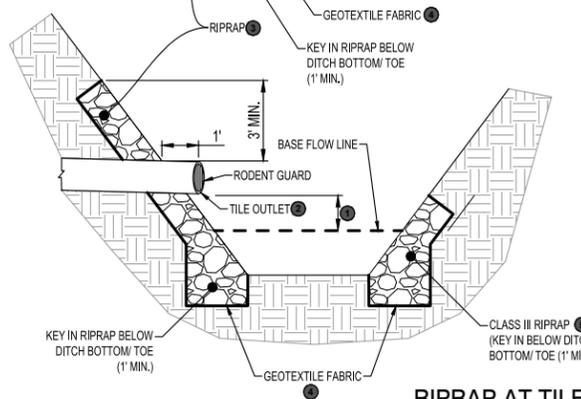
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 CHARLES J. BRANDEL

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DIMENSIONS	
NOMINAL PIPE DIA ('D')	RIPRAP
UNDER 12"	4 CY
12"-15"	6 CY
18" TO 36"	9 CY
42" TO 60"	10 CY
ABOVE 60"	12 CY



RIPRAP AT TILE OUTLET

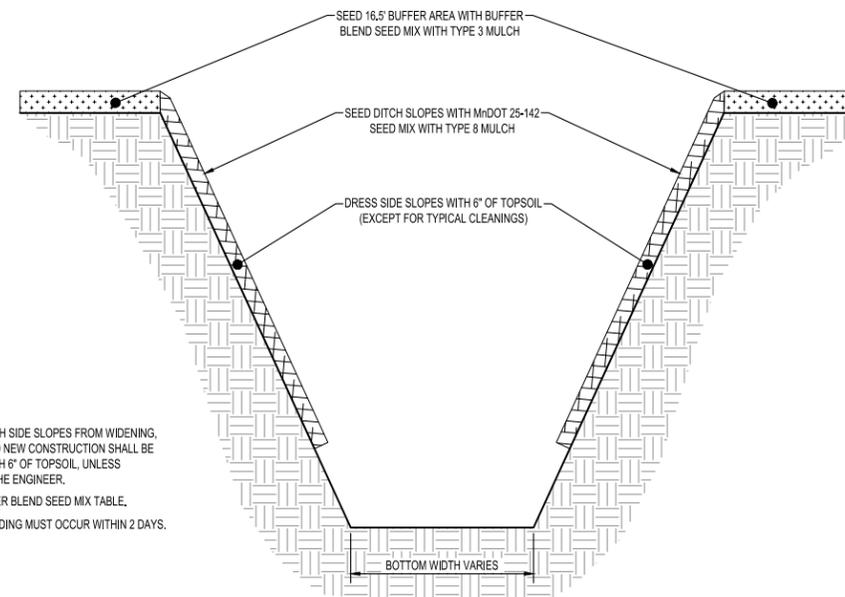
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NOTES:

- 1 DISTANCE VARIES. REFER TO PLANS AND DETAILS. (1' MIN. ABOVE BASE FLOW LINE)
- 2 SIZE AND TYPE VARIES. REFER TO PLANS AND SCHEDULES.
- 3 RIPRAP SHALL BE MNDOT CLASS III. UNLESS OTHERWISE SPECIFIED, THE CUBIC YARD LISTED IN THE TABLE SHALL BE INCIDENTAL TO THE RESPECTIVE BID ITEM. ADDITIONAL RIPRAP SHALL BE PAID FOR BY THE CUBIC YARD AS DETERMINED BY ENGINEER.
- 4 GEOTEXTILE FABRIC SHALL BE MNDOT TYPE IV. (INCIDENTAL TO RESPECTIVE BID ITEM)
- 5 RIPRAP SHALL BE REQUIRED ON THE OPPOSITE BANK FOR TILE OUTLETS 24-INCHES AND LARGER OR AS APPROVED BY THE ENGINEER. ADDITIONAL RIPRAP SHALL BE PAID FOR BY THE CUBIC YARD.
- 6 RIPRAP SHALL NOT IMPEDE FLOW FROM THE TILE OUTLET OR THE RECEIVING BODY.
- 7 'D' REFERS TO PIPE INSIDE DIAMETER

NOTES:

- 1 DISTURBED DITCH SIDE SLOPES FROM WIDENING, DEEPENING, AND NEW CONSTRUCTION SHALL BE REDRESSED WITH 6" OF TOPSOIL, UNLESS APPROVED BY THE ENGINEER.
- 2 REFER TO BUFFER BLEND SEED MIX TABLE.
- 3 DITCH BANK SEEDING MUST OCCUR WITHIN 2 DAYS.



TYPICAL OPEN DITCH SEEDING SECTION

NTS

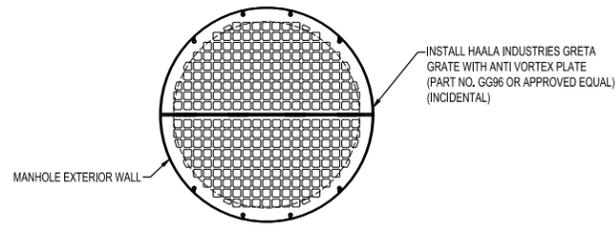
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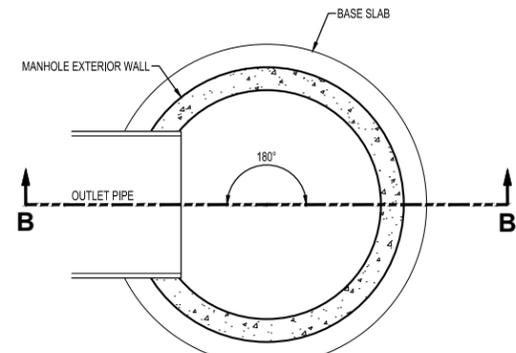
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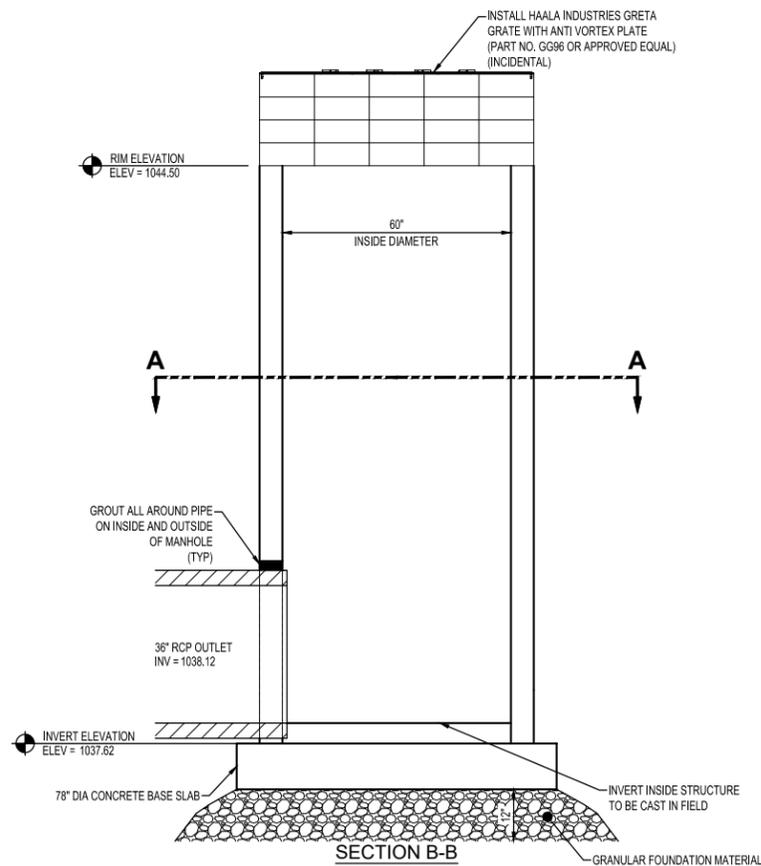
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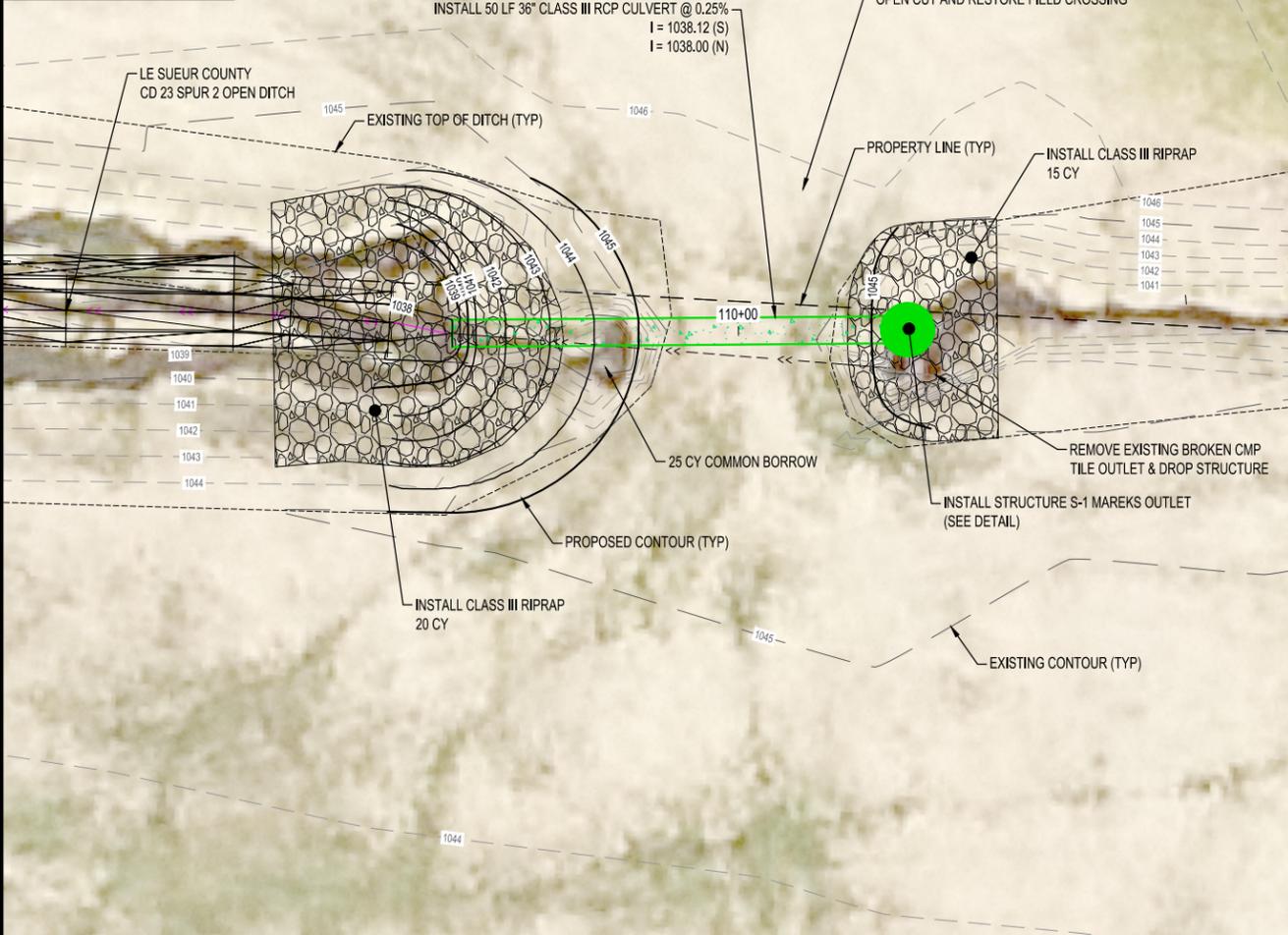
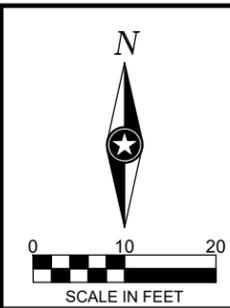
PLAN
NTS



SECTION A-A



S-1 MAREKS OUTLET
RCP OUTLET STRUCTURE
NTS
AG710



NOTE:
*ALL EXCAVATED MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR.
**ALL RIPRAP SHALL BE PLACED BELOW GROUND ELEVATION SO THAT THE TOP OF THE RIPRAP BE FLUSH WITH FINAL GRADE.



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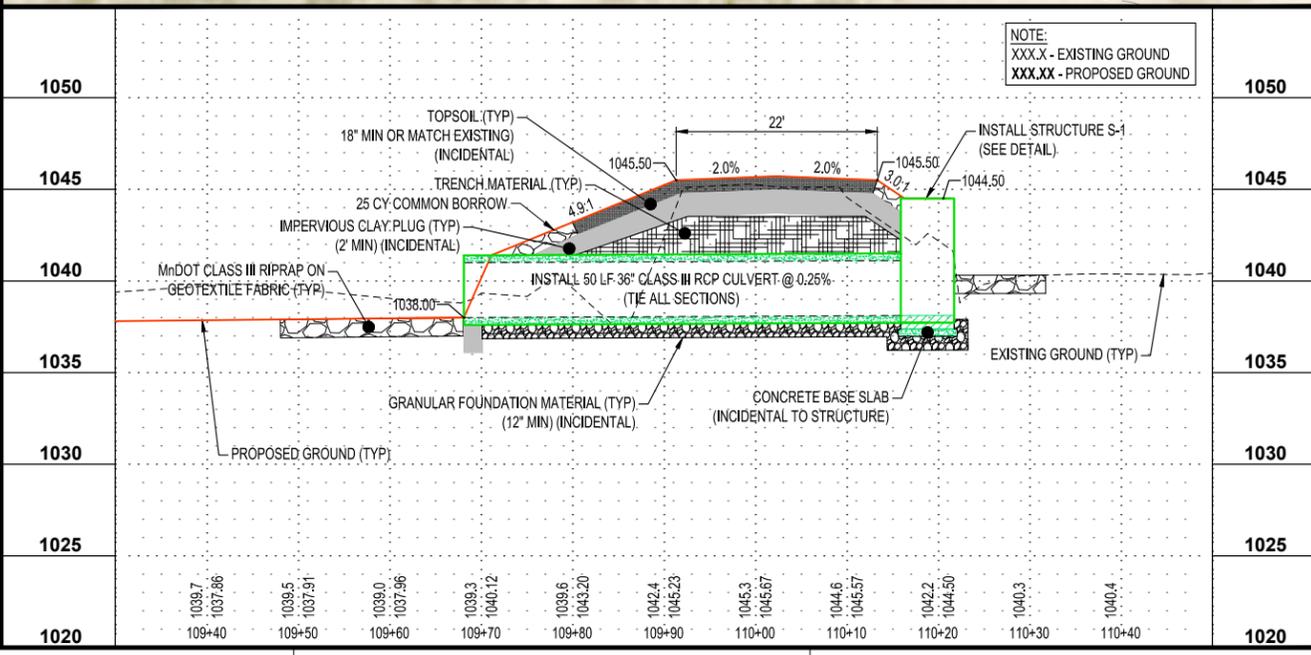
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PROJECT
**LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR**
LE CENTER MINNESOTA

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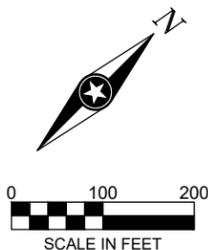
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TITLE
**S-1 MAREKS
OUTLET STRUCTURE
DETAIL**

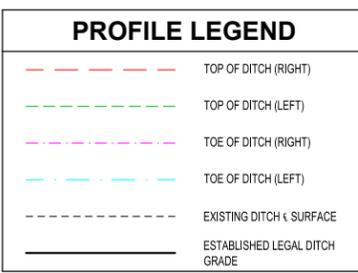
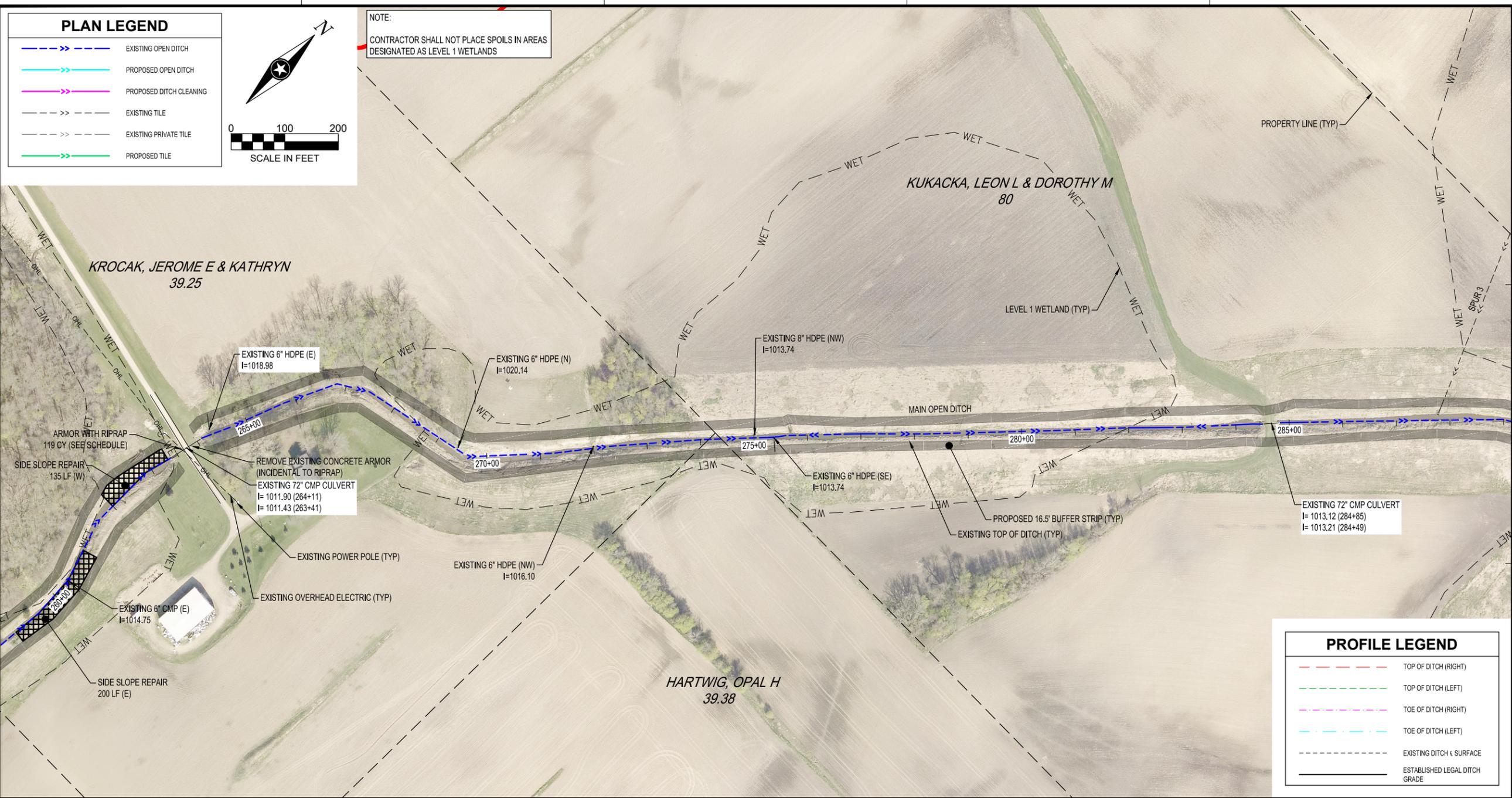


PLAN LEGEND

- **EXISTING OPEN DITCH**
- **PROPOSED OPEN DITCH**
- **PROPOSED DITCH CLEANING**
- **EXISTING TILE**
- **EXISTING PRIVATE TILE**
- **PROPOSED TILE**



NOTE:
CONTRACTOR SHALL NOT PLACE SPOILS IN AREAS DESIGNATED AS LEVEL 1 WETLANDS



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PROJECT

**LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR**

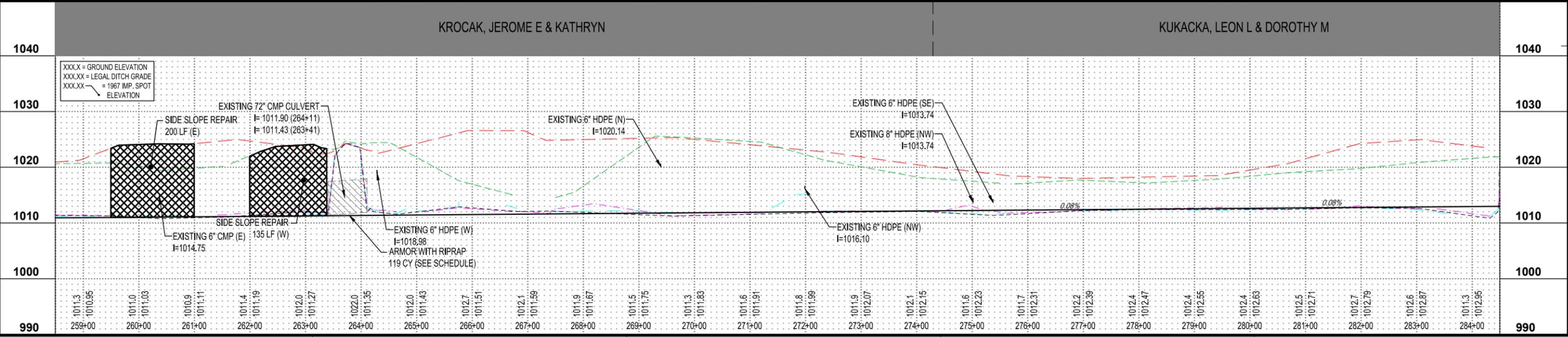
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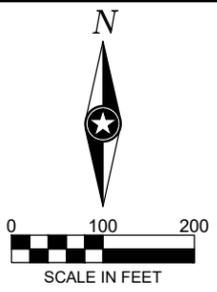
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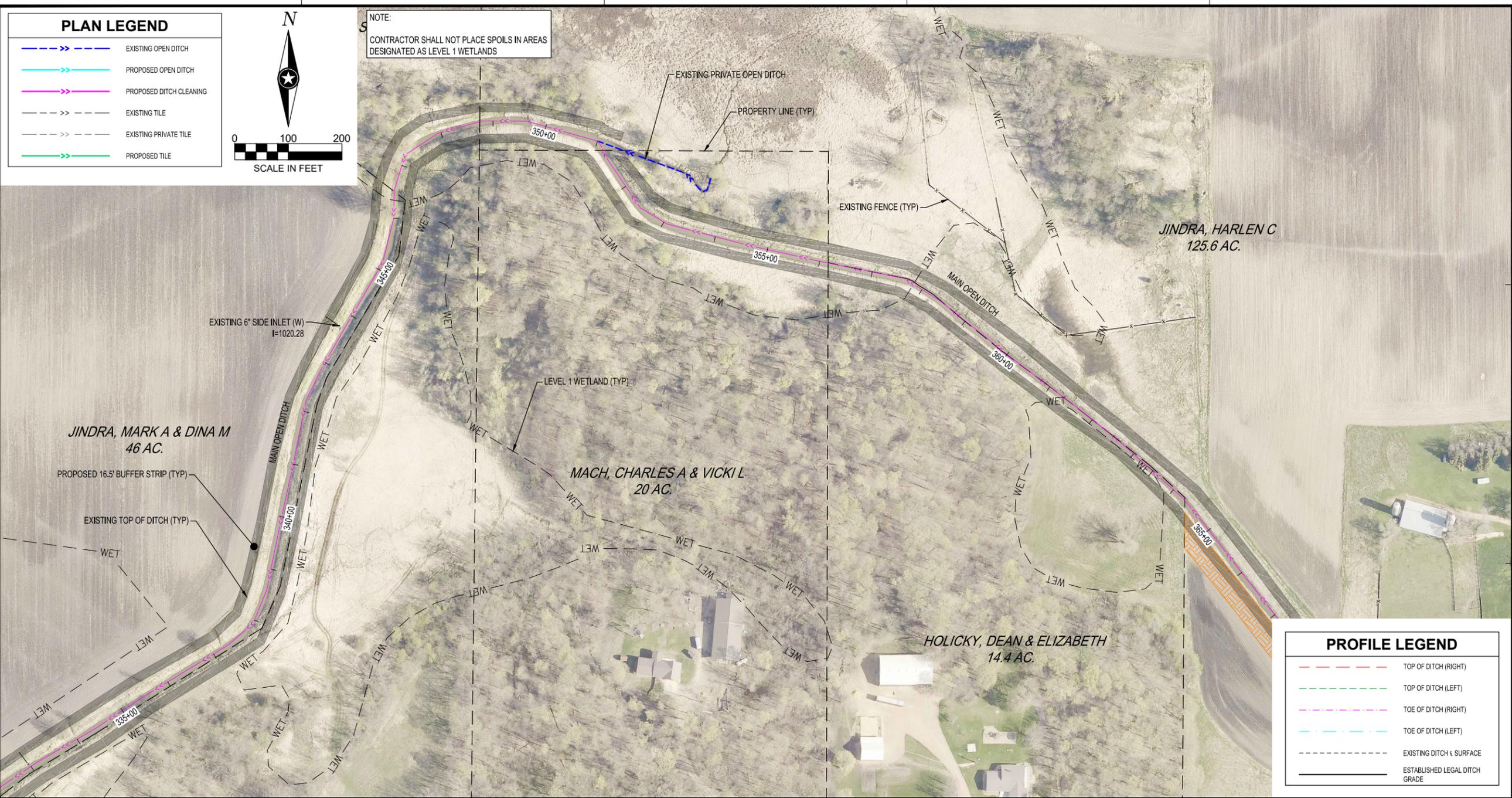


PLAN LEGEND

-  EXISTING OPEN DITCH
-  PROPOSED OPEN DITCH
-  PROPOSED DITCH CLEANING
-  EXISTING TILE
-  EXISTING PRIVATE TILE
-  PROPOSED TILE



NOTE:
CONTRACTOR SHALL NOT PLACE SPOILS IN AREAS DESIGNATED AS LEVEL 1 WETLANDS



PROFILE LEGEND

-  TOP OF DITCH (RIGHT)
-  TOP OF DITCH (LEFT)
-  TOE OF DITCH (RIGHT)
-  TOE OF DITCH (LEFT)
-  EXISTING DITCH & SURFACE
-  ESTABLISHED LEGAL DITCH GRADE



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PRELIMINARY NOT FOR CONSTRUCTION
CHARLES E. FRANDEL

DATE: _____ LIC. NO. 43359
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PROJECT

**LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR**

LE CENTER MINNESOTA

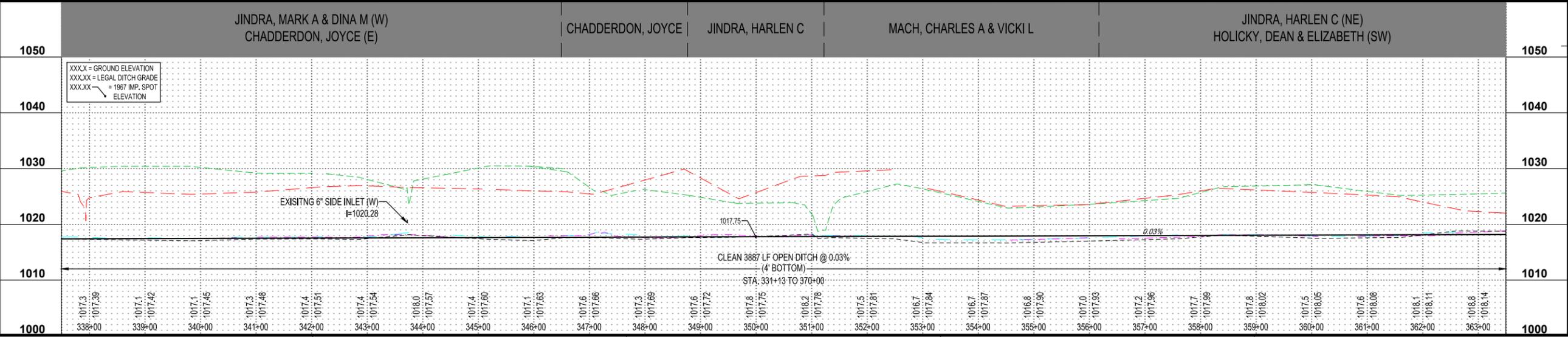
REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	17-20141
CAD FILE NAME	20141 PROFILES MAIN
DRAWN BY	SMW
DESIGNED BY	BG/CJB
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	11-1-11
CLIENT PROJECT NO.	

TITLE

MAINLINE PROFILE

SHEET
16 OF 22



XXXXX = GROUND ELEVATION
XXXXXX = LEGAL DITCH GRADE
XXXXXX = 1967 IMP. SPOT ELEVATION

EXISTING 6" SIDE INLET (W)
I=1020.28

CLEAN 3887 LF OPEN DITCH @ 0.03%
(4' BOTTOM)
STA: 331+13 TO 370+00

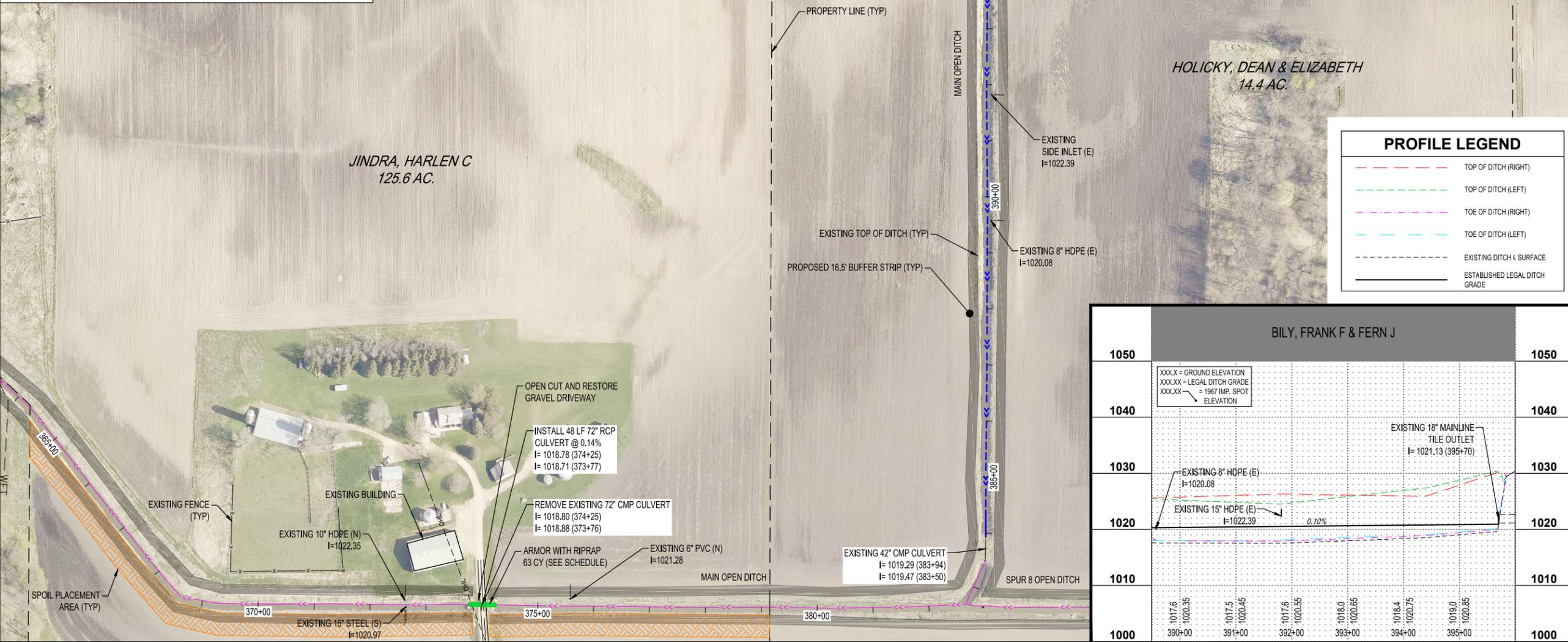
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338+00	339+00	340+00	341+00	342+00	343+00	344+00	345+00	346+00	347+00	348+00	349+00	350+00	351+00	352+00	353+00	354+00	355+00	356+00	357+00	358+00	359+00	360+00	361+00	362+00	363+00																										

PLAN LEGEND

- EXISTING OPEN DITCH
- PROPOSED OPEN DITCH
- PROPOSED DITCH CLEANING
- EXISTING TILE
- EXISTING PRIVATE TILE
- PROPOSED TILE

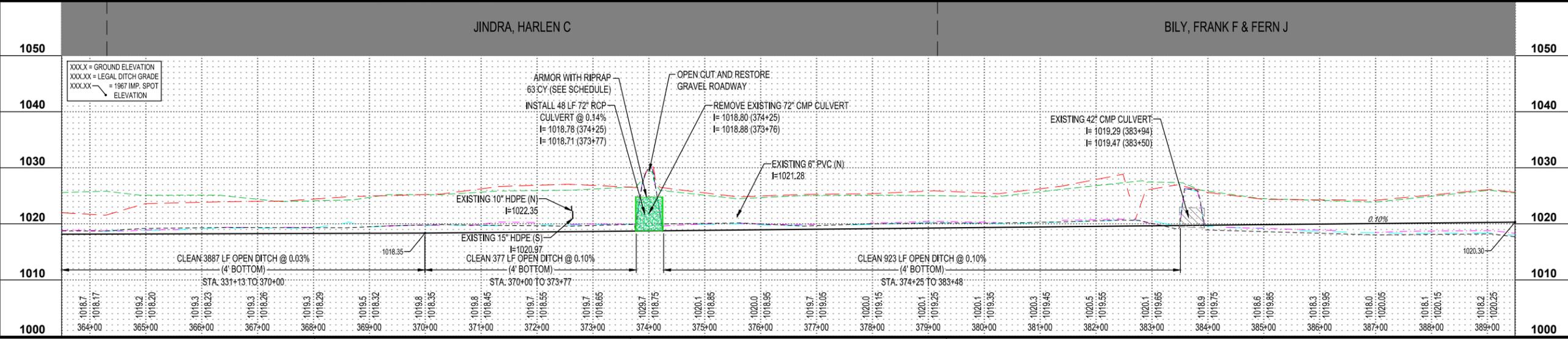
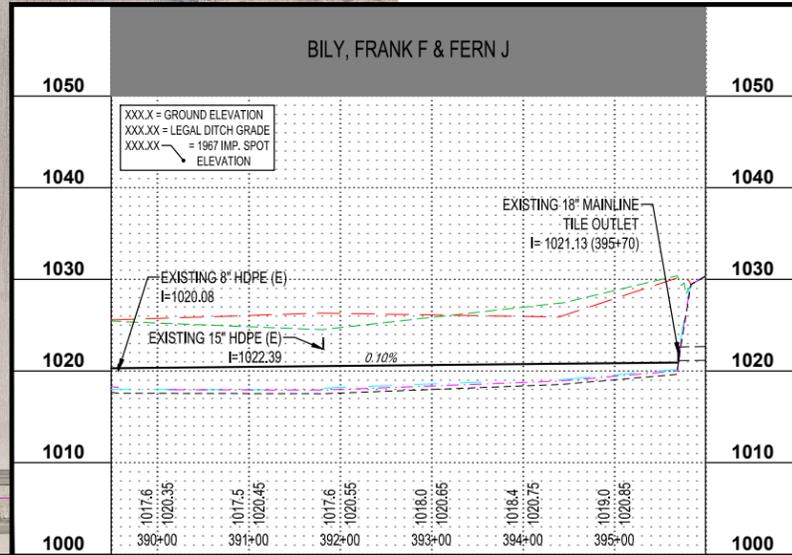
SCALE IN FEET

NOTE:
CONTRACTOR SHALL NOT PLACE SPOILS IN AREAS DESIGNATED AS LEVEL 1 WETLANDS



PROFILE LEGEND

- TOP OF DITCH (RIGHT)
- TOP OF DITCH (LEFT)
- TOE OF DITCH (RIGHT)
- TOE OF DITCH (LEFT)
- EXISTING DITCH & SURFACE
- ESTABLISHED LEGAL DITCH GRADE



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PROJECT
**LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR**
LE CENTER MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO. 17-20141
CAD FILE NAME 20141 PROFILES MAIN
DRAWN BY SMW
DESIGNED BY BG/CJB
REVIEWED BY CJB
ORIGINAL ISSUE DATE --/--
CLIENT PROJECT NO. --

TITLE
MAINLINE PROFILE
SHEET
17 OF 22

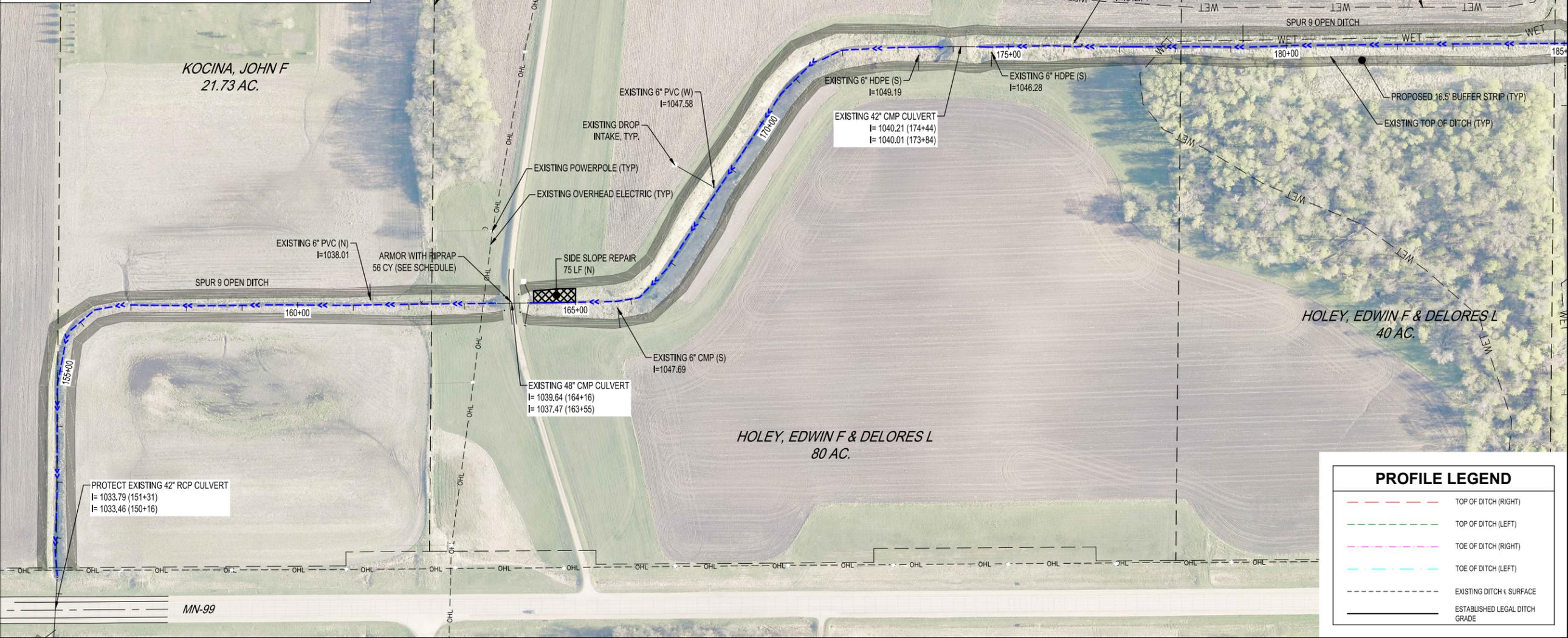


PLAN LEGEND

- EXISTING OPEN DITCH
- PROPOSED OPEN DITCH
- PROPOSED DITCH CLEANING
- EXISTING TILE
- EXISTING PRIVATE TILE
- PROPOSED TILE

0 100 200
SCALE IN FEET

NOTE:
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CHARLES J. FRANDEL
PRELIMINARY NOT FOR CONSTRUCTION

DATE: _____ LIC. NO. 43359

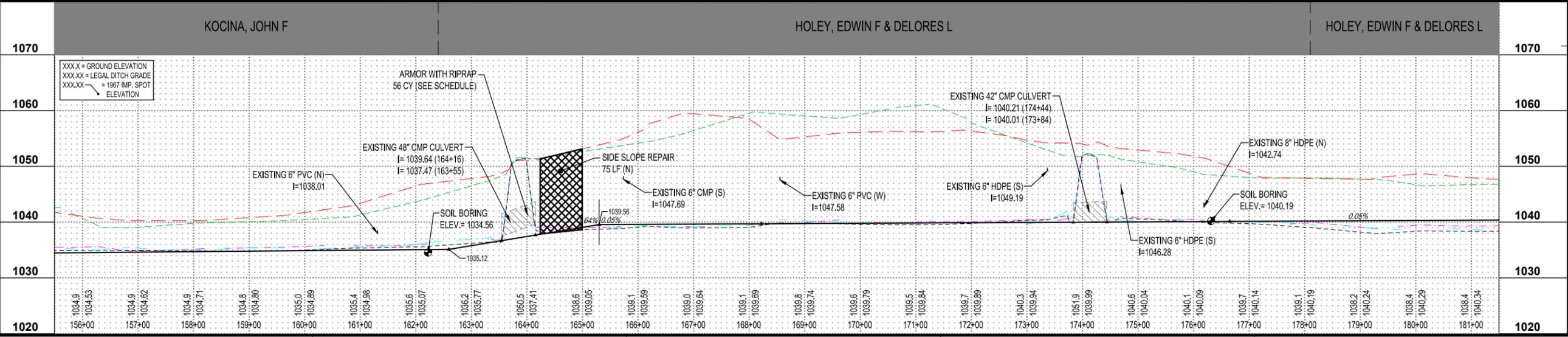
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PROFILE LEGEND

- TOP OF DITCH (RIGHT)
- TOP OF DITCH (LEFT)
- TOE OF DITCH (RIGHT)
- TOE OF DITCH (LEFT)
- EXISTING DITCH & SURFACE
- ESTABLISHED LEGAL DITCH GRADE

PROJECT
LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR
LE CENTER MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY



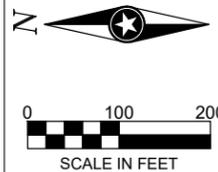
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CAD FILE NAME 20141 PROFILES SPUR 9
DRAWN BY SMW
DESIGNED BY BG/CJB
REVIEWED BY CJB
ORIGINAL ISSUE DATE --/--
CLIENT PROJECT NO. --

TITLE
SPUR 9 PROFILE

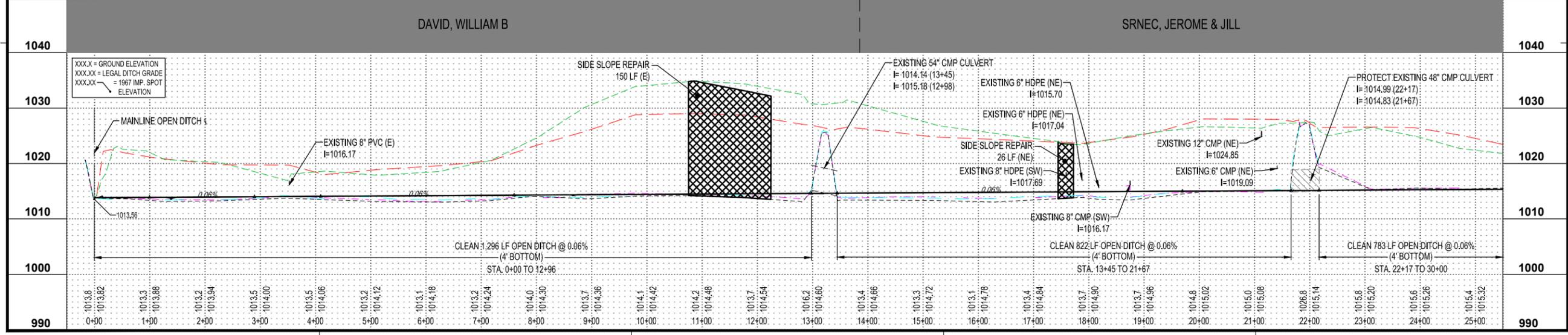
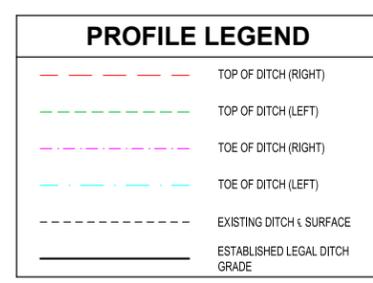
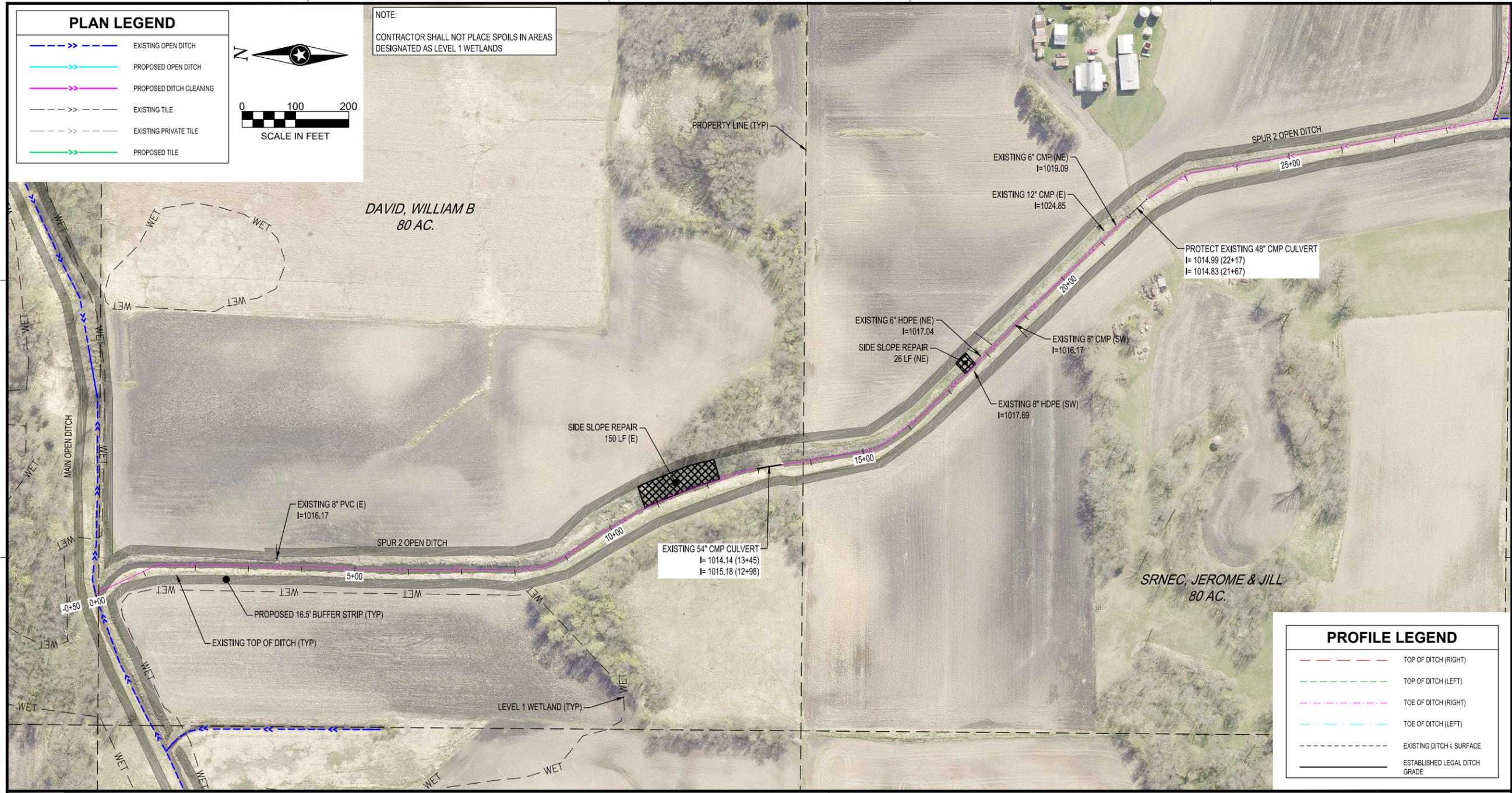
SHEET
18 OF 22

PLAN LEGEND

- EXISTING OPEN DITCH
- PROPOSED OPEN DITCH
- PROPOSED DITCH CLEANING
- EXISTING TILE
- EXISTING PRIVATE TILE
- PROPOSED TILE



NOTE:
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PROJECT
LE SUEUR COUNTY

COUNTY DITCH No. 23 REPAIR
LE CENTER MINNESOTA

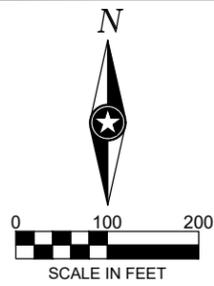
REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	17-20141
CAD FILE NAME	20141 PROFILES SPUR 2
DRAWN BY	SMW
DESIGNED BY	BG/CJB
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	--/--
CLIENT PROJECT NO.	

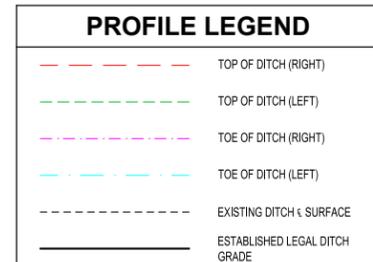
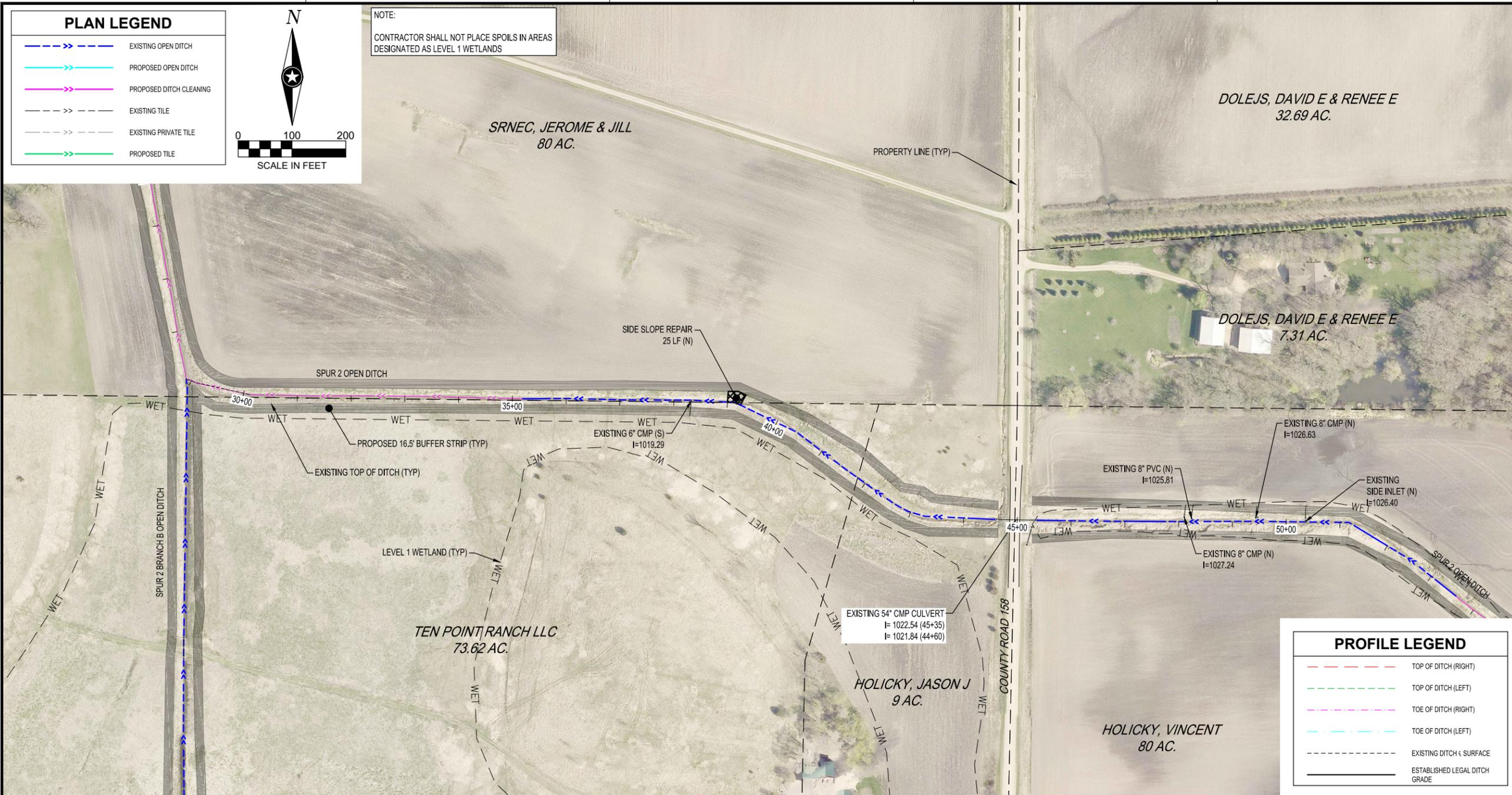
TITLE
SPUR 2 PROFILE

PLAN LEGEND

- EXISTING OPEN DITCH
- PROPOSED OPEN DITCH
- PROPOSED DITCH CLEANING
- EXISTING TILE
- EXISTING PRIVATE TILE
- PROPOSED TILE



NOTE:
CONTRACTOR SHALL NOT PLACE SPOILS IN AREAS DESIGNATED AS LEVEL 1 WETLANDS



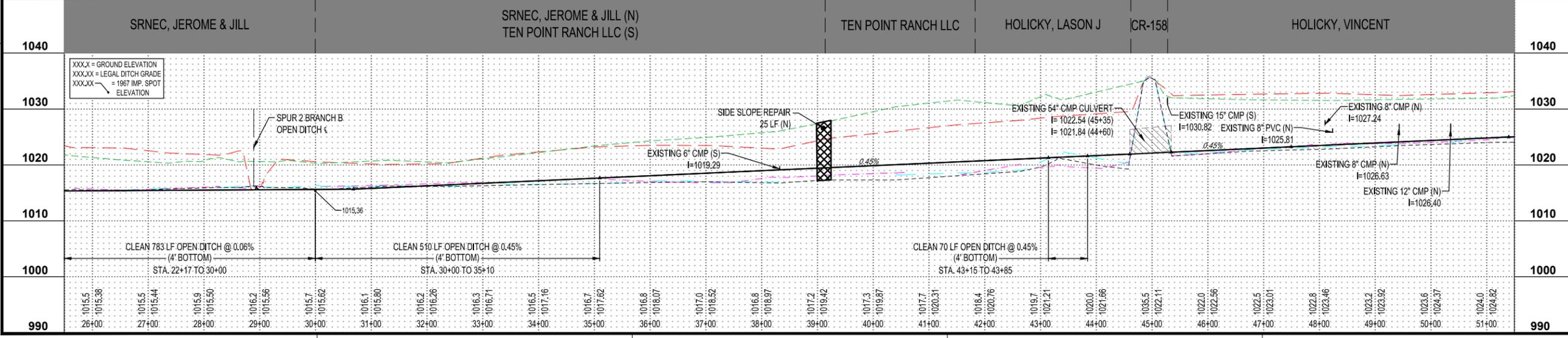
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PROJECT
LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR
LE CENTER MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	17-20141
CAD FILE NAME	20141 PROFILES SPUR 2
DRAWN BY	SMW
DESIGNED BY	BG/CJB
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	--/--
CLIENT PROJECT NO.	

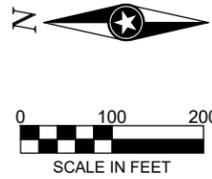


TITLE
SPUR 2 PROFILE

SHEET
20 OF 22

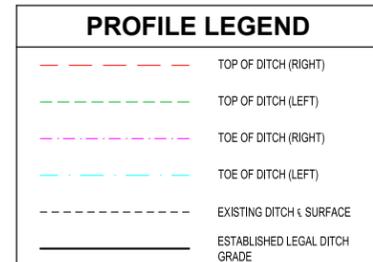
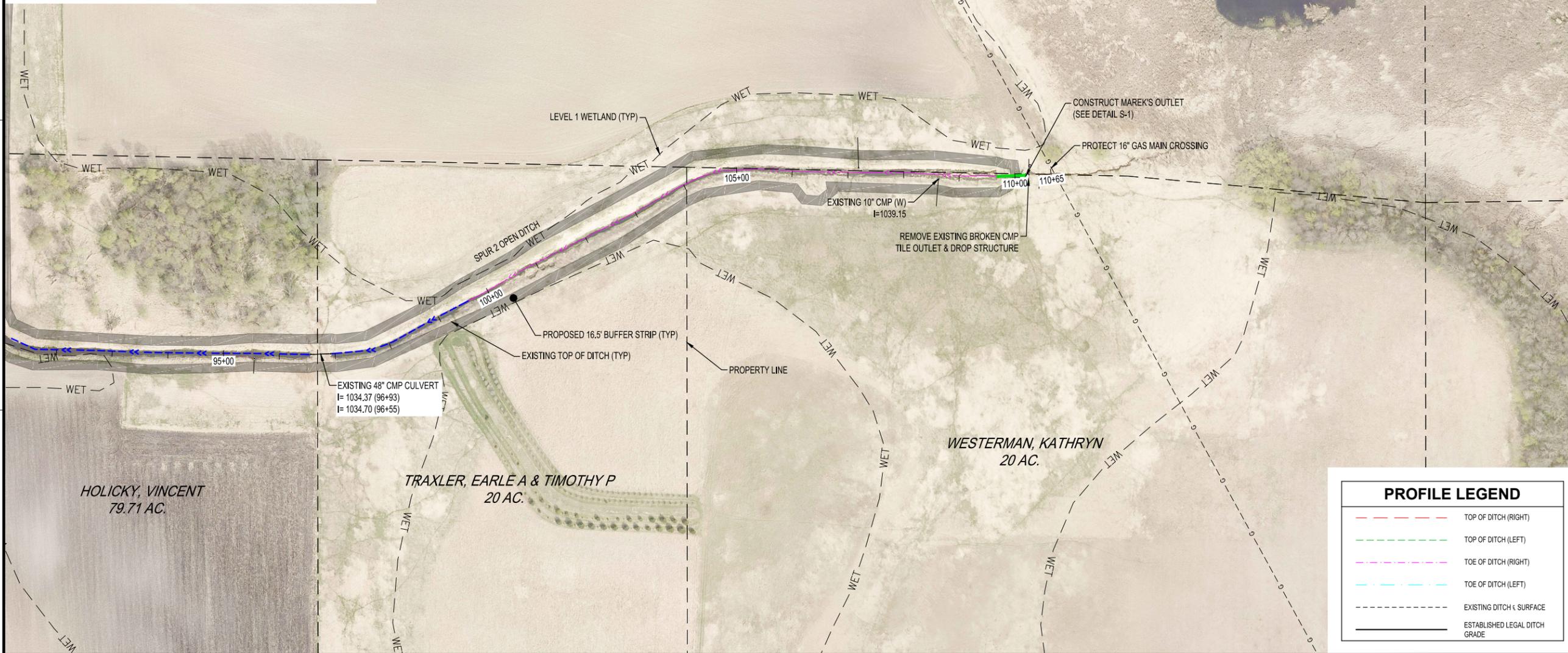
PLAN LEGEND

- >> EXISTING OPEN DITCH
- >> PROPOSED OPEN DITCH
- >> PROPOSED DITCH CLEANING
- >> EXISTING TILE
- >> EXISTING PRIVATE TILE
- >> PROPOSED TILE



NOTE:
CONTRACTOR SHALL NOT PLACE SPOILS IN AREAS DESIGNATED AS LEVEL 1 WETLANDS

NORCOR PROPERTIES
94.4 AC.



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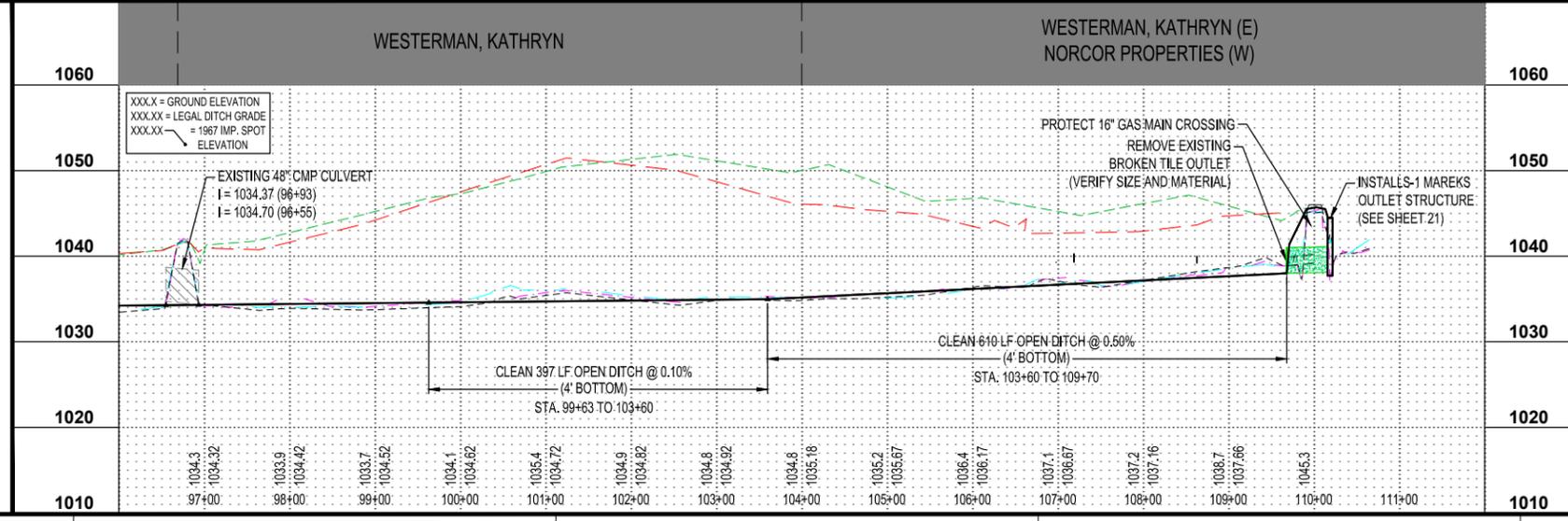
PROJECT
LE SUEUR COUNTY
COUNTY DITCH No. 23 REPAIR
LE CENTER MINNESOTA

REVISION SCHEDULE		
DATE	DESCRIPTION	BY

PROJECT NO.	17-20141
CAD FILE NAME	20141 PROFILES SPUR 2
DRAWN BY	SMW
DESIGNED BY	BG/CJB
REVIEWED BY	CJB
ORIGINAL ISSUE DATE	--/--
CLIENT PROJECT NO.	-

TITLE
SPUR 2 PROFILE

SHEET
21 OF 22



Appendix B: Maps



Overall Watershed Map

County Ditch No 23

Le Sueur County, Minnesota
Wednesday, March 24, 2021

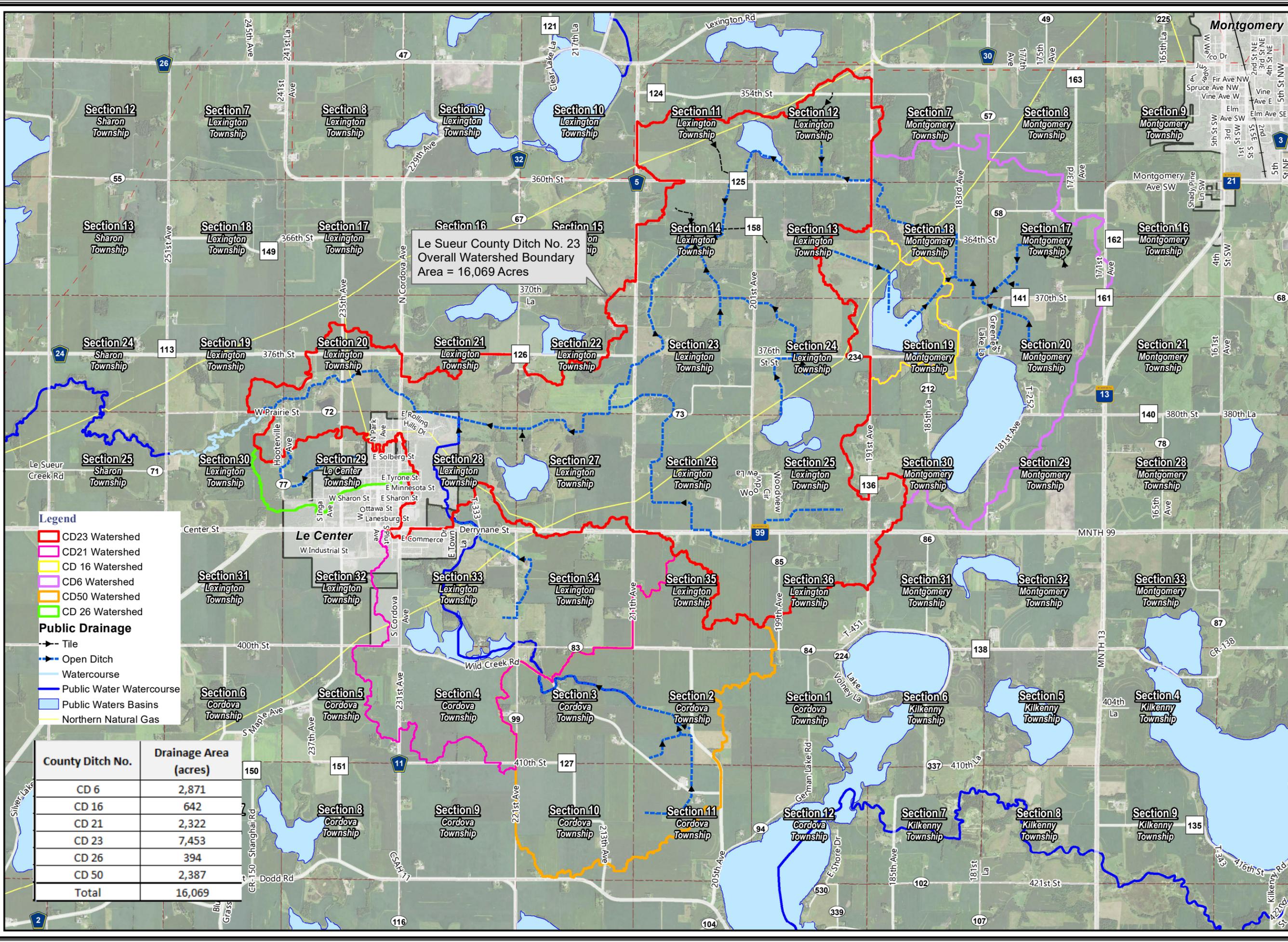
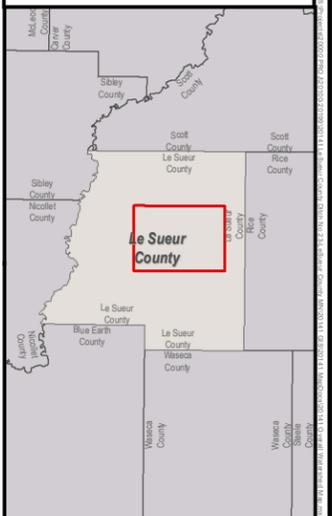
PN: 17-20141

Source:

Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



0 1,000 2,000 4,000 Feet



Legend

- CD23 Watershed
- CD21 Watershed
- CD 16 Watershed
- CD6 Watershed
- CD50 Watershed
- CD 26 Watershed

Public Drainage

- Tile
- Open Ditch
- Watercourse
- Public Water Watercourse
- Public Waters Basins
- Northern Natural Gas

County Ditch No.	Drainage Area (acres)
CD 6	2,871
CD 16	642
CD 21	2,322
CD 23	7,453
CD 26	394
CD 50	2,387
Total	16,069

Le Sueur County Ditch No. 23
Overall Watershed Boundary
Area = 16,069 Acres



Watershed Map

County Ditch No 23
Le Sueur County,
Minnesota

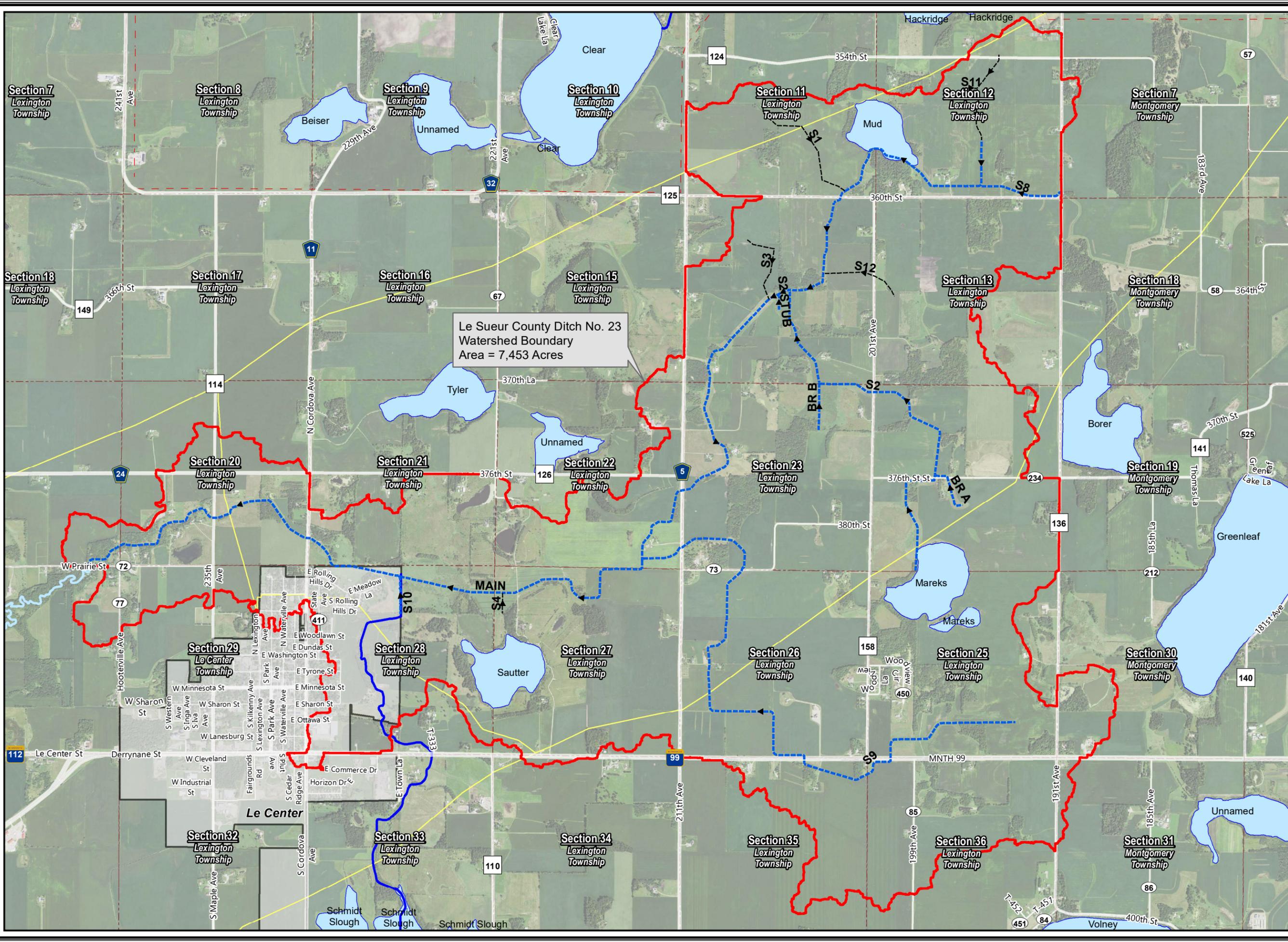
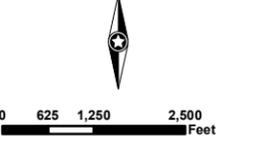
Wednesday, March 24, 2021

- Legend**
- CD23 Watershed
 - Public Drainage**
 - Tile
 - Open Ditch
 - Watercourse
 - Public Water Watercourse
 - Public Waters Basins
 - Northern Natural Gas

PN: 17-20141

Source:

Orthophotograph (MnGeo WMS, 2015)
 Tile/Ditch (XX County, 12/16/2016)
 Parcels (XX County, 12/16/2016)
 Lakes (MN DNR, July, 2008)
 Major Stream (MN DNR, July 2008)
 Counties (MN DNR, July 2013)
 PLSS (MnGeo/USGS)





Culvert Map
 County Ditch No 23
 Le Sueur County,
 Minnesota
 Monday, December 13, 2021

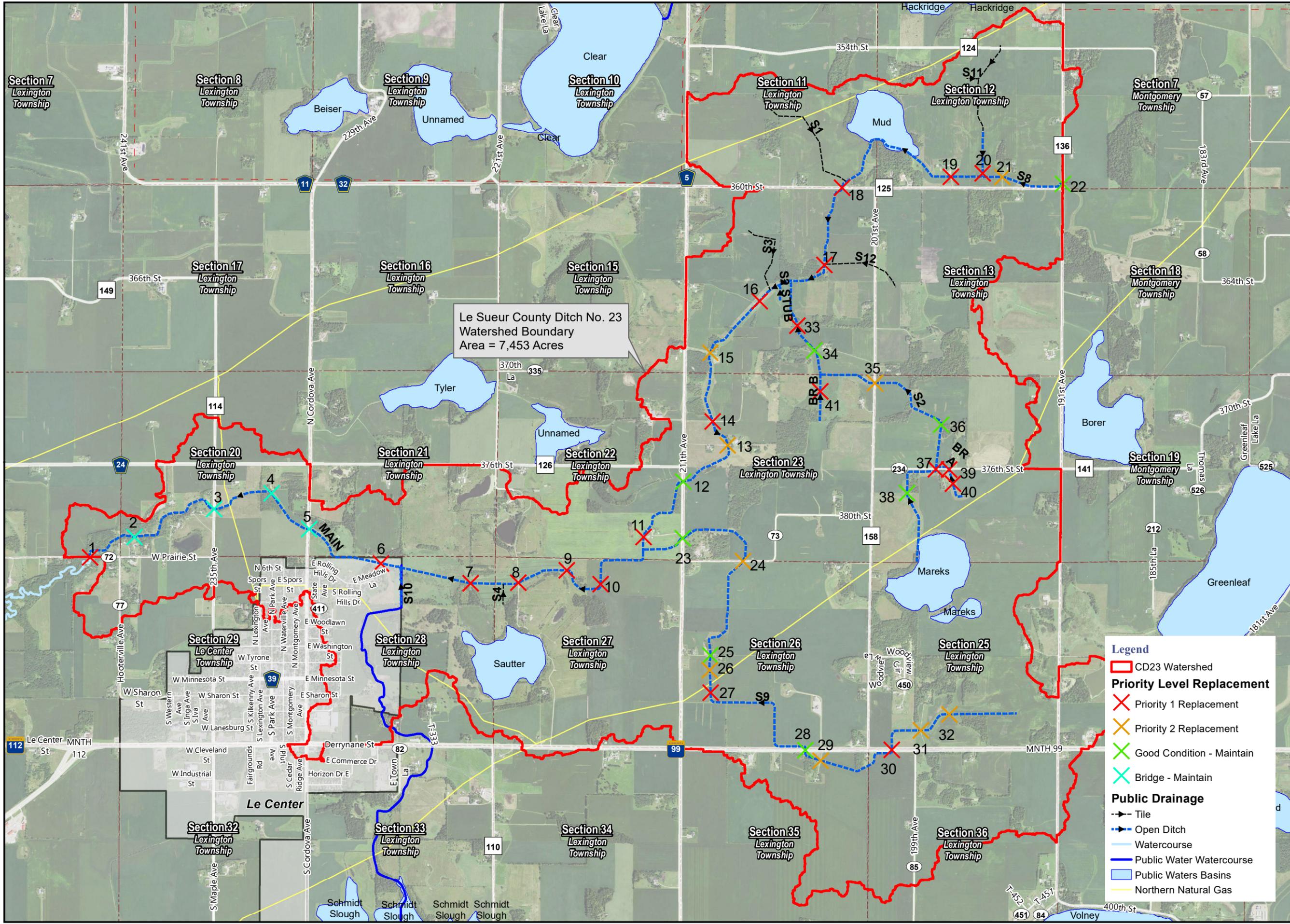
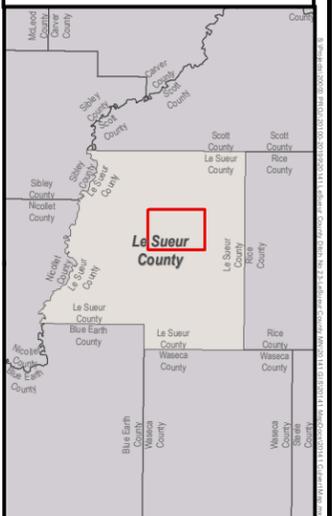
PN: 17-20141

Source:

Orthophotograph (MnGeo WMS, 2015)
 Tile/Ditch (XX County, 12/16/2016)
 Parcels (XX County, 12/16/2016)
 Lakes (MN DNR, July, 2008)
 Major Stream (MN DNR, July 2008)
 Counties (MN DNR, July 2013)
 PLSS (MnGeo/USGS)



0 625 1,250 2,500
 Feet



Le Sueur County Ditch No. 23
 Watershed Boundary
 Area = 7,453 Acres

Legend

- CD23 Watershed
- Priority Level Replacement**
- X Priority 1 Replacement
- X Priority 2 Replacement
- X Good Condition - Maintain
- X Bridge - Maintain
- Public Drainage**
- Tile
- Open Ditch
- Watercourse
- Public Water Watercourse
- Public Waters Basins
- Northern Natural Gas

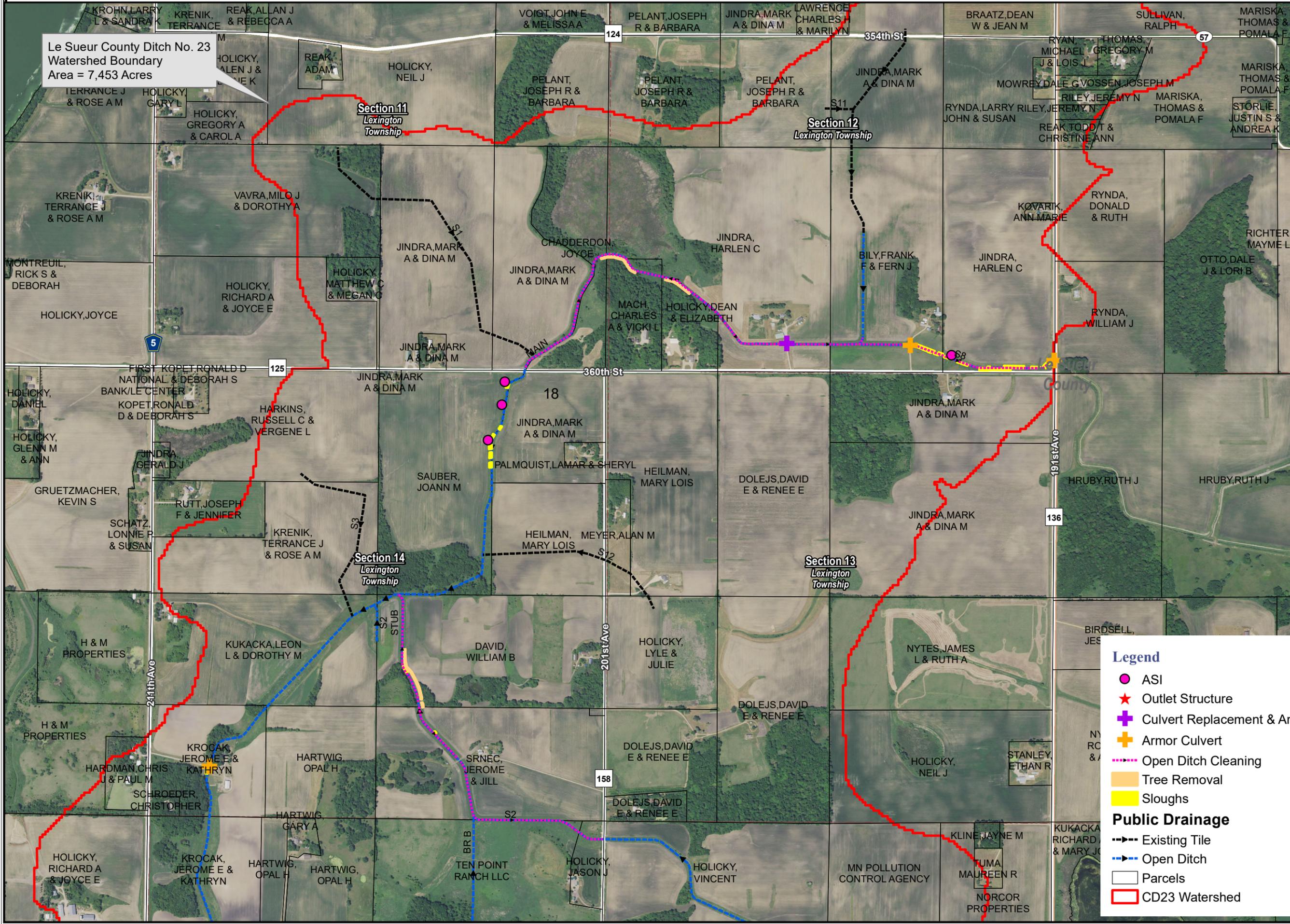
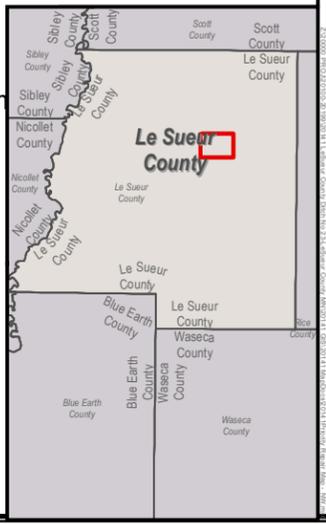


**Priority Repair
Northwest
County Ditch No. 23**
Le Sueur County,
Minnesota
Wednesday, January 4, 2023

PN: 17-20141
Source:
 Orthophotograph (MnGeo WMS, 2015)
 Title/Ditch (XX County, 12/16/2016)
 Parcels (XX County, 12/16/2016)
 Lakes (MN DNR, July, 2008)
 Major Stream (MN DNR, July 2008)
 Counties (MN DNR, July 2013)
 PLSS (MnGeo/USGS)



0 245 490 980
 Feet
 1 inch = 1,042 feet



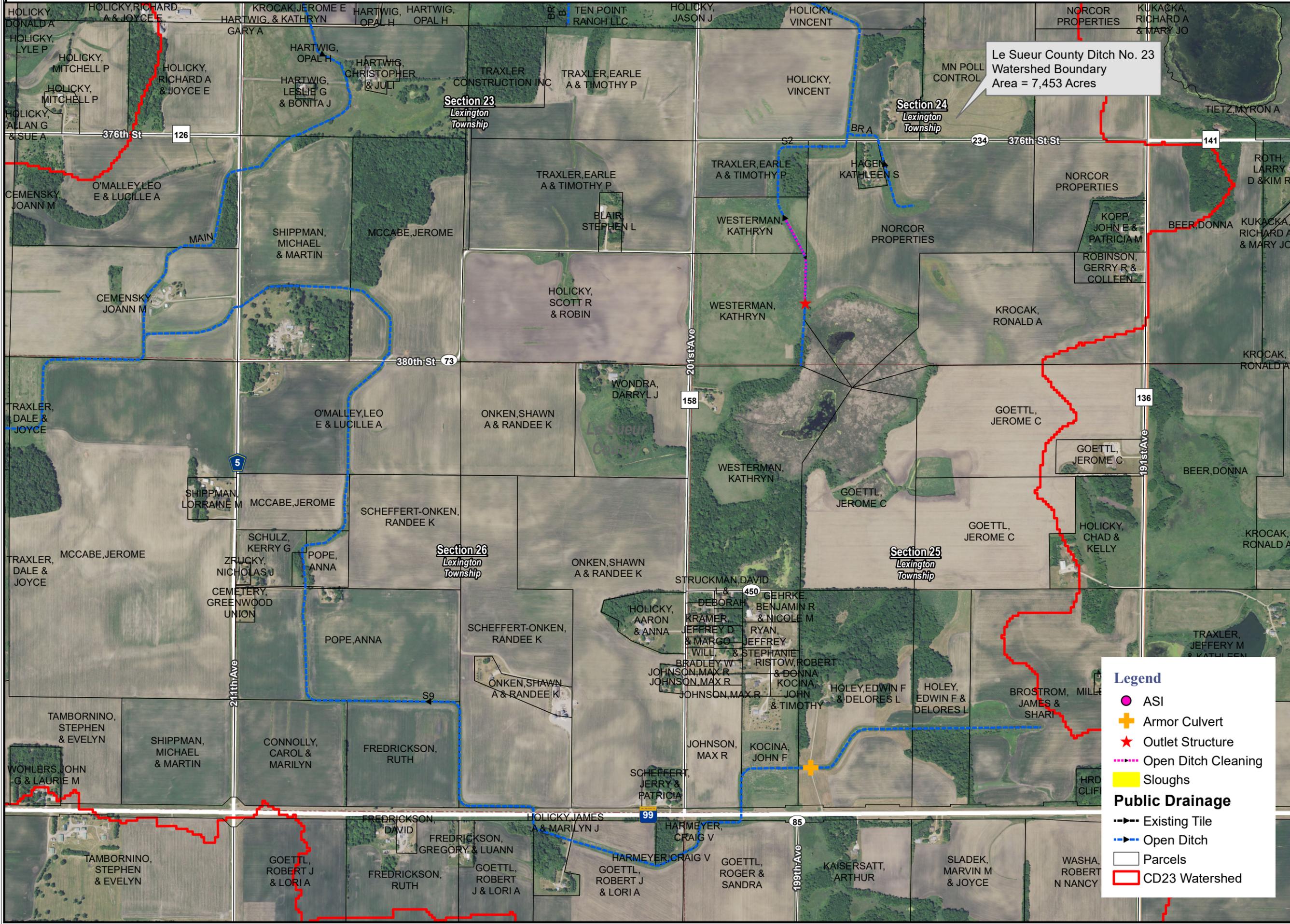
Le Sueur County Ditch No. 23
 Watershed Boundary
 Area = 7,453 Acres

Legend

- ASI
- ★ Outlet Structure
- ✚ Culvert Replacement & Armor
- ✚ Armor Culvert
- ⋯ Open Ditch Cleaning
- Tree Removal
- Sloughs

Public Drainage

- Existing Tile
- Open Ditch
- Parcels
- CD23 Watershed



Le Sueur County Ditch No. 23
Watershed Boundary
Area = 7,453 Acres



Priority Repair
Southwest
County Ditch No. 23
Le Sueur County,
Minnesota
Wednesday, January 4, 2023

PN: 17-20141
Source:
Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



0 245 490 980
Feet
1 inch = 1,042 feet

Legend

- ASI
- ✚ Armor Culvert
- ★ Outlet Structure
- Open Ditch Cleaning
- Sloughs

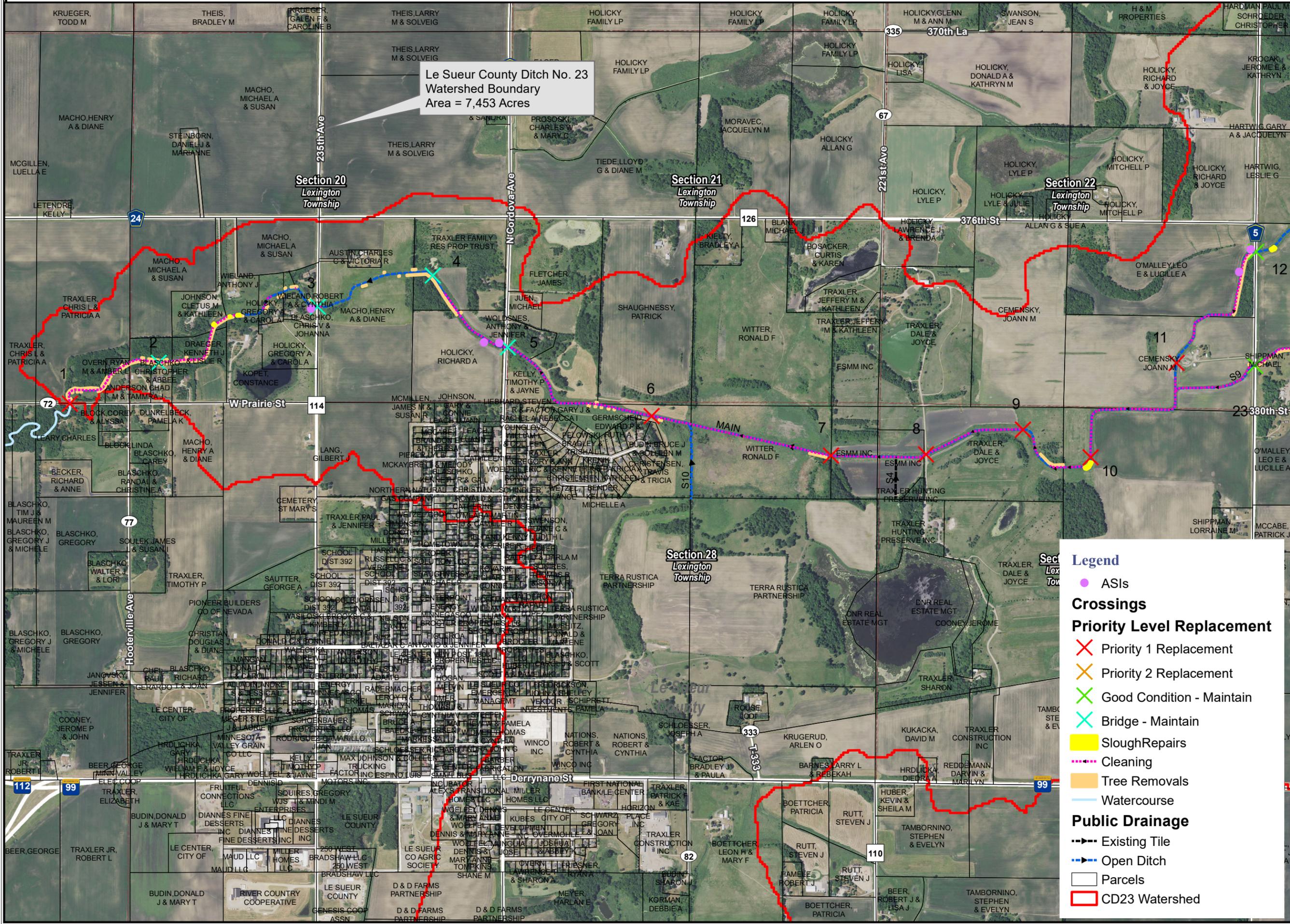
Public Drainage

- Existing Tile
- Open Ditch
- Parcels
- CD23 Watershed





**Option 2
Repair
Map - West**
County Ditch No. 23
Le Sueur County,
Minnesota
Thursday, January 5, 2023



Le Sueur County Ditch No. 23
Watershed Boundary
Area = 7,453 Acres

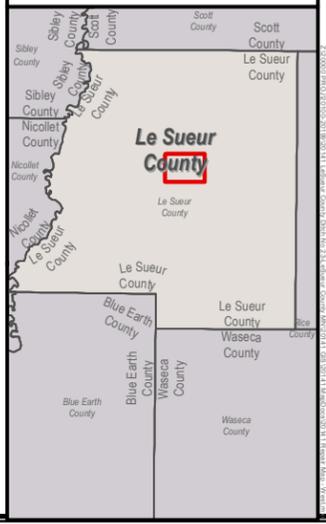
Legend

- ASIs
- Crossings**
- ✗ Priority 1 Replacement
- ✗ Priority 2 Replacement
- ✗ Good Condition - Maintain
- ✗ Bridge - Maintain
- Slough Repairs
- ⋯ Cleaning
- Tree Removals
- Watercourse
- Public Drainage**
- Existing Tile
- Open Ditch
- Parcels
- CD23 Watershed

PN: 17-20141
Source:
Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



0 295 590 1,180
Feet
1 inch = 1,250 feet





**Option 2r
Repair Map -
Southeast
County Ditch No. 23**
Le Sueur County,
Minnesota
Thursday, January 5, 2023

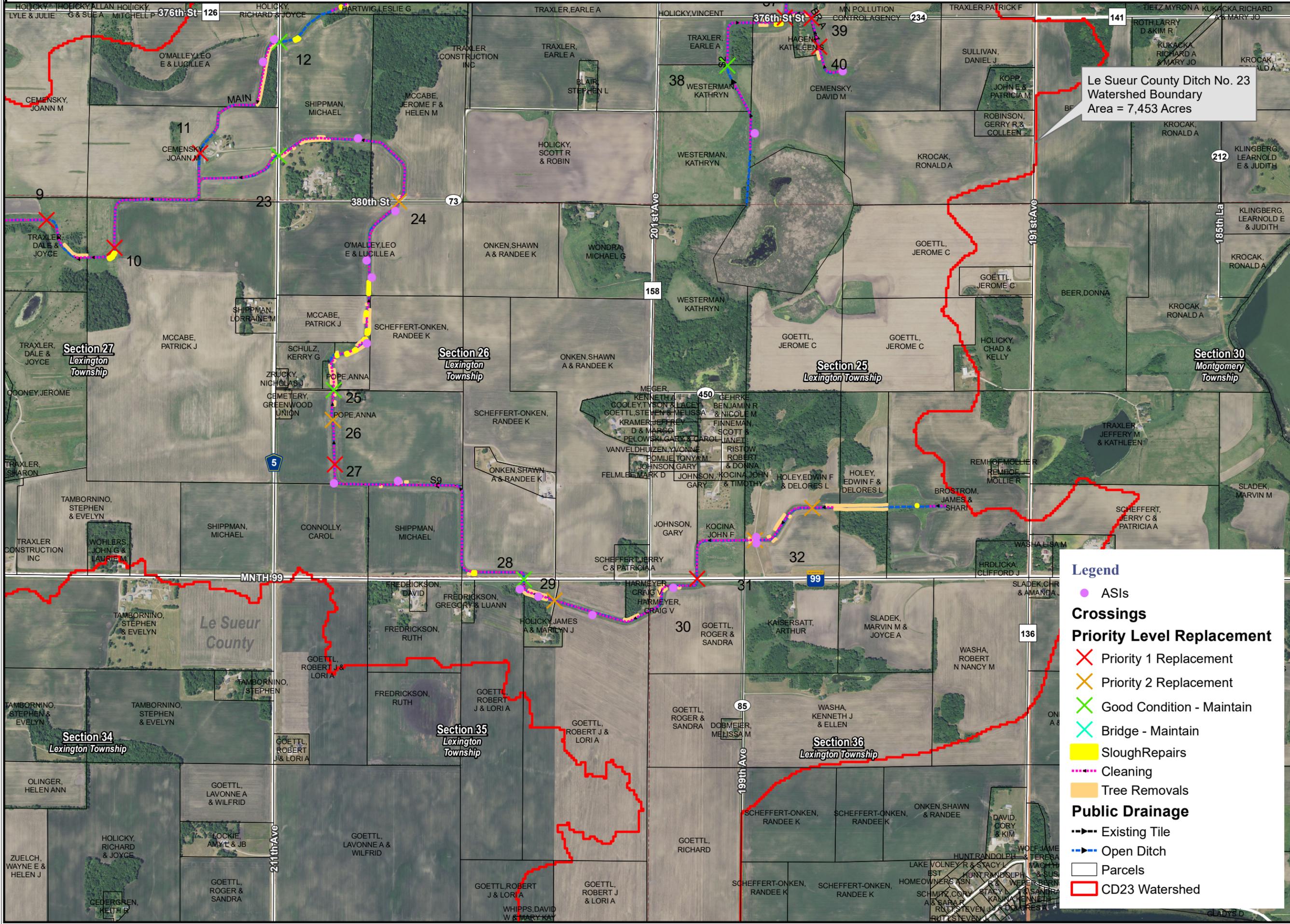
PN: 17-20141

Source:

Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



0 295 590 1,180
Feet
1 inch = 1,250 feet



Le Sueur County Ditch No. 23
Watershed Boundary
Area = 7,453 Acres

Legend

- ASIs
- Crossings**
- ✕ Priority 1 Replacement
- ✕ Priority 2 Replacement
- ✕ Good Condition - Maintain
- ✕ Bridge - Maintain
- Slough Repairs
- ⋯ Cleaning
- Tree Removals
- Public Drainage**
- Existing Tile
- Open Ditch
- Parcels
- CD23 Watershed



**Option 2
Repair Map -
Northeast**
County Ditch No. 23
Le Sueur County,
Minnesota
Thursday, January 5, 2023

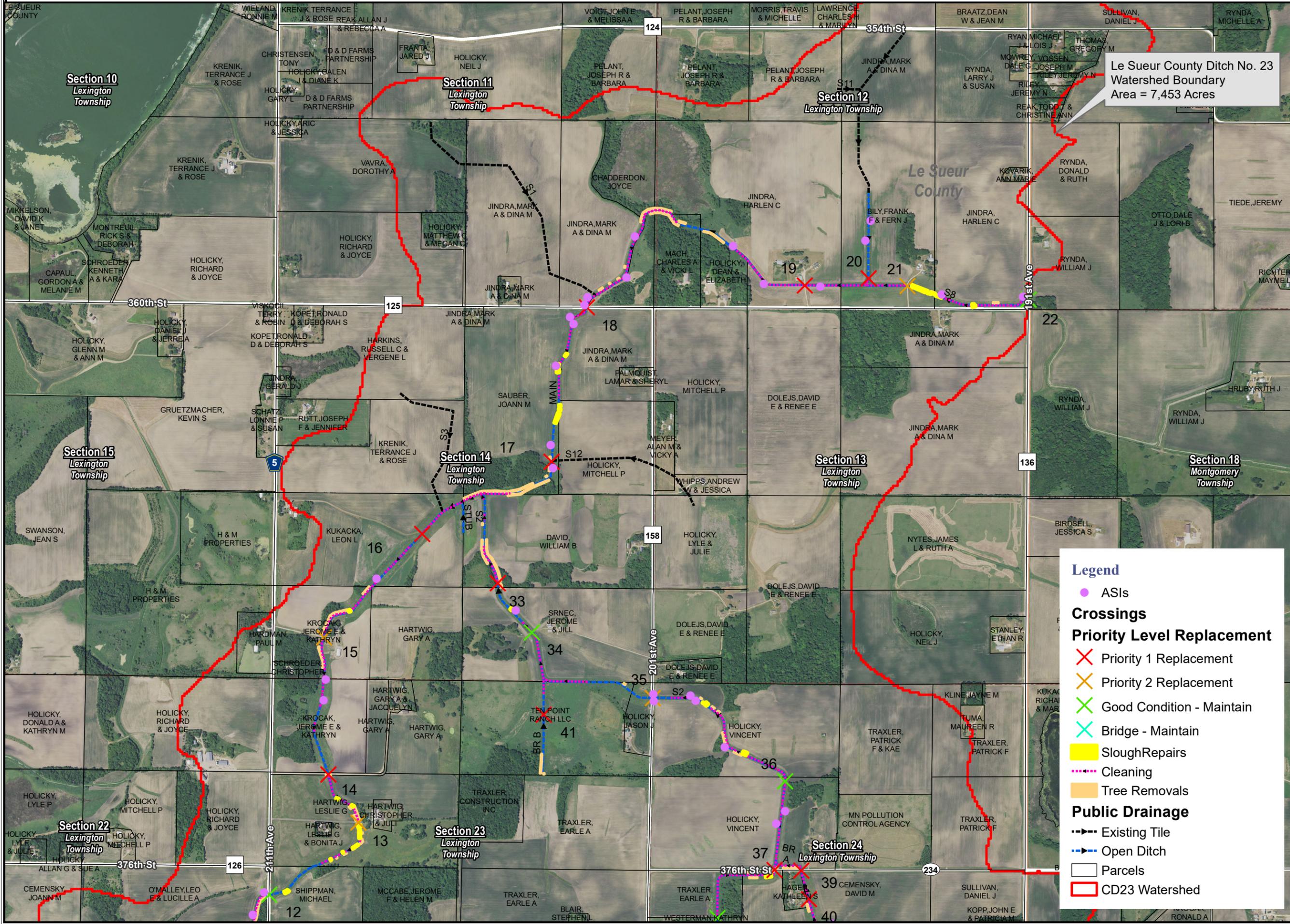
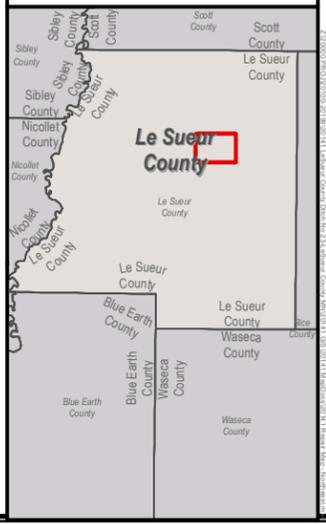
PN: 17-20141

Source:

Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (XX County, 12/16/2016)
Parcels (XX County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



0 300 600 1,200
Feet
1 inch = 1,250 feet



Legend

- ASIs
- Crossings**
- Priority Level Replacement**
- ✕ Priority 1 Replacement
- ✕ Priority 2 Replacement
- ✕ Good Condition - Maintain
- ✕ Bridge - Maintain
- Slough Repairs
- ⋯ Cleaning
- Tree Removals
- Public Drainage**
- Existing Tile
- Open Ditch
- Parcels
- CD23 Watershed



MDM Map
County Ditch No 23
 Le Sueur County,
 Minnesota
 Thursday, November 11, 2021

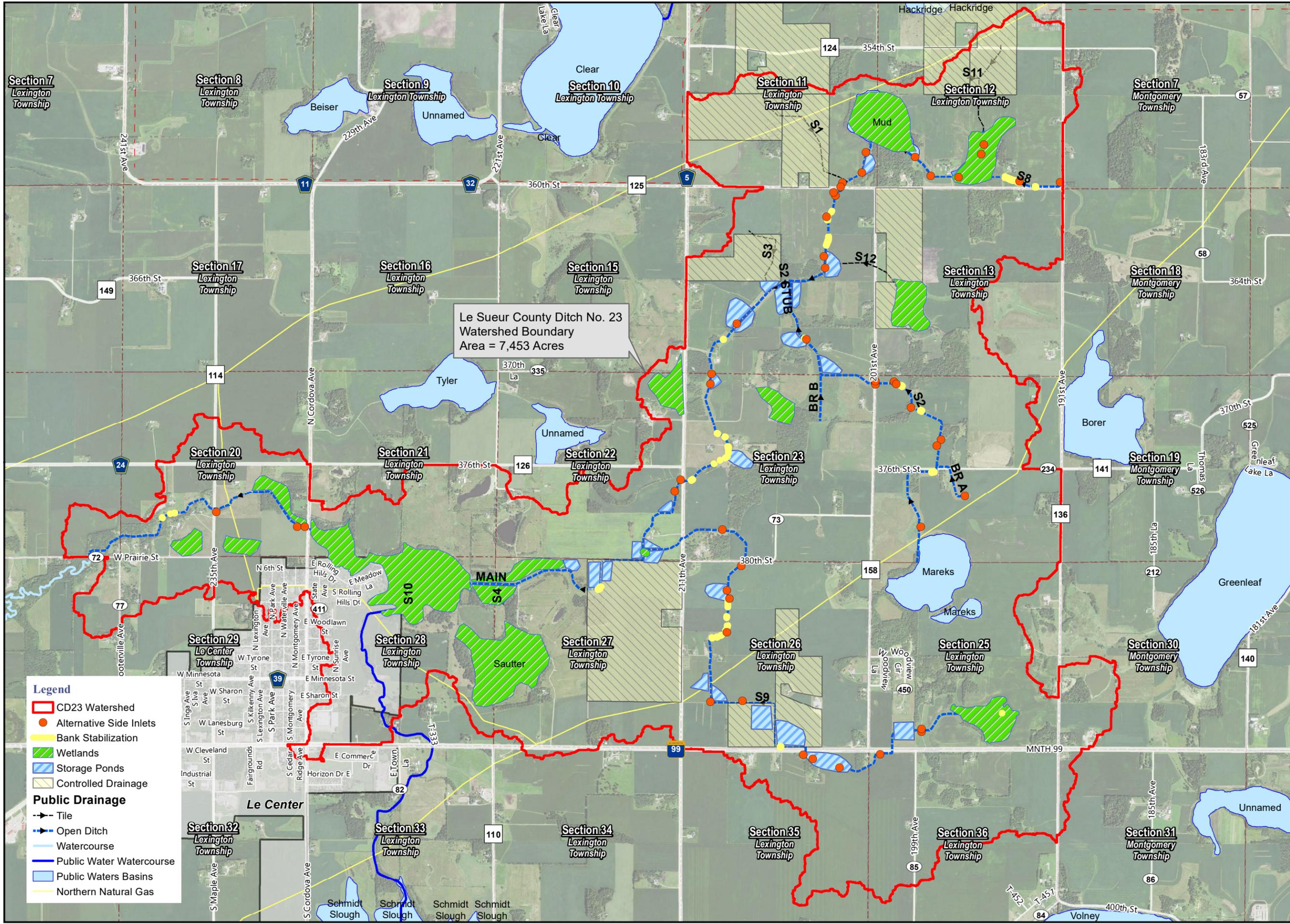
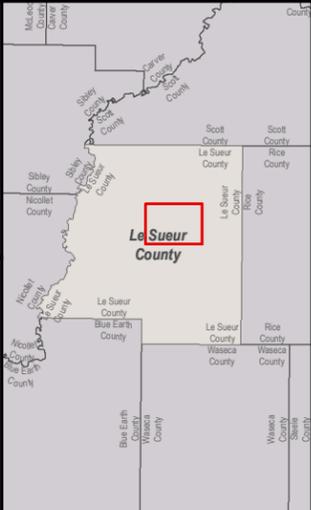
PN: 17-20141

Source:

Orthophotograph (MnGeo WMS, 2015)
 Tile/Ditch (XX County, 12/16/2016)
 Parcels (XX County, 12/16/2016)
 Lakes (MN DNR, July, 2008)
 Major Stream (MN DNR, July 2008)
 Counties (MN DNR, July 2013)
 PLSS (MnGeo/USGS)



0 625 1,250 2,500
 Feet



Le Sueur County Ditch No. 23
 Watershed Boundary
 Area = 7,453 Acres

- Legend**
- CD23 Watershed
 - Alternative Side Inlets
 - Bank Stabilization
 - Wetlands
 - Storage Ponds
 - Controlled Drainage
 - Public Drainage**
 - Tile
 - Open Ditch
 - Watercourse
 - Public Water Watercourse
 - Public Waters Basins
 - Northern Natural Gas

Section 7 Lexington Township
 Section 8 Lexington Township
 Section 9 Lexington Township
 Section 10 Lexington Township
 Section 11 Lexington Township
 Section 12 Lexington Township
 Section 13 Lexington Township
 Section 15 Lexington Township
 Section 16 Lexington Township
 Section 17 Lexington Township
 Section 20 Lexington Township
 Section 21 Lexington Township
 Section 22 Lexington Township
 Section 23 Lexington Township
 Section 26 Lexington Township
 Section 27 Lexington Township
 Section 28 Lexington Township
 Section 29 Le Center Township
 Section 30 Montgomery Township
 Section 31 Montgomery Township
 Section 32 Lexington Township
 Section 33 Lexington Township
 Section 34 Lexington Township
 Section 35 Lexington Township
 Section 36 Lexington Township

Clear Lake La
 Beiser
 Unnamed
 Clear
 Hackridge
 Hackridge
 Mud
 Tyler
 Unnamed
 Mareks
 Mareks
 Sautter
 MAIN
 S10
 S4
 S9
 S2
 S3
 BRB
 S1
 S12
 S8
 BBA
 Borer
 Greenleaf Lake La
 Unnamed
 Schmidt Slough
 Schmidt Slough
 Schmidt Slough
 Schmidt Slough
 Volney

241st Ave
 229th Ave
 227th Ave
 360th St
 125
 5
 124
 354th St
 183rd Ave
 57
 366th St
 149
 114
 36th St
 114
 114
 370th St
 335
 376th St
 126
 211th Ave
 73
 380th St
 158
 376th St
 201st Ave
 191st Ave
 136
 72
 77
 235th Ave
 N 6th St
 E Rolling Hills Dr
 S Rolling Hills Dr
 E Meadow La
 E Woodlawn St
 N Sunrise Ave
 E Tyrone St
 E Minnesota St
 W Tyrone St
 W Sharon St
 W Lanesburg St
 S Lexington Ave
 S Park Ave
 S Park Ave
 S Lexington Ave
 S Montgomery Ave
 S Cedar Ridge Ave
 W Cleveland St
 Industrial St
 Fairgrounds Rd
 S Skikenny Ave
 S Lexington Ave
 S Park Ave
 S Montgomery Ave
 S Cedar Ridge Ave
 E Commerce Dr
 E Town La
 82
 110
 110
 199th Ave
 85
 199th Ave
 85
 185th Ave
 212
 185th Ave
 140
 181st Ave
 140
 400th St
 86
 84
 84

Appendix C: Cost Estimate

**LE SUEUR COUNTY
COUNTY DITCH No. 23**



PROPOSED REPAIR COST SUMMARY

Area	Repair Cost
Crossing #14 - Driveway Crossing (Krocak Repairs)	\$ 21,051
Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Sauber Repairs)	\$ 13,705
Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)	\$ 78,993
Crossing #19 - Driveway Crossing (Jindra Repairs)	\$ 46,548
Spur 8 Open Ditch Cleaning and Side Slope Repairs	\$ 73,529
Crossing #31 - Driveway Crossing (Holey Repairs)	\$ 12,978
Spur 2 Open Ditch Cleaning and Side Slope Repairs (Srncac Repairs)	\$ 51,396
Mareks Lake Outlet Structure Replacement	\$ 66,843
Total Project Costs	\$ 365,043



OPTION 1A: REPAIR COST ESTIMATE

Crossing #14 - Driveway Crossing (Krocak Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,000.00	\$ 1,000
102	DITCH SIDESLOPE REPAIR	LF	335	\$ 6.60	\$ 2,211
103	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.25	\$ 1,388.40	\$ 347
104	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.23	\$ 3,353.70	\$ 771
105	MOWING	AC	0.5	\$ 214.40	\$ 107
106	WEED SPRAYING	AC	0.73	\$ 307.80	\$ 225
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	119	\$ 85.00	\$ 10,115
SUBTOTAL CONSTRUCTION COST					\$ 14,776
10% UNFORSEEN					\$ 1,478
TOTAL CONSTRUCTION COST					\$ 16,254
TEMPORARY DAMAGES		AC	0.25	\$ 650.00	\$ 163
COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)					\$ 813
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,626
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,195
TOTAL CROSSING #14 - DRIVEWAY CROSSING (KROCAK REPAIRS) REPAIR COST					\$ 21,051

Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Sauber Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,000.00	\$ 1,000
102	INSTALL 10-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	3	\$ 737.50	\$ 2,213
103	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	3	\$ 704.90	\$ 2,115
104	DITCH SIDESLOPE REPAIR	LF	227	\$ 6.60	\$ 1,498
105	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.46	\$ 1,388.40	\$ 639
106	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.42	\$ 3,353.70	\$ 1,409
107	MOWING	AC	0.92	\$ 214.40	\$ 197
108	WEED SPRAYING	AC	1.34	\$ 307.80	\$ 412
SUBTOTAL CONSTRUCTION COST					\$ 9,482
10% UNFORSEEN					\$ 948
TOTAL CONSTRUCTION COST					\$ 10,431
TEMPORARY DAMAGES		AC	0.46	\$ 650.00	\$ 299
COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)					\$ 522
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,044
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,409
TOTAL MAINLINE SIDE SLOPE REPAIRS: STA. 314+00 TO 331+00 (SAUBER REPAIRS) REPAIR COST					\$ 13,705



OPTION 1A: REPAIR COST ESTIMATE

Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,600.00	\$ 2,600
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	5187	\$ 3.00	\$ 15,561
103	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.66	\$ 30,000.00	\$ 19,800
104	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	3.93	\$ 1,388.40	\$ 5,456
105	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.79	\$ 3,353.70	\$ 6,003
106	MOWING	AC	7.86	\$ 214.40	\$ 1,685
107	WEED SPRAYING	AC	9.65	\$ 307.80	\$ 2,970
SUBTOTAL CONSTRUCTION COST					\$ 54,076
10% UNFORSEEN					\$ 5,408
TOTAL CONSTRUCTION COST					\$ 59,484
TEMPORARY DAMAGES		AC	3.93	\$ 650.00	\$ 2,555
COUNTY ADMINISTRATION COSTS					\$ 2,975
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,949
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,031
TOTAL MAINLINE OPEN DITCH CLEANING: STA. 331+00 TO 383+50 (JINDRA REPAIRS) REPAIR COST					\$ 78,993

Crossing #19 - Driveway Crossing (Jindra Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,580.00	\$ 1,580
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 433.80	\$ 20,822
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.2	\$ 1,388.40	\$ 278
105	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.2	\$ 3,353.70	\$ 671
106	MOWING	AC	0.4	\$ 214.40	\$ 86
107	WEED SPRAYING	AC	0.6	\$ 307.80	\$ 185
108	INSTALL PERIMETER CONTROL	LF	300	\$ 2.70	\$ 810
109	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	63	\$ 85.00	\$ 5,355
110	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 32,838
10% UNFORSEEN					\$ 3,284
TOTAL CONSTRUCTION COST					\$ 36,121
TEMPORARY DAMAGES		AC	0.20	\$ 650.00	\$ 130
COUNTY ADMINISTRATION COSTS					\$ 1,807
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,613
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,877
TOTAL CROSSING #19 - DRIVEWAY CROSSING (JINDRA REPAIRS) REPAIR COST					\$ 46,548



OPTION 1A: REPAIR COST ESTIMATE

Spur 8 Open Ditch Cleaning and Side Slope Repairs

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,470.00	\$ 2,470
102	INSTALL 10-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 737.50	\$ 738
103	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	1	\$ 704.90	\$ 705
104	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	2271	\$ 3.00	\$ 6,813
105	DITCH SIDESLOPE REPAIR	LF	1747	\$ 6.60	\$ 11,530
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.33	\$ 1,388.40	\$ 1,847
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.81	\$ 3,353.70	\$ 2,716
108	MOWING	AC	2.66	\$ 214.40	\$ 570
109	WEED SPRAYING	AC	3.47	\$ 307.80	\$ 1,068
110	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	270	\$ 85.00	\$ 22,950
SUBTOTAL CONSTRUCTION COST					\$ 51,407
10% UNFORSEEN					\$ 5,141
TOTAL CONSTRUCTION COST					\$ 56,548
TEMPORARY DAMAGES		AC	1.33	\$ 650.00	\$ 865
COUNTY ADMINISTRATION COSTS					\$ 2,828
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,655
CONSTRUCTION STAKING & ADMINISTRATION					\$ 7,634
TOTAL SPUR 8 OPEN DITCH CLEANING AND SIDE SLOPE REPAIRS REPAIR COST					\$ 73,529

Crossing #31 - Driveway Crossing (Holey Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,000.00	\$ 1,000
102	DITCH SIDESLOPE REPAIR	LF	75	\$ 6.60	\$ 495
103	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.2	\$ 1,388.40	\$ 278
104	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.2	\$ 3,353.70	\$ 671
105	MOWING	AC	0.4	\$ 214.40	\$ 86
106	WEED SPRAYING	AC	0.6	\$ 307.80	\$ 185
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	75	\$ 85.00	\$ 6,375
SUBTOTAL CONSTRUCTION COST					\$ 9,089
10% UNFORSEEN					\$ 909
TOTAL CONSTRUCTION COST					\$ 9,998
TEMPORARY DAMAGES		AC	0.20	\$ 650.00	\$ 130
COUNTY ADMINISTRATION COSTS					\$ 500
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,000
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,350
TOTAL CROSSING #31 - DRIVEWAY CROSSING (HOLEY REPAIRS) REPAIR COST					\$ 12,978



OPTION 1A: REPAIR COST ESTIMATE

Spur 2 Open Ditch Cleaning and Side Slope Repairs (Sr nec Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,690.00	\$ 1,690
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	3481	\$ 3.00	\$ 10,443
103	DITCH SIDESLOPE REPAIR	LF	201	\$ 6.60	\$ 1,327
104	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.26	\$ 30,000.00	\$ 7,800
105	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	3.3	\$ 1,388.40	\$ 4,582
106	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.6	\$ 3,353.70	\$ 5,366
107	MOWING	AC	6.6	\$ 214.40	\$ 1,415
108	WEED SPRAYING	AC	8.2	\$ 307.80	\$ 2,524
SUBTOTAL CONSTRUCTION COST					\$ 35,146
10% UNFORSEEN					\$ 3,515
TOTAL CONSTRUCTION COST					\$ 38,661
TEMPORARY DAMAGES		AC	2.64	\$ 650.00	\$ 1,714
COUNTY ADMINISTRATION COSTS					\$ 1,934
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,867
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,220
TOTAL SPUR 2 OPEN DITCH CLEANING AND SIDE SLOPE REPAIRS (SRNEC REPAIRS) REPAIR COST					\$ 51,396

Mareks Lake Outlet Structure Replacement

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,240.00	\$ 2,240
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	934	\$ 3.00	\$ 2,802
103	COMMON BORROW (P) (CV)	CY	25	\$ 10.20	\$ 255
104	36-INCH CLASS III RCP PIPE	LF	50	\$ 164.90	\$ 8,245
105	INSTALL STRUCTURE S-1 WITH GALVINIZED GRATE	EA	1	\$ 19,632.20	\$ 19,632
106	MAJOR UTILITY CROSSING (GAS)	EA	1	\$ 1,998.00	\$ 1,998
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.48	\$ 1,388.40	\$ 2,055
108	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.43	\$ 3,353.70	\$ 1,442
109	MOWING	AC	2.96	\$ 214.40	\$ 635
110	WEED SPRAYING	AC	3.39	\$ 307.80	\$ 1,043
111	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
112	INSTALL PERIMETER CONTROL	LF	300	\$ 2.70	\$ 810
113	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	35	\$ 85.00	\$ 2,975
114	REMOVE EXISTING DROP INTAKE	EA	1	\$ 150.00	\$ 150
115	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 46,607
10% UNFORSEEN					\$ 4,661
TOTAL CONSTRUCTION COST					\$ 51,268
TEMPORARY DAMAGES		AC	1.48	\$ 650.00	\$ 962
COUNTY ADMINISTRATION COSTS					\$ 2,564
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,127
CONSTRUCTION STAKING & ADMINISTRATION					\$ 6,922
TOTAL MAREKS LAKE OUTLET STRUCTURE REPLACEMENT REPAIR COST					\$ 66,843



OPTION 1A: REPAIR COST ESTIMATE

TOTAL REPAIR COST

Crossing #14 - Driveway Crossing (Krocak Repairs)	\$	21,051
Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Saubert Repairs)	\$	13,705
Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)	\$	78,993
Crossing #19 - Driveway Crossing (Jindra Repairs)	\$	46,548
Spur 8 Open Ditch Cleaning and Side Slope Repairs	\$	73,529
Crossing #31 - Driveway Crossing (Holey Repairs)	\$	12,978
Spur 2 Open Ditch Cleaning and Side Slope Repairs (Srnec Repairs)	\$	51,396
Mareks Lake Outlet Structure Replacement	\$	66,843
COMPLETE REPAIR COST		\$ 365,043

**LE SUEUR COUNTY
COUNTY DITCH No. 23**



OPTION 1B: PROPOSED PHASED REPAIR COST SUMMARY

Area	Repair Cost
<i>Year 1</i>	
Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)	\$ 88,839
Crossing #19 - Driveway Crossing (Jindra Repairs)	\$ 52,530
<i>Year 1 Subtotal</i>	<i>\$ 141,369</i>
<i>Year 2</i>	
Crossing #14 - Driveway Crossing (Krocak Repairs)	\$ 25,267
Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Sauber Repairs)	\$ 16,006
Crossing #31 - Driveway Crossing (Holey Repairs)	\$ 15,185
Spur 2 Open Ditch Cleaning and Side Slope Repairs (Srnc)	\$ 62,676
<i>Year 2 Subtotal</i>	<i>\$ 119,134</i>
<i>Year 3</i>	
Spur 8 Open Ditch Cleaning and Side Slope Repairs	\$ 97,168
Mareks Lake Outlet Structure Replacement	\$ 88,267
<i>Year 3 Subtotal</i>	<i>\$ 185,434</i>
Total Project Costs	\$ 445,938



OPTION 1B: PHASED REPAIR COST ESTIMATE

Crossing #14 - Driveway Crossing (Krocak Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,380.00	\$ 1,380
102	DITCH SIDESLOPE REPAIR	LF	335	\$ 6.60	\$ 2,211
103	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.25	\$ 1,388.40	\$ 347
104	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.23	\$ 3,353.70	\$ 771
105	MOWING	AC	0.5	\$ 214.40	\$ 107
106	WEED SPRAYING	AC	0.73	\$ 307.80	\$ 225
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	119	\$ 85.00	\$ 10,115
SUBTOTAL CONSTRUCTION COST					\$ 15,156
15% UNFORSEEN					\$ 2,273
INFLATION COSTS					\$ 1,516
TOTAL CONSTRUCTION COST					\$ 18,946
TEMPORARY DAMAGES		AC	0.25	\$ 650.00	\$ 163
COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)					\$ 948
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,274
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,937
TOTAL CROSSING #14 - DRIVEWAY CROSSING (KROCAK REPAIRS) REPAIR COST					\$ 25,267

Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Sauber Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,000.00	\$ 1,000
102	INSTALL 10-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	3	\$ 737.50	\$ 2,213
103	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	3	\$ 704.90	\$ 2,115
104	DITCH SIDESLOPE REPAIR	LF	227	\$ 6.60	\$ 1,498
105	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.46	\$ 1,388.40	\$ 639
106	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.42	\$ 3,353.70	\$ 1,409
107	MOWING	AC	0.92	\$ 214.40	\$ 197
108	WEED SPRAYING	AC	1.34	\$ 307.80	\$ 412
SUBTOTAL CONSTRUCTION COST					\$ 9,482
15% UNFORSEEN					\$ 1,422
INFLATION COSTS					\$ 948
TOTAL CONSTRUCTION COST					\$ 11,853
TEMPORARY DAMAGES		AC	0.46	\$ 650.00	\$ 299
COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)					\$ 593
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,423
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,838
TOTAL MAINLINE SIDE SLOPE REPAIRS: STA. 314+00 TO 331+00 (SAUBER REPAIRS) REPAIR COST					\$ 16,006



OPTION 1B: PHASED REPAIR COST ESTIMATE

Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 5,150.00	\$ 5,150
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	5187	\$ 3.00	\$ 15,561
103	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.66	\$ 30,000.00	\$ 19,800
104	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	3.93	\$ 1,388.40	\$ 5,456
105	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.79	\$ 3,353.70	\$ 6,003
106	MOWING	AC	7.86	\$ 214.40	\$ 1,685
107	WEED SPRAYING	AC	9.65	\$ 307.80	\$ 2,970
SUBTOTAL CONSTRUCTION COST					\$ 56,626
15% UNFORSEEN					\$ 8,494
INFLATION COSTS					\$ -
TOTAL CONSTRUCTION COST					\$ 65,120
TEMPORARY DAMAGES		AC	3.93	\$ 650.00	\$ 2,555
COUNTY ADMINISTRATION COSTS					\$ 3,256
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 7,815
CONSTRUCTION STAKING & ADMINISTRATION					\$ 10,094
TOTAL MAINLINE OPEN DITCH CLEANING: STA. 331+00 TO 383+50 (JINDRA REPAIRS) REPAIR COST					\$ 88,839

Crossing #19 - Driveway Crossing (Jindra Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,130.00	\$ 3,130
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 433.80	\$ 20,822
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.2	\$ 1,388.40	\$ 278
105	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.2	\$ 3,353.70	\$ 671
106	MOWING	AC	0.4	\$ 214.40	\$ 86
107	WEED SPRAYING	AC	0.6	\$ 307.80	\$ 185
108	INSTALL PERIMETER CONTROL	LF	300	\$ 2.70	\$ 810
109	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	63	\$ 85.00	\$ 5,355
110	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 34,388
15% UNFORSEEN					\$ 5,158
INFLATION COSTS					\$ -
TOTAL CONSTRUCTION COST					\$ 39,546
TEMPORARY DAMAGES		AC	0.20	\$ 650.00	\$ 130
COUNTY ADMINISTRATION COSTS					\$ 1,978
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,746
CONSTRUCTION STAKING & ADMINISTRATION					\$ 6,130
TOTAL CROSSING #19 - DRIVEWAY CROSSING (JINDRA REPAIRS) REPAIR COST					\$ 52,530



OPTION 1B: PHASED REPAIR COST ESTIMATE

Spur 8 Open Ditch Cleaning and Side Slope Repairs

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 4,900.00	\$ 4,900
102	INSTALL 10-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 737.50	\$ 738
103	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	1	\$ 704.90	\$ 705
104	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	2271	\$ 3.00	\$ 6,813
105	DITCH SIDESLOPE REPAIR	LF	1747	\$ 6.60	\$ 11,530
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.33	\$ 1,388.40	\$ 1,847
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.81	\$ 3,353.70	\$ 2,716
108	MOWING	AC	2.66	\$ 214.40	\$ 570
109	WEED SPRAYING	AC	3.47	\$ 307.80	\$ 1,068
110	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	270	\$ 85.00	\$ 22,950
SUBTOTAL CONSTRUCTION COST					\$ 53,837
15% UNFORSEEN					\$ 8,076
INFLATION COSTS					\$ 10,767
TOTAL CONSTRUCTION COST					\$ 72,680
TEMPORARY DAMAGES		AC	1.33	\$ 650.00	\$ 865
COUNTY ADMINISTRATION COSTS					\$ 3,635
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 8,722
CONSTRUCTION STAKING & ADMINISTRATION					\$ 11,266
TOTAL SPUR 8 OPEN DITCH CLEANING AND SIDE SLOPE REPAIRS REPAIR COST					\$ 97,168

Crossing #31 - Driveway Crossing (Holey Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,000.00	\$ 1,000
102	DITCH SIDESLOPE REPAIR	LF	75	\$ 6.60	\$ 495
103	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.2	\$ 1,388.40	\$ 278
104	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.2	\$ 3,353.70	\$ 671
105	MOWING	AC	0.4	\$ 214.40	\$ 86
106	WEED SPRAYING	AC	0.6	\$ 307.80	\$ 185
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	75	\$ 85.00	\$ 6,375
SUBTOTAL CONSTRUCTION COST					\$ 9,089
15% UNFORSEEN					\$ 1,363
INFLATION COSTS					\$ 909
TOTAL CONSTRUCTION COST					\$ 11,361
TEMPORARY DAMAGES		AC	0.20	\$ 650.00	\$ 130
COUNTY ADMINISTRATION COSTS					\$ 569
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,364
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,761
TOTAL CROSSING #31 - DRIVEWAY CROSSING (HOLEY REPAIRS) REPAIR COST					\$ 15,185



OPTION 1B: PHASED REPAIR COST ESTIMATE

Spur 2 Open Ditch Cleaning and Side Slope Repairs (Sr nec Repairs)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,350.00	\$ 3,350
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	3481	\$ 3.00	\$ 10,443
103	DITCH SIDESLOPE REPAIR	LF	201	\$ 6.60	\$ 1,327
104	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.26	\$ 30,000.00	\$ 7,800
105	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	3.3	\$ 1,388.40	\$ 4,582
106	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.6	\$ 3,353.70	\$ 5,366
107	MOWING	AC	6.6	\$ 214.40	\$ 1,415
108	WEED SPRAYING	AC	8.2	\$ 307.80	\$ 2,524
SUBTOTAL CONSTRUCTION COST					\$ 36,806
15% UNFORSEEN					\$ 5,521
INFLATION COSTS					\$ 3,681
TOTAL CONSTRUCTION COST					\$ 46,008
TEMPORARY DAMAGES		AC	2.64	\$ 650.00	\$ 1,714
COUNTY ADMINISTRATION COSTS					\$ 2,301
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,521
CONSTRUCTION STAKING & ADMINISTRATION					\$ 7,132
TOTAL SPUR 2 OPEN DITCH CLEANING AND SIDE SLOPE REPAIRS (SRNEC REPAIRS) REPAIR COST					\$ 62,676

Mareks Lake Outlet Structure Replacement

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 4,440.00	\$ 4,440
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	934	\$ 3.00	\$ 2,802
103	COMMON BORROW (P) (CV)	CY	25	\$ 10.20	\$ 255
104	36-INCH CLASS III RCP PIPE	LF	50	\$ 164.90	\$ 8,245
105	INSTALL STRUCTURE S-1 WITH GALVINIZED GRATE	EA	1	\$ 19,632.20	\$ 19,632
106	MAJOR UTILITY CROSSING (GAS)	EA	1	\$ 1,998.00	\$ 1,998
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.48	\$ 1,388.40	\$ 2,055
108	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.43	\$ 3,353.70	\$ 1,442
109	MOWING	AC	2.96	\$ 214.40	\$ 635
110	WEED SPRAYING	AC	3.39	\$ 307.80	\$ 1,043
111	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
112	INSTALL PERIMETER CONTROL	LF	300	\$ 2.70	\$ 810
113	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	35	\$ 85.00	\$ 2,975
114	REMOVE EXISTING DROP INTAKE	EA	1	\$ 150.00	\$ 150
115	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 48,807
15% UNFORSEEN					\$ 7,321
INFLATION COSTS					\$ 9,761
TOTAL CONSTRUCTION COST					\$ 65,890
TEMPORARY DAMAGES		AC	1.48	\$ 650.00	\$ 962
COUNTY ADMINISTRATION COSTS					\$ 3,295
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 7,907
CONSTRUCTION STAKING & ADMINISTRATION					\$ 10,213
TOTAL MAREKS LAKE OUTLET STRUCTURE REPLACEMENT REPAIR COST					\$ 88,267



OPTION 1B: PHASED REPAIR COST ESTIMATE

TOTAL REPAIR COST

Crossing #14 - Driveway Crossing (Krocak Repairs)	\$	25,267
Mainline Side Slope Repairs: Sta. 314+00 to 331+00 (Saubert Repairs)	\$	16,006
Mainline Open Ditch Cleaning: Sta. 331+00 to 383+50 (Jindra Repairs)	\$	88,839
Crossing #19 - Driveway Crossing (Jindra Repairs)	\$	52,530
Spur 8 Open Ditch Cleaning and Side Slope Repairs	\$	97,168
Crossing #31 - Driveway Crossing (Holey Repairs)	\$	15,185
Spur 2 Open Ditch Cleaning and Side Slope Repairs (Srnec Repairs)	\$	62,676
Mareks Lake Outlet Structure Replacement	\$	88,267
COMPLETE REPAIR COST		\$ 445,938

**LE SUEUR COUNTY
COUNTY DITCH No. 23**



PROPOSED OPEN DITCH REPAIR COST SUMMARY

Area	Repair Cost
Main Open Ditch	\$ 1,103,052
Spur 2 Open Ditch	\$ 254,694
Spur 2 Branch A Open Ditch	\$ 37,941
Spur 2 Branch B Open Ditch	\$ 27,120
Spur 8 Open Ditch	\$ 64,323
Spur 9 Open Ditch	\$ 497,147
Spur 10 Open Ditch	\$ 17,889
Total Open Ditch Repair Cost	\$ 2,002,166
Downstream Unnamed Stream - Tree Snags	\$ 243,698
Total Open Ditch Repair Cost w/ Downstream Restriction Removals	\$ 2,245,863



PROPOSED CULVERT REPAIR COST SUMMARY

Priority 1 Culverts	RCP Costs	RCP & PP Costs	Cost Savings
Main W Prairie Street (Crossing #1)	\$ 140,054	\$ 140,054	\$ -
Main Field Crossing (Crossing #6)	\$ 107,948	\$ 107,948	\$ -
Main Field Crossing (Crossing #7)	\$ 72,459	\$ 72,459	\$ -
Main Hunting Preserve Ln (Crossing #8)	\$ 95,173	\$ 95,173	\$ -
Main Private Field Crossing (Crossing #9)	\$ 49,170	\$ 49,170	\$ -
Main Field Crossing (Crossing #10)	\$ 50,971	\$ 50,971	\$ -
Main Field Crossing (Crossing #11)	\$ 56,557	\$ 56,557	\$ -
Main Private Driveway Crossing (Crossing #14)	\$ 56,926	\$ 56,926	\$ -
Main Field Crossing (Crossing # 16)	\$ 45,384	\$ 45,384	\$ -
Main Field Crossing (Crossing # 17)	\$ 45,384	\$ 45,384	\$ -
Main County Road 125 (Crossing # 18)	\$ 88,383	\$ 88,383	\$ -
Main Driveway Crossing (Crossing # 19)	\$ 56,926	\$ 56,926	\$ -
Main Field Crossing (Crossing # 20)	\$ 39,176	\$ 19,376	\$ 19,801
Spur 9 Field Crossing (Crossing #27)	\$ 30,324	\$ 16,605	\$ 13,719
Spur 9 Highway 99 (Crossing #30)	\$ 82,398	\$ 82,398	\$ -
Spur 2 Field Crossing (Crossing #33)	\$ 49,018	\$ 28,478	\$ 20,540
Spur 2 County Road 141 (Crossing # 37)	\$ 67,836	\$ 67,836	\$ -
Spur 2 Field Crossing (Crossing #38)	\$ 38,702	\$ 19,510	\$ 19,192
Branch A of Spur 2 County Road 141 (Crossing #39)	\$ 32,432	\$ 32,432	\$ -
Branch A of Spur 2 Field Crossing (Crossing #40)	\$ 18,587	\$ 15,690	\$ 2,896
Branch B of Spur 2 Field Crossing (Crossing #41)	\$ 35,452	\$ 18,126	\$ 17,326
<i>Road Crossings Costs</i>	\$ 271,048	\$ 271,048	\$ -
<i>Landowner Crossings Costs</i>	\$ 988,212	\$ 894,738	\$ 93,474
Total Project Costs	\$ 1,259,260	\$ 1,165,786	\$ 93,474

Priority 2 Culverts	RCP Costs	RCP & PP Costs	Cost Savings
Main Driveway Crossing (Crossing # 13)	\$ 56,926	\$ 56,926	\$ -
Main Driveway Crossing (Crossing #15)	\$ 78,218	\$ 78,218	\$ -
Spur 8 Driveway Crossing (Crossing # 21)	\$ 52,491	\$ 29,732	\$ 22,759
Spur 9 380th Street (Crossing # 24)	\$ 81,387	\$ 81,387	\$ -
Spur 9 Field Crossing (Crossing #26)	\$ 75,396	\$ 39,995	\$ 35,400
Spur 9 Driveway Crossing (Crossing #29)	\$ 64,224	\$ 28,565	\$ 35,660
Spur 9 Driveway Crossing (Crossing #31)	\$ 51,650	\$ 24,222	\$ 27,428
Spur 9 Field Crossing (Crossing #32)	\$ 51,280	\$ 23,853	\$ 27,427
Spur 2 County Road 158 (Crossing #35)	\$ 79,599	\$ 79,599	\$ -
<i>Road Crossings Cost</i>	\$ 160,986	\$ 160,986	\$ -
<i>Landowner Crossing Costs</i>	\$ 430,185	\$ 281,511	\$ 148,674
Total Project Costs for Landowners	\$ 591,171	\$ 442,497	\$ 148,674

Combine Priority 1 & Priority 2 Culvert Repair Costs	RCP Costs	RCP & PP Costs	Cost Savings
<i>Road Crossings Cost</i>	\$ 432,033	\$ 432,033	\$ -
<i>Landowner Crossing Costs</i>	\$ 1,418,398	\$ 1,176,249	\$ 242,148
Total Project Costs for Landowners	\$ 1,850,431	\$ 1,608,283	\$ 242,148

**LE SUEUR COUNTY
COUNTY DITCH No. 23**



PROPOSED TILE REPAIR COST SUMMARY

Area	Repair Cost
Main Tile	\$ 141,257
Spur 1 Tile	\$ 196,519
Spur 3 Tile	\$ 114,120
Spur 4 Tile	\$ 33,438
Spur 11 Tile	\$ 18,504
Spur 12 Tile	\$ 110,344
Total Cost	\$ 614,183



OPEN DITCH REPAIR COST ESTIMATE
Main Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 27,730.00	\$ 27,730
102	INSTALL 24-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	5	\$ 1,786.90	\$ 8,935
103	INSTALL 12-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	3	\$ 1,292.60	\$ 3,878
104	INSTALL 12-INCH ASI RISER ASSEMBLY W/STANDARD HICKENBOTTOM	EA	4	\$ 1,878.00	\$ 7,512
105	INSTALL 10-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	7	\$ 737.50	\$ 5,163
106	INSTALL 10-INCH ASI RISER ASSEMBLY W/STANDARD HICKENBOTTOM	EA	3	\$ 1,201.70	\$ 3,605
107	INSTALL 24-INCH ASI OUTLET ASSEMBLY	EA	5	\$ 1,250.30	\$ 6,252
108	INSTALL 12-INCH ASI OUTLET ASSEMBLY	EA	7	\$ 1,210.40	\$ 8,473
109	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	10	\$ 704.90	\$ 7,049
110	CLASS III RIPRAP WITH GEOTEXTILE FABRIC (FOR ASIRO)	CY	120	\$ 85.90	\$ 10,308
111	DITCH CLEANING (16' WIDE DITCH BOTTOM)	LF	7779	\$ 4.60	\$ 35,783
112	DITCH CLEANING (14' WIDE DITCH BOTTOM)	LF	1840	\$ 4.00	\$ 7,360
113	DITCH CLEANING (12' WIDE DITCH BOTTOM)	LF	2325	\$ 3.30	\$ 7,673
114	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	17308	\$ 2.60	\$ 45,001
115	DITCH SIDESLOPE REPAIR	LF	4985	\$ 6.60	\$ 32,901
116	36-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 2,169.70	\$ 2,170
117	24-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	4	\$ 1,609.20	\$ 6,437
118	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 1,300.20	\$ 3,901
119	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	9	\$ 1,225.20	\$ 11,027
120	12-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	7	\$ 1,076.80	\$ 7,538
121	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	5	\$ 1,050.70	\$ 5,254
122	8-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	6	\$ 962.00	\$ 5,772
123	6-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	19	\$ 806.60	\$ 15,325
124	4-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	3	\$ 703.20	\$ 2,110
125	ARMOR TILE OUTLET (RIPRAP & GEOTEXTILE FABRIC)	EA	12	\$ 549.30	\$ 6,592
126	MAJOR UTILITY CROSSING (GAS)	EA	1	\$ 1,998.00	\$ 1,998
127	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	8.72	\$ 30,000.00	\$ 261,600
128	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	22.17	\$ 1,388.40	\$ 30,781
129	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	13.44	\$ 3,353.70	\$ 45,074
130	MOWING	AC	44.34	\$ 214.40	\$ 9,506
131	WEED SPRAYING	AC	57.78	\$ 307.80	\$ 17,785
132	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	384	\$ 75.80	\$ 29,107
133	REMOVE FENCE	LF	220	\$ 5.50	\$ 1,210
134	REMOVE & REINSTALL FENCE	LF	4985	\$ 7.25	\$ 36,141
135	REMOVE EXISTING SIDE INTAKE	EA	4	\$ 250.00	\$ 1,000
136	REMOVE BEAVER DAM	EA	2	\$ 500.00	\$ 1,000
SUBTOTAL CONSTRUCTION COST					\$ 717,947
15% UNFORSEEN					\$ 107,692
TOTAL CONSTRUCTION COST					\$ 825,639
TEMPORARY DAMAGES		AC	22.16	\$ 650.00	\$ 14,404
COUNTY ADMINISTRATION COSTS					\$ 41,282
TOPOGRAPHIC SURVEY					\$ 27,701
REPORTS, PLANS AND SPECIFICATIONS					\$ 82,564
CONSTRUCTION STAKING & ADMINISTRATION					\$ 111,462
TOTAL MAIN OPEN DITCH REPAIR COST					\$ 1,103,052



OPEN DITCH REPAIR COST ESTIMATE

Spur 2 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 7,850.00	\$ 7,850
102	INSTALL 24-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	3	\$ 1,786.90	\$ 5,361
103	INSTALL 15-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	3	\$ 1,477.30	\$ 4,432
104	INSTALL 12-INCH ASI RISER ASSEMBLY W/STANDARD HICKENBOTTOM	EA	2	\$ 1,878.00	\$ 3,756
105	INSTALL 10-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 737.50	\$ 738
106	INSTALL 24-INCH ASI OUTLET ASSEMBLY	EA	4	\$ 1,250.30	\$ 5,001
107	INSTALL 15-INCH ASI OUTLET ASSEMBLY	EA	3	\$ 949.70	\$ 2,849
108	INSTALL 12-INCH ASI OUTLET ASSEMBLY	EA	2	\$ 1,210.40	\$ 2,421
109	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	1	\$ 704.90	\$ 705
110	CLASS III RIPRAP WITH GEOTEXTILE FABRIC (FOR ASIRO)	CY	60	\$ 85.90	\$ 5,154
111	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	7881	\$ 2.60	\$ 20,491
112	DITCH SIDESLOPE REPAIR	LF	870	\$ 6.60	\$ 5,742
113	24-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,609.20	\$ 1,609
114	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,300.20	\$ 1,300
115	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,225.20	\$ 1,225
116	12-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	4	\$ 1,076.80	\$ 4,307
117	8-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	9	\$ 962.00	\$ 8,658
118	6-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	4	\$ 806.60	\$ 3,226
119	ARMOR TILE OUTLET (RIPRAP & GEOTEXTILE FABRIC)	EA	4	\$ 549.30	\$ 2,197
120	INSTALL STRUCTURE S-1 WITH GALVANIZED GRATE	EA	1	\$ 19,632.20	\$ 19,632
121	MAJOR UTILITY CROSSING (GAS)	EA	1	\$ 1,998.00	\$ 1,998
122	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.83	\$ 30,000.00	\$ 24,900
123	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	5.98	\$ 1,388.40	\$ 8,303
124	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	3.62	\$ 3,353.70	\$ 12,140
125	MOWING	AC	11.96	\$ 214.40	\$ 2,564
126	WEED SPRAYING	AC	15.58	\$ 307.80	\$ 4,796
127	REMOVE CONCRETE HEADWALL	EA	1	\$ 2,025.00	\$ 2,025
128	REMOVE EXISTING DROP INTAKE	EA	2	\$ 147.50	\$ 295
129	REMOVE EXISTING SIDE INTAKE	EA	4	\$ 250.00	\$ 1,000
130	REMOVE EXISTING TILE (SIZE & MATERIAL MAY VARY)	LF	1	\$ 2.20	\$ 2
SUBTOTAL CONSTRUCTION COST					\$ 164,675
15% UNFORSEEN					\$ 24,701
TOTAL CONSTRUCTION COST					\$ 189,376
TEMPORARY DAMAGES		AC	5.97	\$ 650.00	\$ 3,881
COUNTY ADMINISTRATION COSTS					\$ 9,469
TOPOGRAPHIC SURVEY					\$ 7,464
REPORTS, PLANS AND SPECIFICATIONS					\$ 18,938
CONSTRUCTION STAKING & ADMINISTRATION					\$ 25,566
TOTAL SPUR 2 OPEN DITCH REPAIR COST					\$ 254,694



OPEN DITCH REPAIR COST ESTIMATE

Spur 2 Branch A Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,180.00	\$ 1,180
102	INSTALL 24-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 1,786.90	\$ 1,787
103	INSTALL 24-INCH ASI OUTLET ASSEMBLY	EA	1	\$ 1,250.30	\$ 1,250
104	CLASS III RIPRAP WITH GEOTEXTILE FABRIC (FOR ASIRO)	CY	30	\$ 85.90	\$ 2,577
105	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	1285	\$ 2.60	\$ 3,341
106	DITCH SIDESLOPE REPAIR	LF	20	\$ 6.60	\$ 132
107	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,300.20	\$ 1,300
108	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,225.20	\$ 1,225
109	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,050.70	\$ 1,051
110	ARMOR TILE OUTLET (RIPRAP & GEOTEXTILE FABRIC)	EA	1	\$ 549.30	\$ 549
111	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.12	\$ 30,000.00	\$ 3,600
112	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.98	\$ 1,388.40	\$ 1,361
113	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.59	\$ 3,353.70	\$ 1,979
114	MOWING	AC	1.96	\$ 214.40	\$ 420
115	WEED SPRAYING	AC	2.55	\$ 307.80	\$ 785
116	REMOVE & REINSTALL FENCE	LF	260	\$ 7.25	\$ 1,885
117	REMOVE EXISTING SIDE INTAKE	EA	1	\$ 250.00	\$ 250
SUBTOTAL CONSTRUCTION COST					\$ 24,422
15% UNFORSEEN					\$ 3,663
TOTAL CONSTRUCTION COST					\$ 28,085
TEMPORARY DAMAGES		AC	0.97	\$ 650.00	\$ 633
COUNTY ADMINISTRATION COSTS					\$ 1,405
TOPOGRAPHIC SURVEY					\$ 1,217
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,809
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,792
TOTAL SPUR 2 BRANCH A OPEN DITCH REPAIR COST					\$ 37,941

Spur 2 Branch B Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 820.00	\$ 820
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	1349	\$ 2.60	\$ 3,507
103	24-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,609.20	\$ 1,609
104	ARMOR TILE OUTLET (RIPRAP & GEOTEXTILE FABRIC)	EA	1	\$ 549.30	\$ 549
105	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.22	\$ 30,000.00	\$ 6,600
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.03	\$ 1,388.40	\$ 1,430
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.62	\$ 3,353.70	\$ 2,079
108	MOWING	AC	2.06	\$ 214.40	\$ 442
109	WEED SPRAYING	AC	2.68	\$ 307.80	\$ 825
SUBTOTAL CONSTRUCTION COST					\$ 17,037
15% UNFORSEEN					\$ 2,556
TOTAL CONSTRUCTION COST					\$ 19,593
TEMPORARY DAMAGES		AC	1.02	\$ 650.00	\$ 664
COUNTY ADMINISTRATION COSTS					\$ 980
TOPOGRAPHIC SURVEY					\$ 1,278
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,960
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,645
TOTAL SPUR 2 BRANCH B OPEN DITCH REPAIR COST					\$ 27,120



OPEN DITCH REPAIR COST ESTIMATE

Spur 8 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,990.00	\$ 1,990
102	INSTALL 24-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 1,786.90	\$ 1,787
103	INSTALL 10-INCH ASI RISER ASSEMBLY W/STANDARD HICKENBOTTOM	EA	1	\$ 1,201.70	\$ 1,202
104	INSTALL 24-INCH ASI OUTLET ASSEMBLY	EA	1	\$ 1,250.30	\$ 1,250
105	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	1	\$ 704.90	\$ 705
106	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	2274	\$ 2.60	\$ 5,912
107	DITCH SIDESLOPE REPAIR	LF	1722	\$ 6.60	\$ 11,365
108	24-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,609.20	\$ 1,609
109	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 1,300.20	\$ 2,600
110	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,225.20	\$ 1,225
111	6-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 806.60	\$ 1,613
112	ARMOR TILE OUTLET (RIPRAP & GEOTEXTILE FABRIC)	EA	2	\$ 549.30	\$ 1,099
113	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	0.03	\$ 30,000.00	\$ 900
114	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.73	\$ 1,388.40	\$ 2,402
115	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.05	\$ 3,353.70	\$ 3,521
116	MOWING	AC	3.46	\$ 214.40	\$ 742
117	WEED SPRAYING	AC	4.51	\$ 307.80	\$ 1,388
118	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	209	\$ 75.80	\$ 15,842
SUBTOTAL CONSTRUCTION COST					\$ 41,311
15% UNFORSEEN					\$ 6,197
TOTAL CONSTRUCTION COST					\$ 47,508
TEMPORARY DAMAGES		AC	1.72	\$ 650.00	\$ 1,120
COUNTY ADMINISTRATION COSTS					\$ 2,376
TOPOGRAPHIC SURVEY					\$ 2,154
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,751
CONSTRUCTION STAKING & ADMINISTRATION					\$ 6,414
TOTAL SPUR 8 OPEN DITCH REPAIR COST					\$ 64,323



OPEN DITCH REPAIR COST ESTIMATE

Spur 9 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 12,660.00	\$ 12,660
102	INSTALL 24-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	7	\$ 1,786.90	\$ 12,508
103	INSTALL 18-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 1,743.80	\$ 1,744
104	INSTALL 15-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 1,477.30	\$ 1,477
105	INSTALL 12-INCH ASI RISER ASSEMBLY W/TRASH GRATE	EA	1	\$ 1,292.60	\$ 1,293
106	INSTALL 12-INCH ASI RISER ASSEMBLY W/STANDARD HICKENBOTTOM	EA	1	\$ 1,878.00	\$ 1,878
107	INSTALL 10-INCH ASI RISER ASSEMBLY W/STANDARD HICKENBOTTOM	EA	1	\$ 1,201.70	\$ 1,202
108	INSTALL 8-INCH ASI RISER ASSEMBLY W/STANDARD HICKENBOTTOM	EA	1	\$ 1,023.40	\$ 1,023
109	INSTALL 24-INCH ASI OUTLET ASSEMBLY	EA	7	\$ 1,250.30	\$ 8,752
110	INSTALL 18-INCH ASI OUTLET ASSEMBLY	EA	1	\$ 964.20	\$ 964
111	INSTALL 15-INCH ASI OUTLET ASSEMBLY	EA	1	\$ 949.70	\$ 950
112	INSTALL 12-INCH ASI OUTLET ASSEMBLY	EA	2	\$ 1,210.40	\$ 2,421
113	INSTALL 10-INCH ASI OUTLET ASSEMBLY	CY	1	\$ 704.90	\$ 705
114	INSTALL 8-INCH ASI OUTLET ASSEMBLY	EA	1	\$ 442.00	\$ 442
115	CLASS III RIPRAP WITH GEOTEXTILE FABRIC (FOR ASIRO)	CY	60	\$ 85.90	\$ 5,154
116	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	16535	\$ 2.60	\$ 42,991
117	DITCH SIDESLOPE REPAIR	LF	2156	\$ 6.60	\$ 14,230
118	36-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 2,169.70	\$ 2,170
119	18-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	4	\$ 1,300.20	\$ 5,201
120	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	5	\$ 1,225.20	\$ 6,126
121	12-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	10	\$ 1,076.80	\$ 10,768
122	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 1,050.70	\$ 2,101
123	8-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	12	\$ 962.00	\$ 11,544
124	6-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	9	\$ 806.60	\$ 7,259
125	ARMOR TILE OUTLET (RIPRAP & GEOTEXTILE FABRIC)	EA	9	\$ 549.30	\$ 4,944
126	MAJOR UTILITY CROSSING (GAS)	EA	1	\$ 1,998.00	\$ 1,998
127	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	2.8	\$ 30,000.00	\$ 84,000
128	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	12.53	\$ 1,388.40	\$ 17,397
129	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	7.6	\$ 3,353.70	\$ 25,488
130	MOWING	AC	25.06	\$ 214.40	\$ 5,373
131	WEED SPRAYING	AC	32.66	\$ 307.80	\$ 10,053
132	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	\$ 75.80	\$ 3,790
133	REMOVE & REINSTALL FENCE	LF	1615	\$ 7.25	\$ 11,709
134	REMOVE EXISTING SIDE INTAKE	EA	4	\$ 250.00	\$ 1,000
SUBTOTAL CONSTRUCTION COST					\$ 320,314
15% UNFORSEEN					\$ 48,047
TOTAL CONSTRUCTION COST					\$ 368,361
TEMPORARY DAMAGES		AC	12.53	\$ 650.00	\$ 8,142
COUNTY ADMINISTRATION COSTS					\$ 18,419
TOPOGRAPHIC SURVEY					\$ 15,659
REPORTS, PLANS AND SPECIFICATIONS					\$ 36,837
CONSTRUCTION STAKING & ADMINISTRATION					\$ 49,729
TOTAL SPUR 9 OPEN DITCH REPAIR COST					\$ 497,147



OPEN DITCH REPAIR COST ESTIMATE

Spur 10 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 530.00	\$ 530
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	1113	\$ 2.60	\$ 2,894
103	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.85	\$ 1,388.40	\$ 1,180
104	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.52	\$ 3,353.70	\$ 1,744
105	MOWING	AC	1.7	\$ 214.40	\$ 364
106	WEED SPRAYING	AC	2.22	\$ 307.80	\$ 683
107	REMOVE & REINSTALL FENCE	LF	500	\$ 7.25	\$ 3,625
SUBTOTAL CONSTRUCTION COST					\$ 11,021
15% UNFORSEEN					\$ 1,653
TOTAL CONSTRUCTION COST					\$ 12,674
TEMPORARY DAMAGES		AC	0.84	\$ 650.00	\$ 548
COUNTY ADMINISTRATION COSTS					\$ 634
TOPOGRAPHIC SURVEY					\$ 1,054
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,268
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,711
TOTAL SPUR 10 OPEN DITCH REPAIR COST					\$ 17,889

Downstream Unnamed Stream - Tree Snags

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 7,910.00	\$ 7,910
102	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	5	\$ 30,000.00	\$ 150,000
103	REMOVE TREE SNAG	EA	10	\$ 700.00	\$ 7,000
SUBTOTAL CONSTRUCTION COST					\$ 164,910
15% UNFORSEEN					\$ 24,737
TOTAL CONSTRUCTION COST					\$ 189,647
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 9,483
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 18,965
CONSTRUCTION STAKING & ADMINISTRATION					\$ 25,603
TOTAL DOWNSTREAM UNNAMED STREAM - TREE SNAGS REPAIR COST					\$ 243,698



OPEN DITCH REPAIR COST ESTIMATE

TOTAL OPEN DITCH REPAIR COST

Main Open Ditch	\$	1,103,052
Spur 2 Open Ditch	\$	254,694
Spur 2 Branch A Open Ditch	\$	37,941
Spur 2 Branch B Open Ditch	\$	27,120
Spur 8 Open Ditch	\$	64,323
Spur 9 Open Ditch	\$	497,147
Spur 10 Open Ditch	\$	17,889
Downstream Unnamed Stream - Tree Snags	\$	243,698
COMPLETE REPAIR COST		\$ 2,245,863



Culvert Repair Cost Estimate
Priority 1 Culverts - All RCP Replacements

Main W Prairie Street (Crossing #1)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 4,550.00	\$ 4,550
102	10-FOOT x 6-FOOT RC BOX CULVERT	LF	48	\$ 1,300.00	\$ 62,400
103	10-FOOT x 6-FOOT RC BOX CULVERT END SECTION	EA	2	\$ 6,750.00	\$ 13,500
104	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
106	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	122	\$ 75.80	\$ 9,248
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 94,774
15% UNFORSEEN					\$ 14,216
TOTAL CONSTRUCTION COST					\$ 108,990
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 5,450
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 10,900
CONSTRUCTION STAKING & ADMINISTRATION					\$ 14,714
TOTAL MAIN W PRAIRIE STREET (CROSSING #1) REPAIR COST					\$ 140,054

Main Field Crossing (Crossing #6)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,510.00	\$ 3,510
102	84-INCH CLASS III RCP PIPE	LF	84	\$ 700.00	\$ 58,800
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
105	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	65	\$ 75.80	\$ 4,927
107	REMOVE CMP CULVERT	EA	2	\$ 975.00	\$ 1,950
SUBTOTAL CONSTRUCTION COST					\$ 73,048
15% UNFORSEEN					\$ 10,957
TOTAL CONSTRUCTION COST					\$ 84,005
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 4,201
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 8,401
CONSTRUCTION STAKING & ADMINISTRATION					\$ 11,341
TOTAL MAIN FIELD CROSSING (CROSSING #6) REPAIR COST					\$ 107,948



Culvert Repair Cost Estimate

Main Field Crossing (Crossing #7)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,360.00	\$ 2,360
102	96-INCH CLASS III RCP PIPE	LF	36	\$ 1,000.00	\$ 36,000
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
105	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	77	\$ 75.80	\$ 5,837
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 49,033
15% UNFORSEEN					\$ 7,355
TOTAL CONSTRUCTION COST					\$ 56,387
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,820
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,639
CONSTRUCTION STAKING & ADMINISTRATION					\$ 7,613
TOTAL MAIN FIELD CROSSING (CROSSING #7) REPAIR COST					\$ 72,459

Main Hunting Preserve Ln (Crossing #8)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,090.00	\$ 3,090
102	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
104	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	77	\$ 75.80	\$ 5,837
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	78" X 122" RC PIPE CULVERT CLASS III	LF	42	\$ 1,200.00	\$ 50,400
SUBTOTAL CONSTRUCTION COST					\$ 64,403
15% UNFORSEEN					\$ 9,660
TOTAL CONSTRUCTION COST					\$ 74,063
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,704
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 7,407
CONSTRUCTION STAKING & ADMINISTRATION					\$ 9,999
TOTAL MAIN HUNTING PRESERVE LN (CROSSING #8) REPAIR COST					\$ 95,173



Culvert Repair Cost Estimate

Main Private Field Crossing (Crossing #9)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,600.00	\$ 1,600
102	84-INCH CLASS III RCP PIPE	LF	30	\$ 700.00	\$ 21,000
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
105	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	77	\$ 75.80	\$ 5,837
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 33,273
15% UNFORSEEN					\$ 4,991
TOTAL CONSTRUCTION COST					\$ 38,263
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,914
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,827
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,166
TOTAL MAIN PRIVATE FIELD CROSSING (CROSSING #9) REPAIR COST					\$ 49,170

Main Field Crossing (Crossing #10)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,660.00	\$ 1,660
102	72-INCH CLASS III RCP PIPE	LF	42	\$ 600.00	\$ 25,200
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 34,491
15% UNFORSEEN					\$ 5,174
TOTAL CONSTRUCTION COST					\$ 39,665
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,984
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,967
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,355
TOTAL MAIN FIELD CROSSING (CROSSING #10) REPAIR COST					\$ 50,971



Culvert Repair Cost Estimate

Main Field Crossing (Crossing #11)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,840.00	\$ 1,840
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,271
15% UNFORSEEN					\$ 5,741
TOTAL CONSTRUCTION COST					\$ 44,012
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,201
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,402
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,942
TOTAL MAIN FIELD CROSSING (CROSSING #11) REPAIR COST					\$ 56,557

Main Private Driveway Crossing (Crossing #14)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,850.00	\$ 1,850
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,522
15% UNFORSEEN					\$ 5,778
TOTAL CONSTRUCTION COST					\$ 44,300
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,215
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,430
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,981
TOTAL MAIN PRIVATE DRIVEWAY CROSSING (CROSSING #14) REPAIR COST					\$ 56,926



Culvert Repair Cost Estimate

Main Field Crossing (Crossing # 16)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,480.00	\$ 1,480
102	72-INCH CLASS III RCP PIPE	LF	36	\$ 600.00	\$ 21,600
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 30,711
15% UNFORSEEN					\$ 4,607
TOTAL CONSTRUCTION COST					\$ 35,318
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,766
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,532
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,768
TOTAL MAIN FIELD CROSSING (CROSSING # 16) REPAIR COST					\$ 45,384

Main Field Crossing (Crossing # 17)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,480.00	\$ 1,480
102	72-INCH CLASS III RCP PIPE	LF	36	\$ 600.00	\$ 21,600
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 30,711
15% UNFORSEEN					\$ 4,607
TOTAL CONSTRUCTION COST					\$ 35,318
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,766
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,532
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,768
TOTAL MAIN FIELD CROSSING (CROSSING # 17) REPAIR COST					\$ 45,384



Culvert Repair Cost Estimate

Main County Road 125 (Crossing # 18)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,870.00	\$ 2,870
102	72-INCH CLASS III RCP PIPE	LF	72	\$ 600.00	\$ 43,200
103	72-INCH RCP APRON	EA	2	\$ 2,933.40	\$ 5,867
104	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
106	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 59,808
15% UNFORSEEN					\$ 8,971
TOTAL CONSTRUCTION COST					\$ 68,780
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,439
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,878
CONSTRUCTION STAKING & ADMINISTRATION					\$ 9,286
TOTAL MAIN COUNTY ROAD 125 (CROSSING # 18) REPAIR COST					\$ 88,383

Main Driveway Crossing (Crossing # 19)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,850.00	\$ 1,850
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,522
15% UNFORSEEN					\$ 5,778
TOTAL CONSTRUCTION COST					\$ 44,300
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,215
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,430
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,981
TOTAL MAIN DRIVEWAY CROSSING (CROSSING # 19) REPAIR COST					\$ 56,926



Culvert Repair Cost Estimate

Main Field Crossing (Crossing # 20)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,280.00	\$ 1,280
102	42-INCH CLASS III RCP PIPE	LF	48	\$ 400.00	\$ 19,200
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 26,510
15% UNFORSEEN					\$ 3,976
TOTAL CONSTRUCTION COST					\$ 30,486
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,525
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,049
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,116
TOTAL MAIN FIELD CROSSING (CROSSING # 20) REPAIR COST					\$ 39,176

Spur 9 Field Crossing (Crossing #27)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 990.00	\$ 990
102	48-INCH CLASS III RCP PIPE	LF	30	\$ 450.00	\$ 13,500
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 20,520
15% UNFORSEEN					\$ 3,078
TOTAL CONSTRUCTION COST					\$ 23,598
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,180
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,360
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,186
TOTAL SPUR 9 FIELD CROSSING (CROSSING #27) REPAIR COST					\$ 30,324



Culvert Repair Cost Estimate

Spur 9 Highway 99 (Crossing #30)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,680.00	\$ 2,680
102	BORE 42-INCH TILE	LF	110	\$ 456.70	\$ 50,237
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	25	\$ 75.80	\$ 1,895
SUBTOTAL CONSTRUCTION COST					\$ 55,757
15% UNFORSEEN					\$ 8,364
TOTAL CONSTRUCTION COST					\$ 64,121
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,207
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,413
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,657
TOTAL SPUR 9 HIGHWAY 99 (CROSSING #30) REPAIR COST					\$ 82,398

Spur 2 Field Crossing (Crossing #33)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,600.00	\$ 1,600
102	54-INCH CLASS III RCP PIPE	LF	50	\$ 500.00	\$ 25,000
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 33,170
15% UNFORSEEN					\$ 4,975
TOTAL CONSTRUCTION COST					\$ 38,145
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,908
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,815
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,150
TOTAL SPUR 2 FIELD CROSSING (CROSSING #33) REPAIR COST					\$ 49,018



Culvert Repair Cost Estimate

Spur 2 County Road 141 (Crossing # 37)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,210.00	\$ 2,210
102	48-INCH CLASS III RCP PIPE	LF	80	\$ 450.00	\$ 36,000
103	OPEN CUT & RESTORE PAVED ROADWAY (MATCH EXISTING SECTION)	EA	1	\$ 3,500.00	\$ 3,500
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 45,904
15% UNFORSEEN					\$ 6,886
TOTAL CONSTRUCTION COST					\$ 52,790
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,640
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,279
CONSTRUCTION STAKING & ADMINISTRATION					\$ 7,127
TOTAL SPUR 2 COUNTY ROAD 141 (CROSSING # 37) REPAIR COST					\$ 67,836

Spur 2 Field Crossing (Crossing #38)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,260.00	\$ 1,260
102	48-INCH CLASS III RCP PIPE	LF	42	\$ 450.00	\$ 18,900
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 26,190
15% UNFORSEEN					\$ 3,928
TOTAL CONSTRUCTION COST					\$ 30,118
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,506
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,012
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,066
TOTAL SPUR 2 FIELD CROSSING (CROSSING #38) REPAIR COST					\$ 38,702



Culvert Repair Cost Estimate

Branch A of Spur 2 County Road 141 (Crossing #39)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,060.00	\$ 1,060
102	36-INCH CLASS III RCP PIPE	LF	80	\$ 164.90	\$ 13,192
103	OPEN CUT & RESTORE PAVED ROADWAY (MATCH EXISTING SECTION)	EA	1	\$ 3,500.00	\$ 3,500
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 21,946
15% UNFORSEEN					\$ 3,292
TOTAL CONSTRUCTION COST					\$ 25,238
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,262
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,524
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,408
TOTAL BRANCH A OF SPUR 2 COUNTY ROAD 141 (CROSSING #39) REPAIR COST					\$ 32,432

Branch A of Spur 2 Field Crossing (Crossing #40)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 610.00	\$ 610
102	36-INCH CLASS III RCP PIPE	LF	36	\$ 164.90	\$ 5,936
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 12,576
15% UNFORSEEN					\$ 1,886
TOTAL CONSTRUCTION COST					\$ 14,463
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 724
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,447
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,953
TOTAL BRANCH A OF SPUR 2 FIELD CROSSING (CROSSING #40) REPAIR COST					\$ 18,587



Culvert Repair Cost Estimate

Branch B of Spur 2 Field Crossing (Crossing #41)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,160.00	\$ 1,160
102	42-INCH CLASS III RCP PIPE	LF	42	\$ 400.00	\$ 16,800
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 23,990
15% UNFORSEEN					\$ 3,598
TOTAL CONSTRUCTION COST					\$ 27,588
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,380
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,759
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,725
TOTAL BRANCH B OF SPUR 2 FIELD CROSSING (CROSSING #41) REPAIR COST					\$ 35,452



Culvert Repair Cost Estimate

TOTAL REPAIR COST

Main W Prairie Street (Crossing #1)	\$ 140,054
Main Field Crossing (Crossing #6)	\$ 107,948
Main Field Crossing (Crossing #7)	\$ 72,459
Main Hunting Preserve Ln (Crossing #8)	\$ 95,173
Main Private Field Crossing (Crossing #9)	\$ 49,170
Main Field Crossing (Crossing #10)	\$ 50,971
Main Field Crossing (Crossing #11)	\$ 56,557
Main Private Driveway Crossing (Crossing #14)	\$ 56,926
Main Field Crossing (Crossing # 16)	\$ 45,384
Main Field Crossing (Crossing # 17)	\$ 45,384
Main County Road 125 (Crossing # 18)	\$ 88,383
Main Driveway Crossing (Crossing # 19)	\$ 56,926
Main Field Crossing (Crossing # 20)	\$ 39,176
Spur 9 Field Crossing (Crossing #27)	\$ 30,324
Spur 9 Highway 99 (Crossing #30)	\$ 82,398
Spur 2 Field Crossing (Crossing #33)	\$ 49,018
Spur 2 County Road 141 (Crossing # 37)	\$ 67,836
Spur 2 Field Crossing (Crossing #38)	\$ 38,702
Branch A of Spur 2 County Road 141 (Crossing #39)	\$ 32,432
Branch A of Spur 2 Field Crossing (Crossing #40)	\$ 18,587
Branch B of Spur 2 Field Crossing (Crossing #41)	\$ 35,452
COMPLETE REPAIR COST	\$ 1,259,260



Cuvlert Repair Cost Estimate
 Priority 1 - RCP / PP Replacements

Main W Prairie Street (Crossing #1)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 4,550.00	\$ 4,550
102	10-FOOT x 6-FOOT RC BOX CULVERT	LF	48	\$ 1,300.00	\$ 62,400
103	10-FOOT x 6-FOOT RC BOX CULVERT END SECTION	EA	2	\$ 6,750.00	\$ 13,500
104	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
106	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	122	\$ 75.80	\$ 9,248
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 94,774
15% UNFORSEEN					\$ 14,216
TOTAL CONSTRUCTION COST					\$ 108,990
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 5,450
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 10,900
CONSTRUCTION STAKING & ADMINISTRATION					\$ 14,714
TOTAL MAIN W PRAIRIE STREET (CROSSING #1) REPAIR COST					\$ 140,054

Main Field Crossing (Crossing #6)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,510.00	\$ 3,510
102	84-INCH CLASS III RCP PIPE	LF	84	\$ 700.00	\$ 58,800
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
105	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	65	\$ 75.80	\$ 4,927
107	REMOVE CMP CULVERT	EA	2	\$ 975.00	\$ 1,950
SUBTOTAL CONSTRUCTION COST					\$ 73,048
15% UNFORSEEN					\$ 10,957
TOTAL CONSTRUCTION COST					\$ 84,005
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 4,201
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 8,401
CONSTRUCTION STAKING & ADMINISTRATION					\$ 11,341
TOTAL MAIN FIELD CROSSING (CROSSING #6) REPAIR COST					\$ 107,948



Culvert Repair Cost Estimate

Main Field Crossing (Crossing #7)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,360.00	\$ 2,360
102	96-INCH CLASS III RCP PIPE	LF	36	\$ 1,000.00	\$ 36,000
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
105	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	77	\$ 75.80	\$ 5,837
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 49,033
15% UNFORSEEN					\$ 7,355
TOTAL CONSTRUCTION COST					\$ 56,387
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,820
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,639
CONSTRUCTION STAKING & ADMINISTRATION					\$ 7,613
TOTAL MAIN FIELD CROSSING (CROSSING #7) REPAIR COST					\$ 72,459

Main Hunting Preserve Ln (Crossing #8)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,090.00	\$ 3,090
102	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
104	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	77	\$ 75.80	\$ 5,837
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	78" X 122" RC PIPE CULVERT CLASS III	LF	42	\$ 1,200.00	\$ 50,400
SUBTOTAL CONSTRUCTION COST					\$ 64,403
15% UNFORSEEN					\$ 9,660
TOTAL CONSTRUCTION COST					\$ 74,063
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,704
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 7,407
CONSTRUCTION STAKING & ADMINISTRATION					\$ 9,999
TOTAL MAIN HUNTING PRESERVE LN (CROSSING #8) REPAIR COST					\$ 95,173



Culvert Repair Cost Estimate

Main Private Field Crossing (Crossing #9)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,600.00	\$ 1,600
102	84-INCH CLASS III RCP PIPE	LF	30	\$ 700.00	\$ 21,000
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	500	\$ 2.70	\$ 1,350
105	INSTALL PERIMETER CONTROL	LF	250	\$ 2.70	\$ 675
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	77	\$ 75.80	\$ 5,837
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 33,273
15% UNFORSEEN					\$ 4,991
TOTAL CONSTRUCTION COST					\$ 38,263
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,914
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,827
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,166
TOTAL MAIN PRIVATE FIELD CROSSING (CROSSING #9) REPAIR COST					\$ 49,170

Main Field Crossing (Crossing #10)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,660.00	\$ 1,660
102	72-INCH CLASS III RCP PIPE	LF	42	\$ 600.00	\$ 25,200
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 34,491
15% UNFORSEEN					\$ 5,174
TOTAL CONSTRUCTION COST					\$ 39,665
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,984
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,967
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,355
TOTAL MAIN FIELD CROSSING (CROSSING #10) REPAIR COST					\$ 50,971



Culvert Repair Cost Estimate

Main Field Crossing (Crossing #11)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,840.00	\$ 1,840
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,271
15% UNFORSEEN					\$ 5,741
TOTAL CONSTRUCTION COST					\$ 44,012
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,201
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,402
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,942
TOTAL MAIN FIELD CROSSING (CROSSING #11) REPAIR COST					\$ 56,557

Main Private Driveway Crossing (Crossing #14)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,850.00	\$ 1,850
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,522
15% UNFORSEEN					\$ 5,778
TOTAL CONSTRUCTION COST					\$ 44,300
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,215
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,430
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,981
TOTAL MAIN PRIVATE DRIVEWAY CROSSING (CROSSING #14) REPAIR COST					\$ 56,926



**Culvert Repair Cost Estimate
 Main Field Crossing (Crossing # 16)**

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,480.00	\$ 1,480
102	72-INCH CLASS III RCP PIPE	LF	36	\$ 600.00	\$ 21,600
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 30,711
15% UNFORSEEN					\$ 4,607
TOTAL CONSTRUCTION COST					\$ 35,318
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,766
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,532
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,768
TOTAL MAIN FIELD CROSSING (CROSSING # 16) REPAIR COST					\$ 45,384

Main Field Crossing (Crossing # 17)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,480.00	\$ 1,480
102	72-INCH CLASS III RCP PIPE	LF	36	\$ 600.00	\$ 21,600
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 30,711
15% UNFORSEEN					\$ 4,607
TOTAL CONSTRUCTION COST					\$ 35,318
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,766
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,532
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,768
TOTAL MAIN FIELD CROSSING (CROSSING # 17) REPAIR COST					\$ 45,384



Culvert Repair Cost Estimate

Main County Road 125 (Crossing # 18)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,870.00	\$ 2,870
102	72-INCH CLASS III RCP PIPE	LF	72	\$ 600.00	\$ 43,200
103	72-INCH RCP APRON	EA	2	\$ 2,933.40	\$ 5,867
104	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
106	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 59,808
15% UNFORSEEN					\$ 8,971
TOTAL CONSTRUCTION COST					\$ 68,780
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,439
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,878
CONSTRUCTION STAKING & ADMINISTRATION					\$ 9,286
TOTAL MAIN COUNTY ROAD 125 (CROSSING # 18) REPAIR COST					\$ 88,383

Main Driveway Crossing (Crossing # 19)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,850.00	\$ 1,850
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,522
15% UNFORSEEN					\$ 5,778
TOTAL CONSTRUCTION COST					\$ 44,300
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,215
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,430
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,981
TOTAL MAIN DRIVEWAY CROSSING (CROSSING # 19) REPAIR COST					\$ 56,926



Culvert Repair Cost Estimate

Main Field Crossing (Crossing # 20A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 630.00	\$ 630
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	42-INCH POLYPROPYLENE PIPE	LF	48	\$ 134.40	\$ 6,451
SUBTOTAL CONSTRUCTION COST					\$ 13,111
15% UNFORSEEN					\$ 1,967
TOTAL CONSTRUCTION COST					\$ 15,078
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 754
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,508
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,036
TOTAL MAIN FIELD CROSSING (CROSSING # 20A) REPAIR COST					\$ 19,376

Spur 9 Field Crossing (Crossing #27A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 540.00	\$ 540
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	48-INCH POLYPROPYLENE PIPE	LF	30	\$ 155.50	\$ 4,665
SUBTOTAL CONSTRUCTION COST					\$ 11,235
15% UNFORSEEN					\$ 1,685
TOTAL CONSTRUCTION COST					\$ 12,920
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 647
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,293
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,745
TOTAL SPUR 9 FIELD CROSSING (CROSSING #27A) REPAIR COST					\$ 16,605



Cuvlert Repair Cost Estimate

Spur 9 Highway 99 (Crossing #30)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,680.00	\$ 2,680
102	BORE 42-INCH TILE	LF	110	\$ 456.70	\$ 50,237
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	25	\$ 75.80	\$ 1,895
SUBTOTAL CONSTRUCTION COST					\$ 55,757
15% UNFORSEEN					\$ 8,364
TOTAL CONSTRUCTION COST					\$ 64,121
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,207
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,413
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,657
TOTAL SPUR 9 HIGHWAY 99 (CROSSING #30) REPAIR COST					\$ 82,398

Spur 2 Field Crossing (Crossing #33A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 930.00	\$ 930
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
104	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	54-INCH POLYPROPYLENE PIPE	LF	50	\$ 235.40	\$ 11,770
SUBTOTAL CONSTRUCTION COST					\$ 19,270
15% UNFORSEEN					\$ 2,890
TOTAL CONSTRUCTION COST					\$ 22,160
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,109
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,217
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,992
TOTAL SPUR 2 FIELD CROSSING (CROSSING #33A) REPAIR COST					\$ 28,478



Culvert Repair Cost Estimate

Spur 2 County Road 141 (Crossing # 37)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,210.00	\$ 2,210
102	48-INCH CLASS III RCP PIPE	LF	80	\$ 450.00	\$ 36,000
103	OPEN CUT & RESTORE PAVED ROADWAY (MATCH EXISTING SECTION)	EA	1	\$ 3,500.00	\$ 3,500
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 45,904
15% UNFORSEEN					\$ 6,886
TOTAL CONSTRUCTION COST					\$ 52,790
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,640
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,279
CONSTRUCTION STAKING & ADMINISTRATION					\$ 7,127
TOTAL SPUR 2 COUNTY ROAD 141 (CROSSING # 37) REPAIR COST					\$ 67,836

Spur 2 Field Crossing (Crossing #38A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 640.00	\$ 640
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	48-INCH POLYPROPYLENE PIPE	LF	42	\$ 155.50	\$ 6,531
SUBTOTAL CONSTRUCTION COST					\$ 13,201
15% UNFORSEEN					\$ 1,980
TOTAL CONSTRUCTION COST					\$ 15,181
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 760
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,519
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,050
TOTAL SPUR 2 FIELD CROSSING (CROSSING #38A) REPAIR COST					\$ 19,510



Culvert Repair Cost Estimate

Branch A of Spur 2 County Road 141 (Crossing #39)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,060.00	\$ 1,060
102	36-INCH CLASS III RCP PIPE	LF	80	\$ 164.90	\$ 13,192
103	OPEN CUT & RESTORE PAVED ROADWAY (MATCH EXISTING SECTION)	EA	1	\$ 3,500.00	\$ 3,500
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 21,946
15% UNFORSEEN					\$ 3,292
TOTAL CONSTRUCTION COST					\$ 25,238
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,262
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,524
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,408
TOTAL BRANCH A OF SPUR 2 COUNTY ROAD 141 (CROSSING #39) REPAIR COST					\$ 32,432

Branch A of Spur 2 Field Crossing (Crossing #40A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 510.00	\$ 510
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	36-INCH POLYPROPYLENE PIPE	LF	36	\$ 113.25	\$ 4,077
SUBTOTAL CONSTRUCTION COST					\$ 10,617
15% UNFORSEEN					\$ 1,593
TOTAL CONSTRUCTION COST					\$ 12,209
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 611
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,221
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,649
TOTAL BRANCH A OF SPUR 2 FIELD CROSSING (CROSSING #40A) REPAIR COST					\$ 15,690



Cuvlert Repair Cost Estimate

Branch B of Spur 2 Field Crossing (Crossing #41A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 590.00	\$ 590
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	42-INCH POLYPROPYLENE PIPE	LF	42	\$ 134.40	\$ 5,645
SUBTOTAL CONSTRUCTION COST					\$ 12,265
15% UNFORSEEN					\$ 1,840
TOTAL CONSTRUCTION COST					\$ 14,104
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 706
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,411
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,905
TOTAL BRANCH B OF SPUR 2 FIELD CROSSING (CROSSING #41A) REPAIR COST					\$ 18,126



Cuvlert Repair Cost Estimate

TOTAL REPAIR COST

Main W Prairie Street (Crossing #1)	\$	140,054
Main Field Crossing (Crossing #6)	\$	107,948
Main Field Crossing (Crossing #7)	\$	72,459
Main Hunting Preserve Ln (Crossing #8)	\$	95,173
Main Private Field Crossing (Crossing #9)	\$	49,170
Main Field Crossing (Crossing #10)	\$	50,971
Main Field Crossing (Crossing #11)	\$	56,557
Main Private Driveway Crossing (Crossing #14)	\$	56,926
Main Field Crossing (Crossing # 16)	\$	45,384
Main Field Crossing (Crossing # 17)	\$	45,384
Main County Road 125 (Crossing # 18)	\$	88,383
Main Driveway Crossing (Crossing # 19)	\$	56,926
Main Field Crossing (Crossing # 20A)	\$	19,376
Spur 9 Field Crossing (Crossing #27A)	\$	16,605
Spur 9 Highway 99 (Crossing #30)	\$	82,398
Spur 2 Field Crossing (Crossing #33A)	\$	28,478
Spur 2 County Road 141 (Crossing # 37)	\$	67,836
Spur 2 Field Crossing (Crossing #38A)	\$	19,510
Branch A of Spur 2 County Road 141 (Crossing #39)	\$	32,432
Branch A of Spur 2 Field Crossing (Crossing #40A)	\$	15,690
Branch B of Spur 2 Field Crossing (Crossing #41A)	\$	18,126
COMPLETE REPAIR COST		\$ 1,165,786



Culvert Repair Cost Estimate
Priority 2 - All RCP Replacements

Main Driveway Crossing (Crossing # 13)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,850.00	\$ 1,850
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,522
15% UNFORSEEN					\$ 5,778
TOTAL CONSTRUCTION COST					\$ 44,300
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,215
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,430
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,981
TOTAL MAIN DRIVEWAY CROSSING (CROSSING # 13) REPAIR COST					\$ 56,926

Main Driveway Crossing (Crossing #15)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,540.00	\$ 2,540
102	72-INCH CLASS III RCP PIPE	LF	72	\$ 600.00	\$ 43,200
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	35	\$ 75.80	\$ 2,653
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 52,929
15% UNFORSEEN					\$ 7,939
TOTAL CONSTRUCTION COST					\$ 60,869
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,044
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,087
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,218
TOTAL MAIN DRIVEWAY CROSSING (CROSSING #15) REPAIR COST					\$ 78,218



Culvert Repair Cost Estimate

Spur 8 Driveway Crossing (Crossing # 21)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,710.00	\$ 1,710
102	60-INCH CLASS III RCP PIPE	LF	54	\$ 500.00	\$ 27,000
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 35,520
15% UNFORSEEN					\$ 5,328
TOTAL CONSTRUCTION COST					\$ 40,848
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,043
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,085
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,515
TOTAL SPUR 8 DRIVEWAY CROSSING (CROSSING # 21) REPAIR COST					\$ 52,491

Spur 9 380th Street (Crossing # 24)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,650.00	\$ 2,650
102	60-INCH CLASS III RCP PIPE	LF	78	\$ 500.00	\$ 39,000
103	60-INCH RCP APRON	EA	2	\$ 2,776.00	\$ 5,552
104	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
106	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 55,074
15% UNFORSEEN					\$ 8,261
TOTAL CONSTRUCTION COST					\$ 63,335
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,167
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,334
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,551
TOTAL SPUR 9 380TH STREET (CROSSING # 24) REPAIR COST					\$ 81,387



Culvert Repair Cost Estimate

Spur 9 Field Crossing (Crossing #26)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,450.00	\$ 2,450
102	60-INCH CLASS III RCP PIPE	LF	84	\$ 500.00	\$ 42,000
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 51,020
15% UNFORSEEN					\$ 7,653
TOTAL CONSTRUCTION COST					\$ 58,673
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,934
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 5,868
CONSTRUCTION STAKING & ADMINISTRATION					\$ 7,921
TOTAL SPUR 9 FIELD CROSSING (CROSSING #26) REPAIR COST					\$ 75,396

Spur 9 Driveway Crossing (Crossing #29)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,090.00	\$ 2,090
102	48-INCH CLASS III RCP PIPE	LF	78	\$ 450.00	\$ 35,100
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 43,460
15% UNFORSEEN					\$ 6,519
TOTAL CONSTRUCTION COST					\$ 49,979
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,499
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,998
CONSTRUCTION STAKING & ADMINISTRATION					\$ 6,748
TOTAL SPUR 9 DRIVEWAY CROSSING (CROSSING #29) REPAIR COST					\$ 64,224



Culvert Repair Cost Estimate

Spur 9 Driveway Crossing (Crossing #31)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,680.00	\$ 1,680
102	48-INCH CLASS III RCP PIPE	LF	60	\$ 450.00	\$ 27,000
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 34,950
15% UNFORSEEN					\$ 5,243
TOTAL CONSTRUCTION COST					\$ 40,193
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,010
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,020
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,427
TOTAL SPUR 9 DRIVEWAY CROSSING (CROSSING #31) REPAIR COST					\$ 51,650

Spur 9 Field Crossing (Crossing #32)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,670.00	\$ 1,670
102	48-INCH CLASS III RCP PIPE	LF	60	\$ 450.00	\$ 27,000
103	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
105	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 34,700
15% UNFORSEEN					\$ 5,205
TOTAL CONSTRUCTION COST					\$ 39,905
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,996
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,991
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,388
TOTAL SPUR 9 FIELD CROSSING (CROSSING #32) REPAIR COST					\$ 51,280



Culvert Repair Cost Estimate

Spur 2 County Road 158 (Crossing #35)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,590.00	\$ 2,590
102	54-INCH CLASS III RCP PIPE	LF	80	\$ 500.00	\$ 40,000
103	54-INCH RCP APRON	EA	2	\$ 1,519.70	\$ 3,039
104	OPEN CUT & RESTORE PAVED ROADWAY (MATCH EXISTING SECTION)	EA	1	\$ 3,500.00	\$ 3,500
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET	SY	350	\$ 2.70	\$ 945
106	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 53,863
15% UNFORSEEN					\$ 8,080
TOTAL CONSTRUCTION COST					\$ 61,943
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,098
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,195
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,363
TOTAL SPUR 2 COUNTY ROAD 158 (CROSSING #35) REPAIR COST					\$ 79,599



Culvert Repair Cost Estimate

TOTAL REPAIR COST

Main Driveway Crossing (Crossing # 13)	\$	56,926
Main Driveway Crossing (Crossing #15)	\$	78,218
Spur 8 Driveway Crossing (Crossing # 21)	\$	52,491
Spur 9 380th Street (Crossing # 24)	\$	81,387
Spur 9 Field Crossing (Crossing #26)	\$	75,396
Spur 9 Driveway Crossing (Crossing #29)	\$	64,224
Spur 9 Driveway Crossing (Crossing #31)	\$	51,650
Spur 9 Field Crossing (Crossing #32)	\$	51,280
Spur 2 County Road 158 (Crossing #35)	\$	79,599
COMPLETE REPAIR COST		\$ 591,171



Culvert Repair Cost Estimate
 Priority 2 - RCP / PP Replacements

Main Driveway Crossing (Crossing # 13)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,850.00	\$ 1,850
102	72-INCH CLASS III RCP PIPE	LF	48	\$ 600.00	\$ 28,800
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 38,522
15% UNFORSEEN					\$ 5,778
TOTAL CONSTRUCTION COST					\$ 44,300
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 2,215
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 4,430
CONSTRUCTION STAKING & ADMINISTRATION					\$ 5,981
TOTAL MAIN DRIVEWAY CROSSING (CROSSING # 13) REPAIR COST					\$ 56,926

Main Driveway Crossing (Crossing #15)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,540.00	\$ 2,540
102	72-INCH CLASS III RCP PIPE	LF	72	\$ 600.00	\$ 43,200
103	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
104	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
105	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
106	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	35	\$ 75.80	\$ 2,653
107	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 52,929
15% UNFORSEEN					\$ 7,939
TOTAL CONSTRUCTION COST					\$ 60,869
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,044
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,087
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,218
TOTAL MAIN DRIVEWAY CROSSING (CROSSING #15) REPAIR COST					\$ 78,218



Culvert Repair Cost Estimate

Spur 8 Driveway Crossing (Crossing # 21A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 970.00	\$ 970
102	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
104	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	60-INCH POLYPROPYLENE PIPE	LF	54	\$ 228.50	\$ 12,339
SUBTOTAL CONSTRUCTION COST					\$ 20,119
15% UNFORSEEN					\$ 3,018
TOTAL CONSTRUCTION COST					\$ 23,137
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,157
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,314
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,124
TOTAL SPUR 8 DRIVEWAY CROSSING (CROSSING # 21A) REPAIR COST					\$ 29,732

Spur 9 380th Street (Crossing # 24)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,650.00	\$ 2,650
102	60-INCH CLASS III RCP PIPE	LF	78	\$ 500.00	\$ 39,000
103	60-INCH RCP APRON	EA	2	\$ 2,776.00	\$ 5,552
104	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
106	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	44	\$ 75.80	\$ 3,335
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 55,074
15% UNFORSEEN					\$ 8,261
TOTAL CONSTRUCTION COST					\$ 63,335
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,167
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,334
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,551
TOTAL SPUR 9 380TH STREET (CROSSING # 24) REPAIR COST					\$ 81,387



Culvert Repair Cost Estimate

Spur 9 Field Crossing (Crossing #26A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,300.00	\$ 1,300
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	350	\$ 2.70	\$ 945
104	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	60-INCH POLYPROPYLENE PIPE	LF	84	\$ 228.50	\$ 19,194
SUBTOTAL CONSTRUCTION COST					\$ 27,064
15% UNFORSEEN					\$ 4,060
TOTAL CONSTRUCTION COST					\$ 31,123
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,557
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 3,113
CONSTRUCTION STAKING & ADMINISTRATION					\$ 4,202
TOTAL SPUR 9 FIELD CROSSING (CROSSING #26A) REPAIR COST					\$ 39,995

Spur 9 Driveway Crossing (Crossing #29A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 930.00	\$ 930
102	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	48-INCH POLYPROPYLENE PIPE	LF	78	\$ 155.50	\$ 12,129
SUBTOTAL CONSTRUCTION COST					\$ 19,329
15% UNFORSEEN					\$ 2,899
TOTAL CONSTRUCTION COST					\$ 22,229
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 1,112
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,223
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,001
TOTAL SPUR 9 DRIVEWAY CROSSING (CROSSING #29A) REPAIR COST					\$ 28,565



Culvert Repair Cost Estimate

Spur 9 Driveway Crossing (Crossing #31A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 790.00	\$ 790
102	OPEN CUT & RESTORE GRAVEL ROAD OR DRIVEWAY	EA	1	\$ 2,076.40	\$ 2,076
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	48-INCH POLYPROPYLENE PIPE	LF	60	\$ 155.50	\$ 9,330
SUBTOTAL CONSTRUCTION COST					\$ 16,390
15% UNFORSEEN					\$ 2,459
TOTAL CONSTRUCTION COST					\$ 18,849
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 943
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,885
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,545
TOTAL SPUR 9 DRIVEWAY CROSSING (CROSSING #31A) REPAIR COST					\$ 24,222

Spur 9 Field Crossing (Crossing #32A)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 780.00	\$ 780
102	OPEN CUT & RESTORE FIELD CROSSING	EA	1	\$ 1,835.90	\$ 1,836
103	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET CATEGORY 3	SY	200	\$ 2.70	\$ 540
104	INSTALL PERIMETER CONTROL	LF	150	\$ 2.70	\$ 405
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
106	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
107	48-INCH POLYPROPYLENE PIPE	LF	60	\$ 155.50	\$ 9,330
SUBTOTAL CONSTRUCTION COST					\$ 16,140
15% UNFORSEEN					\$ 2,421
TOTAL CONSTRUCTION COST					\$ 18,561
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 929
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,857
CONSTRUCTION STAKING & ADMINISTRATION					\$ 2,506
TOTAL SPUR 9 FIELD CROSSING (CROSSING #32A) REPAIR COST					\$ 23,853



Culvert Repair Cost Estimate

Spur 2 County Road 158 (Crossing #35)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,590.00	\$ 2,590
102	54-INCH CLASS III RCP PIPE	LF	80	\$ 500.00	\$ 40,000
103	54-INCH RCP APRON	EA	2	\$ 1,519.70	\$ 3,039
104	OPEN CUT & RESTORE PAVED ROADWAY (MATCH EXISTING SECTION)	EA	1	\$ 3,500.00	\$ 3,500
105	SEED MIX 25-142 W/MNDOT EROSION CONTROL BLANKET	SY	350	\$ 2.70	\$ 945
106	INSTALL PERIMETER CONTROL	LF	200	\$ 2.70	\$ 540
107	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	30	\$ 75.80	\$ 2,274
108	REMOVE CMP CULVERT	EA	1	\$ 975.00	\$ 975
SUBTOTAL CONSTRUCTION COST					\$ 53,863
15% UNFORSEEN					\$ 8,080
TOTAL CONSTRUCTION COST					\$ 61,943
TEMPORARY DAMAGES		AC	0.00	\$ 650.00	\$ -
COUNTY ADMINISTRATION COSTS					\$ 3,098
TOPOGRAPHIC SURVEY					\$ -
REPORTS, PLANS AND SPECIFICATIONS					\$ 6,195
CONSTRUCTION STAKING & ADMINISTRATION					\$ 8,363
TOTAL SPUR 2 COUNTY ROAD 158 (CROSSING #35) REPAIR COST					\$ 79,599



Culvert Repair Cost Estimate

TOTAL REPAIR COST

Main Driveway Crossing (Crossing # 13)	\$	56,926
Main Driveway Crossing (Crossing #15)	\$	78,218
Spur 8 Driveway Crossing (Crossing # 21A)	\$	29,732
Spur 9 380th Street (Crossing # 24)	\$	81,387
Spur 9 Field Crossing (Crossing #26A)	\$	39,995
Spur 9 Driveway Crossing (Crossing #29A)	\$	28,565
Spur 9 Driveway Crossing (Crossing #31A)	\$	24,222
Spur 9 Field Crossing (Crossing #32A)	\$	23,853
Spur 2 County Road 158 (Crossing #35)	\$	79,599
COMPLETE REPAIR COST		\$ 442,497



TILE REPAIR COST ESIMATE

Main Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 4,270.00	\$ 4,270
102	TILE INVESTIGATION	HR	6	\$ 149.40	\$ 896
103	18-INCH AGRICULTURAL TILE	LF	1200	\$ 30.45	\$ 36,540
104	15-INCH AGRICULTURAL TILE	LF	800	\$ 24.15	\$ 19,320
105	12-INCH AGRICULTURAL TILE	LF	620	\$ 22.85	\$ 14,167
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	\$ 500.00	\$ 5,500
107	GRANULAR PIPE FOUNDATION	CY	174	\$ 27.60	\$ 4,799
108	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,075.00	\$ 3,225
109	CAP DROP INTAKE (18-INCH)	EA	1	\$ 236.10	\$ 236
SUBTOTAL CONSTRUCTION COST					\$ 88,953
15% UNFORSEEN					\$ 13,343
TOTAL CONSTRUCTION COST					\$ 102,296
TEMPORARY DAMAGES		AC	6.01	\$ 650.00	\$ 3,910
TELEVISIONING (POST CONSTRUCTION)		LF	2620	\$ 1.00	\$ 2,620
COUNTY ADMINISTRATION COSTS					\$ 5,115
TOPOGRAPHIC SURVEY					\$ 3,275
REPORTS, PLANS AND SPECIFICATIONS					\$ 10,230
CONSTRUCTION STAKING & ADMINISTRATION					\$ 13,811
TOTAL MAIN TILE REPAIR COST					\$ 141,257

Spur 1 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 5,910.00	\$ 5,910
102	TILE INVESTIGATION	HR	8	\$ 149.40	\$ 1,195
103	18-INCH AGRICULTURAL TILE	LF	1000	\$ 30.45	\$ 30,450
104	15-INCH AGRICULTURAL TILE	LF	1000	\$ 24.15	\$ 24,150
105	12-INCH AGRICULTURAL TILE	LF	1200	\$ 22.85	\$ 27,420
106	10-INCH AGRICULTURAL TILE	LF	680	\$ 21.70	\$ 14,756
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	16	\$ 500.00	\$ 8,000
108	GRANULAR PIPE FOUNDATION	CY	244	\$ 27.60	\$ 6,741
109	INSTALL DROP INTAKE (18-INCH)	EA	4	\$ 1,075.00	\$ 4,300
110	CAP DROP INTAKE (18-INCH)	EA	1	\$ 236.10	\$ 236
SUBTOTAL CONSTRUCTION COST					\$ 123,159
15% UNFORSEEN					\$ 18,474
TOTAL CONSTRUCTION COST					\$ 141,632
TEMPORARY DAMAGES		AC	8.91	\$ 650.00	\$ 5,790
TELEVISIONING (POST CONSTRUCTION)		LF	3880	\$ 1.00	\$ 3,880
COUNTY ADMINISTRATION COSTS					\$ 7,082
TOPOGRAPHIC SURVEY					\$ 4,850
REPORTS, PLANS AND SPECIFICATIONS					\$ 14,164
CONSTRUCTION STAKING & ADMINISTRATION					\$ 19,121
TOTAL SPUR 1 TILE REPAIR COST					\$ 196,519



TILE REPAIR COST ESIMATE

Spur 3 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,420.00	\$ 3,420
102	TILE INVESTIGATION	HR	5	\$ 149.40	\$ 747
103	12-INCH AGRICULTURAL TILE	LF	2200	\$ 22.85	\$ 50,270
104	10-INCH AGRICULTURAL TILE	LF	200	\$ 21.70	\$ 4,340
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	10	\$ 500.00	\$ 5,000
106	GRANULAR PIPE FOUNDATION	CY	141.64	\$ 27.60	\$ 3,909
107	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,075.00	\$ 3,225
108	CAP DROP INTAKE (18-INCH)	EA	1	\$ 236.10	\$ 236
SUBTOTAL CONSTRUCTION COST					\$ 71,147
15% UNFORSEEN					\$ 10,672
TOTAL CONSTRUCTION COST					\$ 81,820
TEMPORARY DAMAGES		AC	5.51	\$ 650.00	\$ 3,581
TELEVISIONING (POST CONSTRUCTION)		LF	2400	\$ 1.00	\$ 2,400
COUNTY ADMINISTRATION COSTS					\$ 4,091
TOPOGRAPHIC SURVEY					\$ 3,000
REPORTS, PLANS AND SPECIFICATIONS					\$ 8,182
CONSTRUCTION STAKING & ADMINISTRATION					\$ 11,046
TOTAL SPUR 3 TILE REPAIR COST					\$ 114,120

Spur 4 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,010.00	\$ 1,010
102	TILE INVESTIGATION	HR	2	\$ 149.40	\$ 299
103	15-INCH AGRICULTURAL TILE	LF	650	\$ 24.15	\$ 15,698
104	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	3	\$ 500.00	\$ 1,500
105	GRANULAR PIPE FOUNDATION	CY	42.13	\$ 27.60	\$ 1,163
106	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,075.00	\$ 1,075
107	CAP DROP INTAKE (18-INCH)	EA	1	\$ 236.10	\$ 236
SUBTOTAL CONSTRUCTION COST					\$ 20,980
15% UNFORSEEN					\$ 3,147
TOTAL CONSTRUCTION COST					\$ 24,127
TEMPORARY DAMAGES		AC	1.49	\$ 650.00	\$ 970
TELEVISIONING (POST CONSTRUCTION)		LF	650	\$ 1.00	\$ 650
COUNTY ADMINISTRATION COSTS					\$ 1,207
TOPOGRAPHIC SURVEY					\$ 813
REPORTS, PLANS AND SPECIFICATIONS					\$ 2,413
CONSTRUCTION STAKING & ADMINISTRATION					\$ 3,258
TOTAL SPUR 4 TILE REPAIR COST					\$ 33,438



TILE REPAIR COST ESIMATE

Spur 11 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 560.00	\$ 560
102	TILE INVESTIGATION	HR	1	\$ 149.40	\$ 149
103	8-INCH AGRICULTURAL TILE	LF	340	\$ 24.00	\$ 8,160
104	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 500.00	\$ 1,000
105	GRANULAR PIPE FOUNDATION	CY	17.37	\$ 27.60	\$ 479
106	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,075.00	\$ 1,075
107	CAP DROP INTAKE (18-INCH)	EA	1	\$ 236.10	\$ 236
SUBTOTAL CONSTRUCTION COST					\$ 11,660
15% UNFORSEEN					\$ 1,749
TOTAL CONSTRUCTION COST					\$ 13,409
TEMPORARY DAMAGES		AC	0.78	\$ 650.00	\$ 507
TELEVISIONING (POST CONSTRUCTION)		LF	340	\$ 1.00	\$ 340
COUNTY ADMINISTRATION COSTS					\$ 671
TOPOGRAPHIC SURVEY					\$ 425
REPORTS, PLANS AND SPECIFICATIONS					\$ 1,341
CONSTRUCTION STAKING & ADMINISTRATION					\$ 1,811
TOTAL SPUR 11 TILE REPAIR COST					\$ 18,504

Spur 12 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,310.00	\$ 3,310
102	TILE INVESTIGATION	HR	5	\$ 149.40	\$ 747
103	12-INCH AGRICULTURAL TILE	LF	2300	\$ 22.85	\$ 52,555
104	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	10	\$ 500.00	\$ 5,000
105	GRANULAR PIPE FOUNDATION	CY	136.65	\$ 27.60	\$ 3,772
106	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,075.00	\$ 3,225
107	CAP DROP INTAKE (18-INCH)	EA	1	\$ 236.10	\$ 236
SUBTOTAL CONSTRUCTION COST					\$ 68,845
15% UNFORSEEN					\$ 10,327
TOTAL CONSTRUCTION COST					\$ 79,171
TEMPORARY DAMAGES		AC	5.28	\$ 650.00	\$ 3,432
TELEVISIONING (POST CONSTRUCTION)		LF	2300	\$ 1.00	\$ 2,300
COUNTY ADMINISTRATION COSTS					\$ 3,959
TOPOGRAPHIC SURVEY					\$ 2,875
REPORTS, PLANS AND SPECIFICATIONS					\$ 7,918
CONSTRUCTION STAKING & ADMINISTRATION					\$ 10,689
TOTAL SPUR 12 TILE REPAIR COST					\$ 110,344



TILE REPAIR COST ESIMATE

TOTAL TILE REPAIR COST

	Main Tile	\$	141,257
	Spur 1 Tile	\$	196,519
	Spur 3 Tile	\$	114,120
	Spur 4 Tile	\$	33,438
	Spur 11 Tile	\$	18,504
	Spur 12 Tile	\$	110,344
COMPLETE REPAIR COST		\$	614,183