Feasibility Report
County Ditch No. 51

Le Sueur County, Minnesota

Date: August 21st, 2023

ISG Project No.: 23-29404

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APPENDICES

PROJECT SUMMARY

At your request, ISG completed a preliminary review of Le Sueur County Ditch No. 51 (CD 51). The scope included an examination of the existing CD 51 system, as well as recommendations for repairing and improving the existing open ditch and tile system. Maps of the CD 51 watershed and existing public open ditch and tile system are shown in the attached exhibits and are referenced herein.

It should be noted that some general assumptions were made during this analysis. ISG received the original watershed map as well as the original bill of sale and legal description, showing the open ditch locations and grades from Le Sueur County for the CD 51 system. Additional information may or may not modify our findings, but it is not anticipated that significant changes to our recommendation would result. If any landowners have tile maps or any other information that can aid us in future work, please feel free to share this information. A future topographic survey will be necessary to verify these assumptions.

SYSTEM WATERSHED

Location

The CD 51 watershed is located in Sections 28, 29, 31, and 32 of Lexington Township, Sections 4-10 of Cordova Township, Sections 1 and 2 of Cleveland Township, and Sections 25, 26, 35, and 36 of Sharon Township in Le Sueur County. The Mainline ditch generally runs west from its beginning in Section 32 of Lexington Township to Section 26 of Sharon Township where it outlets to an unnamed stream and shortly after into Le Sueur Creek. After checking the historical DNR Public Waters Inventory Map, the DNR Buffer Map, and the GIS version of the Public Waters Inventory Map, it was determined that the outlet is not defined as a Public Water, while Le Sueur Creek is defined as a Public Water.

Watershed Description

The CD 51 system drains approximately 5,163 acres. Its watershed is characterized by gently rolling agricultural land with an elevation difference of approximately 136-feet. CD 51 has large wetland areas that are located both at the south end and the center of the watershed.

Based on documents provided by Le Sueur County, the CD 51 open ditch was originally constructed to provide an outlet for the city of Le Center's wastewater and stormwater. At the beginning of the Mainline open ditch, Le Center's wastewater treatment facility and a portion of the city's stormwater drains to the open ditch.

The predominant hydrologic soil type in the system's watershed is type "C/D", which is considered as a dual hydrological soil group. Therefore, the soil has potential to be adequately drained. The "D" in this group corresponds to the soil having over 40 percent clay and restricted water movement. The "C" is named the drained condition.

There is approximately 112 acres of DNR land located at the south end of the CD 51 watershed. This land is entirely emergent/forested wetland area and is located off the public drainage ditch. See Appendix A for maps depicting Public Waters and Lands, the watershed's location, and digital elevation.

HISTORY

According to materials supplied by Le Sueur County, the CD 51 system was originally constructed in 1951, consisting of 40,949 feet of open ditch including Mainline, Spur 2, and Spur 4. The system also consists of 16,247 feet of tile including Lateral 1, Branch 1, Branch 2, and Branch 3.

There have been multiple documented repairs and improvements to various branches of CD 51. These include deepening of the Mainline open ditch at station 262+00 in 1953, cleaning of the Mainline open ditch between station 54+00 and 164+00 in 1977, cleaning of the Mainline open ditch from station 21+00 to 54+00 and 218+00 to 256+00 in 1978, cleaning of the Mainline open ditch from station 20+00 to 70+00 and 220+00 to 270+00 in 1987, cleaning of Spur 4 open ditch from station 0+00 to 18+00 in 1987, and tree clearing along the Mainline open ditch from station 310+00 to 395+00 in 1987.

EXISTING CONDITION OF SYSTEM

Present Condition of Drainage Infrastructure

A drone flight was conducted on June 21st, 2023, to ascertain an understanding of the existing conditions of the CD 51 system. Many concerns were noted including sediment accumulation and vegetation growth in the bottom of the ditch, sloughing and bank stabilization issues, trees within buffers and open ditch cross sections, and failing culverts. The open ditch channel contains a typical trapezoidal channel designed to convey both surface and subsurface tile water throughout the watershed. Based on the original construction documents provided by Le Sueur County, the open ditch slopes range from 0.01% to 0.50%. In most areas, existing tile outlets from both public branches and private tiles outlet near the bottom of the ditch.

Figures 1-14 below show concerns on the CD 51 system.

Figure 1: Tree in ditch near the outlet

Figure 2: Dense Trees near the outlet

Figure 3: Sloughing along mainline open ditch

Figure 4: Dense Trees near TH 99 crossing

Figure 5: Scour at 400th Street crossing

Figure 6: Sediment accumulation and vegetation growth at 245th Avenue crossing

Figure 7: End of Spur 4

Figure 8: Failing field crossing culvert on the Mainline east of 245th Avenue (Crossing #10)

Figure 9: Private tile facing upstream on the Mainline east of 245th Avenue

Figure 10: Sloughing west of South Maple Avenue along Mainline open ditch

Figure 11: Failing CMP field crossing culvert east of South Maple Avenue along Mainline open ditch (Crossing #13)

Figure 12: Sediment accumulation and vegetation growth in Spur 2 open ditch north of 237th Avenue

Figure 13: Burn pile debris in ditch and buffer on Mainline open ditch south of South Maple Avenue

Figure 14: City of Le Center water treatment outlet into CD 51 Mainline open ditch

System Capacity

The information in this document has been prepared with the original CD 51 alignment map. Culvert sizes and slopes were assumed based on the CD 51 historical documents. Topographic survey and culvert inventory would be needed in the future to verify actual sizes, materials, slopes, and conditions. A close representation of the CD 51 watershed was created using this information in conjunction with LiDAR contours, Minnesota DNR Watershed lines, aerial photographs, and USGS Stream-Stats.

The capacity of agricultural tile is expressed as a drainage coefficient, in inches per day (in/day), and is defined as the depth of water over the entire area of the upstream watershed that a tile can drain in a 24-hour period. For a system like CD 51, the recommended drainage coefficient for subsurface drainage tile is 0.50 in/day and 1.0 in/day for open ditches. See Table 1 below for open ditch summary and Table 2 for buried tile summary.

TABLE 1. EXISTING DITCH CULVERT CAPACITIES

Crossing # on Map	Station	Roadway	Existing Type	Existing Material	Existing Size (in)	Existing Width (ft)	Existing Height (ft)	Existing Rise x Span (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
1	363+81	TH 112 - Main	BOX CULVERT	RCP	-	10	10	-	0.04%	5372	2.27
2	347+39	261st Ave - Main	ARCH CULVERT	CMP	-	-	-	75 x 112	0.04%	5289	*0.40*
3	310+00	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.15%	4143	*0.49*
4	302+50	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.50%	4072	*0.91*
5	261+64	TH 99 - Main	ROUND CULVERT	RCP	72	-	-	-	0.04%	3977	*0.51*
6	246+60	251st Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.04%	3942	*0.27*
7	242+18	400th St - Main	ROUND CULVERT	CMP	72	-	-	-	0.03%	3907	*0.23*
8	234+50	Field Crossing - Main	ARCH CULVERT	CMP	-	-	-	75 x 112	0.03%	3887	*0.47*
9	212+00	245th Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.25%	3383	*0.78*
10	206+30	Field Crossing - Main	ROUND CULVERT	CMP	60	-	-	-	0.25%	3355	*0.48*
11	183+00	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	3238	*0.69*
12	176+00	S Maple Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	3224	*0.69*
13	164+35	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.15%	2510	*0.81*
14	148+94	237th Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	2433	*0.92*
15	121+68	Field Crossing - Main	ROUND CULVERT	CMP	60	-	-	-	0.08%	1156	*0.79*
16	119+00	S Maple Ave - Main	ROUND CULVERT	RCP	60	-	-	-	0.08%	1150	1.53
17	94+00	400th St - Main	ROUND CULVERT	CMP	60	-	-	-	0.05%	1033	*0.70*
18	77+40	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	511	1.07
19	62+00	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	409	1.33
20	50+70	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	267	2.04
21	43+00	W Bradshaw St - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	244	2.24
22	10+00	Field Crossing - Spur 4	ROUND CULVERT	CMP	30	-	-	-	0.08%	99	1.46

15 of the 22 existing open ditch crossings are below the recommended minimum drainage coefficient value, but replacements should be considered for all culverts as they are reaching their life expectancies. For conservative measure, it was assumed that all crossing will be replaced. Final determination of culvert replacements will be determined upon survey an establishing legal grade of the system. For open ditch systems like CD 51, cleaning is recommended every 8 to 10 years to return the open ditch legal grade and legal cross section width. As the open ditch has not been cleaned since 1987, it is highly likely that the system has accumulated sediment along the channel bottom above legal grade. Removing the accumulated sediment will reduce vegetation growth and bank erosion within the channel, therefore increasing flow capacity and bank stability. Well established trees, brush, and shrubs were identified along the banks of the open ditch, primarily near the TH99 crossing. Due to the density of trees, brush, and shrubs, removal will be necessary for construction equipment to access the open ditch for cleaning and other repair items. Because some areas of tree removal are near residential structures, coordination with the respective landowners should be completed as a part of the repair process. Removing these obstructions from the banks and buffer strips will also prevent future erosion of the ditch banks. Sloughing has been observed along the open ditch. As an estimate, 10% of the open ditch is expected to need slough repairs, although additional slough repairs may be necessary depending on the condition of the banks.

TABLE 2. TILE CAPACITIES

Area	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Lat 1	22	0.44%	757.7	0.37
	22	0.50%	722.4	0.42
	22	0.30%	693.9	0.34
	20	0.18%	631.6	0.22
	18	0.18%	484.6	0.22
	16	0.18%	398.2	0.20
	15	0.18%	383.6	0.17
	14	0.18%	275.1	0.20
	12	0.18%	214.2	0.17
	10	0.18%	96.2	0.23
	8	0.18%	76.9	0.16
Branch 1	8	0.30%	45.4	0.35
Branch 2	10	0.50%	147.0	0.25
	10	0.20%	107.0	0.22
	8	0.20%	72.5	0.18
Branch 3	10	0.40%	67.8	0.49
	10	0.40%	43.3	0.76
	8	0.40%	43.3	0.42
	8	2.00%	10.1	4.02

Nearly all the CD 51 tile is below the recommended minimum drainage coefficient. According to historical documents, the CD 51 tile was installed in 1963, making it 60 years old. At the time of installation, the tile had a life expectancy of roughly 100-years. Based on this, the tile is expected to be functioning close to its as-constructed capacity. With knowledge of other tile systems of a similar age, the tile lines may be clogged with sediment or in otherwise poor condition. If it is of landowner interest, ISG would perform a televising investigation using ISG's tile camera to gain more insight on the condition of the tile.

PROPOSED CONDITIONS

Upon review of the existing condition of the drainage system, there were areas of concern that should be addressed individually or apart of a larger repair or improvement project. Options to repair or improve the tile and open ditch sections of the ditch as also included. The repaired tile would be installed following the existing tile alignments matching the existing tile slopes and elevations. In most cases the size of the tile will be maintained, but in the case that the original tile size is no longer readily available, for example a 20-inch tile, the next increased tile size will be used, a 24-inch tile in this case. Options to improve the existing system were considered along with the costs for repairing the system. All improvement options are sized to achieve at least a drainage coefficient of 0.50 in/day for subsurface drainage tiles and 1.0 in/day for open ditch crossings.

The options outlined below are intended to be a starting point for discussion and considerations from landowners. Feedback is encouraged on the scope of work for areas that may or may not be included in the project.

Areas of Concern + Ditch Maintenance Repair Option

After reviewing the drone footage collected, several areas of concern were identified. The areas that were of largest concern are depicted in the Repair Areas Map included in Appendix A. These areas include approximately 8,600 feet of open ditch that have restricted flow from sediment buildup and vegetation growth in the bottom of the ditch. Other areas include trees that have grown within the open ditch cross section. This can lead to erosion issues and cause sediment to build up within the ditch, therefore restricting flow even greater. Lastly, culverts at crossings #8, #10, #13, and #22 were identified as either failing or near failing. Refer to figures 8 and 11 above. These areas are of greatest concern on CD 51 and are recommended to be addressed individually or as apart of a larger drainage repair or improvement project.

Repair Option 1

It is proposed in Repair Option 1 to clean all the open ditch, replace all of the culverts, and clear trees from portions of the open ditch. Specifically, the repairs will include the following.

- Cleaning 40,449 feet of open ditch
- Replacing culverts at Crossings #1-22
- Clearing 5.7 acres of heavy vegetation and trees

Repair Option 2

It is proposed in Repair Option 2 to repair all the tile in the CD 51 system. Specifically, the repairs will include the following.

- Repair all tile, consisting of
    - 4,200 feet of 24-inch tile
    - 2,000 feet of 18-inch tile
    - 1,600 feet of 15-inch tile
    - 1,000 feet of 12-inch tile
    - 2,970 feet of 10-inch tile
    - 2,684 feet of 8-inch tile

Improvement Option 1

It is proposed in Improvement Option 1 to deepen the Mainline open ditch between 261st Ave and MNTH 99, deepen the Mainline open ditch between 400th Street and 245th Ave, clean the remaining open ditch, replace all culverts along the open ditch, and clear trees from the open ditch. The improvement includes ensuring each culvert has a drainage coefficient above 1.0 in/day. The improvement option will include the following:

- Deepening 11,555 feet of open ditch
- Cleaning 28,894 feet of open ditch
- Clearing 5.7 acres of heavy vegetation and trees
- Replacing culverts at Crossings #1-22

Improvement Option 2

It is proposed in Improvement Option 2 to improve all the tile in the CD 51 system. The improvement includes ensuring all tile is sized for a drainage coefficient of 0.5 in/day. The improvement option includes the following:

- Improving all tile, consisting of:
    - 4,200 feet of 30-inch tile
    - 3,600 feet of 24-inch tile
    - 1,000 feet of 18-inch tile
    - 2,300 feet of 15-inch tile
    - 2,090 feet of 12-inch tile
    - 1,130 feet of 10-inch tile
    - 174 feet of 8-inch tile

TABLE 3. PROPOSED CULVERT DRAINAGE CAPACITIES

Crossing # on Map	Station	Roadway	Proposed Type	Proposed Material	Existing Size	Proposed Size (in)	Proposed Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day	Proposed Drainage Coefficient (in/day)
1	363+81	TH 112 - Main	ARCH CULVERT	RCP	10'x10' Box	107 x 169	0.06%	5372	2.27	2.36
2	347+39	261st Ave - Main	ROUND CULVERT	RCP	75 x 122'' Arch	96	0.06%	5289	0.40	1.01
3	310+00	Field Crossing - Main	ROUND CULVERT	RCP	72	84	0.08%	4143	0.49	1.04
4	302+50	Field Crossing - Main	ROUND CULVERT	RCP	72	84	0.08%	4072	0.91	1.06
5	261+64	TH 99 - Main	ROUND CULVERT	RCP	72	84	0.07%	3977	0.51	1.01
6	246+60	251st Ave - Main	ROUND CULVERT	RCP	72	84	0.07%	3942	0.27	1.02
7	242+18	400th St - Main	ROUND CULVERT	RCP	72	84	0.07%	3907	0.23	1.03
8	234+50	Field Crossing - Main	ROUND CULVERT	RCP	-	84	0.07%	3887	0.47	1.04
9	212+00	245th Ave - Main	ROUND CULVERT	RCP	72	72	0.25%	3383	0.78	1.49
10	206+30	Field Crossing - Main	ROUND CULVERT	RCP	60	72	0.25%	3355	0.48	1.51
11	183+00	Field Crossing - Main	ROUND CULVERT	RCP	72	72	0.18%	3238	0.69	1.32
12	176+00	S Maple Ave - Main	ROUND CULVERT	RCP	72	72	0.18%	3224	0.69	1.33
13	164+35	Field Crossing - Main	ROUND CULVERT	RCP	72	72	0.15%	2510	0.81	1.56
14	148+94	237th Ave - Main	ROUND CULVERT	RCP	72	72	0.18%	2433	0.92	1.76
15	121+68	Field Crossing - Main	ROUND CULVERT	RCP	60	60	0.08%	1156	0.79	1.52
16	119+00	S Maple Ave - Main	ROUND CULVERT	RCP	60	60	0.08%	1150	1.53	1.53
17	94+00	400th St - Main	ROUND CULVERT	RCP	60	60	0.05%	1033	0.70	1.35
18	77+40	Field Crossing - Main	ROUND CULVERT	RCP	54	54	0.05%	511	1.07	2.05
19	62+00	Field Crossing - Main	ROUND CULVERT	RCP	54	54	0.05%	409	1.33	2.57
20	50+70	Field Crossing - Main	ROUND CULVERT	RCP	54	54	0.05%	267	2.04	3.93
21	43+00	W Bradshaw St - Main	ROUND CULVERT	RCP	54	54	0.05%	244	2.24	4.31
22	10+00	Field Crossing - Spur 4	ROUND CULVERT	RCP	30	30	0.08%	99	1.46	2.81

TABLE 4. PROPOSED TILE DRAINAGE CAPACITIES

Area	ACSIC Size (in)	Proposed Size (in)	ACSIC Slope (%)	Proposed Slope (%)	Drainage Area (Acres)	ACSIC Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
Lat 1	24	30	0.44%	0.15%	757.7	0.47	0.50
	24	30	0.50%	0.16%	722.4	0.53	0.54
	24	30	0.30%	0.13%	693.9	0.43	0.51
	24	30	0.18%	0.11%	631.6	0.36	0.51
	18	24	0.18%	0.21%	484.6	0.22	0.51
	18	24	0.18%	0.14%	398.2	0.27	0.51
	15	24	0.18%	0.13%	383.6	0.17	0.51
	15	24	0.18%	0.07%	275.1	0.24	0.52
	12	18	0.18%	0.19%	214.2	0.17	0.51
	10	15	0.18%	0.10%	96.2	0.23	0.51
	8	12	0.18%	0.21%	76.9	0.16	0.51
Branch 1	8	10	0.30%	0.19%	45.4	0.35	0.50
Branch 2	10	15	0.50%	0.23%	147.0	0.25	0.50
	10	15	0.20%	0.13%	107.0	0.22	0.52
	8	12	0.20%	0.19%	72.5	0.18	0.51
Branch 3	10	12	0.40%	0.16%	67.8	0.49	0.50
	10	10	0.40%	0.40%	43.3	0.76	0.76
	8	10	0.40%	0.18%	43.3	0.42	0.51
	8	8	2.00%	2.00%	10.1	4.02	4.02

MULTI-PURPOSE DRAINAGE MANAGEMENT

Multi-purpose drainage management (MDM) incorporates Best Management Practices (BMPs) which utilize effective measures aimed at reducing sediment and nutrient loading and improving water quality. These BMPs are divided into three areas: preventative measures, control measures, and treatment measures. Preventative measures that can be applied throughout the watershed include crop rotation, cover crops, residue management, and nutrient management. These measures are aimed at controlling sediment, minimizing erosion and nutrient loss, and sustaining the soils health, all without dramatically changing the current land use of the landscape.

Control measures are practices aimed at improving water quality directly associated with the flow of water by reducing peak flows, providing in stream storage, sedimentation, and nutrient uptake. Examples of control measures include alternative intake structures, grassed waterways, two stage ditches, water control structures, and controlled subsurface drainage. These practices are directly linked to the conveyance of subsurface tile water or open channel ditch flow.

The function of treatment measures is to improve water quality by directly removing sediment and nutrients from the subsurface or surface water flow throughout a watershed. Examples of treatment measures include surge basins (storage ponds), filter/buffer strips, wetland restorations, woodchip bioreactors, and water and sediment control basins (WASCOBs). These practices may be incorporated to either the public or private drainage systems.

Conservative drainage practices, such as controlled drainage systems, provide an option for improving the water quality and reduce peak flow rates within a drainage system. Through utilization of control structures, these systems are designed to allow agricultural producers to regulate water levels in their fields. The water level in the ground can be lowered during planting and harvest seasons and allowed to rise during the growing season. Water and nutrients stored in the soil during the growing season can then be used by the crops during drier periods, potentially increasing yields.

Several areas throughout the CD 51 watershed were identified as potential sites for storage ponds. These locations can be seen in the attached MDM Map in Appendix A. The proposed storage ponds will increase the water storage in the system and allow sediment to settle out of the water, thereby improving water quality. They also delay water before it enters the ditch, which will reduce flooding.

Due to increased capacities, storage will need to be considered. Further investigation and modeling will need to be done to determine the exact effects of a storage area on the outlet and downstream waters. Other storage options may also be considered such as in-channel storage, wetland restorations, wetland banking or strategically placing restrictions on the system with culverts or weirs. Potential storage areas have been identified on the MDM Map in the attachments and a cost estimate was performed for 10 acre-feet of storage through an 2.7-acre storage pond and can be seen in Table 5.

TABLE 5. PRELIMINARY STORAGE POND COST ESTIMATE

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$5,770.00	$5,770.00
102	COMMON EXCAVATION	CY	24646	$2.30	$56,684.96
103	24-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	$1,658.60	$1,658.60
104	INSTALL STRUCTURE S-1 WITH GALVINIZED GRATE	LS	1	$14,462.30	$14,462.30
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	15	$75.90	$1,138.50
106	TOP SOIL STRIP & PLACE SPOILS	AC	10.74	$4,010.00	$43,065.45
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	0.54	$1,500.00	$814.74
108	STANDARD SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.26	$3,500.00	$924.69
109	STANDARD POND BOTTOM SEEDING (SEED MIX: 24-261 W/ TYPE 7 (BFM) MULCH)	AC	2.41	$3,600.00	$8,674.86
110	BUFFER STRIP MOWING	AC	1.09	$195.50	$212.37
111	WEED SPRAYING	AC	1.35	$331.30	$447.42
				TOTAL	$ 133,854
				10% UNFORSEEN	$ 13,385
				SUBTOTAL	$ 147,239
	TEMPORARY DAMAGES	AC	13.42	$ 650.00	$ 8,726
	LAND ACQUISTION/ PERMANENT DAMAGES	AC	3.23	$ 6,500.00	$ 20,982
				COUNTY ADMINISTRATION COSTS	$ 7,362
				TOPOGRAPHIC SURVEY	$ 5,354
				REPORTS, PLANS, AND SPECIFICATIONS	$ 14,724
				CONSTRUCTION STAKING & ADMINISTRATION	$ 16,197
				TOTAL STORAGE POND IMPROVEMENT COST	**$ 220,585**

PRELIMINARY COST ESTIMATES

Separable Maintenance

When proposing to do an improvement and a separable portion of a larger system needs repair, the drainage statute, Section 103E.215, Subd. 6, allows the separation of the cost of repair from the cost of the improvement project. Separable maintenance can be applied to the portions of the existing system that will be replaced or improved by the proposed project. Detailed cost estimates of the potential repair and potential improvement costs have been included in Appendix B which is summarized below in Tables 6-8.

Cost Estimates

A cost estimate was prepared for the above outlined options for improvement to the system, as summarized in Tables 6-8. The costs provided in this report are conservative estimates as they assume open ditch cleaning throughout the entire open ditch, replacing all culvert crossings, repairing sloughs along 10% of the open ditch, and removing heavy vegetation and trees as determined from aerial photos. It should be noted that the unit prices for the cost estimates are based on previous projects. In comparison with previous projects, the proposed repairs to the CD 51 system described in this report are cost effective.

TABLE 6. AREAS OF CONCERN REPAIR OPTION COST ESTIMATE SUMMARY

Area	Separable Maintenance
Area of Concern Cleaning	$ 333,894
Culvert Crossing #8 (Field Crossing - Main)	$ 39,383
Culvert Crossing #10 (Field Crossing - Main)	$ 34,985
Culvert Crossing #13 (Field Crossing - Main)	$ 59,029
Culvert Crossing #22 (Field Crossing - Spur 4)	$ 16,778
Total Project Costs	**$ 484,069**

TABLE 7. IMPROVEMENT OPTION 1 COST ESTIMATE SUMMARY

Area	Separable Maintenance	Improvement Cost	Net Cost
Main Open Ditch (261st to TH99)	$ 208,443	$ 237,400	$ 28,957
Main Open Ditch (400th to 245th)	$ 74,673	$ 86,538	$ 11,866
Remaining Main Open Ditch	$ 595,601	$ 726,766	$ 131,165
Spur 4 Open Ditch	$ 44,722	$ 45,050	$ 328
Spur 2 Open Ditch	$ 74,421	$ 74,966	$ 545
Culvert Crossing #3 (Field Crossing - Main)	$ 49,199	$ 58,910	$ 9,711
Culvert Crossing #4 (Field Crossing - Main)	$ 49,199	$ 58,910	$ 9,711
Culvert Crossing #8 (Field Crossing - Main)	$ 39,383	$ 46,713	$ 7,329
Culvert Crossing #10 (Field Crossing - Main)	$ 34,985	$ 39,867	$ 4,882
Culvert Crossing #11 (Field Crossing - Main)	$ 49,199	$ 49,760	$ 561
Culvert Crossing #13 (Field Crossing - Main)	$ 59,029	$ 59,705	$ 677
Culvert Crossing #15 (Field Crossing - Main)	$ 43,385	$ 43,599	$ 214
Culvert Crossing #18 (Field Crossing - Main)	$ 46,230	$ 46,590	$ 360
Culvert Crossing #20 (Field Crossing - Main)	$ 46,230	$ 46,590	$ 360
Culvert Crossing #22 (Field Crossing - Spur 4)	$ 16,778	$ 16,909	$ 131
Road Crossing Costs	$ -	$ 94,556	$ 94,556
Subtotal	**$ 1,431,477**	**$ 1,732,830**	**$ 301,354**
Road Authority Repair Costs	$ 1,394,568	$ 1,394,568	$ -
Total Project Costs	**$ 2,826,045**	**$ 3,127,399**	**$ 301,354**

TABLE 8. IMPROVEMENT OPTION 2 COST ESTIMATE SUMMARY

Area	Separable Maintenance	Improvement Cost	Net Cost
Lateral 1	$ 661,371	$ 855,638	$ 194,267
Branch 1	$ 24,895	$ 25,498	$ 602
Branch 2	$ 130,176	$ 148,000	$ 17,824
Branch 3	$ 68,678	$ 71,587	$ 2,909
Road Crossing Costs	$ -	$ 1,554	$ 1,554
Subtotal	**$ 885,120**	**$ 1,102,277**	**$ 217,157**
Road Authority Repair Costs	$ 41,927	$ 41,927	$ -
Total Project Costs	**$ 927,047**	**$ 1,144,204**	**$ 217,157**

CONCLUSIONS + RECOMMENDATIONS

Currently, the existing tile and open ditch system has a lower capacity than the ISG recommended standard. Upgrading the tile and open ditch would increase the capacity of the system to a drainage coefficient over 0.50 in/day for subsurface drainage tile and 1.0 in/day for open ditch crossings. The system is approximately 72-years old, which is roughly the life expectancy for ditch systems like CD 51. These improvements would be a public benefit and contribute to the public welfare of this area. Repairs are necessary to the system particularly to the failing culverts in the system. Leaving the failing culverts in place may continue to be an obstruction to drainage and cause erosion to surrounding banks. If the culverts crossings are no longer in use, they should be removed from the system. Additional repair needs were noted throughout the CD 51 system including open ditch cleaning, slough repairs, and tree removals. Repairs may be initiated through individual and/or group repair petition or by the drainage authority. Improvements requests require at least 26% of affected landowners to sign improvement petition.

We would appreciate the opportunity to discuss this in greater detail and to potentially meet with a group of landowners to discuss. Please contact us with questions or comments.

Sincerely,

Bailey Griffin, PE

Appendix A: Maps

Existing Watershed Map

County Ditch No 51

Le Sueur County, Minnesota

Monday, August 21, 2023

Le Sueur County CD No. 51
Overall Watershed Boundary
Total Area = 5,163 Acres

Legend

- Culvert Crossing
- Existing Open Ditch
- Existing Tile
- CD 51 Watershed
- Le Sueur Creek
- Unnamed Stream

PN: 23-29409

Source:

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

N

0 500 1,000 2,000 Feet

Crossing #	Location	Existing Type	Existing Material	Existing Size (in)	Existing Width (ft)	Existing Height (ft)	Existing Rise x Span (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
1	TH 112 - Main	BOX CULVERT	RCP	-	10	10	-	0.04%	5372	2.27
2	261st Ave - Main	ARCH CULVERT	CMP	-	-	-	75 x 112	0.04%	5289	0.40
3	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.15%	4143	0.49
4	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.50%	4072	0.91
5	TH 99 - Main	ROUND CULVERT	RCP	72	-	-	-	0.04%	3977	0.51
6	251st Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.04%	3942	0.27
7	400th St - Main	ROUND CULVERT	CMP	72	-	-	-	0.03%	3907	0.23
8	Field Crossing - Main	ARCH CULVERT	CMP	-	-	-	75 x 112	0.03%	3887	0.47
9	245th Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.25%	3383	0.78
10	Field Crossing - Main	ROUND CULVERT	CMP	60	-	-	-	0.25%	3355	0.48
11	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	3238	0.69
12	S Maple Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	3224	0.69
13	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.15%	2510	0.81
14	237th Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	2433	0.92
15	Field Crossing - Main	ROUND CULVERT	CMP	60	-	-	-	0.08%	1156	0.79
16	S Maple Ave - Main	ROUND CULVERT	RCP	60	-	-	-	0.08%	1150	1.53
17	400th St - Main	ROUND CULVERT	CMP	60	-	-	-	0.05%	1033	0.70
18	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	511	1.07
19	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	409	1.33
20	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	267	2.04
21	W Bradshaw St - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	244	2.24
22	Field Crossing - Spur 4	ROUND CULVERT	CMP	30	-	-	-	0.08%	99	1.46

Existing Elevation Map

County Ditch No 51

Le Sueur County, Minnesota

Monday, August 21, 2023

Legend

- Culvert Crossing
- Existing Open Ditch
- Existing Tile
- CD 51 Watershed
- Le Sueur Creek
- Unnamed Stream

Elevation

Value

High : 1088.76

Low : 954.816

PN: 23-29409

Source:

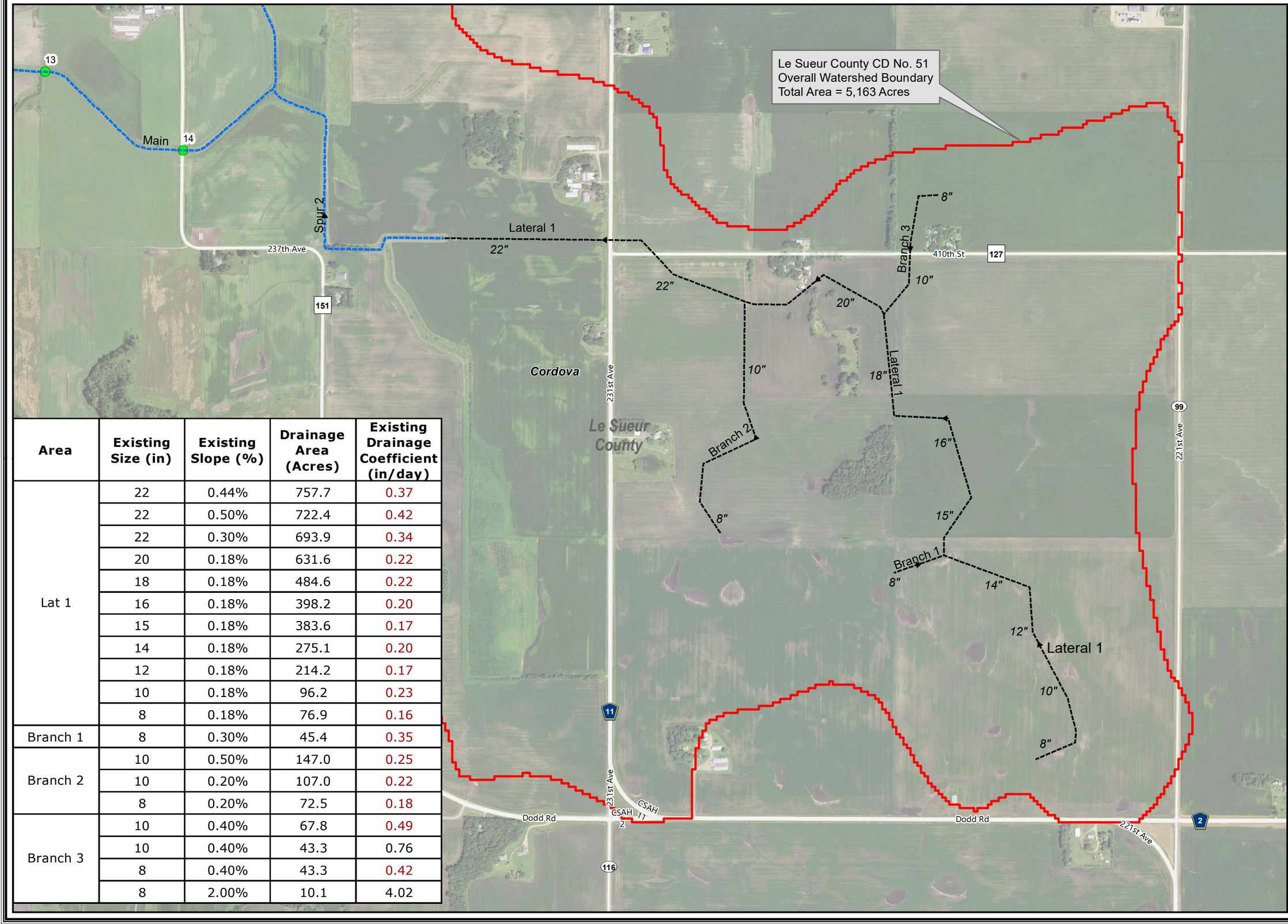
Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (Le Sueur County, 12/16/2016)
Parcels (Le Sueur County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)

N

0 500 1,000 2,000 Feet

Le Sueur County CD No. 51
Overall Watershed Boundary
Total Area = 5,163 Acres

Crossing #	Location	Existing Type	Existing Material	Existing Size (in)	Existing Width (ft)	Existing Height (ft)	Existing Rise x Span (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
1	TH 112 - Main	BOX CULVERT	RCP	-	10	10	-	0.04%	5372	2.27
2	261st Ave - Main	ARCH CULVERT	CMP	-	-	-	75 x 112	0.04%	5289	0.40
3	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.15%	4143	0.49
4	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.50%	4072	0.91
5	TH 99 - Main	ROUND CULVERT	RCP	72	-	-	-	0.04%	3977	0.51
6	251st Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.04%	3942	0.27
7	400th St - Main	ROUND CULVERT	CMP	72	-	-	-	0.03%	3907	0.23
8	Field Crossing - Main	ARCH CULVERT	CMP	-	-	-	75 x 112	0.03%	3887	0.47
9	245th Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.25%	3383	0.78
10	Field Crossing - Main	ROUND CULVERT	CMP	60	-	-	-	0.25%	3355	0.48
11	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	3238	0.69
12	S Maple Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	3224	0.69
13	Field Crossing - Main	ROUND CULVERT	CMP	72	-	-	-	0.15%	2510	0.81
14	237th Ave - Main	ROUND CULVERT	CMP	72	-	-	-	0.18%	2433	0.92
15	Field Crossing - Main	ROUND CULVERT	CMP	60	-	-	-	0.08%	1156	0.79
16	S Maple Ave - Main	ROUND CULVERT	RCP	60	-	-	-	0.08%	1150	1.53
17	400th St - Main	ROUND CULVERT	CMP	60	-	-	-	0.05%	1033	0.70
18	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	511	1.07
19	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	409	1.33
20	Field Crossing - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	267	2.04
21	W Bradshaw St - Main	ROUND CULVERT	CMP	54	-	-	-	0.05%	244	2.24
22	Field Crossing - Spur 4	ROUND CULVERT	CMP	30	-	-	-	0.08%	99	1.46



Area	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Lat 1	22	0.44%	757.7	0.37
	22	0.50%	722.4	0.42
	22	0.30%	693.9	0.34
	20	0.18%	631.6	0.22
	18	0.18%	484.6	0.22
	16	0.18%	398.2	0.20
	15	0.18%	383.6	0.17
	14	0.18%	275.1	0.20
	12	0.18%	214.2	0.17
	10	0.18%	96.2	0.23
	8	0.18%	76.9	0.16
Branch 1	8	0.30%	45.4	0.35
Branch 2	10	0.50%	147.0	0.25
	10	0.20%	107.0	0.22
	8	0.20%	72.5	0.18
Branch 3	10	0.40%	67.8	0.49
	10	0.40%	43.3	0.76
	8	0.40%	43.3	0.42
	8	2.00%	10.1	4.02

Existing Tile Map

County Ditch No 51

Le Sueur County, Minnesota

Monday, August 21, 2023

Legend

- Existing Open Ditch
- Existing Tile
- CD 51 Watershed
- Culvert Crossing

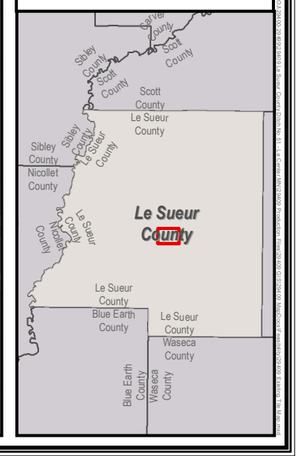
PN: 23-29409

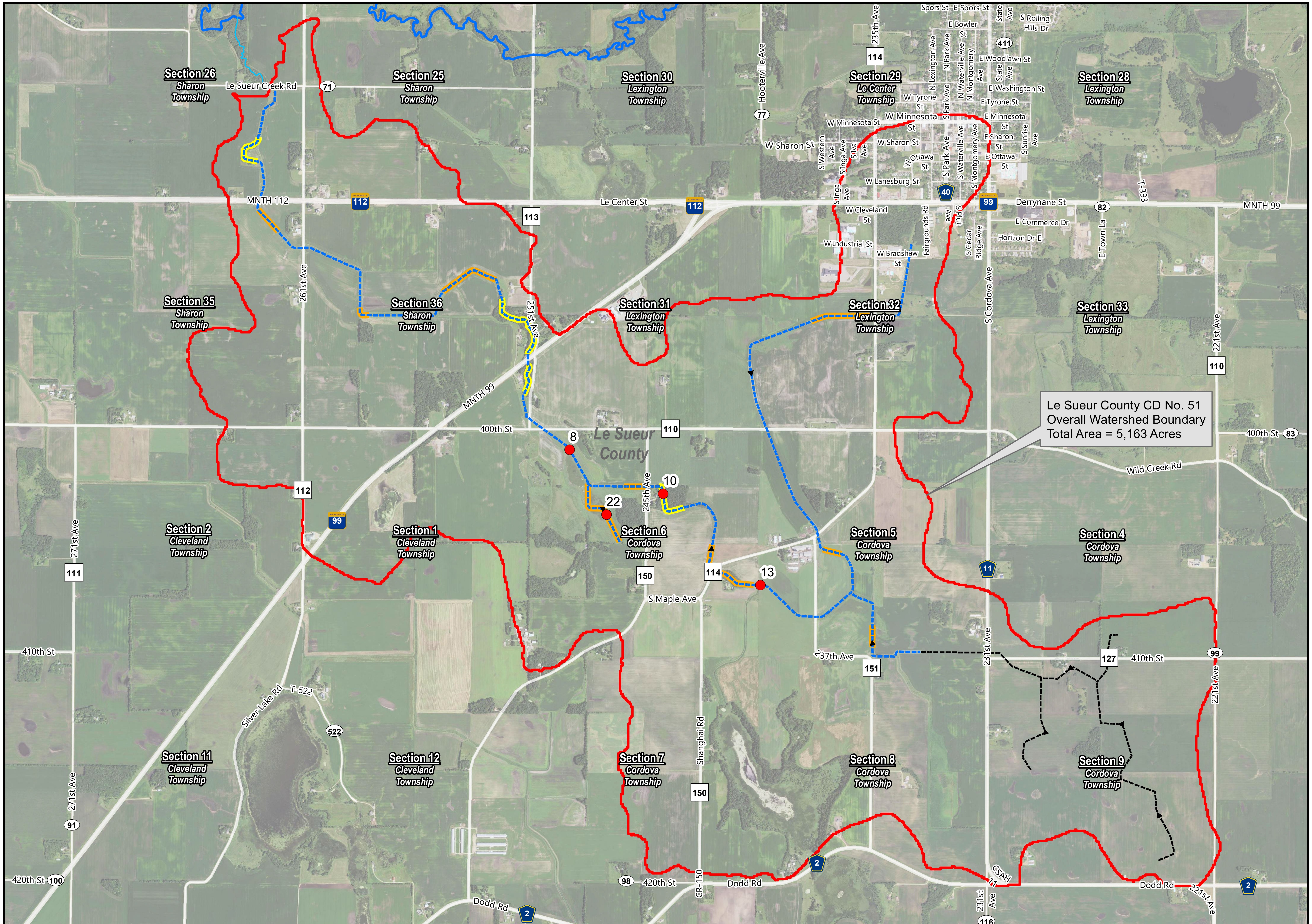
Source:

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

N

0 200 400 800 Feet




Section 26
Sharon Township
Section 25
Sharon Township
Section 30
Lexington Township
Section 29
Le Center Township
Section 28
Lexington Township
Section 35
Sharon Township
Section 36
Sharon Township
Section 31
Lexington Township
Section 32
Lexington Township
Section 33
Lexington Township
Section 2
Cleveland Township
Section 1
Cleveland Township
Section 6
Cordova Township
Section 5
Cordova Township
Section 4
Cordova Township
Section 11
Cleveland Township
Section 12
Cleveland Township
Section 7
Cordova Township
Section 8
Cordova Township
Section 9
Cordova Township
Le Sueur County
Le Sueur County CD No. 51
Overall Watershed Boundary
Total Area = 5,163 Acres
8
10
22
13
Le Sueur Creek Rd
MNTH 112
Le Center St
Derrynane St
MNTH 99
400th St
Wild Creek Rd
S Maple Ave
237th Ave
410th St
Silver Lake Rd
Shanghai Rd
420th St
Dodd Rd

Repair Areas

County Ditch No 51

Le Sueur County, Minnesota

Monday, August 21, 2023

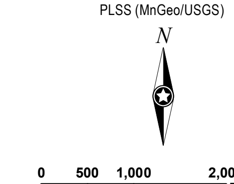
Legend

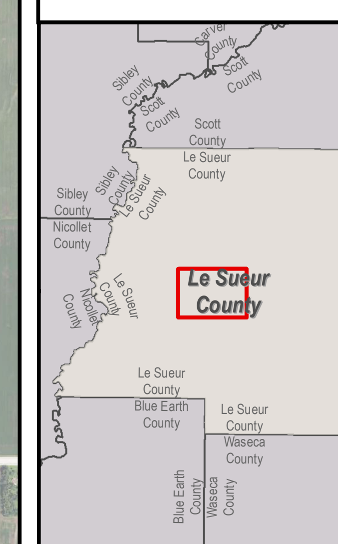
- Repair Culverts
- Existing Open Ditch
- Existing Tile
- Ditch Cleaning
- Tree Removal
- CD 51 Watershed
- Le Sueur Creek
- Unnamed Stream

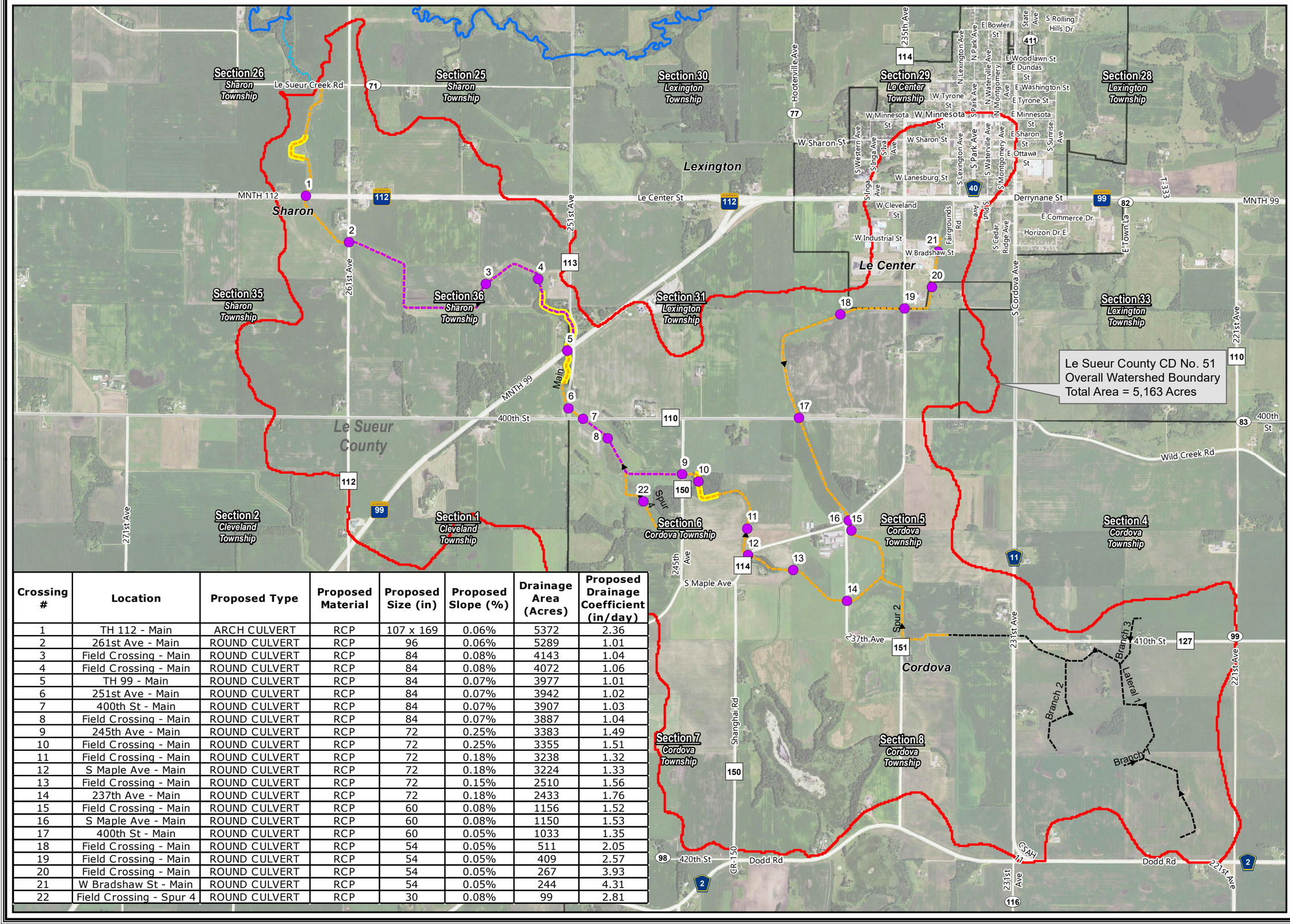
PN: 23-29409

Source:

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







Crossing #	Location	Proposed Type	Proposed Material	Proposed Size (in)	Proposed Slope (%)	Drainage Area (Acres)	Proposed Drainage Coefficient (in/day)
1	TH 112 - Main	ARCH CULVERT	RCP	107 x 169	0.06%	5372	2.36
2	261st Ave - Main	ROUND CULVERT	RCP	96	0.06%	5289	1.01
3	Field Crossing - Main	ROUND CULVERT	RCP	84	0.08%	4143	1.04
4	Field Crossing - Main	ROUND CULVERT	RCP	84	0.08%	4072	1.06
5	TH 99 - Main	ROUND CULVERT	RCP	84	0.07%	3977	1.01
6	251st Ave - Main	ROUND CULVERT	RCP	84	0.07%	3942	1.02
7	400th St - Main	ROUND CULVERT	RCP	84	0.07%	3907	1.03
8	Field Crossing - Main	ROUND CULVERT	RCP	84	0.07%	3887	1.04
9	245th Ave - Main	ROUND CULVERT	RCP	72	0.25%	3383	1.49
10	Field Crossing - Main	ROUND CULVERT	RCP	72	0.25%	3355	1.51
11	Field Crossing - Main	ROUND CULVERT	RCP	72	0.18%	3238	1.32
12	S Maple Ave - Main	ROUND CULVERT	RCP	72	0.18%	3224	1.33
13	Field Crossing - Main	ROUND CULVERT	RCP	72	0.15%	2510	1.56
14	237th Ave - Main	ROUND CULVERT	RCP	72	0.18%	2433	1.76
15	Field Crossing - Main	ROUND CULVERT	RCP	60	0.08%	1156	1.52
16	S Maple Ave - Main	ROUND CULVERT	RCP	60	0.08%	1150	1.53
17	400th St - Main	ROUND CULVERT	RCP	60	0.05%	1033	1.35
18	Field Crossing - Main	ROUND CULVERT	RCP	54	0.05%	511	2.05
19	Field Crossing - Main	ROUND CULVERT	RCP	54	0.05%	409	2.57
20	Field Crossing - Main	ROUND CULVERT	RCP	54	0.05%	267	3.93
21	W Bradshaw St - Main	ROUND CULVERT	RCP	54	0.05%	244	4.31
22	Field Crossing - Spur 4	ROUND CULVERT	RCP	30	0.08%	99	2.81

Open Ditch Improvement Option

County Ditch No 51

Le Sueur County, Minnesota

Monday, August 21, 2023

Legend

- Proposed Culvert Replacement
- Ditch Deepening
- Ditch Cleaning
- Existing Tile
- Tree Removal
- CD 51 Watershed
- Le Sueur Creek
- Unnamed Stream

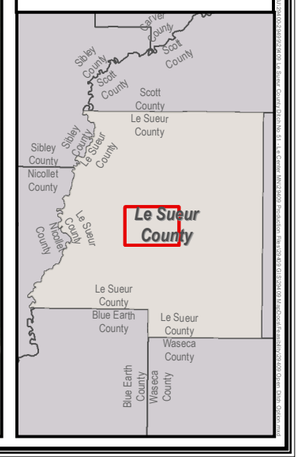
PN: 23-29409

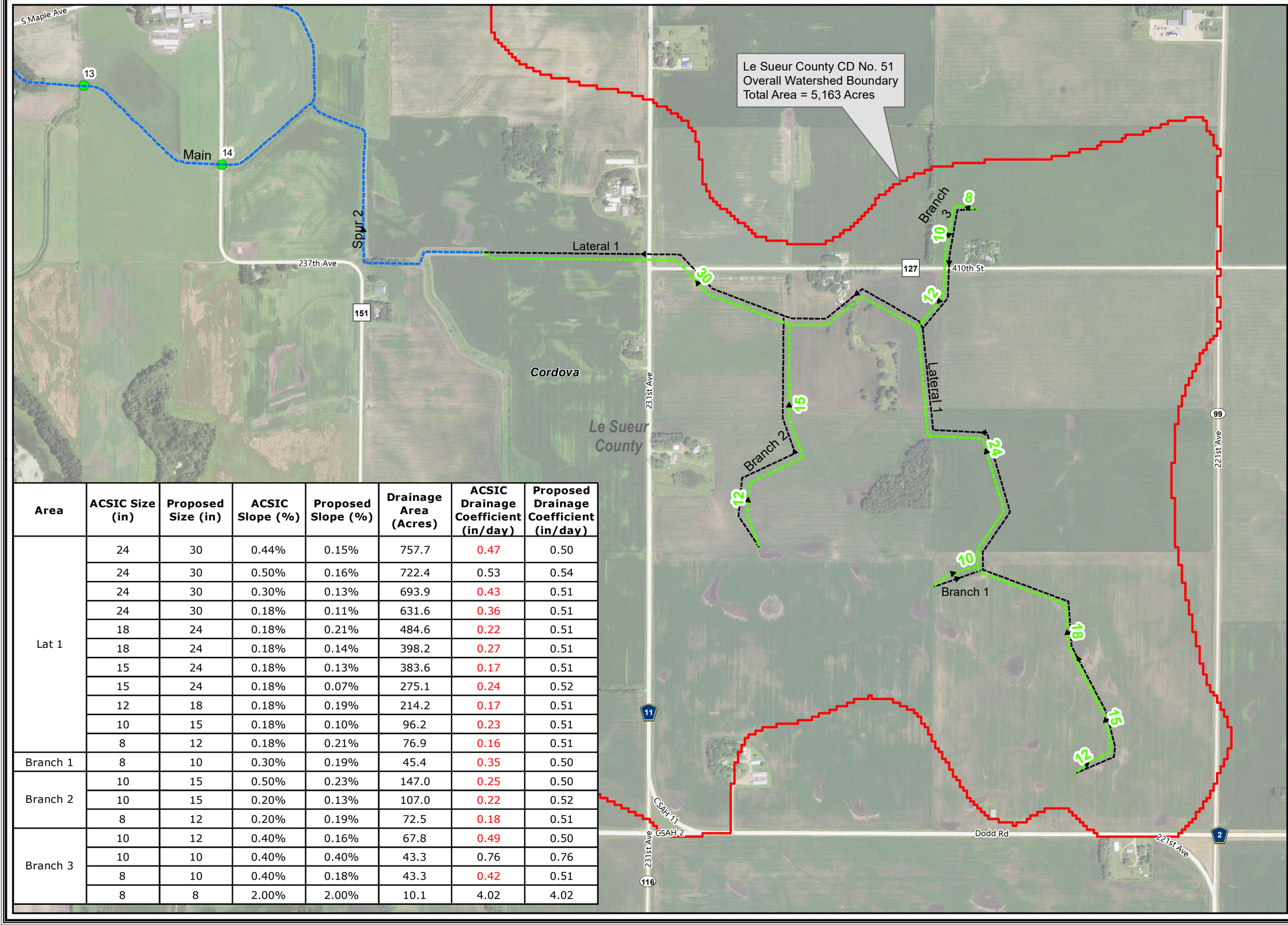
Source:

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

N

0 500 1,000 2,000 Feet





Area	ACSIC Size (in)	Proposed Size (in)	ACSIC Slope (%)	Proposed Slope (%)	Drainage Area (Acres)	ACSIC Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
Lat 1	24	30	0.44%	0.15%	757.7	0.47	0.50
	24	30	0.50%	0.16%	722.4	0.53	0.54
	24	30	0.30%	0.13%	693.9	0.43	0.51
	24	30	0.18%	0.11%	631.6	0.36	0.51
	18	24	0.18%	0.21%	484.6	0.22	0.51
	18	24	0.18%	0.14%	398.2	0.27	0.51
	15	24	0.18%	0.13%	383.6	0.17	0.51
	15	24	0.18%	0.07%	275.1	0.24	0.52
	12	18	0.18%	0.19%	214.2	0.17	0.51
	10	15	0.18%	0.10%	96.2	0.23	0.51
	8	12	0.18%	0.21%	76.9	0.16	0.51
Branch 1	8	10	0.30%	0.19%	45.4	0.35	0.50
Branch 2	10	15	0.50%	0.23%	147.0	0.25	0.50
	10	15	0.20%	0.13%	107.0	0.22	0.52
	8	12	0.20%	0.19%	72.5	0.18	0.51
Branch 3	10	12	0.40%	0.16%	67.8	0.49	0.50
	10	10	0.40%	0.40%	43.3	0.76	0.76
	8	10	0.40%	0.18%	43.3	0.42	0.51
	8	8	2.00%	2.00%	10.1	4.02	4.02

ISG

Tile Improvement Option

County Ditch No 51

Le Sueur County, Minnesota

Monday, August 21, 2023

Legend

- Proposed Tile
- Existing Open Ditch
- Existing Tile
- CD 51 Watershed
- Culvert Crossing

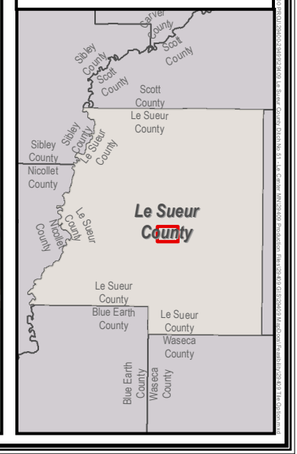
PN: 23-29409

Source:

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

N

0 200 400 800 Feet



ISG

MDM Map

County Ditch No 51

Le Sueur County,
Minnesota

Monday, August 21, 2023

Legend

- Culvert Crossing
- Existing Open Ditch
- Existing Tile
- Potential Storage Pond
- CD 51 Watershed
- Le Sueur Creek
- Unnamed Stream

PN: 23-29409

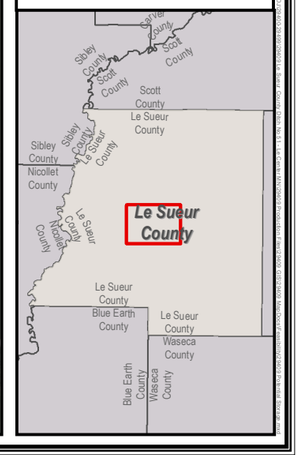
Source:

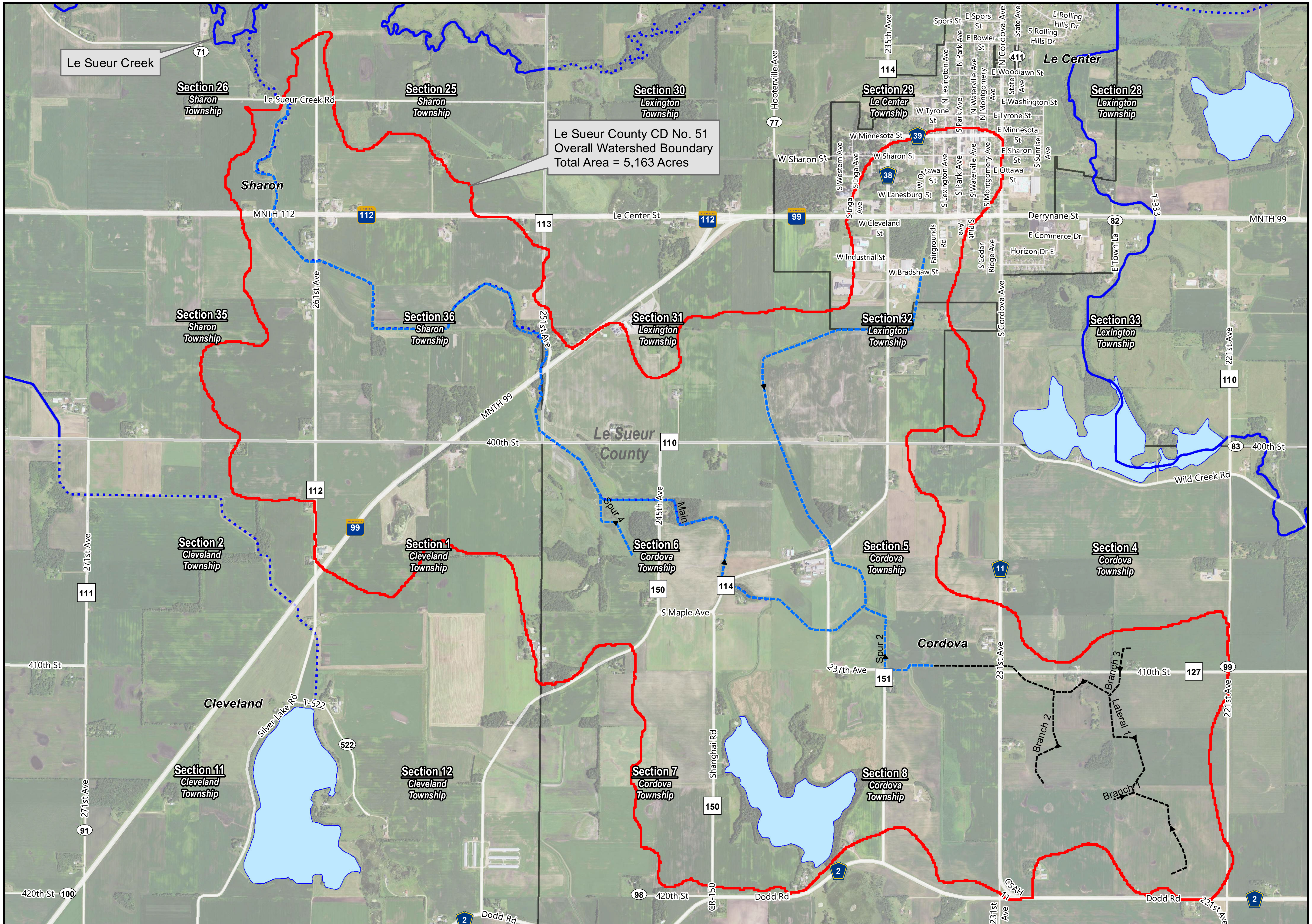
Orthophotograph (MnGeo WMS, 2015)
Tile/Ditch (Le Sueur County, 12/16/2016)
Parcels (Le Sueur County, 12/16/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)

N

0 500 1,000 2,000 Feet

Le Sueur County CD No. 51
Overall Watershed Boundary
Total Area = 5,163 Acres





Le Sueur Creek
Le Sueur County CD No. 51
Overall Watershed Boundary
Total Area = 5,163 Acres
Section 26 Sharon Township
Section 25 Sharon Township
Section 30 Lexington Township
Section 29 Le Center Township
Section 28 Lexington Township
Section 35 Sharon Township
Section 36 Sharon Township
Section 31 Lexington Township
Section 32 Lexington Township
Section 33 Lexington Township
Section 2 Cleveland Township
Section 1 Cleveland Township
Section 6 Cordova Township
Section 5 Cordova Township
Section 4 Cordova Township
Section 11 Cleveland Township
Section 12 Cleveland Township
Section 7 Cordova Township
Section 8 Cordova Township
Sharon
Le Center
Le Sueur County
Cleveland
Cordova
MNTH 112
MNTH 99
Le Center St
Derrynane St
400th St
410th St
420th St
Dodd Rd
Wild Creek Rd
Main
Spur 4
Spur 2
Branch 1
Branch 2
Branch 3
Lateral 1

Public Waters and Land

County Ditch No 51

Le Sueur County, Minnesota

Monday, August 21, 2023

Legend

- Existing Open Ditch
- Existing Tile
- CD 51 Watershed
- Public Water Watercourse
- Public Ditch/Altered Natural Watercourse
- Public Waters Basins

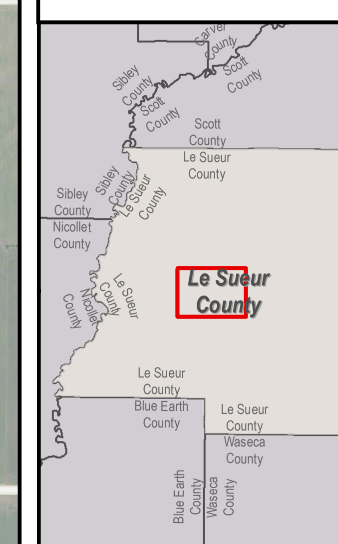
PN: 23-29409

Source:

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

N

0 500 1,000 2,000 Feet



Appendix B: Preliminary Cost Estimates

LE SUEUR COUNTY
COUNTY DITCH No. 51

PROPOSED AREAS OF CONCERN OPTION COST SUMMARY

Area	Separable Maintenance	
Area of Concern Cleaning	$	333,894
Culvert Crossing #8 (Field Crossing - Main)	$	39,383
Culvert Crossing #10 (Field Crossing - Main)	$	34,985
Culvert Crossing #13 (Field Crossing - Main)	$	59,029
Culvert Crossing #22 (Field Crossing - Spur 4)	$	16,778
Total Project Costs	**$**	**484,069**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION COST SUMMARY

Area	Separable Maintenance	Improvement Cost	Net Cost
Main Open Ditch (261st to TH99)	$ 208,443	$ 237,400	$ 28,957
Main Open Ditch (400th to 245th)	$ 74,673	$ 86,538	$ 11,866
Remaining Main Open Ditch	$ 595,601	$ 726,766	$ 131,165
Spur 4 Open Ditch	$ 44,722	$ 45,050	$ 328
Spur 2 Open Ditch	$ 74,421	$ 74,966	$ 545
Culvert Crossing #3 (Field Crossing - Main)	$ 49,199	$ 58,910	$ 9,711
Culvert Crossing #4 (Field Crossing - Main)	$ 49,199	$ 58,910	$ 9,711
Culvert Crossing #8 (Field Crossing - Main)	$ 39,383	$ 46,713	$ 7,329
Culvert Crossing #10 (Field Crossing - Main)	$ 34,985	$ 39,867	$ 4,882
Culvert Crossing #11 (Field Crossing - Main)	$ 49,199	$ 49,760	$ 561
Culvert Crossing #13 (Field Crossing - Main)	$ 59,029	$ 59,705	$ 677
Culvert Crossing #15 (Field Crossing - Main)	$ 43,385	$ 43,599	$ 214
Culvert Crossing #18 (Field Crossing - Main)	$ 46,230	$ 46,590	$ 360
Culvert Crossing #20 (Field Crossing - Main)	$ 46,230	$ 46,590	$ 360
Culvert Crossing #22 (Field Crossing - Spur 4)	$ 16,778	$ 16,909	$ 131
Road Crossing Costs	$ -	$ 94,556	$ 94,556
Subtotal	**$ 1,431,477**	**$ 1,732,830**	**$ 301,354**
Road Authority Repair Costs	$ 1,394,568	$ 1,394,568	$ -
Total Project Costs	**$ 2,826,045**	**$ 3,127,399**	**$ 301,354**
		Subtotal Separable Maintenance Costs	$ 1,431,477
		Net Costs	$ 301,354
		Viewing Costs	$ 30,978
		Total Project Costs for Landowners	**$ 1,763,808**

PROPOSED IMPROVEMENT TILE OPTION COST SUMMARY

Area	Separable Maintenance	Improvement Cost	Net Cost
Lateral 1	$ 661,371	$ 855,638	$ 194,267
Branch 1	$ 24,895	$ 25,498	$ 602
Branch 2	$ 130,176	$ 148,000	$ 17,824
Branch 3	$ 68,678	$ 71,587	$ 2,909
Road Crossing Costs	$ -	$ 1,554	$ 1,554
Subtotal	**$ 885,120**	**$ 1,102,277**	**$ 217,157**
Road Authority Repair Costs	$ 41,927	$ 41,927	$ -
Total Project Costs	**$ 927,047**	**$ 1,144,204**	**$ 217,157**
		Subtotal Separable Maintenance Costs	$ 885,120
		Net Costs	$ 217,157
		Viewing Costs	$ 30,978
		Total Project Costs for Landowners	**$ 1,133,255**

LE SUEUR COUNTY
COUNTY DITCH No. 51

AREAS OF CONCERN REPAIR OPTION

Area of Concern Cleaning

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 10,910.00	$ 10,910
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	7	$ 3,500.00	$ 24,500
103	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	1040	$ 3.27	$ 3,401
104	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	7534	$ 3.21	$ 24,184
105	DITCH SIDESLOPE REPAIR	LF	858	$ 9.79	$ 8,400
106	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	42	$ 878.54	$ 36,899
107	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	5.7	$ 14,868.13	$ 84,748
108	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	6.5	$ 1,500.32	$ 9,752
109	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	3.94	$ 4,236.11	$ 16,690
110	MOWING	AC	13	$ 214.40	$ 2,787
111	WEED SPRAYING	AC	16.94	$ 307.80	$ 5,214
				SUBTOTAL CONSTRUCTION COST	**$ 227,486**
				10% UNFORSEEN	$ 22,749
				TOTAL CONSTRUCTION COST	**$ 250,234**
TEMPORARY DAMAGES		AC	6.50	$ 650.00	$ 4,222
TELEVISING (POST CONSTRUCTION)		LF	0	$ 1.00	$ -
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 12,512
				TOPOGRAPHIC SURVEY	$ 8,120
				REPORTS, PLANS AND SPECIFICATIONS	$ 25,024
				CONSTRUCTION STAKING & ADMINISTRATION	$ 33,782
				TOTAL AREA OF CONCERN CLEANING REPAIR COST	**$ 333,894**

Culvert Crossing #8 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,340.00	$ 1,340
102	72-INCH CLASS III RCP PIPE	LF	30	$ 650.00	$ 19,500
103	GRANULAR BEDDING MATERIAL	CY	9	$ 38.09	$ 343
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 27,861**
				10% UNFORSEEN	$ 2,786
				TOTAL CONSTRUCTION COST	**$ 30,647**
TEMPORARY DAMAGES		AC	0.00	$ 650.00	$ -
TELEVISING (POST CONSTRUCTION)		LF	0	$ 1.00	$ -
				COUNTY ADMINISTRATION COSTS	$ 1,533
				TOPOGRAPHIC SURVEY	$ -
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,065
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,138
				TOTAL CULVERT CROSSING #8 (FIELD CROSSING - MAIN) REPAIR COST	**$ 39,383**

LE SUEUR COUNTY
COUNTY DITCH No. 51

AREAS OF CONCERN REPAIR OPTION

Culvert Crossing #10 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,190.00	$ 1,190
102	60-INCH CLASS III RCP PIPE	LF	30	$ 550.00	$ 16,500
103	GRANULAR BEDDING MATERIAL	CY	10	$ 38.09	$ 381
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 24,749**
				10% UNFORSEEN	$ 2,475
				TOTAL CONSTRUCTION COST	**$ 27,224**
	TEMPORARY DAMAGES	AC	0.00	$ 650.00	$ -
	TELEVISING (POST CONSTRUCTION)	LF	0	$ 1.00	$ -
				COUNTY ADMINISTRATION COSTS	$ 1,362
				TOPOGRAPHIC SURVEY	$ -
				REPORTS, PLANS AND SPECIFICATIONS	$ 2,723
				CONSTRUCTION STAKING & ADMINISTRATION	$ 3,676
				TOTAL CULVERT CROSSING #10 (FIELD CROSSING - MAIN) REPAIR COST	**$ 34,985**

Culvert Crossing #13 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,010.00	$ 2,010
102	72-INCH CLASS III RCP PIPE	LF	50	$ 650.00	$ 32,500
103	GRANULAR BEDDING MATERIAL	CY	15	$ 38.09	$ 571
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 41,760**
				10% UNFORSEEN	$ 4,176
				TOTAL CONSTRUCTION COST	**$ 45,936**
	TEMPORARY DAMAGES	AC	0.00	$ 650.00	$ -
	TELEVISING (POST CONSTRUCTION)	LF	0	$ 1.00	$ -
				COUNTY ADMINISTRATION COSTS	$ 2,297
				TOPOGRAPHIC SURVEY	$ -
				REPORTS, PLANS AND SPECIFICATIONS	$ 4,594
				CONSTRUCTION STAKING & ADMINISTRATION	$ 6,202
				TOTAL CULVERT CROSSING #13 (FIELD CROSSING - MAIN) REPAIR COST	**$ 59,029**

LE SUEUR COUNTY
COUNTY DITCH No. 51

AREAS OF CONCERN REPAIR OPTION

Culvert Crossing #22 (Field Crossing - Spur 4)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,000.00	$ 1,000
102	30-INCH CLASS III RCP PIPE	LF	20	$ 200.00	$ 4,000
103	GRANULAR BEDDING MATERIAL	CY	5	$ 38.09	$ 190
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 11,869**
				10% UNFORSEEN	$ 1,187
				TOTAL CONSTRUCTION COST	**$ 13,056**
	TEMPORARY DAMAGES	AC	0.00	$ 650.00	$ -
	TELEVISING (POST CONSTRUCTION)	LF	0	$ 1.00	$ -
				COUNTY ADMINISTRATION COSTS	$ 653
				TOPOGRAPHIC SURVEY	$ -
				REPORTS, PLANS AND SPECIFICATIONS	$ 1,306
				CONSTRUCTION STAKING & ADMINISTRATION	$ 1,763
				TOTAL CULVERT CROSSING #22 (FIELD CROSSING - SPUR 4) REPAIR COST	**$ 16,778**

TOTAL REPAIR COST

Area of Concern Cleaning	**$ 333,894**
Culvert Crossing #8 (Field Crossing - Main)	**$ 39,383**
Culvert Crossing #10 (Field Crossing - Main)	**$ 34,985**
Culvert Crossing #13 (Field Crossing - Main)	**$ 59,029**
Culvert Crossing #22 (Field Crossing - Spur 4)	**$ 16,778**
COMPLETE REPAIR COST	**$ 484,069**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Main Open Ditch (261st to TH99)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 6,660.00	$ 6,660
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	7	$ 3,500.00	$ 24,500
103	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	5075	$ 3.27	$ 16,595
104	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	3500	$ 3.21	$ 11,235
105	DITCH SIDESLOPE REPAIR	LF	858	$ 9.79	$ 8,400
106	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	42	$ 878.54	$ 36,899
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	6.5	$ 1,500.32	$ 9,752
108	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	3.94	$ 4,236.11	$ 16,690
109	MOWING	AC	13	$ 214.40	$ 2,787
110	WEED SPRAYING	AC	16.94	$ 307.80	$ 5,214
				SUBTOTAL CONSTRUCTION COST	**$ 138,733**
				10% UNFORSEEN	$ 13,873
				TOTAL CONSTRUCTION COST	**$ 152,606**
TEMPORARY DAMAGES		AC	6.50	$ 650.00	$ 4,223
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 7,631
				TOPOGRAPHIC SURVEY	$ 8,121
				REPORTS, PLANS AND SPECIFICATIONS	$ 15,261
				CONSTRUCTION STAKING & ADMINISTRATION	$ 20,602
				TOTAL MAIN OPEN DITCH (261ST TO TH99) REPAIR COST	**$ 208,443**

Main Open Ditch (400th to 245th)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,390.00	$ 2,390
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	3	$ 3,500.00	$ 10,500
103	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	2380	$ 3.27	$ 7,783
104	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	600	$ 3.21	$ 1,926
105	DITCH SIDESLOPE REPAIR	LF	298	$ 9.79	$ 2,917
106	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	14	$ 878.54	$ 12,300
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	2.26	$ 1,500.32	$ 3,391
108	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.37	$ 4,236.11	$ 5,803
109	MOWING	AC	4.52	$ 214.40	$ 969
110	WEED SPRAYING	AC	5.89	$ 307.80	$ 1,813
				SUBTOTAL CONSTRUCTION COST	**$ 49,792**
				10% UNFORSEEN	$ 4,979
				TOTAL CONSTRUCTION COST	**$ 54,771**
TEMPORARY DAMAGES		AC	2.26	$ 650.00	$ 1,467
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 2,739
				TOPOGRAPHIC SURVEY	$ 2,822
				REPORTS, PLANS AND SPECIFICATIONS	$ 5,478
				CONSTRUCTION STAKING & ADMINISTRATION	$ 7,395
				TOTAL MAIN OPEN DITCH (400TH TO 245TH) REPAIR COST	**$ 74,673**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Remaining Main Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 19,010.00	$ 19,010
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	19	$ 3,500.00	$ 66,500
103	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	4045	$ 3.27	$ 13,227
104	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	20627	$ 3.21	$ 66,213
105	DITCH SIDESLOPE REPAIR	LF	2468	$ 9.79	$ 24,162
106	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	123	$ 878.54	$ 108,060
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	18.7	$ 1,500.32	$ 28,056
108	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	11.33	$ 4,236.11	$ 47,995
109	MOWING	AC	37.4	$ 214.40	$ 8,019
110	WEED SPRAYING	AC	48.73	$ 307.80	$ 14,999
				SUBTOTAL CONSTRUCTION COST	**$ 396,241**
				10% UNFORSEEN	$ 39,624
				TOTAL CONSTRUCTION COST	**$ 435,865**
TEMPORARY DAMAGES		AC	18.69	$ 650.00	$ 12,149
				COUNTY ADMINISTRATION COSTS	$ 21,794
				TOPOGRAPHIC SURVEY	$ 23,364
				REPORTS, PLANS AND SPECIFICATIONS	$ 43,587
				CONSTRUCTION STAKING & ADMINISTRATION	$ 58,842
				TOTAL REMAINING MAIN OPEN DITCH REPAIR COST	**$ 595,601**

Spur 4 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,440.00	$ 1,440
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	2	$ 3,500.00	$ 7,000
103	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	1748	$ 3.21	$ 5,611
104	DITCH SIDESLOPE REPAIR	LF	175	$ 9.79	$ 1,713
105	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	8	$ 878.54	$ 7,028
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.33	$ 1,500.32	$ 1,995
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.81	$ 4,236.11	$ 3,431
108	MOWING	AC	2.66	$ 214.40	$ 570
109	WEED SPRAYING	AC	3.47	$ 307.80	$ 1,068
				SUBTOTAL CONSTRUCTION COST	**$ 29,858**
				10% UNFORSEEN	$ 2,986
				TOTAL CONSTRUCTION COST	**$ 32,843**
TEMPORARY DAMAGES		AC	1.32	$ 650.00	$ 861
				COUNTY ADMINISTRATION COSTS	$ 1,643
				TOPOGRAPHIC SURVEY	$ 1,656
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,285
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,434
				TOTAL SPUR 4 OPEN DITCH REPAIR COST	**$ 44,722**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Spur 2 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,380.00	$ 2,380
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	3	$ 3,500.00	$ 10,500
103	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	2974	$ 3.21	$ 9,547
104	DITCH SIDESLOPE REPAIR	LF	298	$ 9.79	$ 2,917
105	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	14	$ 878.54	$ 12,300
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	2.26	$ 1,500.32	$ 3,391
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.37	$ 4,236.11	$ 5,803
108	MOWING	AC	4.52	$ 214.40	$ 969
109	WEED SPRAYING	AC	5.89	$ 307.80	$ 1,813
				SUBTOTAL CONSTRUCTION COST	**$ 49,620**
				10% UNFORSEEN	$ 4,962
				TOTAL CONSTRUCTION COST	**$ 54,582**
TEMPORARY DAMAGES		AC	2.25	$ 650.00	$ 1,464
				COUNTY ADMINISTRATION COSTS	$ 2,730
				TOPOGRAPHIC SURVEY	$ 2,817
				REPORTS, PLANS AND SPECIFICATIONS	$ 5,459
				CONSTRUCTION STAKING & ADMINISTRATION	$ 7,369
				TOTAL SPUR 2 OPEN DITCH REPAIR COST	**$ 74,421**

Culvert Crossing #3 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,670.00	$ 1,670
102	72-INCH CLASS III RCP PIPE	LF	40	$ 650.00	$ 26,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 34,805**
				10% UNFORSEEN	$ 3,481
				TOTAL CONSTRUCTION COST	**$ 38,286**
				COUNTY ADMINISTRATION COSTS	$ 1,915
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,829
				CONSTRUCTION STAKING & ADMINISTRATION	$ 5,169
				TOTAL CULVERT CROSSING #3 (FIELD CROSSING - MAIN) REPAIR COST	**$ 49,199**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Culvert Crossing #4 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,670.00	$ 1,670
102	72-INCH CLASS III RCP PIPE	LF	40	$ 650.00	$ 26,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 34,805**
				10% UNFORSEEN	$ 3,481
				TOTAL CONSTRUCTION COST	**$ 38,286**
				COUNTY ADMINISTRATION COSTS	$ 1,915
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,829
				CONSTRUCTION STAKING & ADMINISTRATION	$ 5,169
				TOTAL CULVERT CROSSING #4 (FIELD CROSSING - MAIN) REPAIR COST	**$ 49,199**

Culvert Crossing #8 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,340.00	$ 1,340
102	72-INCH CLASS III RCP PIPE	LF	30	$ 650.00	$ 19,500
103	GRANULAR BEDDING MATERIAL	CY	9	$ 38.09	$ 343
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 27,861**
				10% UNFORSEEN	$ 2,786
				TOTAL CONSTRUCTION COST	**$ 30,647**
				COUNTY ADMINISTRATION COSTS	$ 1,533
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,065
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,138
				TOTAL CULVERT CROSSING #8 (FIELD CROSSING - MAIN) REPAIR COST	**$ 39,383**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Culvert Crossing #10 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,190.00	$ 1,190
102	60-INCH CLASS III RCP PIPE	LF	30	$ 550.00	$ 16,500
103	GRANULAR BEDDING MATERIAL	CY	10	$ 38.09	$ 381
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 24,749**
				10% UNFORSEEN	$ 2,475
				TOTAL CONSTRUCTION COST	**$ 27,224**
				COUNTY ADMINISTRATION COSTS	$ 1,362
				REPORTS, PLANS AND SPECIFICATIONS	$ 2,723
				CONSTRUCTION STAKING & ADMINISTRATION	$ 3,676
				TOTAL CULVERT CROSSING #10 (FIELD CROSSING - MAIN) REPAIR COST	**$ 34,985**

Culvert Crossing #11 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,670.00	$ 1,670
102	72-INCH CLASS III RCP PIPE	LF	40	$ 650.00	$ 26,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 34,805**
				10% UNFORSEEN	$ 3,481
				TOTAL CONSTRUCTION COST	**$ 38,286**
				COUNTY ADMINISTRATION COSTS	$ 1,915
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,829
				CONSTRUCTION STAKING & ADMINISTRATION	$ 5,169
				TOTAL CULVERT CROSSING #11 (FIELD CROSSING - MAIN) REPAIR COST	**$ 49,199**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Culvert Crossing #13 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,010.00	$ 2,010
102	72-INCH CLASS III RCP PIPE	LF	50	$ 650.00	$ 32,500
103	GRANULAR BEDDING MATERIAL	CY	15	$ 38.09	$ 571
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 41,760**
				10% UNFORSEEN	$ 4,176
				TOTAL CONSTRUCTION COST	**$ 45,936**
				COUNTY ADMINISTRATION COSTS	$ 2,297
				REPORTS, PLANS AND SPECIFICATIONS	$ 4,594
				CONSTRUCTION STAKING & ADMINISTRATION	$ 6,202
				TOTAL CULVERT CROSSING #13 (FIELD CROSSING - MAIN) REPAIR COST	**$ 59,029**

Culvert Crossing #15 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,480.00	$ 1,480
102	60-INCH CLASS III RCP PIPE	LF	40	$ 550.00	$ 22,000
103	GRANULAR BEDDING MATERIAL	CY	14	$ 38.09	$ 533
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 30,692**
				10% UNFORSEEN	$ 3,069
				TOTAL CONSTRUCTION COST	**$ 33,761**
				COUNTY ADMINISTRATION COSTS	$ 1,689
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,377
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,558
				TOTAL CULVERT CROSSING #15 (FIELD CROSSING - MAIN) REPAIR COST	**$ 43,385**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Culvert Crossing #18 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,570.00	$ 1,570
102	54-INCH CLASS III RCP PIPE	LF	40	$ 600.00	$ 24,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 32,705**
				10% UNFORSEEN	$ 3,271
				TOTAL CONSTRUCTION COST	**$ 35,976**
				COUNTY ADMINISTRATION COSTS	$ 1,799
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,598
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,857
				TOTAL CULVERT CROSSING #18 (FIELD CROSSING - MAIN) REPAIR COST	**$ 46,230**

Culvert Crossing #20 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,570.00	$ 1,570
102	54-INCH CLASS III RCP PIPE	LF	40	$ 600.00	$ 24,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 32,705**
				10% UNFORSEEN	$ 3,271
				TOTAL CONSTRUCTION COST	**$ 35,976**
				COUNTY ADMINISTRATION COSTS	$ 1,799
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,598
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,857
				TOTAL CULVERT CROSSING #20 (FIELD CROSSING - MAIN) REPAIR COST	**$ 46,230**

LE SUEUR COUNTY
COUNTY DITCH No. 51

SEPARABLE MAINTENANCE (REPAIR) DITCH OPTION

Culvert Crossing #22 (Field Crossing - Spur 4)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,000.00	$ 1,000
102	30-INCH CLASS III RCP PIPE	LF	20	$ 200.00	$ 4,000
103	GRANULAR BEDDING MATERIAL	CY	5	$ 38.09	$ 190
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 11,869**
				10% UNFORSEEN	$ 1,187
				TOTAL CONSTRUCTION COST	**$ 13,056**
				COUNTY ADMINISTRATION COSTS	$ 653
				REPORTS, PLANS AND SPECIFICATIONS	$ 1,306
				CONSTRUCTION STAKING & ADMINISTRATION	$ 1,763
				TOTAL CULVERT CROSSING #22 (FIELD CROSSING - SPUR 4) REPAIR COST	**$ 16,778**

TOTAL REPAIR COST

Main Open Ditch (261st to TH99)	**$ 208,443**
Main Open Ditch (400th to 245th)	**$ 74,673**
Remaining Main Open Ditch	**$ 595,601**
Spur 4 Open Ditch	**$ 44,722**
Spur 2 Open Ditch	**$ 74,421**
Culvert Crossing #3 (Field Crossing - Main)	**$ 49,199**
Culvert Crossing #4 (Field Crossing - Main)	**$ 49,199**
Culvert Crossing #8 (Field Crossing - Main)	**$ 39,383**
Culvert Crossing #10 (Field Crossing - Main)	**$ 34,985**
Culvert Crossing #11 (Field Crossing - Main)	**$ 49,199**
Culvert Crossing #13 (Field Crossing - Main)	**$ 59,029**
Culvert Crossing #15 (Field Crossing - Main)	**$ 43,385**
Culvert Crossing #18 (Field Crossing - Main)	**$ 46,230**
Culvert Crossing #20 (Field Crossing - Main)	**$ 46,230**
Culvert Crossing #22 (Field Crossing - Spur 4)	**$ 16,778**
COMPLETE REPAIR COST	**$ 1,431,477**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

SEPARABLE MAINTENANCE (REPAIR) TILE OPTION

Lateral 1

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 21,090.00	$ 21,090
102	TILE INVESTIGATION	HR	20	$ 226.26	$ 4,525
103	24-INCH AGRICULTURAL TILE	LF	4110	$ 44.50	$ 182,895
104	18-INCH AGRICULTURAL TILE	LF	2000	$ 34.60	$ 69,200
105	15-INCH AGRICULTURAL TILE	LF	1600	$ 29.15	$ 46,640
106	12-INCH AGRICULTURAL TILE	LF	1000	$ 25.95	$ 25,950
107	10-INCH AGRICULTURAL TILE	LF	800	$ 24.05	$ 19,240
108	8-INCH AGRICULTURAL TILE	LF	300	$ 23.50	$ 7,050
109	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	40	$ 575.00	$ 23,000
110	GRANULAR PIPE FOUNDATION	CY	694	$ 31.77	$ 22,048
111	INSTALL DROP INTAKE (18-INCH)	EA	10	$ 1,449.95	$ 14,500
112	CAP DROP INTAKE (18-INCH)	EA	2	$ 440.62	$ 881
113	INSTALL BAR GUARD ASSEMBLY (18-INCH DROP INTAKES)	EA	8	$ 341.83	$ 2,735
				SUBTOTAL CONSTRUCTION COST	**$ 439,754**
				10% UNFORSEEN	$ 43,975
				TOTAL CONSTRUCTION COST	**$ 483,729**
	TEMPORARY DAMAGES	AC	27.24	$ 650.00	$ 17,705
	TELEVISING (POST CONSTRUCTION)	LF	9810	$ 1.00	$ 9,810
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 24,187
				TOPOGRAPHIC SURVEY	$ 12,263
				REPORTS, PLANS AND SPECIFICATIONS	$ 48,373
				CONSTRUCTION STAKING & ADMINISTRATION	$ 65,304
				TOTAL LATERAL 1 REPAIR COST	**$ 661,371**

Branch 1

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,000.00	$ 1,000
102	TILE INVESTIGATION	HR	1	$ 226.26	$ 226
103	8-INCH AGRICULTURAL TILE	LF	480	$ 23.50	$ 11,280
104	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	$ 575.00	$ 1,150
105	GRANULAR PIPE FOUNDATION	CY	25	$ 31.77	$ 794
106	INSTALL DROP INTAKE (18-INCH)	EA	1	$ 1,449.95	$ 1,450
107	CAP DROP INTAKE (18-INCH)	EA	1	$ 440.62	$ 441
				SUBTOTAL CONSTRUCTION COST	**$ 16,341**
				10% UNFORSEEN	$ 1,634
				TOTAL CONSTRUCTION COST	**$ 17,975**
	TEMPORARY DAMAGES	AC	1.10	$ 650.00	$ 716
	TELEVISING (POST CONSTRUCTION)	LF	480	$ 1.00	$ 480
				COUNTY ADMINISTRATION COSTS	$ 899
				TOPOGRAPHIC SURVEY	$ 600
				REPORTS, PLANS AND SPECIFICATIONS	$ 1,798
				CONSTRUCTION STAKING & ADMINISTRATION	$ 2,427
				TOTAL BRANCH 1 REPAIR COST	**$ 24,895**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

SEPARABLE MAINTENANCE (REPAIR) TILE OPTION

Branch 2

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 4,080.00	$ 4,080
102	TILE INVESTIGATION	HR	6	$ 226.26	$ 1,358
103	10-INCH AGRICULTURAL TILE	LF	1500	$ 24.05	$ 36,075
104	8-INCH AGRICULTURAL TILE	LF	1160	$ 23.50	$ 27,260
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	$ 575.00	$ 6,325
106	GRANULAR PIPE FOUNDATION	CY	141	$ 31.77	$ 4,480
107	INSTALL DROP INTAKE (18-INCH)	EA	3	$ 1,449.95	$ 4,350
108	CAP DROP INTAKE (18-INCH)	EA	1	$ 440.62	$ 441
109	INSTALL BAR GUARD ASSEMBLY (18-INCH DROP INTAKES)	EA	2	$ 341.83	$ 684
				SUBTOTAL CONSTRUCTION COST	**$ 85,051**
				10% UNFORSEEN	$ 8,505
				TOTAL CONSTRUCTION COST	**$ 93,556**
TEMPORARY DAMAGES		AC	6.11	$ 650.00	$ 3,969
TELEVISING (POST CONSTRUCTION)		LF	2660	$ 1.00	$ 2,660
				COUNTY ADMINISTRATION COSTS	$ 4,678
				TOPOGRAPHIC SURVEY	$ 3,325
				REPORTS, PLANS AND SPECIFICATIONS	$ 9,356
				CONSTRUCTION STAKING & ADMINISTRATION	$ 12,631
				TOTAL BRANCH 2 REPAIR COST	**$ 130,176**

Branch 3

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,160.00	$ 2,160
102	TILE INVESTIGATION	HR	3	$ 226.26	$ 679
103	10-INCH AGRICULTURAL TILE	LF	670	$ 24.05	$ 16,114
104	8-INCH AGRICULTURAL TILE	LF	704	$ 23.50	$ 16,544
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	6	$ 575.00	$ 3,450
106	GRANULAR PIPE FOUNDATION	CY	73	$ 31.77	$ 2,319
107	INSTALL DROP INTAKE (18-INCH)	EA	2	$ 1,449.95	$ 2,900
108	CAP DROP INTAKE (18-INCH)	EA	1	$ 440.62	$ 441
109	INSTALL BAR GUARD ASSEMBLY (18-INCH DROP INTAKES)	EA	1	$ 341.83	$ 342
				SUBTOTAL CONSTRUCTION COST	**$ 44,948**
				10% UNFORSEEN	$ 4,495
				TOTAL CONSTRUCTION COST	**$ 49,443**
TEMPORARY DAMAGES		AC	3.15	$ 650.00	$ 2,050
TELEVISING (POST CONSTRUCTION)		LF	1374	$ 1.00	$ 1,374
				COUNTY ADMINISTRATION COSTS	$ 2,473
				TOPOGRAPHIC SURVEY	$ 1,718
				REPORTS, PLANS AND SPECIFICATIONS	$ 4,945
				CONSTRUCTION STAKING & ADMINISTRATION	$ 6,675
				TOTAL BRANCH 3 REPAIR COST	**$ 68,678**

TOTAL REPAIR COST

Lateral 1	**$ 661,371**
Branch 1	**$ 24,895**
Branch 2	**$ 130,176**
Branch 3	**$ 68,678**
COMPLETE REPAIR COST	**$ 885,120**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Main Open Ditch (261st to TH99)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 7,500.00	$ 7,500
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	7	$ 3,500.00	$ 24,500
103	DITCH DEEPENING (6' WIDE DITCH BOTTOM)	LF	5075	$ 6.00	$ 30,450
104	DITCH DEEPENING (4' WIDE DITCH BOTTOM)	LF	3500	$ 4.00	$ 14,000
105	DITCH SIDESLOPE REPAIR	LF	858	$ 9.79	$ 8,400
106	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	42	$ 878.54	$ 36,899
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	6.5	$ 1,500.32	$ 9,752
108	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	3.94	$ 4,236.11	$ 16,690
109	MOWING	AC	13	$ 214.40	$ 2,787
110	WEED SPRAYING	AC	16.94	$ 307.80	$ 5,214
				SUBTOTAL CONSTRUCTION COST	**$ 156,192**
				10% UNFORSEEN	$ 15,619
				TOTAL CONSTRUCTION COST	**$ 171,811**
TEMPORARY DAMAGES		AC	6.50	$ 650.00	$ 4,223
LAND ACQUISTION/ PERMANENT DAMAGES		AC	0.39	$ 6,500.00	$ 2,559
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 8,591
				TOPOGRAPHIC SURVEY	$ 8,121
				REPORTS, PLANS AND SPECIFICATIONS	$ 18,900
				CONSTRUCTION STAKING & ADMINISTRATION	$ 23,195
				TOTAL MAIN OPEN DITCH (261ST TO TH99) IMPROVEMENT COST	**$ 237,400**

Main Open Ditch (400th to 245th)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,740.00	$ 2,740
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	3	$ 3,500.00	$ 10,500
103	DITCH DEEPENING (6' WIDE DITCH BOTTOM)	LF	2380	$ 6.00	$ 14,280
104	DITCH DEEPENING (4' WIDE DITCH BOTTOM)	LF	600	$ 4.00	$ 2,400
105	DITCH SIDESLOPE REPAIR	LF	298	$ 9.79	$ 2,917
106	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	14	$ 878.54	$ 12,300
107	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	2.26	$ 1,500.32	$ 3,391
108	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.37	$ 4,236.11	$ 5,803
109	MOWING	AC	4.52	$ 214.40	$ 969
110	WEED SPRAYING	AC	5.89	$ 307.80	$ 1,813
				SUBTOTAL CONSTRUCTION COST	**$ 57,113**
				10% UNFORSEEN	$ 5,711
				TOTAL CONSTRUCTION COST	**$ 62,825**
TEMPORARY DAMAGES		AC	2.26	$ 650.00	$ 1,467
LAND ACQUISTION/ PERMANENT DAMAGES		AC	0.14	$ 6,500.00	$ 889
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 3,142
				TOPOGRAPHIC SURVEY	$ 2,822
				REPORTS, PLANS AND SPECIFICATIONS	$ 6,911
				CONSTRUCTION STAKING & ADMINISTRATION	$ 8,482
				TOTAL MAIN OPEN DITCH (400TH TO 245TH) IMPROVEMENT COST	**$ 86,538**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Remaining Main Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 23,280.00	$ 23,280
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	19	$ 3,500.00	$ 66,500
103	DITCH CLEANING (6' WIDE DITCH BOTTOM)	LF	4045	$ 3.27	$ 13,227
104	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	20627	$ 3.21	$ 66,213
105	DITCH SIDESLOPE REPAIR	LF	2468	$ 9.79	$ 24,162
106	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	123	$ 878.54	$ 108,060
107	HEAVY VEGETATIVE CLEARING WITH TREE REMOVAL	AC	5.7	$ 14,868.13	$ 84,748
108	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	18.7	$ 1,500.32	$ 28,056
109	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	11.33	$ 4,236.11	$ 47,995
110	MOWING	AC	37.4	$ 214.40	$ 8,019
111	WEED SPRAYING	AC	48.73	$ 307.80	$ 14,999
				SUBTOTAL CONSTRUCTION COST	**$ 485,259**
				10% UNFORSEEN	$ 48,526
				TOTAL CONSTRUCTION COST	**$ 533,785**
TEMPORARY DAMAGES		AC	18.69	$ 650.00	$ 12,149
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 26,690
				TOPOGRAPHIC SURVEY	$ 23,364
				REPORTS, PLANS AND SPECIFICATIONS	$ 58,717
				CONSTRUCTION STAKING & ADMINISTRATION	$ 72,061
				TOTAL REMAINING MAIN OPEN DITCH IMPROVEMENT COST	**$ 726,766**

Spur 4 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,440.00	$ 1,440
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	2	$ 3,500.00	$ 7,000
103	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	1748	$ 3.21	$ 5,611
104	DITCH SIDESLOPE REPAIR	LF	175	$ 9.79	$ 1,713
105	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	8	$ 878.54	$ 7,028
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.33	$ 1,500.32	$ 1,995
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	0.81	$ 4,236.11	$ 3,431
108	MOWING	AC	2.66	$ 214.40	$ 570
109	WEED SPRAYING	AC	3.47	$ 307.80	$ 1,068
				SUBTOTAL CONSTRUCTION COST	**$ 29,858**
				10% UNFORSEEN	$ 2,986
				TOTAL CONSTRUCTION COST	**$ 32,843**
TEMPORARY DAMAGES		AC	1.32	$ 650.00	$ 861
				COUNTY ADMINISTRATION COSTS	$ 1,643
				TOPOGRAPHIC SURVEY	$ 1,656
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,613
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,434
				TOTAL SPUR 4 OPEN DITCH IMPROVEMENT COST	**$ 45,050**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Spur 2 Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,380.00	$ 2,380
102	INSTALL ASI RISE AND OUTLET ASSEMBLY	EA	3	$ 3,500.00	$ 10,500
103	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	2974	$ 3.21	$ 9,547
104	DITCH SIDESLOPE REPAIR	LF	298	$ 9.79	$ 2,917
105	ARMOR TILE OUTET (RIPRAP & GEOTEXTILE FABRIC)	EA	14	$ 878.54	$ 12,300
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	2.26	$ 1,500.32	$ 3,391
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 8 MULCH)	AC	1.37	$ 4,236.11	$ 5,803
108	MOWING	AC	4.52	$ 214.40	$ 969
109	WEED SPRAYING	AC	5.89	$ 307.80	$ 1,813
				SUBTOTAL CONSTRUCTION COST	**$ 49,620**
				10% UNFORSEEN	$ 4,962
				TOTAL CONSTRUCTION COST	**$ 54,582**
TEMPORARY DAMAGES		AC	2.25	$ 650.00	$ 1,464
				COUNTY ADMINISTRATION COSTS	$ 2,730
				TOPOGRAPHIC SURVEY	$ 2,817
				REPORTS, PLANS AND SPECIFICATIONS	$ 6,004
				CONSTRUCTION STAKING & ADMINISTRATION	$ 7,369
				TOTAL SPUR 2 OPEN DITCH IMPROVEMENT COST	**$ 74,966**

Culvert Crossing #3 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,990.00	$ 1,990
102	84-INCH CLASS III RCP PIPE	LF	40	$ 800.00	$ 32,000
103	GRANULAR BEDDING MATERIAL	CY	18	$ 38.09	$ 686
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 41,354**
				10% UNFORSEEN	$ 4,135
				TOTAL CONSTRUCTION COST	**$ 45,489**
				COUNTY ADMINISTRATION COSTS	$ 2,275
				REPORTS, PLANS AND SPECIFICATIONS	$ 5,004
				CONSTRUCTION STAKING & ADMINISTRATION	$ 6,142
				TOTAL CULVERT CROSSING #3 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 58,910**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Culvert Crossing #4 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,990.00	$ 1,990
102	84-INCH CLASS III RCP PIPE	LF	40	$ 800.00	$ 32,000
103	GRANULAR BEDDING MATERIAL	CY	18	$ 38.09	$ 686
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 41,354**
				10% UNFORSEEN	$ 4,135
				TOTAL CONSTRUCTION COST	**$ 45,489**
				COUNTY ADMINISTRATION COSTS	$ 2,275
				REPORTS, PLANS AND SPECIFICATIONS	$ 5,004
				CONSTRUCTION STAKING & ADMINISTRATION	$ 6,142
				TOTAL CULVERT CROSSING #4 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 58,910**

Culvert Crossing #8 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,580.00	$ 1,580
102	84-INCH CLASS III RCP PIPE	LF	30	$ 800.00	$ 24,000
103	GRANULAR BEDDING MATERIAL	CY	14	$ 38.09	$ 533
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 32,792**
				10% UNFORSEEN	$ 3,279
				TOTAL CONSTRUCTION COST	**$ 36,071**
				COUNTY ADMINISTRATION COSTS	$ 1,804
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,968
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,870
				TOTAL CULVERT CROSSING #8 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 46,713**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Culvert Crossing #10 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,350.00	$ 1,350
102	72-INCH CLASS III RCP PIPE	LF	30	$ 650.00	$ 19,500
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 27,985**
				10% UNFORSEEN	$ 2,799
				TOTAL CONSTRUCTION COST	**$ 30,784**
				COUNTY ADMINISTRATION COSTS	$ 1,540
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,387
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,156
				TOTAL CULVERT CROSSING #10 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 39,867**

Culvert Crossing #11 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,680.00	$ 1,680
102	72-INCH CLASS III RCP PIPE	LF	40	$ 650.00	$ 26,000
103	GRANULAR BEDDING MATERIAL	CY	15	$ 38.09	$ 571
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 34,930**
				10% UNFORSEEN	$ 3,493
				TOTAL CONSTRUCTION COST	**$ 38,423**
				COUNTY ADMINISTRATION COSTS	$ 1,922
				REPORTS, PLANS AND SPECIFICATIONS	$ 4,227
				CONSTRUCTION STAKING & ADMINISTRATION	$ 5,188
				TOTAL CULVERT CROSSING #11 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 49,760**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Culvert Crossing #13 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,010.00	$ 2,010
102	72-INCH CLASS III RCP PIPE	LF	50	$ 650.00	$ 32,500
103	GRANULAR BEDDING MATERIAL	CY	19	$ 38.09	$ 724
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 41,912**
				10% UNFORSEEN	$ 4,191
				TOTAL CONSTRUCTION COST	**$ 46,103**
				COUNTY ADMINISTRATION COSTS	$ 2,306
				REPORTS, PLANS AND SPECIFICATIONS	$ 5,072
				CONSTRUCTION STAKING & ADMINISTRATION	$ 6,224
				TOTAL CULVERT CROSSING #13 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 59,705**

Culvert Crossing #15 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,470.00	$ 1,470
102	60-INCH CLASS III RCP PIPE	LF	40	$ 550.00	$ 22,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 30,605**
				10% UNFORSEEN	$ 3,061
				TOTAL CONSTRUCTION COST	**$ 33,666**
				COUNTY ADMINISTRATION COSTS	$ 1,684
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,704
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,545
				TOTAL CULVERT CROSSING #15 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 43,599**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Culvert Crossing #18 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,570.00	$ 1,570
102	54-INCH CLASS III RCP PIPE	LF	40	$ 600.00	$ 24,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 32,705**
				10% UNFORSEEN	$ 3,271
				TOTAL CONSTRUCTION COST	**$ 35,976**
				COUNTY ADMINISTRATION COSTS	$ 1,799
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,958
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,857
				TOTAL CULVERT CROSSING #18 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 46,590**

Culvert Crossing #20 (Field Crossing - Main)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,570.00	$ 1,570
102	54-INCH CLASS III RCP PIPE	LF	40	$ 600.00	$ 24,000
103	GRANULAR BEDDING MATERIAL	CY	12	$ 38.09	$ 457
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 32,705**
				10% UNFORSEEN	$ 3,271
				TOTAL CONSTRUCTION COST	**$ 35,976**
				COUNTY ADMINISTRATION COSTS	$ 1,799
				REPORTS, PLANS AND SPECIFICATIONS	$ 3,958
				CONSTRUCTION STAKING & ADMINISTRATION	$ 4,857
				TOTAL CULVERT CROSSING #20 (FIELD CROSSING - MAIN) IMPROVEMENT COST	**$ 46,590**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT DITCH OPTION

Culvert Crossing #22 (Field Crossing - Spur 4)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,000.00	$ 1,000
102	30-INCH CLASS III RCP PIPE	LF	20	$ 200.00	$ 4,000
103	GRANULAR BEDDING MATERIAL	CY	5	$ 38.09	$ 190
104	OPEN CUT & RESTORE FIELD CROSSING	EA	1	$ 1,835.90	$ 1,836
105	CLASS III RIPRAP WITH GEOTEXTILE FABRIC	CY	50	$ 84.38	$ 4,219
106	REMOVE CMP CULVERT	EA	1	$ 623.40	$ 623
				SUBTOTAL CONSTRUCTION COST	**$ 11,869**
				10% UNFORSEEN	$ 1,187
				TOTAL CONSTRUCTION COST	**$ 13,056**
				COUNTY ADMINISTRATION COSTS	$ 653
				REPORTS, PLANS AND SPECIFICATIONS	$ 1,437
				CONSTRUCTION STAKING & ADMINISTRATION	$ 1,763
				TOTAL CULVERT CROSSING #22 (FIELD CROSSING - SPUR 4) IMPROVEMENT COST	**$ 16,909**

TOTAL IMPROVEMENT COST

Main Open Ditch (261st to TH99)	**$ 237,400**
Main Open Ditch (400th to 245th)	**$ 86,538**
Remaining Main Open Ditch	**$ 726,766**
Spur 4 Open Ditch	**$ 45,050**
Spur 2 Open Ditch	**$ 74,966**
Culvert Crossing #3 (Field Crossing - Main)	**$ 58,910**
Culvert Crossing #4 (Field Crossing - Main)	**$ 58,910**
Culvert Crossing #8 (Field Crossing - Main)	**$ 46,713**
Culvert Crossing #10 (Field Crossing - Main)	**$ 39,867**
Culvert Crossing #11 (Field Crossing - Main)	**$ 49,760**
Culvert Crossing #13 (Field Crossing - Main)	**$ 59,705**
Culvert Crossing #15 (Field Crossing - Main)	**$ 43,599**
Culvert Crossing #18 (Field Crossing - Main)	**$ 46,590**
Culvert Crossing #20 (Field Crossing - Main)	**$ 46,590**
Culvert Crossing #22 (Field Crossing - Spur 4)	**$ 16,909**
COMPLETE IMPROVEMENT COST	**$ 1,638,274**

LE SUEUR COUNTY
COUNTY DITCH No. 51

ISG

PROPOSED IMPROVEMENT TILE OPTION

Lateral 1

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 27,380.00	$ 27,380
102	TILE INVESTIGATION	HR	20	$ 226.26	$ 4,525
103	30-INCH AGRICULTURAL TILE	LF	4110	$ 59.90	$ 246,189
104	24-INCH AGRICULTURAL TILE	LF	3600	$ 44.50	$ 160,200
105	18-INCH AGRICULTURAL TILE	LF	1000	$ 34.60	$ 34,600
106	15-INCH AGRICULTURAL TILE	LF	800	$ 29.15	$ 23,320
107	12-INCH AGRICULTURAL TILE	LF	300	$ 25.95	$ 7,785
108	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	40	$ 575.00	$ 23,000
109	GRANULAR PIPE FOUNDATION	CY	810	$ 31.77	$ 25,734
110	INSTALL DROP INTAKE (18-INCH)	EA	10	$ 1,449.95	$ 14,500
111	CAP DROP INTAKE (18-INCH)	EA	2	$ 440.62	$ 881
112	INSTALL BAR GUARD ASSEMBLY (18-INCH DROP INTAKES)	EA	8	$ 341.83	$ 2,735
				SUBTOTAL CONSTRUCTION COST	**$ 570,848**
				10% UNFORSEEN	$ 57,085
				TOTAL CONSTRUCTION COST	**$ 627,933**
	TEMPORARY DAMAGES	AC	31.37	$ 650.00	$ 20,391
	TELEVISING (POST CONSTRUCTION)	LF	9810	$ 1.00	$ 9,810
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 31,397
				TOPOGRAPHIC SURVEY	$ 12,263
				REPORTS, PLANS AND SPECIFICATIONS	$ 69,073
				CONSTRUCTION STAKING & ADMINISTRATION	$ 84,771
				TOTAL LATERAL 1 IMPROVEMENT COST	**$ 855,638**

Branch 1

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 1,000.00	$ 1,000
102	TILE INVESTIGATION	HR	1	$ 226.26	$ 226
103	10-INCH AGRICULTURAL TILE	LF	480	$ 24.05	$ 11,544
104	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	$ 575.00	$ 1,150
105	GRANULAR PIPE FOUNDATION	CY	26	$ 31.77	$ 826
106	INSTALL DROP INTAKE (18-INCH)	EA	1	$ 1,449.95	$ 1,450
107	CAP DROP INTAKE (18-INCH)	EA	1	$ 440.62	$ 441
				SUBTOTAL CONSTRUCTION COST	**$ 16,637**
				10% UNFORSEEN	$ 1,664
				TOTAL CONSTRUCTION COST	**$ 18,301**
	TEMPORARY DAMAGES	AC	1.10	$ 650.00	$ 716
	TELEVISING (POST CONSTRUCTION)	LF	480	$ 1.00	$ 480
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 916
				TOPOGRAPHIC SURVEY	$ 600
				REPORTS, PLANS AND SPECIFICATIONS	$ 2,014
				CONSTRUCTION STAKING & ADMINISTRATION	$ 2,471
				TOTAL BRANCH 1 IMPROVEMENT COST	**$ 25,498**

LE SUEUR COUNTY
COUNTY DITCH No. 51

PROPOSED IMPROVEMENT TILE OPTION

Branch 2

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 4,650.00	$ 4,650
102	TILE INVESTIGATION	HR	6	$ 226.26	$ 1,358
103	15-INCH AGRICULTURAL TILE	LF	1500	$ 29.15	$ 43,725
104	12-INCH AGRICULTURAL TILE	LF	1160	$ 25.95	$ 30,102
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	$ 575.00	$ 6,325
106	GRANULAR PIPE FOUNDATION	CY	166	$ 31.77	$ 5,274
107	INSTALL DROP INTAKE (18-INCH)	EA	3	$ 1,449.95	$ 4,350
108	CAP DROP INTAKE (18-INCH)	EA	1	$ 440.62	$ 441
109	INSTALL BAR GUARD ASSEMBLY (18-INCH DROP INTAKES)	EA	2	$ 341.83	$ 684
				SUBTOTAL CONSTRUCTION COST	**$ 96,908**
				10% UNFORSEEN	$ 9,691
				TOTAL CONSTRUCTION COST	**$ 106,598**
TEMPORARY DAMAGES		AC	6.11	$ 650.00	$ 3,969
TELEVISING (POST CONSTRUCTION)		LF	2660	$ 1.00	$ 2,660
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 5,330
				TOPOGRAPHIC SURVEY	$ 3,325
				REPORTS, PLANS AND SPECIFICATIONS	$ 11,726
				CONSTRUCTION STAKING & ADMINISTRATION	$ 14,391
				TOTAL BRANCH 2 IMPROVEMENT COST	**$ 148,000**

Branch 3

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	$ 2,240.00	$ 2,240
102	TILE INVESTIGATION	HR	3	$ 226.26	$ 679
103	12-INCH AGRICULTURAL TILE	LF	630	$ 25.95	$ 16,349
104	10-INCH AGRICULTURAL TILE	LF	570	$ 24.05	$ 13,709
105	8-INCH AGRICULTURAL TILE	LF	174	$ 23.50	$ 4,089
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	6	$ 575.00	$ 3,450
107	GRANULAR PIPE FOUNDATION	CY	77	$ 31.77	$ 2,446
108	INSTALL DROP INTAKE (18-INCH)	EA	2	$ 1,449.95	$ 2,900
109	CAP DROP INTAKE (18-INCH)	EA	1	$ 440.62	$ 441
110	INSTALL BAR GUARD ASSEMBLY (18-INCH DROP INTAKES)	EA	1	$ 341.83	$ 342
				SUBTOTAL CONSTRUCTION COST	**$ 46,644**
				10% UNFORSEEN	$ 4,664
				TOTAL CONSTRUCTION COST	**$ 51,308**
TEMPORARY DAMAGES		AC	3.15	$ 650.00	$ 2,050
TELEVISING (POST CONSTRUCTION)		LF	1374	$ 1.00	$ 1,374
				COUNTY ADMINISTRATION COSTS (Legal, Staff, Bonding, Advertisement)	$ 2,566
				TOPOGRAPHIC SURVEY	$ 1,718
				REPORTS, PLANS AND SPECIFICATIONS	$ 5,644
				CONSTRUCTION STAKING & ADMINISTRATION	$ 6,927
				TOTAL BRANCH 3 IMPROVEMENT COST	**$ 71,587**

TOTAL IMPROVEMENT COST

Lateral 1	**$ 855,638**
Branch 1	**$ 25,498**
Branch 2	**$ 148,000**
Branch 3	**$ 71,587**
COMPLETE IMPROVEMENT COST	**$ 1,100,723**