



Le Sueur County, MN

Thursday, December 7, 2017

Board Meeting

Item 2

10:00 a.m. Informational Meeting for Le Sueur County Ditch 61

Staff Contact:

STATE OF MINNESOTA
LE SUEUR COUNTY BOARD OF COMMISSIONERS
DRAINAGE AUTHORITY FOR LE SUEUR COUNTY DITCH 61

The matter of Le Sueur County Ditch 61

Agenda for Informational Meeting

- | | |
|---|---------------|
| 1. Welcome and Introductions: | Board Chair |
| 2. Purpose of Informational Meeting: | Maury Noonan |
| a. Review Engineer's Inspection Report and Feasibility Study | |
| b. Receive staff report on benefits roll and accuracy of current benefits | |
| c. Consider need for Repair of Drainage System | |
| d. Consider need for Redetermination of Benefits | |
| 3. Presentation of Engineer's Inspection Report and Feasibility Study | Chuck Brandel |
| 4. Presentation of staff report on benefits roll | Pam Simonette |
| 5. Public Discussion | Board Chair |
| 6. Board Action (if any) | Board Chair |

a. Consideration of Repair:

"Repair" means to restore all or a part of a drainage system to the same hydraulic capacity as originally constructed and subsequently improved. Repair may include the following:

- resloping of ditches and leveling of spoil banks if necessary to prevent further deterioration
- realignment to original construction if necessary to restore the effectiveness of the drainage system
- routine operations that may be required to remove obstructions and maintain the efficiency of the drainage system
- incidental straightening of a tile system resulting from the tile-laying technology used to replace tiles
- replacement of tiles with the next larger size that is readily available, if the original size is not readily available
- preservation, restoration, or enhancement of wetlands; wetland replacement; and the realignment of a drainage system to prevent drainage of a wetland
- incorporation of measures to reduce channel erosion and otherwise protect or improve water quality.

[15741-0038/2852938/1]

The drainage authority shall maintain the drainage system that is located in its jurisdiction, including the permanent strips of perennial vegetation, and provide the repairs necessary to make the drainage system efficient.

b. Consideration of Redetermination of Benefits:

If the drainage authority determines that the original benefits or damages determined in a drainage proceeding do not reflect reasonable present day land values or that the benefited or damaged areas have changed, the drainage authority may appoint three viewers to redetermine and report the benefits and damages and the benefited and damaged areas.

c. Consideration of other Actions:

The Board may not take or consider other actions (i.e. improvement, partial abandonment, etc. without a landowner petition requesting such action).

[15741-0038/2852938/1]

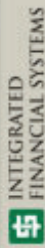
**Auditor's Tabular Assessment Statement *(1) For the Creation of a Fund to be used for the Repair of *(2) For the Repair of Le Sueur County
Ditch No. 61 in the County of Le Sueur Minnesota**

***If the lien is for the Creation of a fund to be used for repairs in the future strike out (2). If the lien is for repairs already made strike out (1).**

Names of the Owners of all Lands and the Names of all Public Roads, Corporate Roads and Railroads that are Assessed for the Repair of said Ditch.	Description of each Parcel of Land to be Assessed for the Repair of said Ditch as it Appears from Original Lien Statement for Construction of said Ditch.	Section	Township	Range	Number of acres in each tract according to assessment rolls and tax list.	Estimated number of acres benefited.	Amount that each tract of land and each public road, corp-orate road and rail-road was benefitted by the construction of said ditch.	Amount that each tract of land and each public road, corp-orate road and rail-road is liable for and must pay for the repair of such ditch.	2017 Meeting
					Acres	Acres	Dollars	Dollars	
Milo C & Carolyn Wondra Trust	SW 1/4 of SW 1/4	14	110	24	40.00	15.00	3.00		02.014.7500
Milo C & Carolyn Wondra Trust	S 1/2 of SE 1/4 of SW 1/4	14	110	24	20.00	10.00	414.00		02.014.7600
Francis A & Mary L Androli	SW 1/4 of SE 1/4	14	110	24	40.00	15.00	198.00		02.014.5000
Milo C & Carolyn Wondra Trust	N 1/2 of NW 1/4 of NW 1/4	23	110	24	20.00	19.00	1062.00		02.023.0300
Francis Androli	NW 1/4 of NE 1/4 less 1 ac	23	110	24	39.00	39.00	1281.00		02.023.2500
David G Novotny	NE 1/4 of NE 1/4	22	110	24	40.00	35.00	1601.00		02.022.2500
David G Novtony	SE 1/4 of NE 1/4 less 2.95 ac	22	110	24	37.05	36.58	1500.72		02.022.2500
Mark & Lisa Frederick	2.45 ac of SE 1/4 of NE 1/4	22	110	24	2.45	2.42	99.28		02.022.2600
John E & Pamela Mc Gillen	S 1/2 of NW 1/4 of NW 1/4	23	110	24	20.00	19.00	496.00		02.023.0200
John L & Candi L Theis	That part of S 1/2 of NW 1/4 beg at SW cor, th N 933.38 ft, E 933.38 ft, to C.L. of road, th SW along C.L. to beg	23	110	24	10.00	9.50	159.25		02.023.0100
John E & Pamela Mc Gillen	SW 1/4 of NW 1/4 less 10 ac	23	110	24	30.00	28.50	477.75		02.023.0200
John E & Pamela Mc Gillen	SE 1/4 of NW 1/4	23	110	24	40.00	40.00	1993.00		02.023.0200
Scott & Roxane Collier Trust	NE 1/4 of NW 1/4	23	110	24	40.00	36.00	1302.00		02.023.0400
Thomas G & Lori Jindra	That part of NW 1/4 of SW 1/4 lying N of CD #61	23	110	24	36.15	34.97	476.13		02.023.7600
Domonoske Family Trust	That part of NW 1/4 of SW 1/4 lying S of CD #61	23	110	24	4.17	4.03	54.87		02.023.7700
Domonoske Family Trust	That part of SW 1/4 of SW 1/4 lying S of CD #61 less 11.75 ac	23	110	24	24.99	10.69	36.88		02.023.7700
Kyle O'Malley	That part of W 1/2 of SW 1/4 beg at SW cor of Sec 23, th N 1100.08 ft, E 408.59 ft, NE 57.38 ft, S 1120.04 ft, W 463.79 ft to beg	23	110	24	11.75	6.00	20.70		02.023.7800

Thomas G & Lori Jindra	That part of SW 1/4 of SW 1/4 lying N of CD #61	23	110	24	3.31	3.31	11.42		02.023.7600
Bernard & Claranita Haefner	That part of W 1/2 of E 1/2 comm at W 1/4 cor, th E on N line of SW 1/4 1908.18 ft, S 1164.59 ft, W 145.61 ft to POB, th S 1483.81 ft, W 439.78 ft, N 1483.09 ft, E 439.78 ft to beg	23	110	24	14.97	2.56	33.79		02.023.7500
JoAnn Kortuem	E 240 ft of S 1483.81 ft of W 1/2 of E 1/2 of SW 1/4	23	110	24	8.89	5.70	75.24		02.023.7510
Thomas G & Lori Jindra	W 585.39 ft of N 1164.59 ft of W 1/2 of E 1/2 of SW 1/4	23	110	24	15.70	15.70	207.24		02.023.7600
Charles Haefner	E 75.66 ft of N 1164.59 ft of W 1/2 of E 1/2 of SW 1/4	23	110	24	1.04	1.04	13.73		02.023.5120
JoAnn Kortuem	W 199.44 ft of S 1484.53 ft of E 1/2 of E 1/2 of SW 1/4	23	110	24	6.68	1.68	62.45		02.023.7510
Marilyn Holicky	E 442.96 ft of S 1484.53 ft of E 1/2 of E 1/2 of SW 1/4	23	110	24	15.90	15.90	591.00		02.023.5110
Charles Haefner	E 624.4 ft of N 1164.59 ft of E 1/2 of E 1/2 of SW 1/4	23	110	24	17.42	17.42	647.55		02.023.5120
Charles Haefner	NW 1/4 of SE 1/4	23	110	24	40.00	40.00	541.00		02.023.5120
Marilyn Holicky	SW 1/4 of SE 1/4 less 5 ac	23	110	24	35.00	34.25	574.37		02.023.5110
Andrew J Skluzacek	Beg at S 1/4 cor of Sec 23, th N on S 1/4 line 479 ft, th E 455.32 ft, S 479 ft, W 455.32 ft to beg	23	110	24	5.00	4.75	79.63		02.023.5100
Curtis D & Pamela Schwartz	N 1/2 of SW 1/4 of NE 1/4	23	110	24	20.00	20.00	426.00		02.023.2900
Curtis D & Pamela Schwartz	S 1/2 of SW 1/4 of NE 1/4	23	110	24	20.00	20.00	860.00		02.023.3000
Curtis C Bohlen	NE 1/4 of NE 1/4 less N 2 rods	23	110	24	40.00	20.00	499.00		02.023.2700
Jonathan & Andi Goettl	N 338.13 ft of E 219 Ft of SE 1/4 of NE 1/4	23	110	24	1.70	1.66	22.05		02.023.2600
Jonathan & Andi Goettl	2.19 AC of SE 1/4 of NE 1/4	23	110	24	2.19	2.13	28.29		02.023.2610
Curtis D & Pamela Schwartz	N 1/2 of SE 1/4 of NE 1/4 less 3.89 ac	23	110	24	16.11	15.71	208.66		02.023.2900
Richard G & Joanne Kopet	That part of SE 1/4 of NE 1/4 beg 297.73 ft N of E 1/4 cor of Sec 23, th N 359.52 ft, W 446 ft, S 359.52 ft, E 446 ft to beg	23	110	24	3.68	3.59	47.68		02.023.2800
Curtis D & Pamela Schwartz	S 1/2 of S 1/2 of NE 1/4 less 3.68 ac	23	110	24	16.32	15.91	211.32		02.023.3000
Florence Peach	NE 1/4 of SE 1/4	23	110	24	40.00	39.00	392.00		02.023.5000
Florence Peach	SE 1/4 of SE 1/4	23	110	24	40.00	38.00	392.00		02.023.5000
Curtis C Bohlen	NW 1/4 of SW 1/4	24	110	24	40.00	15.00	130.00		02.024.7500
Grand Total:							17230.00	0.00	

ACCOUNT ACTIVITY REPORT



Page Break Option: 2 1 - Page Break by FUND Print Service Dates: No

2 - Page Break by DEPT

Sort: 1st: 2nd 3rd 4th 5th 6th F - G/L Object Within Fund Number
 G T N M W G - G/L Account Number
 P - G/L Object Within Dept Number
 D - Transaction Date
 M - G/L Month & Year
 N - Vendor/Payer Name
 T - Type Of Transaction
 W - Receipt/Warrant Number

Range Subtotals: 1 1 - No Subtotals
 2 - Detail and Subtotals by OBJECT Range
 3 - Subtotals only by OBJECT Range
 4 - Account Totals and Subtotals by OBJECT Range
 5 - Account Totals and Subtotals by DIVISION Range

Report Basis: 1 Cash Only This Basis?: Yes

Print YTD Totals: Yes Type of Report: 1 1 - DETAIL
 2 - ABBREVIATED

G/L Months: From: 01/2002 Thru: 11/2017

Comment: FUND Range From 35 Thru 35

DEPT Range From 861 Thru 861

OBJECT Range From 6000 Thru 6999

From: 01/20/2002 Thru: 11/1/2017
Report Basis: 1

ACCOUNT ACTIVITY REPORT

Fund 35 - Ditch
DEPT 861 - Le Sueur County Ditch #61

SC Typ	Vendor	G/L Month	Receipt/Warrant NUMBER	DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	Basis
DIVISION 0000										
35- 861- 0000- 0000- 6230 - Printing, Publishing & Advertising										
DI	11906- St Peter Herald	07/2005	77195	07/22/2005	333	45.60	DITCH HRG	52217	ACCT	1
						45.60	YTD:			
35- 861- 0000- 0000- 6230 - Printing, Publishing & Advertising										
						Total				
35- 861 - 0000- 0000- 6260 - Professional Consulting										
DI	20780- Houston Engineering Inc.	11/2015	38532	11/25/2015	333	65.60	Annual- Date Base Fee	0026847		1
DI	20780- Houston Engineering Inc.	09/2016	42314	09/23/2016	333	65.60	Software Maint. 9/1/16- 8/31/17	31387		1
DI	20780- Houston Engineering Inc.	09/2017	46851	09/22/2017	333	34.72	Software Maint. 9/1/17- 8/31/18	35976		1
DI	10457- Le Sueur County Soil & Water	11/2016	42917	11/04/2016	333	0.41	Work on Ditch Database			1
DI	10457- Le Sueur County Soil & Water	11/2016	42917	11/04/2016	333	11.29	Purchase- Seed Slinger			1
DI	10457- Le Sueur County Soil & Water	02/2017	44102	02/10/2017	333	12.21	Waders		DTG	1
DI	10457- Le Sueur County Soil & Water	05/2017	45125	05/05/2017	333	1.74	Work on Drainage Database			1
DI	10457- Le Sueur County Soil & Water	05/2017	45125	05/05/2017	333	14.59	Regist,Meetings,Etc			1
DI	10457- Le Sueur County Soil & Water	05/2017	45125	05/05/2017	333	3.83	Cell Phones			1
DI	10457- Le Sueur County Soil & Water	07/2017	46119	07/21/2017	333	65.10	2nd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	07/2017	46119	07/21/2017	333	4.20	Phone Bill			1
DI	10457- Le Sueur County Soil & Water	10/2017	47225	10/20/2017	333	65.10	3rd Qtr- Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	10/2017	47225	10/20/2017	333	5.17	Cell Phones,Oats,Regist.			1
DI	10126- Mn State Auditor	04/2002	61233	04/12/2002	333	8.47	DITCH AUDIT	47442		1
DI	10126- Mn State Auditor	05/2002	61706	05/17/2002	333	4.59	DITCH AUDIT			1
DI	10126- Mn State Auditor	07/2003	67785	07/18/2003	333	12.13	DITCH AUDIT	49630/4963		1
DI	10126- Mn State Auditor	07/2003	67785	07/18/2003	333	0.92	DITCH AUDIT	50108		1
DI	10126- Mn State Auditor	11/2004	74057	11/19/2004	333	8.09	DITCH AUDIT			1
DI	10126- Mn State Auditor	10/2005	78295	10/21/2005	333	6.99	DITCH AUDIT	53643		1
DI	10126- Mn State Auditor	05/2006	81067	05/19/2006	333	0.93	DITCH AUDIT	54539		1
DI	20543- Renville County Administratio	10/2013	29110	10/11/2013	333	16.40	Cost Share- Ditch Viewer Prog.			1
DI	15069- Rinke- Noonan Law Firm	10/2011	20962	10/07/2011	333	3.23	Drainage Retainer	188561		1
DI	15069- Rinke- Noonan Law Firm	11/2011	21312	11/04/2011	333	3.23	Drainage Retainer	189787		1
DI	15069- Rinke- Noonan Law Firm	12/2011	21650	12/09/2011	333	3.23	Drainage Retainer	191081		1
DI	15069- Rinke- Noonan Law Firm	01/2012	22067	01/06/2012	333	3.23	Drainage Retainer	192276	AP	1
DI	15069- Rinke- Noonan Law Firm	02/2012	22385	02/10/2012	333	3.23	Drainage Retainer	193521		1
DI	15069- Rinke- Noonan Law Firm	03/2012	22712	03/09/2012	333	3.23	Drainage Retainer	194814		1
DI	15069- Rinke- Noonan Law Firm	04/2012	23024	04/13/2012	333	3.23	Drainage Retainer	196239		1
DI	15069- Rinke- Noonan Law Firm	05/2012	23339	05/11/2012	333	3.23	Drainage Retainer	197346		1
DI	15069- Rinke- Noonan Law Firm	06/2012	23701	06/08/2012	333	3.23	Drainage Retainer	198682		1
DI	15069- Rinke- Noonan Law Firm	07/2012	24023	07/13/2012	333	3.23	Drainage Retainer	199945		1
DI	15069- Rinke- Noonan Law Firm	08/2012	24346	08/10/2012	333	3.23	Drainage Retainer	201193		1
DI	15069- Rinke- Noonan Law Firm	09/2012	24688	09/14/2012	333	3.23	Drainage Retainer	202405		1
DI	15069- Rinke- Noonan Law Firm	10/2012	24983	10/05/2012	333	3.23	Drainage Retainer	203560		1

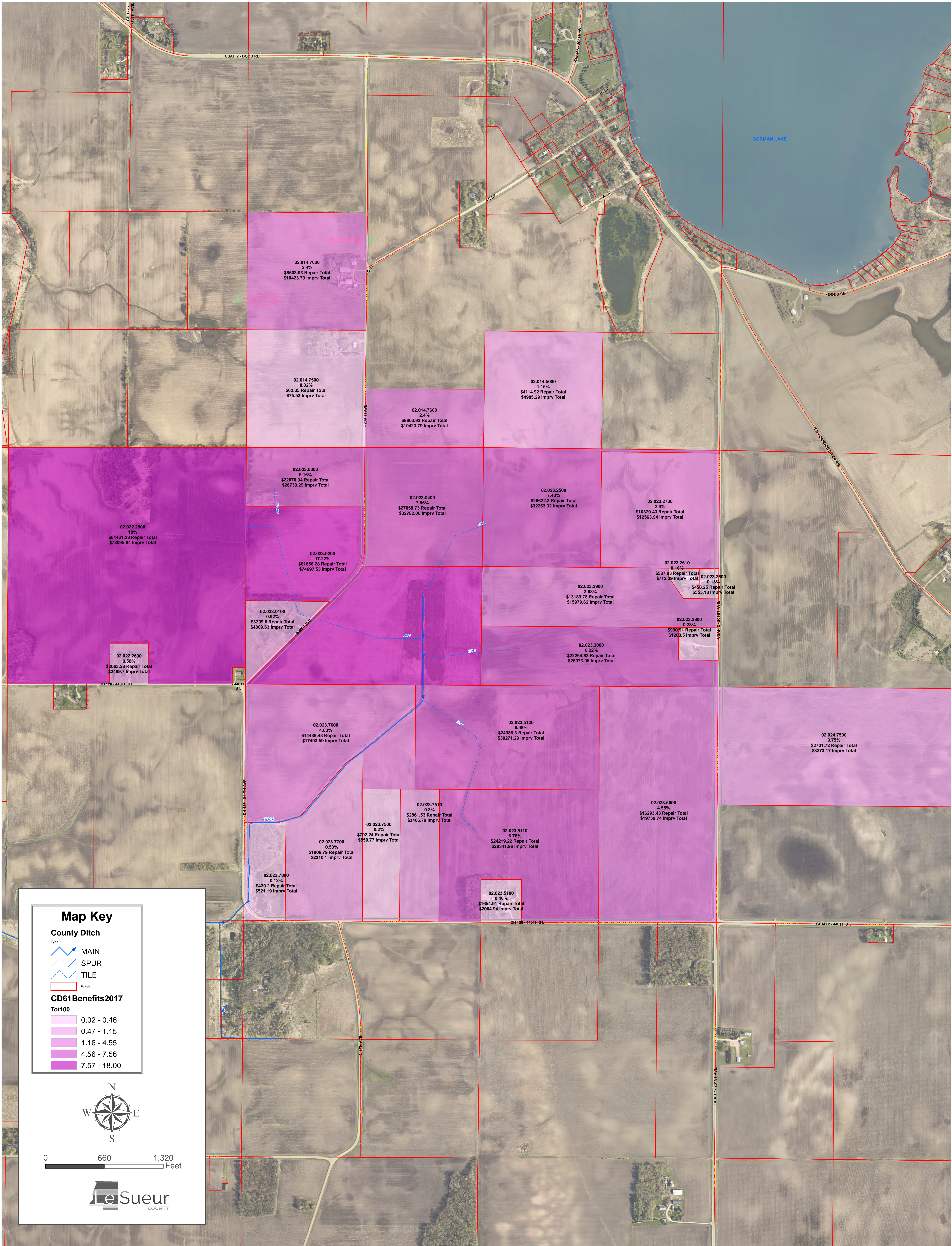
SC Typ	Vendor	Month	G/L	Receipt/Warrant NUMBER	DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	Basis	R1R2
35- 861 - 0000- 0000- 6260 - Professional Consulting												
DI	15069- Rinke- Noonan Law Firm	11/2012		25370	11/09/2012	333	3.23	Drainage Retainer	204706			1
DI	15069- Rinke- Noonan Law Firm	12/2012		25725	12/10/2012	333	3.23	Drainage Retainer	206004			1
DI	15069- Rinke- Noonan Law Firm	01/2013		26162	01/11/2013	333	3.23	Drainage Retainer	207160	AP		1
DI	15069- Rinke- Noonan Law Firm	02/2013		26422	02/08/2013	333	3.23	Drainage Retainer	208227			1
DI	15069- Rinke- Noonan Law Firm	03/2013		26746	03/08/2013	333	3.23	Drainage Retainer	209397			1
DI	15069- Rinke- Noonan Law Firm	04/2013		27042	04/05/2013	333	3.23	Drainage Retainer	210568			1
DI	15069- Rinke- Noonan Law Firm	05/2013		27380	05/10/2013	333	3.23	Drainage Retainer	211728			1
DI	15069- Rinke- Noonan Law Firm	06/2013		27747	06/07/2013	333	3.28	Drainage Retainer	212935			1
DI	15069- Rinke- Noonan Law Firm	07/2013		28058	07/12/2013	333	3.28	Drainage Retainer	214122			1
DI	15069- Rinke- Noonan Law Firm	08/2013		28438	08/09/2013	333	3.28	Drainage Retainer	215266			1
DI	15069- Rinke- Noonan Law Firm	09/2013		28790	09/13/2013	333	3.28	Drainage Retainer	216580			1
DI	15069- Rinke- Noonan Law Firm	10/2013		29111	10/11/2013	333	3.28	Drainage Retainer	217713			1
DI	15069- Rinke- Noonan Law Firm	11/2013		29497	11/15/2013	333	3.28	Drainage Retainer	219609			1
DI	15069- Rinke- Noonan Law Firm	12/2013		29855	12/13/2013	333	3.28	Drainage Retainer	220389			1
DI	15069- Rinke- Noonan Law Firm	01/2014		30260	01/10/2014	333	3.28	Drainage Retainer	221595	AP		1
DI	15069- Rinke- Noonan Law Firm	02/2014		30607	02/14/2014	333	3.28	Drainage Retainer	222859			1
DI	15069- Rinke- Noonan Law Firm	03/2014		30886	03/07/2014	333	3.28	Drainage Retainer	224075			1
DI	15069- Rinke- Noonan Law Firm	04/2014		31219	04/11/2014	333	3.28	Drainage Retainer	224957			1
DI	15069- Rinke- Noonan Law Firm	06/2014		31925	06/06/2014	333	3.28	Drainage Retainer	227192			1
DI	15069- Rinke- Noonan Law Firm	06/2014		31925	06/06/2014	333	3.28	Drainage Retainer	226221			1
DI	15069- Rinke- Noonan Law Firm	07/2014		32302	07/11/2014	333	3.28	Drainage Retainer	228640			1
DI	15069- Rinke- Noonan Law Firm	08/2014		32694	08/15/2014	333	3.28	Drainage Retainer	230002			1
DI	15069- Rinke- Noonan Law Firm	09/2014		33023	09/12/2014	333	3.28	Drainage Retainer	231202			1
DI	15069- Rinke- Noonan Law Firm	10/2014		33377	10/10/2014	333	3.28	Drainage Retainer	232434			1
DI	15069- Rinke- Noonan Law Firm	11/2014		33759	11/07/2014	333	3.28	Drainage Retainer	233344			1
DI	15069- Rinke- Noonan Law Firm	12/2014		34119	12/12/2014	333	3.28	Drainage Retainer	234496			1
DI	15069- Rinke- Noonan Law Firm	01/2015		34684	01/23/2015	333	3.28	Drainage Retainer	235309	AP		1
DI	15069- Rinke- Noonan Law Firm	02/2015		35084	02/20/2015	333	3.28	Drainage Retainer	236860			1
DI	15069- Rinke- Noonan Law Firm	03/2015		35254	03/13/2015	333	3.28	Drainage Retainer	237583			1
DI	15069- Rinke- Noonan Law Firm	04/2015		35623	04/17/2015	333	3.28	Drainage Retainer	239167			1
DI	15069- Rinke- Noonan Law Firm	05/2015		35947	05/08/2015	333	3.28	Drainage Retainer	240265			1
DI	15069- Rinke- Noonan Law Firm	06/2015		36377	06/12/2015	333	3.28	Drainage Retainer	241468			1
DI	15069- Rinke- Noonan Law Firm	07/2015		36713	07/10/2015	333	4.84	General Drainage Issues	242222			1
DI	15069- Rinke- Noonan Law Firm	07/2015		36772	07/10/2015	333	3.28	Drainage Retainer	242357			1
DI	15069- Rinke- Noonan Law Firm	08/2015		37166	08/14/2015	333	3.28	Drainage Retainer	244835			1
DI	15069- Rinke- Noonan Law Firm	09/2015		37493	09/11/2015	333	3.28	Drainage Retainer	246008			1
DI	15069- Rinke- Noonan Law Firm	10/2015		37897	10/09/2015	333	3.28	Drainage Retainer	247422			1
DI	15069- Rinke- Noonan Law Firm	11/2015		38290	11/13/2015	333	3.28	Drainage Retainer				1



SC Typ	Vendor	G/L Month	Receipt/Warrant NUMBER DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	Basis	R1R2
35- 861- 0000- 0000- 6260 - Professional Consulting										
DI	15069- Rinke- Noonan Law Firm	12/2015	38673 12/11/2015	333	3.28	Drainage Retainer	248501		1	
DI	15069- Rinke- Noonan Law Firm	01/2016	39144 01/15/2016	333	3.28	Drainage Retainer	249207	AP	1	
DI	15069- Rinke- Noonan Law Firm	02/2016	39531 02/12/2016	333	3.28	Drainage Retainer	250638		1	
DI	15069- Rinke- Noonan Law Firm	03/2016	39834 03/11/2016	333	3.28	Drainage Retainer	251576		1	
DI	15069- Rinke- Noonan Law Firm	04/2016	40203 04/08/2016	333	3.28	Drainage Retainer	253209		1	
DI	15069- Rinke- Noonan Law Firm	05/2016	40564 05/06/2016	333	3.28	Drainage Retainer	254151		1	
DI	15069- Rinke- Noonan Law Firm	06/2016	41060 06/10/2016	333	3.28	Drainage Retainer	255697		1	
DI	15069- Rinke- Noonan Law Firm	07/2016	41448 07/15/2016	333	3.28	Drainage Retainer	257049		1	
DI	15069- Rinke- Noonan Law Firm	08/2016	41824 08/12/2016	333	3.28	Drainage Retainer	257842		1	
DI	15069- Rinke- Noonan Law Firm	09/2016	42251 09/16/2016	333	3.28	Drainage Retainer	259410		1	
DI	15069- Rinke- Noonan Law Firm	10/2016	42622 10/14/2016	333	3.28	Drainage Retainer	260599		1	
DI	15069- Rinke- Noonan Law Firm	11/2016	43025 11/10/2016	333	3.28	Drainage Retainer	261759		1	
DI	15069- Rinke- Noonan Law Firm	12/2016	43516 12/16/2016	333	3.28	Drainage Retainer	263107		1	
DI	15069- Rinke- Noonan Law Firm	01/2017	43833 01/13/2017	333	3.28	Drainage Retainer	264156	AP	1	
DI	15069- Rinke- Noonan Law Firm	02/2017	44202 02/10/2017	333	3.28	Drainage Retainer	265439		1	
DI	15069- Rinke- Noonan Law Firm	03/2017	44540 03/10/2017	333	3.28	Drainage Retainer	266671		1	
DI	15069- Rinke- Noonan Law Firm	03/2017	44643 03/24/2017	333	3.10	Prof.Services	266925		1	
DI	15069- Rinke- Noonan Law Firm	04/2017	44889 04/14/2017	333	1.74	Drainage Retainer	267772		1	
DI	15069- Rinke- Noonan Law Firm	05/2017	45411 05/19/2017	333	1.74	Drainage Retainer	269210		1	
DI	15069- Rinke- Noonan Law Firm	06/2017	45637 06/09/2017	333	1.74	Drainage Retainer	270199		1	
DI	15069- Rinke- Noonan Law Firm	07/2017	46054 07/14/2017	333	1.74	Drainage Retainer	271579		1	
DI	15069- Rinke- Noonan Law Firm	08/2017	46555 08/18/2017	333	1.74	Drainage Retainer	272510		1	
DI	15069- Rinke- Noonan Law Firm	09/2017	46696 09/08/2017	333	1.37	Drainage Issues	272597		1	
DI	15069- Rinke- Noonan Law Firm	09/2017	46788 09/15/2017	333	1.74	Drainage Retainer	273374		1	
DI	15069- Rinke- Noonan Law Firm	10/2017	47145 10/13/2017	333	1.74	Drainage Retainer	274863		1	
DI	15069- Rinke- Noonan Law Firm	10/2017	47271 10/20/2017	333	1.64	Drainage Issues	274980		1	
DI	15069- Rinke- Noonan Law Firm	11/2017	47585 11/09/2017	333	1.74	Drainage Retainer	276113		1	
DI	15069- Rinke- Noonan Law Firm	11/2017	47766 11/24/2017	333	7.66	Prof.Services	276339		1	
DI	15069- Rinke- Noonan Law Firm	11/2017	47766 11/24/2017	333	613.50	Prof.Services	276348		1	
DI	10457- Soil & Water Conservation Dist	07/2003	67846 07/18/2003	333	6.04	DITCH INSPECTOR			1	
DI	10457- Soil & Water Conservation Dist	11/2003	69446 11/21/2003	333	55.40	DITCH INSPECTOR			1	
					Total	1,331.03	857.69	YTD:		
35- 861- 0000- 0000- 6260 - Professional Consulting										
35- 861 - 0000- 0000- 6300 - Repairs & Maintenance										
DI	10308- Contech Construction Product	12/2002	64657 12/20/2002	333	1,554.05	CULVERT			1	
DI	10457- Le Sueur County Soil & Water	12/2014	34037 12/05/2014	333	83.96	3rd Qtr- Ditch Inspector	32- 11- 0135		1	
DI	10457- Le Sueur County Soil & Water	11/2016	42917 11/04/2016	333	50.00	3rd Qtr- Ditch Inspector			1	
DI	10457- Le Sueur County Soil & Water	05/2017	45125 05/05/2017	333	25.00	1st Qtr- Ditch Inspector			1	
DI	19831- Mb Customs	06/2009	11402 06/15/2009	333	2,296.00	TILE REPAIR			1	

SC Typ	Vendor	Month	G/L	Receipt/Warrant NUMBER	DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	Basis	R1R2
35- 861- 0000- 0000- 6300 - Repairs & Maintenance												
DI	18018- Scott's Helicopter Service	09/2002		63606	09/20/2002	333	124.66	DITCH SPRAYING			1	
DI	18018- Scott's Helicopter Service	08/2008		7659	08/22/2008	333	186.76	DITCH SPRAYING			1	
DI	18018- Scott's Helicopter Service	10/2010		17145	10/22/2010	333	106.72	DITCH SPRAYING			1	
DI	18018- Scott's Helicopter Service	08/2015		37091	08/07/2015	333	128.00	15'- Ditch Spraying			1	
DI	10877- Selly Const.Inc	07/2004		72639	07/23/2004	333	825.00	REPAIR/INSPECT TILE	137		1	
DI	10877- Selly Excavating Inc.	06/2011		19868	06/20/2011	333	2,883.50	Clean Ditch	1122		1	
DI	10457- Soil & Water Conservation Dist	05/2002		61779	05/17/2002	333	81.94	DITCH INSPECTOR			1	
DI	10457- Soil & Water Conservation Dist	08/2002		63042	08/16/2002	333	55.84	DITCH INSPECTOR			1	
DI	10457- Soil & Water Conservation Dist	01/2003		65378	01/17/2003	333	80.84	DITCH INSPECTOR			1	4
DI	10457- Soil & Water Conservation Dist	02/2012		22602	02/24/2012	333	83.88	Ditch Inspector		DTG	1	
DI	12056- Zimmerman Construction	12/2002		64874	12/20/2002	333	2,140.00	CLEAN/LEVEL SPOIL			1	
DI	12056- Zimmerman Construction	08/2003		68302	08/22/2003	333	1,820.00	INSTALL CULVERT,BOBCAT			1	
DI	12056- Zimmerman Construction	08/2003		68302	08/22/2003	333	480.00	LABOR			1	
DI	12056- Zimmerman Construction	07/2005		77225	07/22/2005	333	7,256.74	INSTALL NEW TILE			1	
DI	12056- Zimmerman Construction	07/2008		7253	07/18/2008	333	100.00	REPAIR INTAKES	653665		1	
							Total	20,362.89	YTD:	25.00		
35- 861- 0000- 0000- 6360 - Miscellaneous												
DI	11187- Le Sueur Co Recorder	11/2005		78647	11/18/2005	333	46.00	RELEASE DITCH LIEN			1	
DI	11187- Le Sueur Co Recorder	01/2011		18233	01/21/2011	333	46.00	RELEASE- DITCH LIEN	2011000000		1	
DI	11187- Le Sueur Co Recorder	10/2011		21108	10/21/2011	333	46.00	Ditch Lien	2011000000		1	
DI	11187- Le Sueur Co Recorder	01/2017		43901	01/20/2017	333	46.00	Ditch Lien Release	2017000000		1	
TR	JE	11/2003		2462	11/30/2003	990	112.45	SHARE OF DITCH 37 LIEN			1	
TR	JE	12/2005		2509	12/30/2005	990	69.28	POSTAGE & LIEN 2004- 2005			1	
TR	JE	09/2006		2527	09/30/2006	990	550.00	DITCH LIENS			1	
TR	JE	09/2011		10130	09/30/2011	990	79.25	2010- 2011 Postage & Fees			1	
TR	JE	04/2012		10841	04/30/2012	990	56.28	Share of BWSR ditch			1	
TR	JE	07/2016		16217	07/29/2016	990	1,300.00	2016 lien			1	
							Total	2,351.26	YTD:	46.00		
35- 861- 0000- 0000- 6360 - Miscellaneous												
DIVISION 0000 Total												
DEPT 861 - Le Sueur County Ditch #61 Total												
Fund 35 - Ditch Total												
4 Accounts												
Final Total												
134 Transactions												

County Ditch #61



Map Key

County Ditch

Type



MAIN



SPUR



TILE



Parcels

CD61 Benefits 2017

Tot100

0.02 - 0.46

0.47 - 1.15

1.16 - 4.55

4.56 - 7.56

7.57 - 18.00



0 660 1,320 Feet



02.014.7600
2.4%
\$8603.93 Repair Total
\$10423.79 Imprv Total

02.014.7500
0.02%
\$62.35 Repair Total
\$75.53 Imprv Total

02.014.5000
1.15%
\$4114.92 Repair Total
\$4985.29 Imprv Total

02.014.7600
2.4%
\$8603.93 Repair Total
\$10423.79 Imprv Total

02.023.0300
6.16%
\$22070.94 Repair Total
\$26739.29 Imprv Total

02.023.0400
7.56%
\$27058.73 Repair Total
\$32782.06 Imprv Total

02.023.2500
7.43%
\$26622.3 Repair Total
\$32253.32 Imprv Total

02.023.2700
2.9%
\$10370.43 Repair Total
\$12563.94 Imprv Total

02.022.2500
18%
\$64461.28 Repair Total
\$78095.84 Imprv Total

02.023.0200
17.22%
\$61656.28 Repair Total
\$74697.53 Imprv Total

02.023.2610
0.46%
\$587.93 Repair Total
\$712.29 Imprv Total

02.023.2800
0.13%
\$458.25 Repair Total
\$555.18 Imprv Total

02.023.0100
0.92%
\$3309.6 Repair Total
\$4009.63 Imprv Total

02.023.2900
3.68%
\$13189.78 Repair Total
\$15979.62 Imprv Total

02.023.2800
0.28%
\$990.91 Repair Total
\$1200.5 Imprv Total

02.022.2800
0.58%
\$2063.28 Repair Total
\$2499.7 Imprv Total

02.023.3000
6.22%
\$22264.63 Repair Total
\$26973.95 Imprv Total

02.023.7600
4.03%
\$14439.43 Repair Total
\$17493.59 Imprv Total

02.023.5120
6.98%
\$24986.3 Repair Total
\$30271.29 Imprv Total

02.024.7500
0.75%
\$2701.72 Repair Total
\$3273.17 Imprv Total

02.023.7510
0.8%
\$2861.53 Repair Total
\$3466.79 Imprv Total

02.023.5000
4.55%
\$16293.43 Repair Total
\$19739.74 Imprv Total

02.023.7700
0.53%
\$1906.79 Repair Total
\$2310.1 Imprv Total

02.023.5110
6.76%
\$24219.22 Repair Total
\$29341.96 Imprv Total

02.023.7800
0.12%
\$430.2 Repair Total
\$521.19 Imprv Total

02.023.5100
0.46%
\$1654.91 Repair Total
\$2004.94 Imprv Total

FEASIBILITY STUDY FOR: COUNTY DITCH 61: LE SUEUR COUNTY, MINNESOTA

REPORT FOR:
Le Sueur County Drainage Authority
181 W. Minnesota St.
Le Center, MN 56057
507.357.4879

FROM:
Chuck Brandel, PE
Principal + Senior Civil Engineer
ISG
115 E. Hickory Street, Suite 300
Mankato, MN 56001
507.387.6651
chuck.brandel@is-grp.com



ISG

ARCHITECTURE + ENGINEERING + ENVIRONMENTAL + PLANNING



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Project Scope

At your request, I+S Group (ISG) completed a preliminary review of Le Sueur County Ditch No. 61 (CD 61). The scope included an examination of the existing CD 61, as well as recommendations for repairing and improving the existing open ditch and tile. Maps of the CD 61 watershed and existing public open ditch and tile system is shown on the attached exhibits and is referenced herein.

It should be noted that some general assumptions were made during this analysis and minimal survey information was gathered. ISG received the original watershed map, showing the tile locations and sizes from Le Sueur County for the CD 61 system. Additional information may or may not modify our findings, but it is not anticipated that a significant change to our recommendation would result. If you or any land owners have tile maps or any other information that can aid us in future work, please feel free to share this information with us. A future survey will be necessary to verify these assumptions.

Watershed

Le Sueur County Ditch No. 61 open ditch lies in Cordova Township of Le Sueur County, Minnesota. The CD 61 mainline open ditch drains from the SE quarter of the NW quarter of Section 23 of Cordova Township and flows southwest where it outlets into County Ditch No. 64 open ditch in the SE quarter of the SE quarter of Section 22 of Cordova Township.

The CD 61 watershed consists primarily of gently rolling agricultural land which provides drainage to approximately 1,003 total acres. The watershed includes land from Sections 14, 15, 22, 23, and 26 of Cordova Township. Elevations within the entire watershed range from approximately 1018 to 1090 Mean Sea Level (MSL) according to county LIDAR data.

The hydrologic soil classification for the land in the CD 61 watershed is predominantly type "B/D," which is considered as a dual hydrological soil group. This means that this soil has the potential to be adequately drained. The "D" in this group corresponds to the soil having over 40 percent clay and restricted water movement. The "B" is named the drained condition. That means if adequately drained, the soil would have moderately low runoff potential when thoroughly wet.

History

Le Sueur County Ditch No. 61 was originally constructed in 1957. This consisted of the construction of the banks of approximately 4,555 feet along the mainline open ditch along the East side of County Road 128 as well as installing two culverts throughout this portion of the open ditch. The construction also consisted of installing five buried tile branches labeled as Branch 1, 2, 3, 4 and 4-A.

Existing Conditions

The open ditch channel contains a typical trapezoidal channel designed to convey both surface and subsurface tile water throughout the watershed. Based on the historical data of the area, the open ditch slopes range from 0.03% to 0.19%. In most areas, existing tile outlets from both public branches and private tiles outlet near the bottom of the ditch. During rain events, the open ditch fills with water, covering the tile outlets and creates forced outlets. In some cases during larger rain events, the water depth in the channel is high enough to restrict the flow of the tiles and cause water to back up into the adjacent fields.

Drainage Capacity

The information in this document has been prepared with the original CD 61 alignment map. A close representation of the CD 61 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 61, the Natural Resources Conservation Service (NRCS) recommends a drainage coefficient of 0.50 to 0.75 in/day for buried tile and 1.0 in/day for open ditches. See Table 1 below for open ditch summary and Table 2 below for the existing tile inventory breakdown.

Table 1: Existing Open Ditch Drainage Capacities

Crossing #	Location	Existing Type	Existing Material	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
1	440th St.	ROUND CULVERT	CMP	48	0.05%	809	0.49
2	440th St.	ROUND CULVERT	CMP	48	0.19%	856	0.91

Table 2: Existing Tile Drainage Capacity

Area	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Branch 1	14	0.30%	283.5	0.25
	12	0.30%	247.8	0.19
	12	1.84%	247.8	0.47
Branch 2	10	0.30%	142.3	0.20
	10	0.87%	78.5	0.62
	10	0.30%	77.8	0.37
Branch 3	10	0.15%	98.8	0.21
Branch 4	14	0.20%	278.6	0.21
	14	0.90%	254.3	0.48
	14	0.14%	252.4	0.19
Branch 4-A	14	0.30%	47.9	1.47

The majority of the existing crossings of CD 61 are below the NRCS recommended drainage coefficient values as well as the majority of the existing tiles.

Proposed Conditions

It is recommended that eventually the entire system should be repaired or improved. The repaired tile would be installed following the existing tile alignments matching the existing tile slopes and elevations. 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 underground tiles and 1.0 in/day for open ditch crossings.

Repair Option

It is proposed in the repair option to clean the mainline open ditch, as well as repair all open ditch culverts that are below the NRCS recommended drainage coefficient. The repair will consist of cleaning 4,555 feet of 4-foot bottom open ditch. As well as installing approximately 3,900 feet of 15-inch tile, 1,260 feet of 12-inch tile, and 2,270 feet of 10-inch tile.

Improvement Option

It is proposed in the improvement option to clean the Main open ditch as well as improve the mainline open ditch crossings that are below the NRCS recommended drainage coefficient. The improvement will consist of cleaning approximately 4,555 feet of 4-foot bottom open ditch. The improvement will consist of replacing; Crossing 1 (CR 128) with a 48" RCP round culvert, Crossing 2 (private driveway) with a 48" RCP round culvert. Improvement Option 1 will also consist of replacing all tile throughout the entire system, which will consist of installing approximately 440 feet of 24-inch tile, 3,070 feet of 18-inch tile, 2,040 feet of 15-inch tile, and 1,925 feet of 12-inch tile.

Multi-Purpose Drainage Management

Multi-purpose drainage management 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.

Cost/Separable Maintenance

When a separable portion of a larger system is in need of repair, the drainage statute, M.S.103E.215, subd. 6, allows the separation of the cost of repair from the cost of improvement of the project. The condition of the existing system should be investigated further to discern the eligibility for separable maintenance costs. If it is determined that the system is in disrepair, separable maintenance costs can be applied to the project including the difference in costs associated between pipe/ditch replacement and pipe/ditch improvement. Separable maintenance for this system includes standard open ditch cleaning, rip rap outlet protection on all tile outlets, seeding (buffer and sideslopes), and standard tile installation.

A cost estimate was prepared for the above outline options for improvement to the system, as summarized in Table 3. The cost estimate summary includes the separable maintenance, improvement cost, and net benefit for each option.

Table 3: Cost Estimate Summary

PROPOSED OPTION #1 IMPROVEMENT COST SUMMARY

Area	Separable Maintenance	Improvement Cost	Net Cost
Main Open Ditch	\$ 43,867	\$ 51,907	\$ 8,040
Branch 1 Tile	\$ 68,754	\$ 72,540	\$ 3,786
Branch 2 Tile	\$ 34,669	\$ 38,719	\$ 4,050
Branch 3 Tile	\$ 32,777	\$ 40,352	\$ 7,575
Branch 4 Tile	\$ 95,524	\$ 112,245	\$ 16,721
Branch 4-A Tile	\$ 16,129	\$ 16,129	\$ -
Main Crossing # 1 (440th St. Crossing)	\$ 34,421	\$ 34,421	\$ -
Main Crossing # 2 (Driveway Crossing)	\$ 31,940	\$ 31,940	\$ -
Subtotal without Road Crossings	\$ 358,081	\$ 398,253	\$ 40,172
Road Authority Cost	\$ 31,985	\$ 31,985	\$ -
Damages Paid To Road Authority	\$ 6,602	\$ 6,800	\$ 198
Total	\$ 396,668	\$ 437,038	\$ 40,370
Subtotal Landowner Costs			\$ 405,053
Net Costs			\$ 40,370
Redetermination of Benefits Costs			\$ 6,018
Permanent Damages (Buffer Strip Acquisition)			\$ 22,750
Total Project Costs for Landowners			\$ 433,821

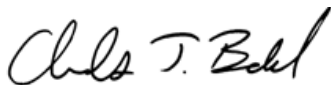
Recommendation

Currently, the existing tile system has a lower capacity than what is recommended by the NRCS. Upgrading the tile system would increase the capacity of the system to a drainage coefficient over 0.50 in/day for buried tile and 1.0 in/day for open ditch crossings. The system is approximately 60-years old, which is slightly less than the life expectancy for ditch systems like CD 61. These improvements would be a public benefit and contribute to the public welfare of this area.

This scenario assumes that the project is completed publically through Le Sueur County and utilizing Minnesota Statute 103E. If the project was completed privately, some of the administration costs could be saved, but would require 100% agreement with everyone in the watershed that is affected.

At this point we would recommend keeping the project as a public project as only 26% of the affected landowners would need to sign the petition to move forward. 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,



Chuck Brandel, PE
 Civil Engineer/Principal
 Enclosures



PROPOSED OPTION #1 IMPROVEMENT COST SUMMARY

Area	Separable Maintenance	Improvement Cost	Net Cost
Main Open Ditch	\$ 43,867	\$ 51,907	\$ 8,040
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Branch 4 Tile	\$ 95,524	\$ 112,245	\$ 16,721
Branch 4-A Tile	\$ 16,129	\$ 16,129	\$ -
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Main Crossing # 2 (Driveway Crossing)	\$ 31,940	\$ 31,940	\$ -
Subtotal without Road Crossings	\$ 358,081	\$ 398,253	\$ 40,172
Road Authority Cost	\$ 31,985	\$ 31,985	\$ -
Damages Paid To Road Authority	\$ 6,602	\$ 6,800	\$ 198
Total	\$ 396,668	\$ 437,038	\$ 40,370
		Subtotal Landowner Costs	\$ 405,053
		Net Costs	\$ 40,370
		Redetermination of Benefits Costs	\$ 6,018
		Permanent Damages (Buffer Strip Acquisition)	\$ 22,750
		Total Project Costs for Landowners	\$ 433,821



SEPARABLE MAINTANENCE (REPAIR)

Main Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,370.00	\$ 1,370
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	4,555	\$ 2.00	\$ 9,110
103	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 752.00	\$ 1,504
104	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 680.00	\$ 1,360
105	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	3.50	\$ 1,165	\$ 4,078
106	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	3.00	\$ 3,353	\$ 10,059
107	BUFFER STRIP MOWING	AC	3.50	\$ 85	\$ 298
108	WEED SPRAYING	AC	6.50	\$ 150	\$ 975
Total					\$ 28,753
10% Unforeseen					\$ 2,875
Subtotal					\$ 31,628
TEMPORARY DAMAGES		AC	3.5	\$ 650	\$ 2,275
County Administration Costs					\$ 633
Topographic Survey					\$ 4,000
Reports, Plans and Specifications					\$ 2,800
Construction Staking & Administration					\$ 2,531
Total Main Open Ditch Repair Cost					\$ 43,867

Branch 1 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,340.00	\$ 2,340
102	TILE INVESTIGATION	HR	5	\$ 106.50	\$ 533
103	15-INCH AGRICULTURAL TILE	LF	790	\$ 21.00	\$ 16,590
104	12-INCH AGRICULTURAL TILE	LF	1261	\$ 18.00	\$ 22,698
105	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	9	\$ 400	\$ 3,600
Total					\$ 49,100
10% Unforeseen					\$ 4,910
Subtotal					\$ 54,010
TEMPORARY DAMAGES		AC	7.1	\$ 650	\$ 4,615
County Administration Costs					\$ 1,081
Topographic Survey					\$ 1,486
Reports, Plans and Specifications					\$ 3,241
Construction Staking & Administration					\$ 4,321
Total Branch 1 Tile Repair Cost					\$ 68,754



SEPARABLE MAINTANENCE (REPAIR)

Branch 2 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,170.00	\$ 1,170
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
103	10-INCH AGRICULTURAL TILE	LF	1172	\$ 16.00	\$ 18,752
104	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	5	\$ 400	\$ 2,000
Total					\$ 24,500
10% Unforeseen					\$ 2,450
Subtotal					\$ 26,950
	TEMPORARY DAMAGES	AC	4.1	\$ 650	\$ 2,665
County Administration Costs					\$ 539
Topographic Survey					\$ 742
Reports, Plans and Specifications					\$ 1,617
Construction Staking & Administration					\$ 2,156
Total Branch 2 Tile Repair Cost					\$ 34,669

Branch 3 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,110.00	\$ 1,110
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
103	10-INCH AGRICULTURAL TILE	LF	1097	\$ 16.00	\$ 17,552
104	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	5	\$ 400	\$ 2,000
Total					\$ 23,200
10% Unforeseen					\$ 2,320
Subtotal					\$ 25,520
	TEMPORARY DAMAGES	AC	3.8	\$ 650	\$ 2,470
County Administration Costs					\$ 511
Topographic Survey					\$ 702
Reports, Plans and Specifications					\$ 1,532
Construction Staking & Administration					\$ 2,042
Total Branch 3 Tile Repair Cost					\$ 32,777



SEPARABLE MAINTANENCE (REPAIR)

Branch 4 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,270.00	\$ 3,270
102	TILE INVESTIGATION	HR	6	\$ 106.50	\$ 639
103	15-INCH AGRICULTURAL TILE	LF	2680	\$ 21.00	\$ 56,280
104	CONNECT EXISTING 15-INCH TILE	EA	1	\$ 644.50	\$ 645
105	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	\$ 400	\$ 4,400
Total					\$ 68,500
10% Unforeseen					\$ 6,850
Subtotal					\$ 75,350
TEMPORARY DAMAGES		AC	9.3	\$ 650	\$ 6,045
County Administration Costs					\$ 1,507
Topographic Survey					\$ 2,073
Reports, Plans and Specifications					\$ 4,521
Construction Staking & Administration					\$ 6,028
Total Branch 4 Tile Repair Cost					\$ 95,524

Branch 4-A Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 560.00	\$ 560
102	TILE INVESTIGATION	HR	1	\$ 106.50	\$ 107
103	15-INCH AGRICULTURAL TILE	LF	430	\$ 21.00	\$ 9,030
104	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400	\$ 800
Total					\$ 11,600
10% Unforeseen					\$ 1,160
Subtotal					\$ 12,760
TEMPORARY DAMAGES		AC	1.5	\$ 650	\$ 975
County Administration Costs					\$ 256
Topographic Survey					\$ 351
Reports, Plans and Specifications					\$ 766
Construction Staking & Administration					\$ 1,021
Total Branch 4-A Tile Repair Cost					\$ 16,129



SEPARABLE MAINTANENCE (REPAIR)

Main Crossing # 1 (440th St. Crossing)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,250.00	\$ 1,250
102	REMOVE CMP CULVERT	LS	1	\$ 765.75	\$ 766
103	48-INCH CLASS III RCP PIPE	LF	74	\$ 128.00	\$ 9,472
104	48-INCH RCP APRON	EA	2	\$ 2,000.00	\$ 4,000
105	RIPRAP WITH GEOTEXTILE FABRIC	CY	100	\$ 62.00	\$ 6,200
106	MnDOT CATEGORY 4 EROSION CONTROL BLANKET	SY	150	\$ 2.80	\$ 420
107	REPLACE GRAVEL ROAD OR DRIVEWAY	LS	1	\$ 1,970.00	\$ 1,970
108	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
Total					\$ 26,300
10% Unforeseen					\$ 2,630
Subtotal					\$ 28,930
TEMPORARY DAMAGES		AC	0.1	\$ 650	\$ 65
County Administration Costs					\$ 579
Topographic Survey					\$ 796
Reports, Plans and Specifications					\$ 1,736
Construction Staking & Administration					\$ 2,315
Total Main Crossing # 1 (440th St. Crossing) Repair Cost					\$ 34,421

Main Crossing # 2 (Driveway Crossing)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,170.00	\$ 1,170
102	REMOVE CMP CULVERT	LS	1	\$ 765.75	\$ 766
103	48-INCH CLASS III RCP PIPE	LF	60	\$ 128.00	\$ 7,680
104	48-INCH RCP APRON	EA	2	\$ 2,000.00	\$ 4,000
105	RIPRAP WITH GEOTEXTILE FABRIC	CY	100	\$ 62.00	\$ 6,200
106	MnDOT CATEGORY 4 EROSION CONTROL BLANKET	SY	150	\$ 2.80	\$ 420
107	REPLACE GRAVEL ROAD OR DRIVEWAY	LS	1	\$ 1,970.00	\$ 1,970
108	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
Total					\$ 24,400
10% Unforeseen					\$ 2,440
Subtotal					\$ 26,840
TEMPORARY DAMAGES		AC	0.1	\$ 650	\$ 65
County Administration Costs					\$ 537
Topographic Survey					\$ 739
Reports, Plans and Specifications					\$ 1,611
Construction Staking & Administration					\$ 2,148
Total Main Crossing # 2 (Driveway Crossing) Repair Cost					\$ 31,940

TOTAL REPAIR COST

	Main Open Ditch	\$ 43,867.30
	Branch 1 Tile	\$ 68,754.00
	Branch 2 Tile	\$ 34,669.00
	Branch 3 Tile	\$ 32,777.00
	Branch 4 Tile	\$ 95,524.00
	Branch 4-A Tile	\$ 16,129.00
	Main Crossing # 1 (440th St. Crossing)	\$ 34,421.00
	Main Crossing # 2 (Driveway Crossing)	\$ 31,940.00
	COMPLETE REPAIR COST	\$ 358,081.30



PROPOSED OPTION #1 IMPROVEMENT

Main Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,650.00	\$ 1,650
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	4,555	\$ 2.00	\$ 9,110
103	24-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 1,265.00	\$ 2,530
104	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	6	\$ 752.00	\$ 4,512
105	10-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	2	\$ 680.00	\$ 1,360
106	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	3.50	\$ 1,165	\$ 4,078
107	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	3.00	\$ 3,353	\$ 10,059
108	BUFFER STRIP MOWING	AC	3.50	\$ 85	\$ 298
109	WEED SPRAYING	AC	6.50	\$ 150	\$ 975
Total					\$ 34,571
10% Unforeseen					\$ 3,457
Subtotal					\$ 38,028
TEMPORARY DAMAGES		AC	3.5	\$ 650	\$ 2,275
County Administration Costs					\$ 761
Topographic Survey					\$ 4,000
Reports, Plans and Specifications					\$ 3,800
Construction Staking & Administration					\$ 3,043
Total Main Open Ditch Improvement Cost					\$ 51,907

Branch 1 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 2,480.00	\$ 2,480
102	TILE INVESTIGATION	HR	5	\$ 106.50	\$ 533
103	18-INCH AGRICULTURAL TILE	LF	790	\$ 24.60	\$ 19,434
104	12-INCH AGRICULTURAL TILE	LF	1261	\$ 18.00	\$ 22,698
105	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
106	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	9	\$ 400	\$ 3,600
Total					\$ 52,000
10% Unforeseen					\$ 5,200
Subtotal					\$ 57,200
TEMPORARY DAMAGES		AC	7.1	\$ 650	\$ 4,615
County Administration Costs					\$ 1,144
Topographic Survey					\$ 1,573
Reports, Plans and Specifications					\$ 3,432
Construction Staking & Administration					\$ 4,576
Total Branch 1 Tile Improvement Cost					\$ 72,540

Branch 2 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,320.00	\$ 1,320
102	TILE INVESTIGATION	HR	2	\$ 106.50	\$ 213
103	15-INCH AGRICULTURAL TILE	LF	500	\$ 21.00	\$ 10,500
104	12-INCH AGRICULTURAL TILE	LF	300	\$ 18.00	\$ 5,400
105	10-INCH AGRICULTURAL TILE	LF	372	\$ 16.00	\$ 5,952
106	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	5	\$ 400	\$ 2,000
Total					\$ 27,600
10% Unforeseen					\$ 2,760
Subtotal					\$ 30,360
TEMPORARY DAMAGES		AC	4.1	\$ 650	\$ 2,665
County Administration Costs					\$ 608
Topographic Survey					\$ 835
Reports, Plans and Specifications					\$ 1,822
Construction Staking & Administration					\$ 2,429
Total Branch 2 Tile Improvement Cost					\$ 38,719



PROPOSED OPTION #1 IMPROVEMENT

Branch 3 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,380.00	\$ 1,380
102	TILE INVESTIGATION	HR	3	\$ 106.50	\$ 320
103	15-INCH AGRICULTURAL TILE	LF	1097	\$ 21.00	\$ 23,037
104	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	5	\$ 400	\$ 2,000
Total					\$ 29,000
10% Unforeseen					\$ 2,900
Subtotal					\$ 31,900
TEMPORARY DAMAGES		AC	3.8	\$ 650	\$ 2,470
County Administration Costs					\$ 638
Topographic Survey					\$ 878
Reports, Plans and Specifications					\$ 1,914
Construction Staking & Administration					\$ 2,552
Total Branch 3 Tile Improvement Cost					\$ 40,352

Branch 4 Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,870.00	\$ 3,870
102	TILE INVESTIGATION	HR	6	\$ 106.50	\$ 639
103	24-INCH AGRICULTURAL TILE	LF	400	\$ 29.20	\$ 11,680
104	18-INCH AGRICULTURAL TILE	LF	2280	\$ 24.60	\$ 56,088
105	CONNECT EXISTING 15-INCH TILE	EA	2	\$ 644.50	\$ 1,289
106	INSTALL DROP INTAKE (18-INCH)	EA	3	\$ 1,085	\$ 3,255
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	11	\$ 400	\$ 4,400
Total					\$ 81,300
10% Unforeseen					\$ 8,130
Subtotal					\$ 89,430
TEMPORARY DAMAGES		AC	9.3	\$ 650	\$ 6,045
County Administration Costs					\$ 1,789
Topographic Survey					\$ 2,460
Reports, Plans and Specifications					\$ 5,366
Construction Staking & Administration					\$ 7,155
Total Branch 4 Tile Improvement Cost					\$ 112,245

Branch 4-A Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 560.00	\$ 560
102	TILE INVESTIGATION	HR	1	\$ 106.50	\$ 107
103	15-INCH AGRICULTURAL TILE	LF	430	\$ 21.00	\$ 9,030
104	INSTALL DROP INTAKE (18-INCH)	EA	1	\$ 1,085	\$ 1,085
105	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400	\$ 800
Total					\$ 11,600
10% Unforeseen					\$ 1,160
Subtotal					\$ 12,760
TEMPORARY DAMAGES		AC	1.5	\$ 650	\$ 975
County Administration Costs					\$ 256
Topographic Survey					\$ 351
Reports, Plans and Specifications					\$ 766
Construction Staking & Administration					\$ 1,021
Total Branch 4-A Tile Improvement Cost					\$ 16,129



PROPOSED OPTION #1 IMPROVEMENT

Main Crossing # 1 (Driveway Crossing)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,250.00	\$ 1,250
102	REMOVE CMP CULVERT	LS	1	\$ 765.75	\$ 766
103	48-INCH CLASS III RCP PIPE	LF	74	\$ 128.00	\$ 9,472
104	48-INCH RCP APRON	EA	2	\$ 2,000.00	\$ 4,000
105	RIPRAP WITH GEOTEXTILE FABRIC	CY	100	\$ 62.00	\$ 6,200
106	REPLACE GRAVEL ROAD OR DRIVEWAY	LS	1	\$ 1,970.00	\$ 1,970
107	MnDOT CATEGORY 4 EROSION CONTROL BLANKET	SY	150	\$ 2.80	\$ 420
108	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
Total					\$ 26,300
10% Unforeseen					\$ 2,630
Subtotal					\$ 28,930
TEMPORARY DAMAGES		AC	0.1	\$ 650	\$ 65
County Administration Costs					\$ 579
Topographic Survey					\$ 796
Reports, Plans and Specifications					\$ 1,736
Construction Staking & Administration					\$ 2,315
Total Main Crossing # 1 (Driveway Crossing) Repair Cost					\$ 34,421

Main Crossing # 2 (Driveway Crossing)

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 1,170.00	\$ 1,170
102	REMOVE CMP CULVERT	LS	1	\$ 765.75	\$ 766
103	48-INCH CLASS III RCP PIPE	LF	60	\$ 128.00	\$ 7,680
104	48-INCH RCP APRON	EA	2	\$ 2,000.00	\$ 4,000
105	RIPRAP WITH GEOTEXTILE FABRIC	CY	100	\$ 62.00	\$ 6,200
106	REPLACE GRAVEL ROAD OR DRIVEWAY	LS	1	\$ 1,970.00	\$ 1,970
107	MnDOT CATEGORY 4 EROSION CONTROL BLANKET	SY	150	\$ 2.80	\$ 420
108	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
Total					\$ 24,400
10% Unforeseen					\$ 2,440
Subtotal					\$ 26,840
TEMPORARY DAMAGES		AC	0.1	\$ 650	\$ 65
County Administration Costs					\$ 537
Topographic Survey					\$ 739
Reports, Plans and Specifications					\$ 1,611
Construction Staking & Administration					\$ 2,148
Total Main Crossing # 2 (Driveway Crossing) Repair Cost					\$ 31,940

TOTAL IMPROVEMENT COST

Main Open Ditch	\$ 51,907.10
Branch 1 Tile	\$ 72,540.00
Branch 2 Tile	\$ 38,719.00
Branch 3 Tile	\$ 40,352.00
Branch 4 Tile	\$ 112,245.00
Branch 4-A Tile	\$ 16,129.00
Main Crossing # 1 (Driveway Crossing)	\$ 34,421.00
Main Crossing # 2 (Driveway Crossing)	\$ 31,940.00
COMPLETE IMPROVEMENT COST	\$ 331,892.10



ROAD CROSSING SUMMARY

Crossing	Road Authority	Repair Cost With Road	Repair Cost Without Road	Improvement Cost	Road Authority Cost (Difference of Repair Cost With Road and Repair Cost Without Road)	Damages Paid To Road Authority (Difference of Improvement Cost and Road Authority Cost)
Main Open Ditch						
440th St.	COUNTY	\$ 31,448	\$ 3,845	\$ 31,448	\$ 27,602	\$ 3,845
Branch 4						
209th Ave.	COUNTY	\$ 7,139.00	\$ 2,756.91	\$ 7,337.00	\$ 4,382.09	\$ 2,954.91
TOTAL		\$ 38,587	\$ 6,602	\$ 38,785	\$ 31,985	\$ 6,800
STATE ROAD AUTHORITY TOTAL		\$ -	\$ -	\$ -	\$ -	\$ -
COUNTY ROAD AUTHORITY TOTAL		\$ 38,587	\$ 6,602	\$ 38,785	\$ 31,985	\$ 6,800
TOWNSHIP ROAD AUTHORITY TOTAL		\$ -	\$ -	\$ -	\$ -	\$ -



ROAD CROSSINGS

BRANCH 4 TILE REPAIR COST WITH ROAD - 209TH AVE.

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 300.00	\$ 300
102	15-INCH AGRICULTURAL TILE	LF	50	\$ 21.00	\$ 1,050
103	REPLACE GRAVEL ROAD OR DRIVEWAY	LS	1	\$ 1,970.00	\$ 1,970
104	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
TOTAL					\$ 5,490
10% CONTINGENCY					\$ 549
SUBTOTAL					\$ 6,039
County Administration Costs					\$ 200
Reports, Plans and Specifications					\$ 400
Construction Staking & Administration					\$ 500
ESTIMATED BRANCH 4 TILE REPAIR COST WITH ROAD - 209TH AVE.					\$ 7,139

BRANCH 4 TILE REPAIR WITHOUT ROAD - 209TH AVE.

Item No.	Item	Unit	Quantity	Unit Price	Amount
201	MOBILIZATION	LS	1	\$ 100.00	\$ 100
202	15-INCH AGRICULTURAL TILE	LF	50	\$ 21.00	\$ 1,050
203	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400.00	\$ 800
TOTAL					\$ 1,950
10% CONTINGENCY					\$ 195
SUBTOTAL					\$ 2,145
County Administration Costs					\$ 100
Reports, Plans and Specifications					\$ 200
Construction Staking & Administration					\$ 200
TEMPORARY DAMAGES		AC	0.17	\$ 650	\$ 112
ESTIMATED BRANCH 4 TILE REPAIR WITHOUT ROAD - 209TH AVE.					\$ 2,757

BRANCH 4 TILE IMPROVEMENT COST - 209TH AVE.

Item No.	Item	Unit	Quantity	Unit Price	Amount
301	MOBILIZATION	LS	1	\$ 300.00	\$ 300
302	18-INCH AGRICULTURAL TILE	LF	50	\$ 24.60	\$ 1,230
303	REPLACE GRAVEL ROAD OR DRIVEWAY	LS	1	\$ 1,970.00	\$ 1,970
304	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085.00	\$ 2,170
TOTAL					\$ 5,670
10% CONTINGENCY					\$ 567
SUBTOTAL					\$ 6,237
County Administration Costs					\$ 200
Reports, Plans and Specifications					\$ 400
Construction Staking & Administration					\$ 500
ESTIMATED BRANCH 4 TILE IMPROVEMENT COST - 209TH AVE.					\$ 7,337



Existing Watershed Map

County Ditch No. 61
Le Sueur County,
Minnesota

Thursday, September 14, 2017

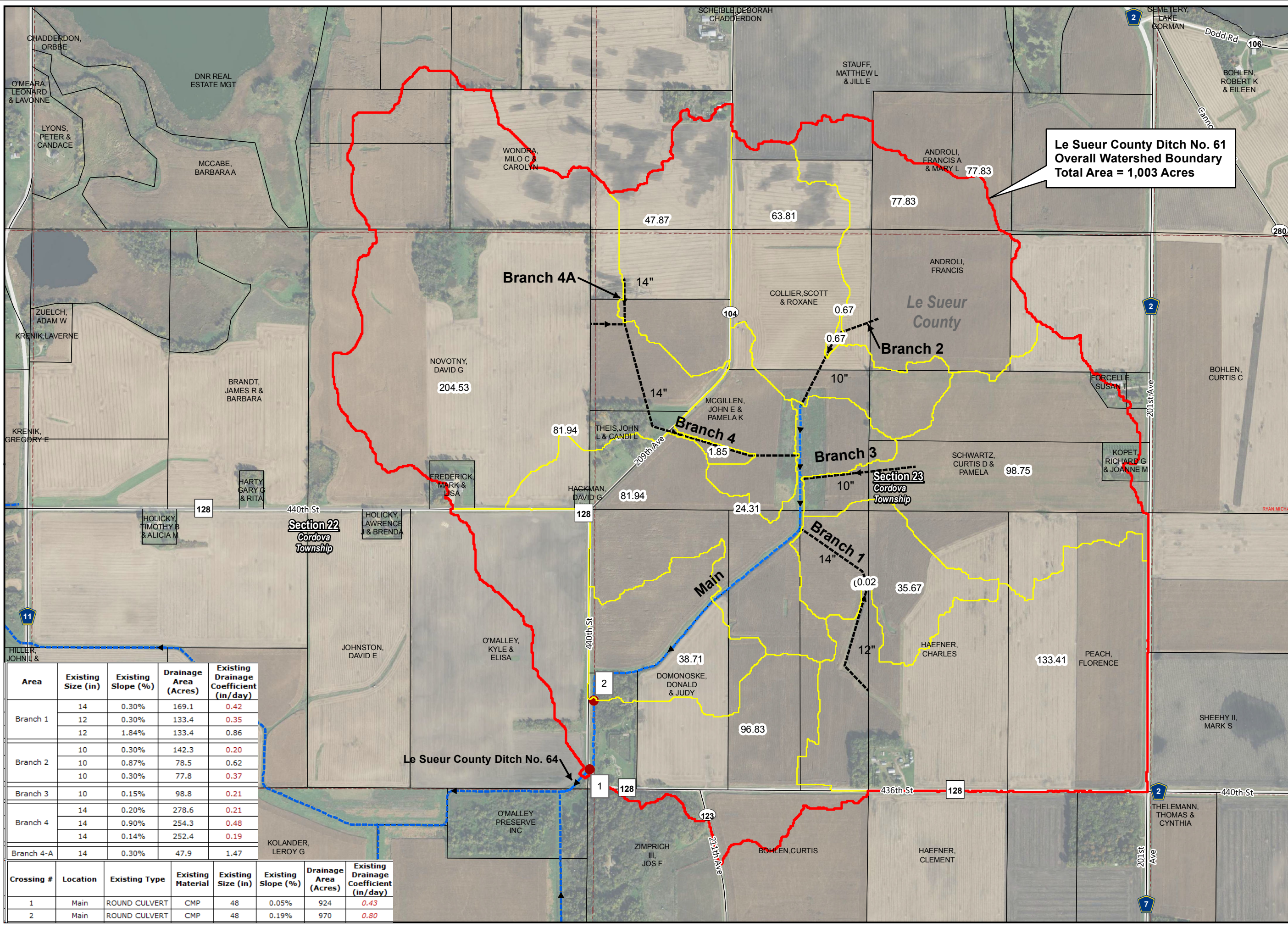
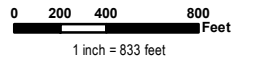
Legend

- CD61 Watershed
- Culverts
- Subcatchments
- Existing, Open Ditch
- - - Existing, Main Tile

PN: 17-20817

Source:

- Orthophotograph (Le Sueur County, 2016)
- Tile/Ditch (Le Sueur County, 11/21/2016)
- Parcels (Le Sueur County, 2/4/2016)
- Lakes (MN DNR, July, 2008)
- Major Stream (MN DNR, July 2008)
- Counties (MN DNR, July 2013)
- PLSS (MnGeo/USGS)



Area	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Branch 1	14	0.30%	169.1	0.42
	12	0.30%	133.4	0.35
	12	1.84%	133.4	0.86
Branch 2	10	0.30%	142.3	0.20
	10	0.87%	78.5	0.62
	10	0.30%	77.8	0.37
Branch 3	10	0.15%	98.8	0.21
Branch 4	14	0.20%	278.6	0.21
	14	0.90%	254.3	0.48
	14	0.14%	252.4	0.19
Branch 4-A	14	0.30%	47.9	1.47

Crossing #	Location	Existing Type	Existing Material	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
1	Main	ROUND CULVERT	CMP	48	0.05%	924	0.43
2	Main	ROUND CULVERT	CMP	48	0.19%	970	0.80



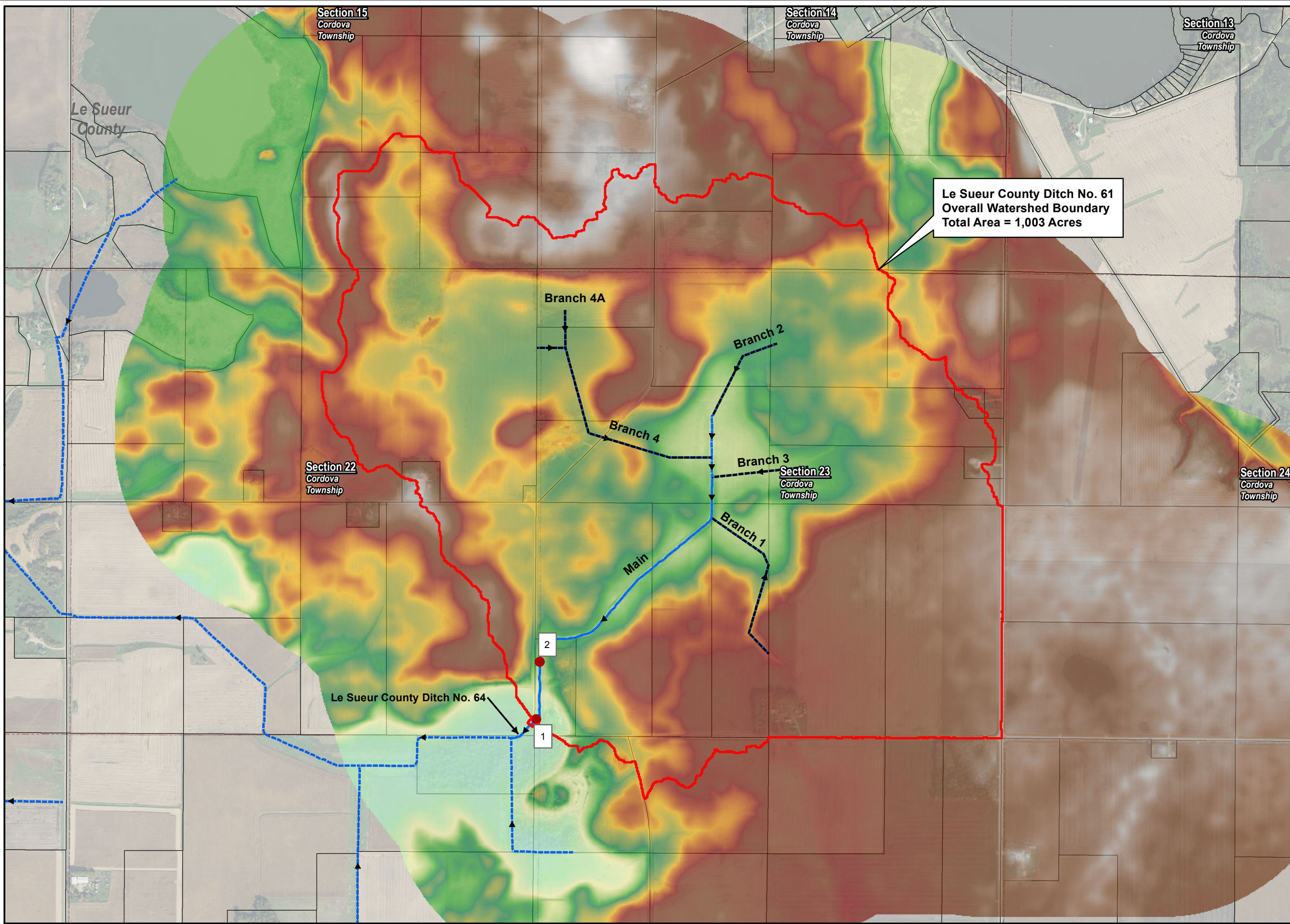
Hillshade Map
County Ditch No. 61
 Le Sueur County,
 Minnesota
 Thursday, September 14, 2017

- Legend**
- CD61 Watershed
 - Culverts
 - Existing, Open Ditch
 - Existing, Main Tile
- DEM**
- Value**
- High : 1095.81
 - Low : 1019.1

PN: 17-20817
Source:
 Orthophotograph (Le Sueur County, 2016)
 Tile/Ditch (Le Sueur County, 11/21/2016)
 Parcels (Le Sueur County, 2/4/2016)
 Lakes (MN DNR, July, 2008)
 Major Stream (MN DNR, July 2008)
 Counties (MN DNR, July 2013)
 PLSS (MnGeo/USGS)



0 237.5 475 950 Feet
 1 inch = 1,000 feet



Le Sueur County Ditch No. 61
 Overall Watershed Boundary
 Total Area = 1,003 Acres



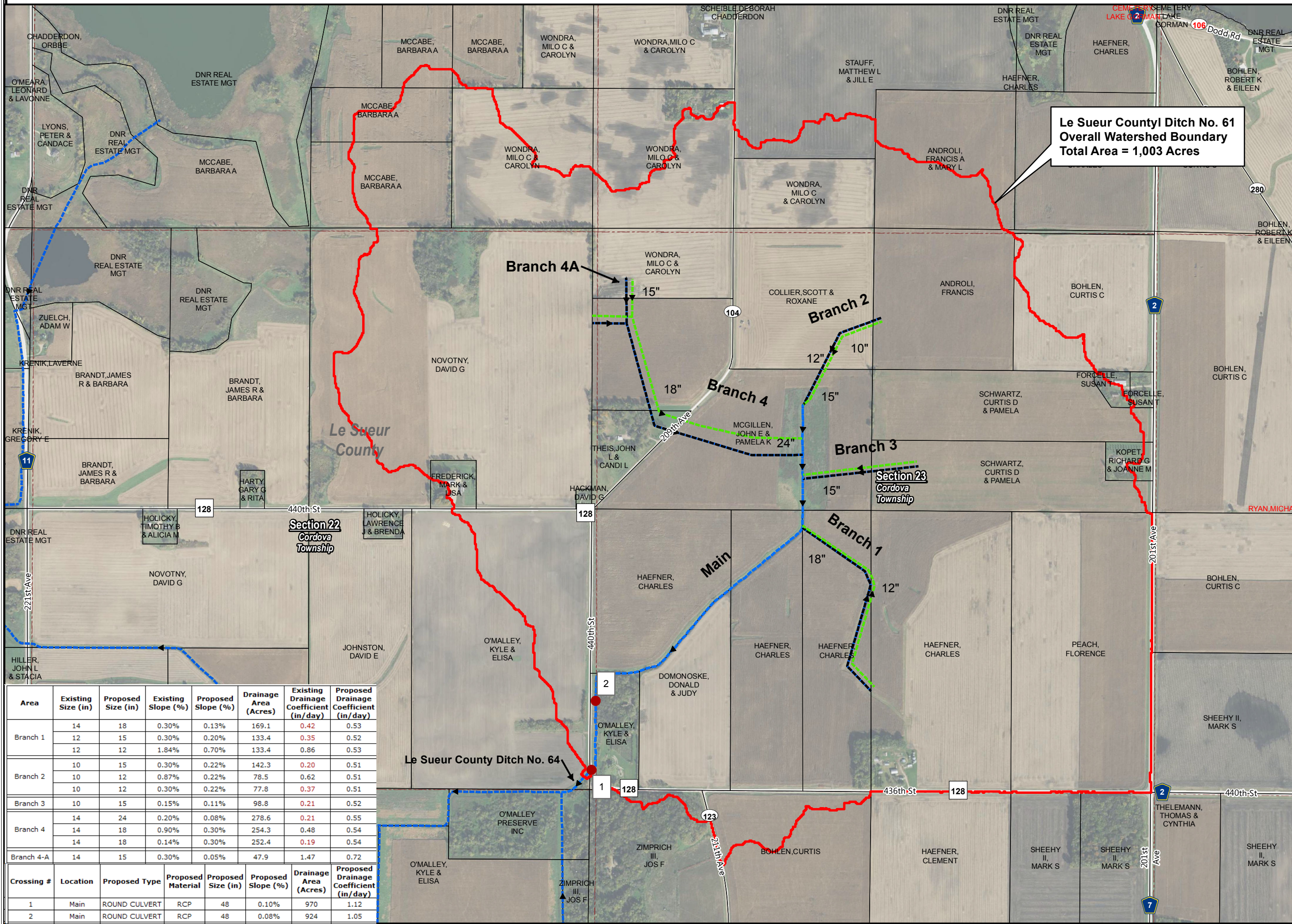
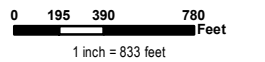
**Improvement
Option 1**
County Ditch No. 61
Le Sueur County,
Minnesota
Tuesday, September 12, 2017

- Legend**
- CD 61 Watershed
 - Culverts
 - Imp Option 1
 - Existing, Open Ditch
 - Existing, Main Tile

PN: 17-20817

Source:

Orthophotograph (Le Sueur County, 2016)
Tile/Ditch (Le Sueur County, 11/21/2016)
Parcels (Le Sueur County, 2/4/2016)
Lakes (MN DNR, July, 2008)
Major Stream (MN DNR, July 2008)
Counties (MN DNR, July 2013)
PLSS (MnGeo/USGS)



**Le Sueur County Ditch No. 61
Overall Watershed Boundary
Total Area = 1,003 Acres**

Area	Existing Size (in)	Proposed Size (in)	Existing Slope (%)	Proposed Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
Branch 1	14	18	0.30%	0.13%	169.1	0.42	0.53
	12	15	0.30%	0.20%	133.4	0.35	0.52
	12	12	1.84%	0.70%	133.4	0.86	0.53
Branch 2	10	15	0.30%	0.22%	142.3	0.20	0.51
	10	12	0.87%	0.22%	78.5	0.62	0.51
	10	12	0.30%	0.22%	77.8	0.37	0.51
Branch 3	10	15	0.15%	0.11%	98.8	0.21	0.52
	14	24	0.20%	0.08%	278.6	0.21	0.55
	14	18	0.90%	0.30%	254.3	0.48	0.54
Branch 4	14	18	0.14%	0.30%	252.4	0.19	0.54
	14	15	0.30%	0.05%	47.9	1.47	0.72
Branch 4-A	14	15	0.30%	0.05%	47.9	1.47	0.72
Crossing #	Location	Proposed Type	Proposed Material	Proposed Size (in)	Proposed Slope (%)	Drainage Area (Acres)	Proposed Drainage Coefficient (in/day)
1	Main	ROUND CULVERT	RCP	48	0.10%	970	1.12
2	Main	ROUND CULVERT	RCP	48	0.08%	924	1.05