



Le Sueur County, MN

Thursday, December 7, 2017

Board Meeting

Item 1

10:00 a.m. Informational Meeting for Le Sueur County Ditch 41

Staff Contact:

STATE OF MINNESOTA
LE SUEUR COUNTY BOARD OF COMMISSIONERS
DRAINAGE AUTHORITY FOR LE SUEUR COUNTY DITCH 41

The matter of Le Sueur County Ditch 41

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.

[15741-0039/2852932/1]

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).

[15741-0039/2852932/1]

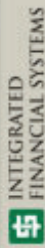
Auditor's Tabular Assessment Statement *(1) For the Creation of a Fund to be used for the Repair of *(2) For the Repair of County Ditch No. # 41 in the County of Le Sueur Minnesota

***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.	December 7, 2017 Meeting
					Acres	Acres	Dollars	Dollars	
William J Wieland et al	N 30 ac of NE 1/4 of SW 1/4	25	111	25	30.00	17.00	112.00		11.025.7900
William J Wieland et al	SW 1/4 of NE 1/4	25	111	25	40.00	20.00	199.00		11.025.2700
William J Wieland et al	SE 1/4 of NE 1/4	25	111	25	40.00	5.00	10.00		11.025.2700
William J Wieland et al	W 10 ac of NE 1/4 of SE 1/4	25	111	25	10.00	9.00	374.67		11.025.2700
William J Wieland et al	That part of NW 1/4 of SE 1/4 beg at ctr of sec, th E 80 rods, S 70 rods, NW to CL of sec 10 rods S of center of Sec, th N 10 rods to beg	25	111	25	20.00	18.00	749.33		11.025.5000
Karl & Sandra Germscheid Trust	SE 1/4 of NW 1/4 less 8.67 ac	25	111	25	31.77	11.33	66.85		11.025.0100
Douglas R & Barbara Traxler	That part of SE 1/4 of NW 1/4 beg at SE cor, th N 910 ft, W 415 ft, S 910 ft, E 415 ft to beg	25	111	25	8.67	8.67	51.15		11.025.0500
Timothy G. Simonette, etal & BJMCC LLP	E 30 ac of N 1/2 of SE 1/4 less 5 ac	25	111	25	25.00	23.00	932.32		11.025.5100
Patrick & Patricia Simonette	That part of NE 1/4 of SE 1/4 beg 477.72 ft S of E 1/4 cor of sec 25, th S 871.55 ft, W 265.37 ft, N 749.04 ft, NE'ly 296.28 ft to beg	25	111	25	5.00	5.00	202.68		11.025.5400
Delores M. Beer	SW 1/4 of SE 1/4 less 9.78 ac	25	111	25	30.22	14.80	631.96		11.025.5200
Brandon & Abby Beer	9.78 ac in SW 1/2 of SE 1/4	25	111	25	9.78	3.20	136.88		11.025.5210
Delores M. Beer	SE 1/4 of SE 1/4 less 6.00 ac	25	111	25	34.00	31.00	1324.12		11.025.5200
Thomas H. & Marianne Beer	N 210 ft of E 414 ft of SE 1/4 of SE 1/4	25	111	25	2.00	2.00	85.43		11.025.5300
Thomas H. & Marianne Beer	N 315 ft of E 828 ft of SE 1/4 of SE 1/4 less N 210 ft of E 414 ft	25	111	25	4.00	4.00	170.85		11.025.5500
Delores M. Beer	20 ac of NW 1/4 of SE 1/4 lying S of ditch less 4.22 ac	25	111	25	15.78	15.78	674.02		11.025.5200

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.	December 7, 2017 Meeting
					Acres	Acres	Dollars	Dollars	
Brandon & Abby Beer	4.22 ac in NW 1/4 of SE 1/4	25	111	25	4.22	3.22	137.54		11.025.5210
James F & Theresa David	E 1/2 of N 20 rods of E 1/2 of NE 1/4	36	111	25	5.00	5.00	50.77		11.036.2800
James L. Selly	NE 1/4 of NE 1/4 less 5.00 ac	36	111	25	35.00	21.00	213.23		11.036.0200
Timothy G. Simonette, etal & BJMCC LLP	NW 1/4 of SW 1/4 less 2.76 ac	30	111	24	37.24	15.24	30.48		08.030.7500
Thomas G. Simonette	W 344 ft of N 360 ft of NW 1/4 of SW 1/4	30	111	24	2.76	2.76	5.52		08.030.7700
George Beer	SW 1/4 of SW 1/4	30	111	24	40.00	28.00	1146.50		08.030.7600
George Beer	NW 1/4 of NW 1/4	31	111	24	40.00	37.00	1132.70		08.031.0400
George Beer	SW 1/4 of NW 1/4	31	111	24	40.00	38.00	805.50		08.031.0400
Emil Knish, Jr. Estate	That part of SW 1/4 beg 418 ft E of W 1/4 cor of sec 31, th SE 672.18 ft to S'ly R/W of TH # 99, th NE on R/W 1114.13 ft, W 939.63 ft to beg	31	111	24	7.23	3.00	59.00		08.031.7600
Jerome P. & John Cooney	N 20 ac of E 1/2 of NW 1/4 less 1.50 ac (1/2 interest)	31	111	24	18.50	3.25	79.00		08.031.0100
Robert L. Traxler, Jr.	N 20 ac of E 1/2 of NW 1/4 less 1.50 ac (1/2 interest)	31	111	24	18.50	3.25	79.00		08.031.0500
Jerome P. & John Cooney	S 60 ac of NW 1/4 less 15.87 ac(1/2 interest)	31	111	24	44.13	11.25	187.75		08.031.0100
Robert L. Traxler, Jr.	S 60 ac of NW 1/4 less 15.87 ac(1/2 interest)	31	111	24	44.13	11.25	187.75		08.031.0500
State of Minnesota	TH # 112 between sections 30 & 31		111	24			1000.00		08.999.2223
Le Sueur County	CR #113	30	111	24			500.00		08.999.3251
Sharon Township	Cartway	25	111	25			400.00		11.999.8888
Grand Total:							11736.00		

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 841 Thru 841

OBJECT Range From 6000 Thru 6999

DIVISION 0000

35- 841- 0000- 0000- 6230 - Printing, Publishing & Advertising

DI DI 10154- Suel/Printing Company 07/2009 11870 07/24/2009 333

35- 841- 0000- 0000- 6230 - Printing, Publishing & Advertising

Total

35- 841- 0000- 0000- 6260 - Professional Consulting

DI DI 20780- Houston Engineering Inc. 11/2015 38532 11/25/2015 333

DI DI 20780- Houston Engineering Inc. 09/2016 42314 09/23/2016 333

DI DI 20780- Houston Engineering Inc. 09/2017 46851 09/22/2017 333

DI DI 10457- Le Sueur County Soil & Water 11/2016 42917 11/04/2016 333

DI DI 10457- Le Sueur County Soil & Water 11/2016 42917 11/04/2016 333

DI DI 10457- Le Sueur County Soil & Water 02/2017 44102 02/10/2017 333

DI DI 10457- Le Sueur County Soil & Water 05/2017 45125 05/05/2017 333

DI DI 10457- Le Sueur County Soil & Water 05/2017 45125 05/05/2017 333

DI DI 10457- Le Sueur County Soil & Water 05/2017 45125 05/05/2017 333

DI DI 10457- Le Sueur County Soil & Water 07/2017 46119 07/21/2017 333

DI DI 10457- Le Sueur County Soil & Water 07/2017 46119 07/21/2017 333

DI DI 10457- Le Sueur County Soil & Water 10/2017 47225 10/20/2017 333

DI DI 10457- Le Sueur County Soil & Water 10/2017 47225 10/20/2017 333

DI DI 10126- Mn State Auditor 04/2002 61233 04/12/2002 333

DI DI 10126- Mn State Auditor 05/2002 61706 05/17/2002 333

DI DI 10126- Mn State Auditor 07/2003 67785 07/18/2003 333

DI DI 10126- Mn State Auditor 07/2003 67785 07/18/2003 333

DI DI 10126- Mn State Auditor 11/2004 74057 11/19/2004 333

DI DI 10126- Mn State Auditor 10/2005 78295 10/21/2005 333

DI DI 10126- Mn State Auditor 05/2006 81067 05/19/2006 333

DI DI 20543- Renville County Administratio 10/2013 29110 10/11/2013 333

DI DI 15069- Rinke- Noonan Law Firm 10/2011 20962 10/07/2011 333

DI DI 15069- Rinke- Noonan Law Firm 11/2011 21312 11/04/2011 333

DI DI 15069- Rinke- Noonan Law Firm 12/2011 21650 12/09/2011 333

DI DI 15069- Rinke- Noonan Law Firm 01/2012 22067 01/06/2012 333

DI DI 15069- Rinke- Noonan Law Firm 02/2012 22385 02/10/2012 333

DI DI 15069- Rinke- Noonan Law Firm 03/2012 22712 03/09/2012 333

DI DI 15069- Rinke- Noonan Law Firm 04/2012 23024 04/13/2012 333

DI DI 15069- Rinke- Noonan Law Firm 05/2012 23339 05/11/2012 333

DI DI 15069- Rinke- Noonan Law Firm 06/2012 23701 06/08/2012 333

DI DI 15069- Rinke- Noonan Law Firm 07/2012 24023 07/13/2012 333

DI DI 15069- Rinke- Noonan Law Firm 08/2012 24346 08/10/2012 333

DI DI 15069- Rinke- Noonan Law Firm 09/2012 24688 09/14/2012 333

DI DI 15069- Rinke- Noonan Law Firm 10/2012 24983 10/05/2012 333

54.60 DITCH LIEN 243469 1

54.60 YTD:

65.60 Annual- Date Base Fee 0026847 1

65.60 Software Maint. 9/1/16- 8/31/17 31387 1

14.40 Software Maint. 9/1/17- 8/31/18 35976 1

0.41 Work on Ditch Database 1

11.29 Purchase- Seed Slinger 1

12.21 Waders DTG 1

0.72 Work on Drainage Database 1

6.05 Regist,Meetings,Etc 1

1.59 Cell Phones 1

27.00 2nd Qtr- Ditch Inspector 1

1.74 Phone Bill 1

27.00 3rd Qtr- Ditch Inspector 1

2.15 Cell Phones,Oats,Regist. 1

8.47 DITCH AUDIT 47442 1

4.59 DITCH AUDIT 1

12.13 DITCH AUDIT 49630/4963 1

0.92 DITCH AUDIT 50108 1

8.09 DITCH AUDIT 1

6.99 DITCH AUDIT 53643 1

0.93 DITCH AUDIT 54539 1

16.40 Cost Share- Ditch Viewer Prog. 1

3.23 Drainage Retainer 188561 1

3.23 Drainage Retainer 189787 1

3.23 Drainage Retainer 191081 1

3.23 Drainage Retainer 192276 AP 1

3.23 Drainage Retainer 193521 1

3.23 Drainage Retainer 194814 1

3.23 Drainage Retainer 196239 1

3.23 Drainage Retainer 197346 1

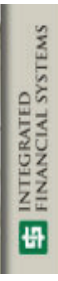
3.23 Drainage Retainer 198682 1

3.23 Drainage Retainer 199945 1

3.23 Drainage Retainer 201193 1

3.23 Drainage Retainer 202405 1

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- 841- 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
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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
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SC Typ	Vendor	G/L Month	Receipt/Warrant NUMBER	DATE	Seq #	AMOUNT	DESCRIPTION	Invoice Number	Accr Cd	R1R2 Basis
35- 841- 0000- 0000- 6260 - Professional Consulting										
DI	15069- Rinke- Noonan Law Firm	12/2015	38673	12/11/2015	333	3.28	Drainage Retainer	248501		1
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DI	15069- Rinke- Noonan Law Firm	03/2016	39834	03/11/2016	333	3.28	Drainage Retainer	251576		1
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DI	15069- Rinke- Noonan Law Firm	09/2016	42251	09/16/2016	333	3.28	Drainage Retainer	259410		1
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DI	15069- Rinke- Noonan Law Firm	03/2017	44643	03/24/2017	333	3.10	Prof.Services	266925		1
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DI	15069- Rinke- Noonan Law Firm	11/2017	47585	11/09/2017	333	0.72	Drainage Retainer	276113		1
DI	15069- Rinke- Noonan Law Firm	11/2017	47766	11/24/2017	333	3.18	Prof.Services	276339		1
DI	15069- Rinke- Noonan Law Firm	11/2017	47766	11/24/2017	333	613.50	Prof.Services	276349		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	02/2006	80068	02/24/2006	333	79.88	DITCH INSPECTOR			1
						1,227.31	YTD:	729.49		1
						4,925.17	Culvert	IN00242882		1
DI	10308- Contech Engineered Solutions	05/2016	40638	05/20/2016	333	187.00	1st Qtr 16' Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	05/2016	40480	05/06/2016	333	107.56	3rd Qtr Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	11/2016	42917	11/04/2016	333	91.82	4th Qtr Ditch Inspector		DTG	1
DI	10457- Le Sueur County Soil & Water	02/2017	44102	02/10/2017	333	50.00	1st Qtr Ditch Inspector			1
DI	10457- Le Sueur County Soil & Water	05/2017	45125	05/05/2017	333					1

35- 841- 0000- 0000- 6300 - Repairs & Maintenance

DI	DI	18018- Scott's Helicopter Service	09/2002	63606	09/20/2002	333	74.80	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	11/2004	74098	11/19/2004	333	49.84	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	08/2005	77598	08/19/2005	333	77.61	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	08/2006	82269	08/18/2006	333	154.08	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	08/2007	2936	08/24/2007	333	102.72	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	08/2008	7659	08/22/2008	333	160.08	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	07/2009	11572	07/02/2009	333	53.36	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	10/2010	17145	10/22/2010	333	133.40	DITCH SPRAYING			1
DI	DI	18018- Scott's Helicopter Service	08/2011	20505	08/19/2011	333	169.08	Ditch Spraying	6824		1
DI	DI	18018- Scott's Helicopter Service	08/2012	24550	08/24/2012	333	216.86	Ditch Spraying	7947		1
DI	DI	18018- Scott's Helicopter Service	08/2013	28403	08/09/2013	333	123.92	Ditch Spraying	9105		1
DI	DI	18018- Scott's Helicopter Service	08/2015	37091	08/07/2015	333	64.00	15'- Ditch Spraying			1
DI	DI	10877- Selly Const Inc	12/2005	79182	12/23/2005	333	17,892.50	CLEAN OUT	0268		1
DI	DI	10877- Selly Const Inc	05/2006	81114	05/19/2006	333	3,274.00	SPREAD BANK	0332		1
DI	DI	10877- Selly Excavating Inc.	12/2012	25915	12/21/2012	333	3,748.60	Clean,Pipe	1309		1
DI	DI	10877- Selly Excavating Inc.	12/2012	26053	12/31/2012	333	1,435.64	Culvert			1
DI	DI	10877- Selly Excavating Inc.	12/2012	26053	12/31/2012	333	2135.00	Clean,Spread Ditch	1314		1
DI	DI	10877- Selly Excavating Inc.	02/2016	39423	02/05/2016	333	2,410.00	Clean Ditch	16002	AP	1
DI	DI	10877- Selly Excavating Inc.	07/2016	41588	07/22/2016	333	11,362.50	Remove/Replace Culvert	16075		1
DI	DI	10877- Selly Excavating Inc.	12/2016	43583	12/23/2016	333	5,180.00	Clean,Cut Trees,Etc	16155		1
DI	DI	10877- Selly Excavating Inc.	06/2017	45584	06/09/2017	333	6,306.30	Repair Intake,Repair Tile	17029		1
DI	DI	10457- Soil & Water Conservation Dist	02/2013	26639	02/22/2013	333	53.89	Ditch Inspector		DTG	1
DI	DI	10457- Soil & Water Conservation Dist	03/2014	30856	03/07/2014	333	107.92	4th Qtr Ditch Inspector		DTG	1
DI	DI	20398- Sycks Construction LLC	12/2013	30013	12/20/2013	333	1,883.74	Repair Ditch	73		1
TR	JE		12/2012	11577	12/31/2012	990	1,435.64	Culvert & Band			1
						Total	63,967.03			YTD:	6,448.12

35- 841- 0000- 0000- 6300 - Repairs & Maintenance

35- 841- 0000- 0000- 6360 - Miscellaneous

DI	DI	11187- Le Sueur Co Recorder	11/2009	13195	11/20/2009	333	46.00	DITCH LIEN		1081	1
TR	JE		10/2009	2768	10/31/2009	990	71.33	2006- 2009 POSTAGE & FEES			1
TR	JE		04/2012	10841	04/30/2012	990	56.29	Share of BWSR ditch			1
						Total	173.62			YTD:	-

DIVISION 0000 Total

DEPT 841 - Le Sueur County Ditch #41 Total

Fund 35 - Ditch Total

Final Total

65,422.56

65,422.56

65,422.56

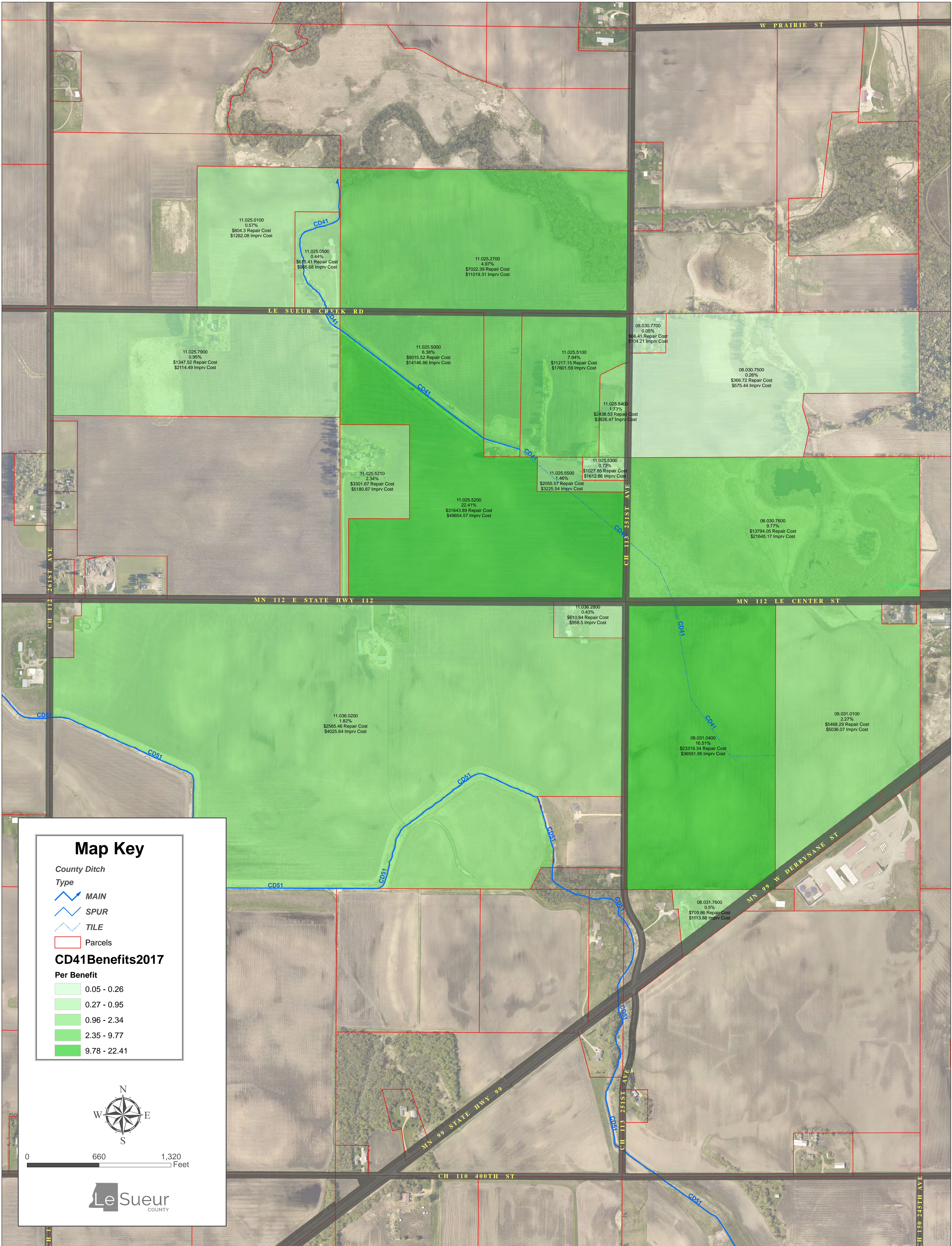
65,422.56

137 Transactions

4 Accounts



County Ditch #41



Map Key

County Ditch

Type

- MAIN
- SPUR
- TILE

- Parcels

CD41 Benefits 2017

Per Benefit

- 0.05 - 0.26
- 0.27 - 0.95
- 0.96 - 2.34
- 2.35 - 9.77
- 9.78 - 22.41



0 660 1,320 Feet



FEASIBILITY STUDY FOR: COUNTY DITCH 41: 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
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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. 41 (CD 41). The scope included an examination of the existing CD 41, as well as recommendations for repairing and improving the existing open ditch and tile system. Maps of the CD 41 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 41 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. 41 watershed lies in Sharon and Lexington Townships of Le Sueur County, Minnesota. The CD 41 main tile drains from the center of the NE ¼ of Section 31 of Lexington Township to the NW into the main open ditch in the NE ¼ of the SE ¼ of Section 25 of Sharon Township. The main open ditch drains from the main tile outlet to the NW into Le Sueur Creek in the SE ¼ of the NW ¼ of Section 25 of Sharon Township.

The CD 41 watershed consists primarily of gently rolling agricultural land which provides drainage to approximately 461 total acres. The watershed includes land from Sections 25 and 36 of Sharon Township as well as Sections 30 and 31 of Lexington Township. Elevations within the entire watershed range from approximately 992 to 1023 Mean Sea Level (MSL) according to county LIDAR data.

The hydrologic soil classification for the land in the CD 41 watershed is predominantly type "C/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 high runoff potential when thoroughly wet.

History

Le Sueur County Ditch No. 41 was originally constructed in 1915 with an improvement in 1952. The original construction consisted of approximately 3,775 feet of open ditch as well as approximately 3,960 feet of buried tile. There is no record of the open ditch being cleaned since the original construction.

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 original plan maps, the open ditch slopes range from 0.05% to 0.50%. 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 41 alignment map. A close representation of the CD 41 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 41, 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	Main - TWP 71	ROUND CULVERT	CMP	48	0.05%	434	0.92
2	Main - Field Crossing	ROUND CULVERT	CMP	36	0.05%	52	3.58

Table 2: Existing Tile Drainage Capacity

Area	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
Main	14	0.10%	304.5	0.13
	12	0.10%	287.2	0.09
	10	0.10%	252.0	0.07
	8	0.90%	192.2	0.14
	8	0.20%	191.4	0.07

One of the two existing crossings of CD 41 is above the NRCS recommended drainage coefficient value and the other crossing is slightly below while all of the existing mainline tile is below the NRCS recommended drainage coefficient.

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.

Repair Option 1

It is proposed in repair option 1 to clean the mainline open ditch as well as repair the main tile from the outlet upstream. The repair would consist of cleaning 3,800 linear feet of 4-foot bottom open ditch as well as installing 800 feet of 15-inch tile, 800 feet of 12-inch tile, 600 feet of 10-inch tile and 1,750 feet of 10-inch tile.

Improvement Option 1

It is proposed in improvement option 1 clean the entire mainline open ditch as well as improve the culvert crossings and main buried tile to achieve at least the NRCS recommended drainage coefficients. The improvement would consist of cleaning 3,800 feet of 4-foot bottom open ditch as well as installing 2,200 feet of 24-inch tile and 1,750 feet of 18-inch tile.

These options are summarized on *the Improvement Maps* attached with this report. The repair option and improvement option described above are a sample size of what can be done to repair or improve this system. Any and all branches can be added or removed as another option to best suit the landowners involved.



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

Area	Separable Maintenance	Improvement Cost	Net Cost
Main Open Ditch	\$ 34,116	\$ 34,713	\$ 597
Main Tile	\$ 107,085	\$ 168,008	\$ 60,923
Subtotal without Road Crossings	\$ 141,201	\$ 202,721	\$ 61,520
Road Authority Cost	\$ 21,134	\$ 21,134	\$ -
Damages Paid To Road Authority	\$ 5,074	\$ 8,830	\$ 3,756
Total	\$ 125,141	\$ 190,417	\$ 65,276
Subtotal Landowner Costs			\$ 199,247
Net Costs			\$ 74,106
Redetermination of Benefits Costs			\$ 2,772
Permanent Damages (Buffer Strip Acquisition)			\$ 19,549
Total Project Costs for Landowners			\$ 221,568

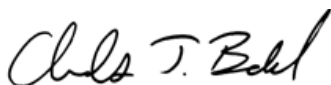
Recommendation

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. The system is approximately 100-years old, which is the life expectancy for ditch systems like CD 41. 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	\$ 34,116	\$ 34,713	\$ 597
Main Tile	\$ 107,085	\$ 168,008	\$ 60,923
Subtotal without Road Crossings	\$ 141,201	\$ 202,721	\$ 61,520
Road Authority Cost	\$ 21,134	\$ 21,134	\$ -
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Permanent Damages (Buffer Strip Acquisition)			\$ 19,549
Total Project Costs for Landowners			\$ 221,568



SEPARABLE MAINTANENCE (REPAIR)

Main Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 920.00	\$ 920
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	3,800	\$ 2.50	\$ 9,500
103	15-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 752.00	\$ 752
104	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.44	\$ 1,165	\$ 1,677
105	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	1.75	\$ 3,353	\$ 5,852
106	BUFFER STRIP MOWING	AC	1.44	\$ 85	\$ 122
107	WEED SPRAYING	AC	3.18	\$ 150	\$ 478
Total					\$ 19,301
10% Unforeseen					\$ 1,930
Subtotal					\$ 21,231
TEMPORARY DAMAGES		AC	2.9	\$ 650	\$ 1,885
County Administration Costs					\$ 1,500
Topographic Survey					\$ 4,000
Reports, Plans and Specifications					\$ 3,000
Construction Staking & Administration					\$ 2,500
Total Main Open Ditch Repair Cost					\$ 34,116

Main Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 3,620.00	\$ 3,620
102	TILE INVESTIGATION	HR	10	\$ 106.50	\$ 1,065
103	15-INCH AGRICULTURAL TILE	LF	800	\$ 22.00	\$ 17,600
104	12-INCH AGRICULTURAL TILE	LF	750	\$ 18.00	\$ 13,500
105	10-INCH AGRICULTURAL TILE	LF	550	\$ 16.00	\$ 8,800
106	8-INCH AGRICULTURAL TILE	LF	1750	\$ 14.60	\$ 25,550
107	REPLACE GRAVEL ROAD OR DRIVEWAY	LS	1	\$ 1,970.00	\$ 1,970
108	INSTALL DROP INTAKE (18-INCH)	EA	2	\$ 1,085	\$ 2,170
109	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	4	\$ 400	\$ 1,600
Total					\$ 75,900
10% Unforeseen					\$ 7,590
Subtotal					\$ 83,490
TEMPORARY DAMAGES		AC	7.3	\$ 650	\$ 4,745
County Administration Costs					\$ 1,670
Topographic Survey					\$ 3,500
Reports, Plans and Specifications					\$ 7,000
Construction Staking & Administration					\$ 6,680
Total Main Tile Repair Cost					\$ 107,085

TOTAL REPAIR COST

				Main Open Ditch	\$ 34,116
				Main Tile	\$ 107,085
				COMPLETE REPAIR COST	\$ 141,201



PROPOSED OPTION #1 IMPROVEMENT

Main Open Ditch

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 950.00	\$ 950
102	DITCH CLEANING (4' WIDE DITCH BOTTOM)	LF	3,800	\$ 2.50	\$ 9,500
103	24-INCH TILE OUTLET (20 LF OF PIPE & RIPRAP ON GEOTEXTILE FABRIC)	EA	1	\$ 1,265.00	\$ 1,265
104	16.5' BUFFER STRIP SEEDING (SEED MIX: BUFFER BLEND WITH TYPE 3 MULCH)	AC	1.44	\$ 1,165	\$ 1,677
105	SIDESLOPE SEEDING (SEED MIX: BUFFER BLEND WITH BFM)	AC	1.75	\$ 3,353	\$ 5,852
106	BUFFER STRIP MOWING	AC	1.44	\$ 85	\$ 122
107	WEED SPRAYING	AC	3.18	\$ 150	\$ 478
Total					\$ 19,844
10% Unforeseen					\$ 1,984
Subtotal					\$ 21,828
TEMPORARY DAMAGES		AC	2.9	\$ 650	\$ 1,885
County Administration Costs					\$ 1,500
Topographic Survey					\$ 4,000
Reports, Plans and Specifications					\$ 3,000
Construction Staking & Administration					\$ 2,500
Total Main Open Ditch Improvement Cost					\$ 34,713

Main Tile

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 5,810.00	\$ 5,810
102	TILE INVESTIGATION	HR	10	\$ 106.50	\$ 1,065
103	24-INCH AGRICULTURAL TILE	LF	2100	\$ 29.20	\$ 61,320
104	18-INCH AGRICULTURAL TILE	LF	1750	\$ 24.60	\$ 43,050
106	INSTALL DROP INTAKE (18-INCH)	EA	4	\$ 1,085	\$ 4,340
107	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	16	\$ 400	\$ 6,400
Total					\$ 122,000
10% Unforeseen					\$ 12,200
Subtotal					\$ 134,200
TEMPORARY DAMAGES		AC	13.3	\$ 650	\$ 8,645
County Administration Costs					\$ 2,684
Topographic Survey					\$ 3,691
Reports, Plans and Specifications					\$ 8,052
Construction Staking & Administration					\$ 10,736
Total Main Tile Improvement Cost					\$ 168,008

TOTAL IMPROVEMENT COST

				Main Open Ditch	\$ 34,713
				Main Tile	\$ 168,008
COMPLETE IMPROVEMENT COST					\$ 202,721



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						
Township 113	TOWNSHIP	\$ 6,974	\$ 2,592	\$ 7,690	\$ 4,382	\$ 3,308
MN 112	STATE	\$ 19,234	\$ 2,482	\$ 22,274	\$ 16,752	\$ 5,522
TOTAL		\$ 26,208	\$ 5,074	\$ 29,964	\$ 21,134	\$ 8,830
STATE ROAD AUTHORITY TOTAL		\$ 19,234	\$ 2,482	\$ 22,274	\$ 16,752	\$ 5,522
COUNTY ROAD AUTHORITY TOTAL		\$ -	\$ -	\$ -	\$ -	\$ -
TOWNSHIP ROAD AUTHORITY TOTAL		\$ 6,974	\$ 2,592	\$ 7,690	\$ 4,382	\$ 3,308



ROAD CROSSINGS

MAINLINE TILE REPAIR COST WITH ROAD - TOWNSHIP 113

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 300.00	\$ 300
102	12-INCH AGRICULTURAL TILE	LF	50	\$ 18.00	\$ 900
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					\$ 5,340
10% CONTINGENCY					\$ 534
SUBTOTAL					\$ 5,874
County Administration Costs					\$ 200
Reports, Plans and Specifications					\$ 400
Construction Staking & Administration					\$ 500
ESTIMATED MAINLINE TILE REPAIR COST WITH ROAD - TOWNSHIP 113					\$ 6,974

MAINLINE TILE REPAIR WITHOUT ROAD - TOWNSHIP 113

Item No.	Item	Unit	Quantity	Unit Price	Amount
201	MOBILIZATION	LS	1	\$ 100.00	\$ 100
202	12-INCH AGRICULTURAL TILE	LF	50	\$ 18.00	\$ 900
203	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400.00	\$ 800
TOTAL					\$ 1,800
10% CONTINGENCY					\$ 180
SUBTOTAL					\$ 1,980
County Administration Costs					\$ 100
Reports, Plans and Specifications					\$ 200
Construction Staking & Administration					\$ 200
TEMPORARY DAMAGES		AC	0.17	\$ 650	\$ 112
ESTIMATED MAINLINE TILE REPAIR WITHOUT ROAD - TOWNSHIP 113					\$ 2,592

MAINLINE TILE IMPROVEMENT COST - TOWNSHIP 113

Item No.	Item	Unit	Quantity	Unit Price	Amount
301	MOBILIZATION	LS	1	\$ 300.00	\$ 300
302	24-INCH AGRICULTURAL TILE	LF	50	\$ 29.20	\$ 1,460
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					\$ 5,900
10% CONTINGENCY					\$ 590
SUBTOTAL					\$ 6,490
County Administration Costs					\$ 200
Reports, Plans and Specifications					\$ 400
Construction Staking & Administration					\$ 600
ESTIMATED MAINLINE TILE IMPROVEMENT COST - TOWNSHIP 113					\$ 7,690



ROAD CROSSINGS

MAINLINE TILE REPAIR COST WITH ROAD - MN 112

Item No.	Item	Unit	Quantity	Unit Price	Amount
101	MOBILIZATION	LS	1	\$ 800.00	\$ 800
102	BORE 10-INCH TILE	LF	50	\$ 200.00	\$ 10,000
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					\$ 14,940
10% CONTINGENCY					\$ 1,494
SUBTOTAL					\$ 16,434
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,000
Construction Staking & Administration					\$ 1,400
ESTIMATED MAINLINE TILE REPAIR COST WITH ROAD - MN 112					\$ 19,234

MAINLINE TILE REPAIR WITHOUT ROAD - MN 112

Item No.	Item	Unit	Quantity	Unit Price	Amount
201	MOBILIZATION	LS	1	\$ 100.00	\$ 100
202	10-INCH AGRICULTURAL TILE	LF	50	\$ 16.00	\$ 800
203	CONNECT EXISTING TILE (SIZE & MATERIAL MAY VARY)	EA	2	\$ 400.00	\$ 800
TOTAL					\$ 1,700
10% CONTINGENCY					\$ 170
SUBTOTAL					\$ 1,870
County Administration Costs					\$ 100
Reports, Plans and Specifications					\$ 200
Construction Staking & Administration					\$ 200
TEMPORARY DAMAGES		AC	0.17	\$ 650	\$ 112
ESTIMATED MAINLINE TILE REPAIR WITHOUT ROAD - MN 112					\$ 2,482

MAINLINE TILE IMPROVEMENT COST - MN 112

Item No.	Item	Unit	Quantity	Unit Price	Amount
301	MOBILIZATION	LS	1	\$ 900.00	\$ 900
302	BORE 24-INCH TILE	LF	50	\$ 246.00	\$ 12,300
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					\$ 17,340
10% CONTINGENCY					\$ 1,734
SUBTOTAL					\$ 19,074
County Administration Costs					\$ 400
Reports, Plans and Specifications					\$ 1,200
Construction Staking & Administration					\$ 1,600
ESTIMATED MAINLINE TILE IMPROVEMENT COST - MN 112					\$ 22,274



Existing Overall Map County Ditch No. 41 Le Sueur County, Minnesota Tuesday, September 05, 2017

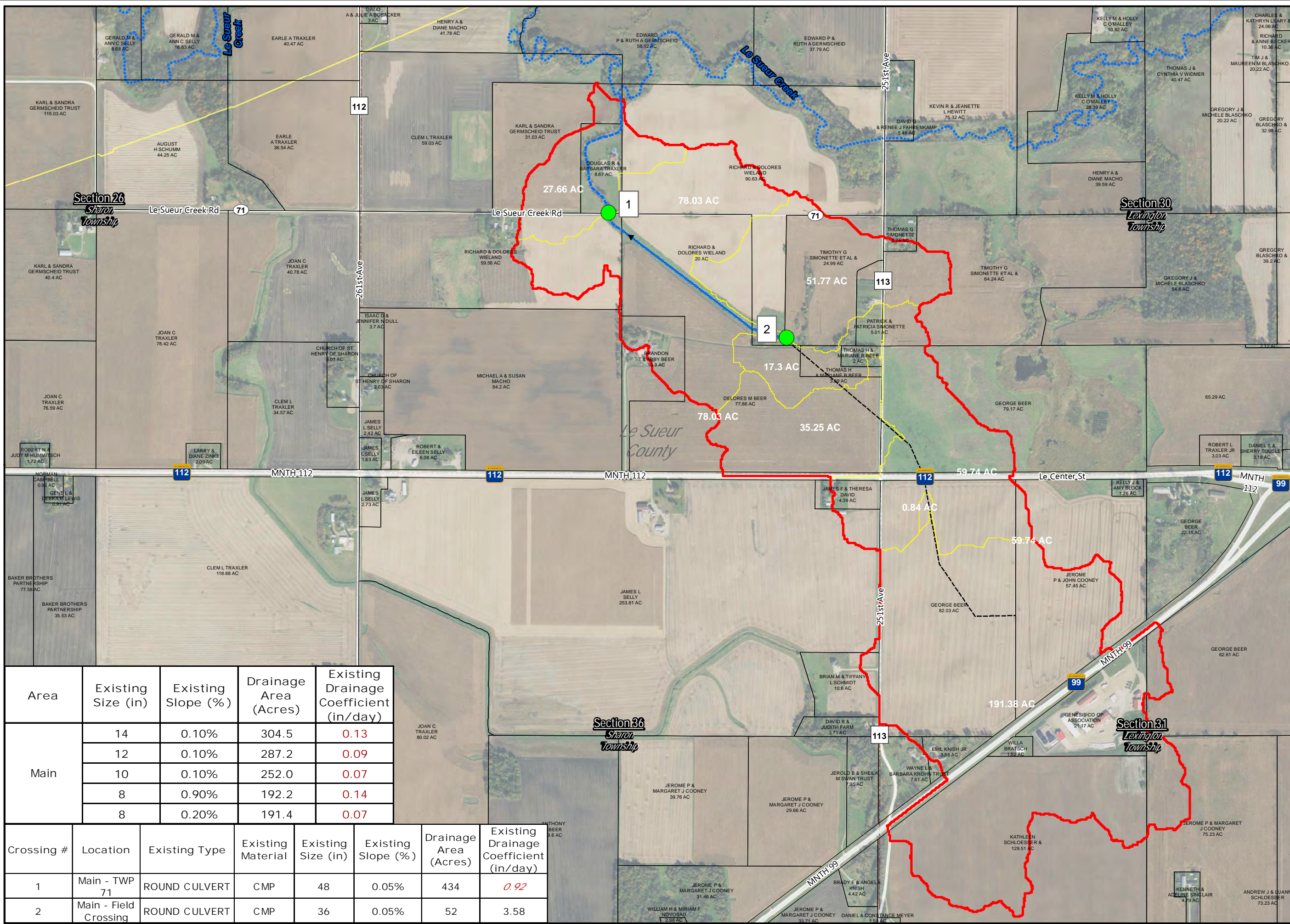
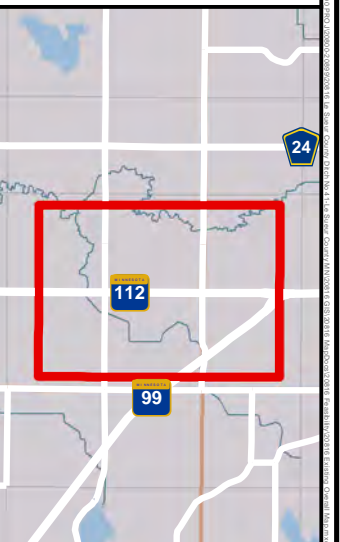
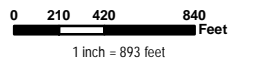
Legend

- ▭ CD 41 Watershed
- ▭ Sub-Catchments
- ▭ Parcels
- OPEN DITCH
- TILE
- Culverts

PN: 17-20816

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)
Main	14	0.10%	304.5	0.13
	12	0.10%	287.2	0.09
	10	0.10%	252.0	0.07
	8	0.90%	192.2	0.14
	8	0.20%	191.4	0.07


Crossing #	Location	Existing Type	Existing Material	Existing Size (in)	Existing Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)
1	Main - TWP 71	ROUND CULVERT	CMP	48	0.05%	434	0.92
2	Main - Field Crossing	ROUND CULVERT	CMP	36	0.05%	52	3.58



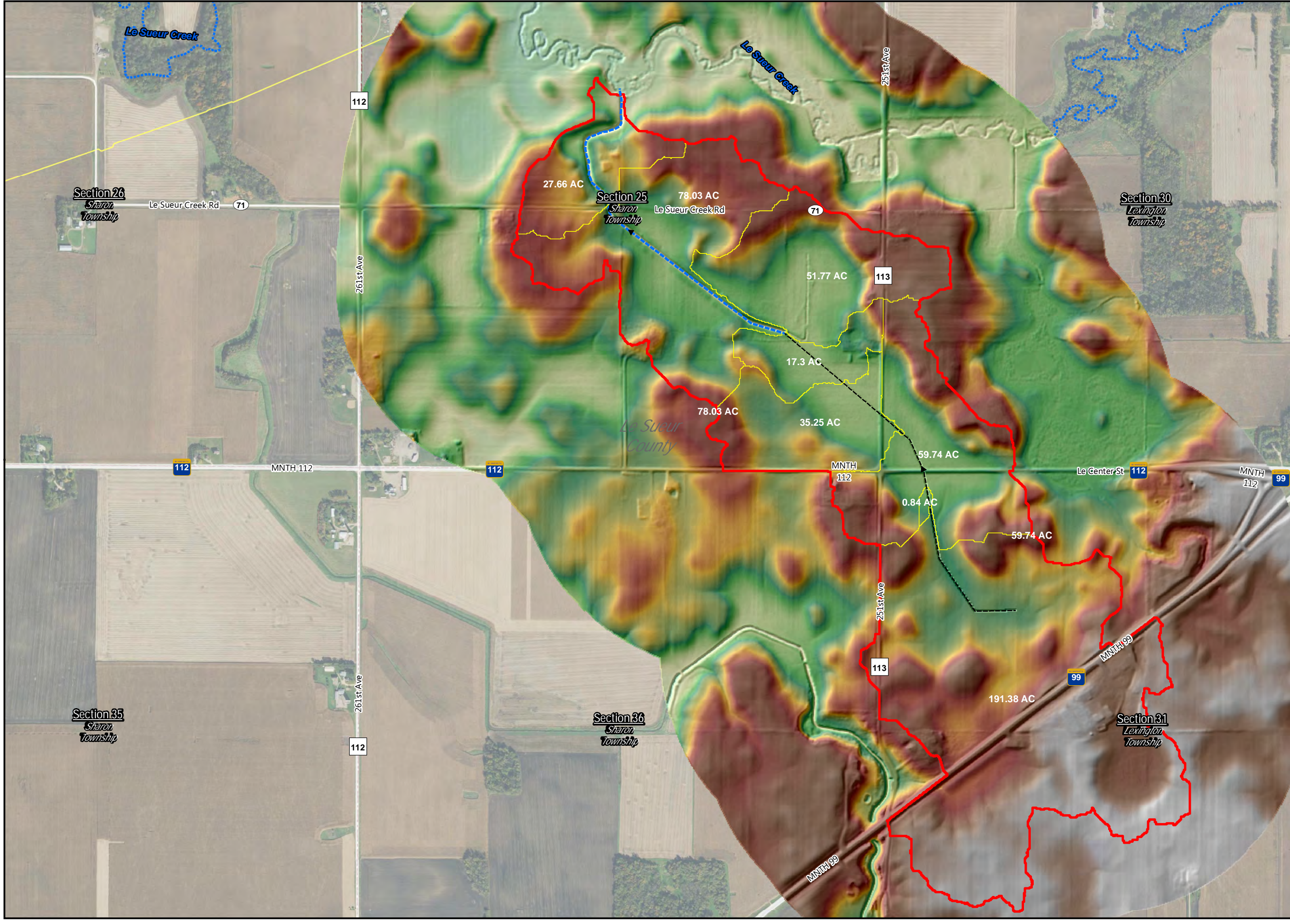
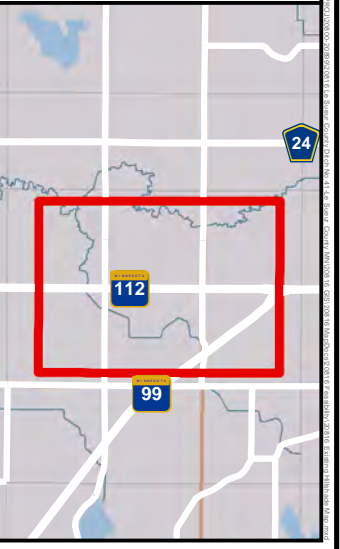
Existing Hillshade Map
County Ditch No. 41
 Le Sueur County,
 Minnesota
 Thursday, August 17, 2017

- Legend**
- CD 41 Watershed
 - Sub-Catchments
 - OPEN DITCH
 - - - TILE
- Value**
- High : 1055.37
 - Low : 983.893

PN: 17-20816
 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)



0 210 420 840 Feet
 1 inch = 893 feet





**Proposed
Option 1 Map**
County Ditch No. 41
Le Sueur County,
Minnesota
Tuesday, September 05, 2017

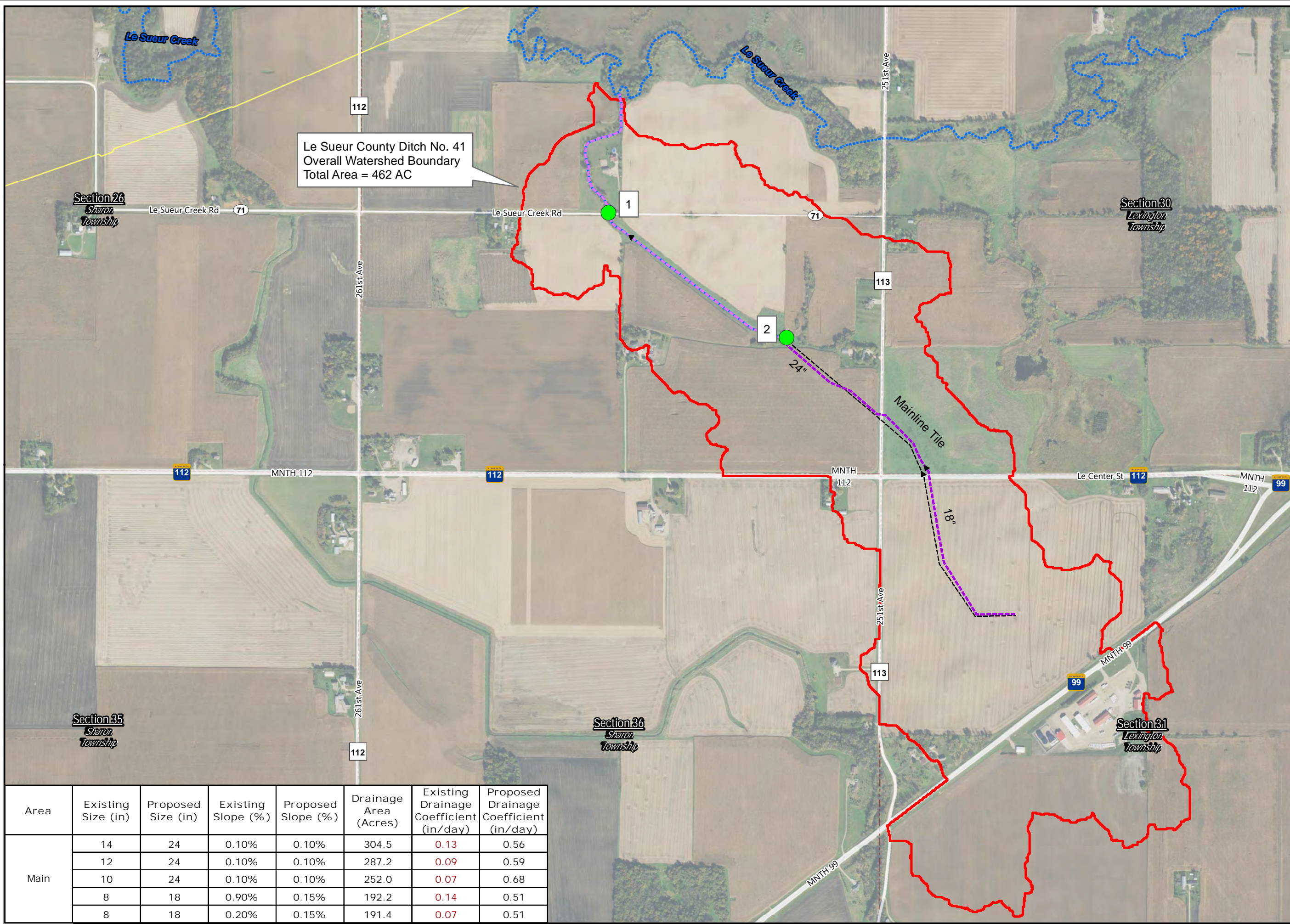
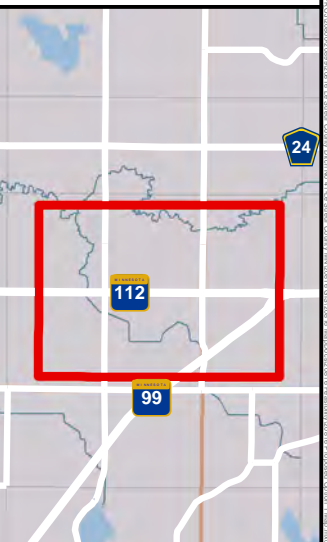
Legend

- ▭ CD 41 Watershed
- ▬ OPEN DITCH
- ▬ TILE
- ▬ Proposed Option 1
- ▬ Clean Open Ditch
- ▬ Proposed Tile
- Culverts

PN: 17-20816

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)
- Counlies (MN DNR, July 2013)
- PLSS (MnGeo/USGS)



Le Sueur County Ditch No. 41
Overall Watershed Boundary
Total Area = 462 AC

Area	Existing Size (in)	Proposed Size (in)	Existing Slope (%)	Proposed Slope (%)	Drainage Area (Acres)	Existing Drainage Coefficient (in/day)	Proposed Drainage Coefficient (in/day)
Main	14	24	0.10%	0.10%	304.5	0.13	0.56
	12	24	0.10%	0.10%	287.2	0.09	0.59
	10	24	0.10%	0.10%	252.0	0.07	0.68
	8	18	0.90%	0.15%	192.2	0.14	0.51
	8	18	0.20%	0.15%	191.4	0.07	0.51