

ST. LOUIS COUNTY DRAINAGE AUTHORITY

AGENDA

August 4, 2015

Immediately following the County Board meeting.

1. Call to order/roll call.
2. Minutes for July 14, 2015.

9:45 A.M. PUBLIC HEARING pursuant to County Drainage Authority Resolution No. 15-03, adopted July 14, 2015, to consider Repair and Partial Abandonment Petitions submitted by EIP Minnesota, LLC. **(15-04)**

3. Other business.
4. Adjourn.

**ST. LOUIS COUNTY DRAINAGE AUTHORITY
PROCEEDINGS**

Tuesday, July 14, 2015

The St. Louis County Drainage Authority meeting was called to order at 10:11 a.m., by Chair Pete Stauber at the St. Louis County Courthouse, Duluth, Minnesota, with the following members present: Commissioners Frank Jewell, Patrick Boyle, Chris Dahlberg, Tom Rukavina, Keith Nelson, Steve Raukar, and Chair Pete Stauber - 7. Absent: None – 0.

Commissioner Nelson, supported by Commissioner Rukavina, moved to approve the minutes of the June 23, 2015 St. Louis County Drainage Authority meeting. The motion passed; seven yeas, zero nays.

Commissioner Nelson, supported by Commissioner Boyle, moved to establish a public hearing on EIP's petitions for repair of County Ditch #1 and partial abandonment of County Ditches #1 and #6 and a supplemental petition to cover ditches located in State Ditch #53 and Sections 8, 16, 17, 20, 21, 28, 29 and 32 of Township 55 North, Range 17 West to occur on August 4, 2015, at 9:45 a.m. at the St. Louis County Courthouse, Duluth, MN. The motion passed; seven yeas, zero nays. Resolution No. 15-03.

COUNTY DRAINAGE AUTHORITY RESOLUTION NO. 15-03

BY COMMISSIONER NELSON:

WHEREAS, Pursuant to Minn. Stat. Chapter 103E, the St. Louis County Board is required to convene as the County Drainage Authority to discuss and approve pending matters related to county ditches; and

WHEREAS, The County Drainage Authority received a petition for the repair of a portion of County Ditch #1 and petitions for the partial abandonment of County Ditches #1 and #6 from EIP Minnesota, LLC; and

WHEREAS, It was recently discovered that some of the ditches that EIP wishes to have partially abandoned are located in State Ditch #53 and Sections 8, 16, 17, 20, 21, 28, 29 and 32 of Township 55 North, Range 17 West and are not encompassed by the County Ditch #1 and #6 systems. EIP is in the process of submitting a supplemental petition correctly describing these ditches; and

WHEREAS, Minn. Stat. Chapter 103E requires that the County Drainage Authority hold hearings on these petitions; and

WHEREAS, It is desired that the County Drainage Authority set the hearing to consider EIP's petitions for repair of County Ditch #1 and partial abandonment of County Ditches #1 and #6 and a supplemental petition to cover ditches located in State Ditch #53 and Sections 8, 16, 17, 20, 21, 28, 29 and 32 of Township 55 North, Range 17 West to occur on August 4, 2015 at the Duluth Courthouse;

THEREFORE, BE IT RESOLVED, That the St. Louis County Board of Commissioners, acting in the capacity of the County Drainage Authority, hereby sets the hearing on EIP's petitions for repair of County Ditch #1 and partial abandonment of County Ditches #1 and #6 and a supplemental

petition to cover ditches located in State Ditch #53 and Sections 8, 16, 17, 20, 21, 28, 29 and 32 of Township 55 North, Range 17 West to occur on August 4, 2015, at 9:45 a.m. at the St. Louis County Courthouse, Duluth, MN.

Unanimously adopted July 14, 2015.

At 10:16 a.m., July 14, 2015, Commissioner Boyle, supported by Commissioner Raukar, moved to adjourn the meeting. The motion passed; seven yeas, zero nays.

Pete Stauber, Chair of the Board of County Commissioners

Phil Chapman, Deputy Auditor/Clerk of the County Board

COUNTY DRAINAGE AUTHORITY NO. 15 – 04

9:45 A.M. Public Hearing

DATE: August 4, 2015

RE: Repair and Partial
Abandonment Petitions
Submitted by EIP Minnesota,
LLC

FROM: Kevin Gray
County Administrator

James T. Foldesi
County Engineer/Public Works Director

RELATED DEPARTMENT GOAL:

To administer county ditch systems.

ACTION REQUESTED:

The St. Louis County Board, acting as the County Drainage Authority (the "Drainage Authority"), is asked to make requisite findings and conditionally grant the repair and partial abandonment petitions submitted by EIP Minnesota, LLC.

BACKGROUND INFORMATION:

Petitions. On February 6, 2015, EIP Minnesota, LLC ("EIP") submitted petitions for repair of County Ditch #1 and partial abandonment of County Ditches #1 and #6. It was recently discovered that some of the ditches that EIP wishes to have partially abandoned are located in State Ditch #53 and Sections 8, 16, 17, 20, 21, 28, 29 and 32 of Township 55 North, Range 17 West (the "Unidentified Ditch System") and are not encompassed by the County Ditch #1 and #6 systems. EIP has recently submitted a supplemental petition for partial abandonment of portions of St. Louis County Ditch #1 and #6, State Ditch #53 and the Unidentified Ditch System. EIP also submitted a letter revising its proposed repair based on engineering work that had been performed at the site.

Hearing and Notice. By resolution number 15-03, the Drainage Authority set a hearing on EIP's ditch petitions to occur on August 4, 2015 at 9:45 a.m. at the St. Louis County Courthouse in Duluth, MN. Minnesota Statutes Chapter 103E requires that notice be mailed to the petitioner, affected landowners of property benefitted by the ditch systems, and affected political subdivisions at least ten days before the hearing. This mailing occurred on July 23, 2015. The statute also requires that notice of the hearing be published either in a newspaper of general circulation within the affected drainage area

or by publication on the county's website. Here, the notice was published both on the county's website and in the Duluth News Tribune on July 23, 2015.

Analysis of Repair and Partial Abandonment Petitions. EIP has proposed that certain segments of County Ditches #1 and #6, State Ditch #53 and the Unidentified Ditch System be abandoned. The partial abandonments are necessary so its affiliate, EIP Credit Co., LLC, can take action necessary to establish the Lake Superior Wetland Bank, which was conditionally approved by the County Board earlier this year. Because the proposed actions are extremely complex and large in scope, the Drainage Authority hired Emmons & Olivier Resources, Inc. ("EOR") to conduct the engineering analysis necessary for the Drainage Authority to make educated decisions on EIP's ditch petitions. The repair and partial abandonment petitions will be discussed separately below.

Partial Abandonment. EIP proposes that the Drainage Authority abandon its interest in and jurisdiction over ditch segments set forth in its supplemental petition and included in the proposed resolution below. These ditch segments were studied, debated and agreed upon by EOR and Short Elliott Hendrickson, Inc. ("SEH"), the expert engineer hired by EIP to conduct its engineering analysis relative to the county ditches, as ditch segments that, with a certain repair taken by EIP as discussed below, could likely be abandoned with no adverse impacts to neighboring properties.

Minnesota Statutes section 103E.806 states that the Drainage Authority shall make findings and direct, by order, that part of the drainage system be abandoned, if the drainage authority determines that part of the drainage system does not serve a substantial useful purpose as part of the drainage system to any property remaining in the system and is not of a substantial public benefit and utility. Here, because of the substantial amount of engineering work and the revision of EIP's original proposal to reflect that engineering work, it is the staff's recommendation that the Drainage Authority make the requisite findings that the ditch segments to be abandoned do not serve a substantial useful purpose as part of the drainage systems to any properties remaining in the systems and are not of a substantial public benefit and utility. It is also the staff's recommendation that the Drainage Authority conditionally order that these ditch segments be abandoned.

Repair. In EIP's proposed project, in order to handle the flows coming from both the north and the Stone Lake area to the east, EIP proposes to install a 4'1" x 9'7" aluminum box culvert to replace the existing twin 48" culverts located where M10 ditch passes under East Stone Lake Road (Co. Rd. 319). The box culvert will be installed at the same location and same inverts as the current culverts. This will provide a lower maintenance crossing and ensure sufficient capacity for M10 through an increase in cross sectional area from 25.1 to 32.6 square feet. M10 will remain functional for a distance south of East Stone Lake Road sufficient to maintain a profile for free water flow.

Pursuant to Minnesota Statutes section 103E.715, in order to grant the repair petition, the Drainage Authority must determine that the proposed repair is necessary for the best interests of the affected property owners. Here, because this repair is necessary to maintain safe and acceptable hydraulic and hydrological conditions in the plan to establish the Lake Superior Wetland Bank, it is the staff's recommendation that the Drainage Authority determine that the proposed repair is necessary for the best interests of the affected property owners and order that the proposed repair be made.

Typically, once a proposed repair is approved, the Drainage Authority would direct the County Auditor to prepare and award a contract for the repair and, after analysis by appointed ditch viewers, apportion the cost of repair among benefitted property owners. In this case, however, EIP has agreed to contract and pay for the entirety of the repair. Accordingly, the Drainage Authority is not required to appoint viewers to assess benefits and damages occasioned by the repair, and no directive from the Drainage Authority to the County Auditor for contract preparation and award is necessary in this proceeding.

Financial Assurances Agreement. While SEH and EOR determined and agreed upon modifications to the original proposed ditch abandonments to eliminate, as much as possible, the likelihood of negative effects from the abandonments, they are unable to fully eliminate through engineering the possibility of all potential negative effects that may arise because of the proposed abandonments due to weather, groundwater changes and the like. Therefore, the county and EIP desire to create a fund from which damages incurred by neighboring property owners and caused by EIP's establishment of the Lake Superior Wetland Bank can be paid. This financial assurances agreement is currently being negotiated and will be executed in concert with the final approval of the ditch petitions.

Indemnification Agreement. Despite a significant amount of research on the issue, EIP and the county have been unable to definitively determine the jurisdiction that established the Unidentified Ditch System, if indeed it was established as a public ditch. We have found no history of maintenance of this system or any evidence that the segments proposed to be abandoned serve a purpose. There is no evidence that any entity other than the County has authority to maintain this system. Because of its location between established ditch systems, however, it is recommended that the Drainage Authority also abandon any interest in or jurisdiction it may have over certain ditch segments located within the Unidentified Ditch System as set forth in the proposed resolution. EIP has agreed to execute an agreement indemnifying the county from any drainage-related claims that may arise from the Drainage Authority's exercise of its abandonment authority relative to the ditch segments in the Unidentified Ditch System. This indemnification agreement will be executed in concert with EIP's final approval of the ditch petitions.

Conditional Approval. Earlier this year, the County Board conditionally approved the application of EIP's affiliate, EIP Credit Co., LLP, for the Lake Superior Wetland Bank. When EIP Minnesota, LLC submitted its ditch petitions, it indicated that they were conditioned upon final approval of the Lake Superior Wetland Bank application.

Accordingly, it is recommended by staff that the ditch petition approvals be contingent upon completion of all outstanding conditions and final approval of the wetland bank application.

RECOMMENDATION:

It is recommended that the County Drainage Authority conditionally approve EIP's petitions for repair and partial abandonment as set forth in the following proposed resolution.

Repair and Partial Abandonment Petitions Submitted by EIP Minnesota, LLC

BY COMMISSIONER _____

WHEREAS, Pursuant to Minn. Stat. Chapter 103E, the St. Louis County Board is required to convene as the County Drainage Authority (the "Drainage Authority") to discuss and approve pending matters related to county ditches; and

WHEREAS, The Drainage Authority received a petition for the repair of a portion of County Ditch #1 and petitions for the partial abandonment of County Ditches #1 and #6 from EIP Minnesota, LLC ("EIP"); and

WHEREAS, It was recently discovered that some of the ditches that EIP wishes to have partially abandoned are located in State Ditch #53 and Sections 8, 16, 17, 20, 21, 28, 29 and 32 of Township 55 North, Range 17 West (the "Unidentified Ditch System") and are not encompassed by the County Ditch #1 and #6 systems. EIP has submitted a supplemental petition correctly describing these ditches; and

WHEREAS, EIP also submitted a revised plan for the proposed repair after review by EIP and Emmons & Olivier Resources, Inc., the Drainage Authority's consulting engineer; and

WHEREAS, The county gave due notice of the hearing by publication to all persons interested in the partial abandonment and repair and by mail to EIP, affected landowners of property benefitted by the ditch systems, and affected political subdivisions; and

WHEREAS, On August 4, 2015, the Drainage Authority, pursuant to proper notice, held a public hearing on the ditch petitions as revised;

THEREFORE, BE IT RESOLVED, That based on the Engineer's Report and evidence presented at the public hearing, the Drainage Authority makes the following Findings of Fact and Order as to the repair petition:

FINDINGS OF FACT

1. The Drainage Authority finds the repair proposed by EIP as necessary for the best interests of the affected property owners and assures maintenance of the outlet from East Stone Lake; and
2. That EIP has agreed to prepare, award and pay for the entirety of the repair contract and all associated costs; and

3. That the Drainage Authority specifically does not need to award a contract or appoint viewers to assess benefits and damages occasioned by the repair as all costs will be paid by Petitioner EIP.

ORDER

IT IS THEREFORE ORDERED by the St. Louis County Board of Commissioners, acting as Drainage Authority for the above-referenced ditches, that, upon completion of the conditions set forth below, the repair as described in Board File No. _____ is hereby ordered and the entirety of the repair cost shall be paid by Petitioner EIP.

RESOLVED FURTHER, That upon consideration of the Engineer's Report submitted by Petitioner, review by the Drainage Authority's engineering consultant and written and oral evidence presented at the public hearing, the St. Louis County Board of Commissioners, acting as Drainage Authority for County Ditch #1, County Ditch #6, State Ditch #53, and exercising any abandonment authority it has acquired by virtue of the impending proceedings over the Unidentified Ditch System, makes the following Findings of Fact and order as to the partial abandonment petitions:

FINDINGS OF FACT

1. That the ditch segments set forth in Board File No. _____ do not serve a substantial useful purpose as part of the drainage system to any properties remaining in the system and are not of substantial public benefit and utility.
2. That the legislative history of preceding statutes, specifically Minnesota Statutes Chapter 106, grant the St. Louis County Board of Commissioners, acting as Drainage Authority, jurisdiction over what are known as state ditches, and no legislative history identifies any other Drainage Authority with responsibility over the State Ditch #53 or the Unidentified Ditch System.

ORDER

IT IS THEREFORE ORDERED by the St. Louis County Board of Commissioners, acting as Drainage Authority for County Ditch #1, County Ditch #6, State Ditch #53, and exercising any abandonment authority it has acquired by virtue of the impending proceedings over the Unidentified

Ditch System, that, upon completion of the conditions set forth below, the ditch segments set forth in Board File No. _____ are hereby abandoned.

RESOLVED FURTHER, That the partial abandonment and repair orders issued herein shall be conditioned upon and shall not become effective until (1) the completion of all contingencies related to and final approval of EIP Credit Co., LLP's Lake Superior Wetland Bank application; (2) full execution of the Indemnification Agreement between the parties, as set forth in Board File No. _____; and (3) Petitioner EIP's payment of the Drainage Authority's engineering services costs which have been, to date, paid from the county's ditch fund.



St. Louis County
Ditch #1 and Ditch #6;
State Ditch #53

Ditch Abandonment and Repair
Engineer's Report

For

St. Louis County, MN

July 14, 2015

Prepared by

Emmons & Olivier Resources, Inc.
651 Hale Avenue North
Oakdale, MN 55128

EOR Project No. 01196-0002

Certification:

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

A handwritten signature in black ink, appearing to read 'Brett H. Emmons', written over a horizontal line.

Brett H. Emmons, PE

Date: July 14, 2015
MN License No: 25053

July 14, 2015

Ditch Abandonment and Repair- Engineer's Report
St. Louis County
County Ditch Systems #1 and #6;
State Ditch System #53
Zim-Sax, MN

Brett H. Emmons, Emmons & Olivier Resources, Inc.
July 14, 2015

Objectives

The evaluation for ditch abandonment for St. Louis County Ditch Systems No. 1 and No. 6 and State Ditch System No. 53 and ditch repair for a segment of Ditch System No. 1, in the area of Zim and Sax, MN, arose from an application by EIP Credit Co. LLP and their agent, SEH, for the Lake Superior Wetland Bank project, a proposed large wetland bank. The wetland bank project would disable much of the St. Louis County Ditch System No. 1 and some of the No. 6 and State Ditch No. 53 main and lateral ditches. In order to restore the wetlands, the applicant requested the County approve the abandonment of these main ditches and lateral ditches. The wetland restoration here is primarily a process of protecting existing wetlands and adjusting wetland hydrology for existing wetlands, rather than creating new wetlands. The ditches are proposed to be abandoned and blocked with a combination of ditch checks and fill in the ditches when sufficient material is available.

Background

The summary and analysis provided here includes information provided by the applicant, including the following documents:

- Wetland Bank Plan, Final Application and Addendum #3, St. Louis County Review – June 5, 2015
- Superior Wetland Bank: M10 (Mile Quarter) and M03 (Stone Lake Road) Ditches - Hydrologic and Hydraulic Assessment Memorandum – June 25, 2015
- Lake Superior Wetland Bank Construction Plans – June 25, 2015

The ditch systems were excavated in the 1920's. While the ditches have altered the hydrology of the wetlands, most of the ditched area continues to be wetland. The ditched land has not had extensive agricultural use and other uses have been limited to logging and peat mining.

As described in the Wetland Bank Plan document, the existing topography of the site can be summarized as: "The Bank is located on a relatively flat plain, with surface topography evenly sloping from a high elevation of approximately 1,360 feet Mean Sea Level (MSL) in the northeast portion of the site to a low elevation of approximately 1,306 feet MSL in the southwest (NAVD 88). This excludes the area of upland in the northeast portion of the site, which is approximately 20 feet higher in elevation than the average wetland elevation. This is a roughly a 54-foot change in elevation over approximately seven miles (slope of approximately 0.0015 feet vertical / 1 foot horizontal). Public Ditch #1 is located on the east side of CSAH 7, and discharges from the Bank in the southwest portion through two nine-foot

diameter reinforced concrete pipes located under CSAH 7. These two pipes have invert elevations of 1293.49 and 1293.86.”

The existing drainage and wetlands are summarized in the Wetland Bank Plan as: “The Bank consists primarily of one large wetland basin with a few relatively small areas of upland at the fringes of the Bank site, as well as one prominent upland island in the southeast area of the wetland. Surface and groundwater flow direction within and through the wetland is from Stone Lake and East Stone Lake in the northeast corner of the Bank site, to the southwest where the large ditch on the east side of CSAH 7 outlets under the highway just outside the southwest portion of the Bank. The outlet ditch channel then continues for approximately 2.4 miles outside the Bank before discharging into the Whiteface River.”

Flows come into the County Ditch #1 system primarily from three upstream areas: from the north (areas east of Co. Rd. 7), from the northeast (from Stone Lake and upstream lakes), and the east (areas along U.S. Hwy 53). County Ditch #6, which is located in the same type of landscape, is located on the west side of Co. Rd. 7. The upstream drainage areas into Ditch #6 system are more limited, coming primarily from the north. State Ditch #53 is located in the east, primarily receiving drainage from the east and the northeast (secondary overflow for East Stone Lake and upstream lakes).

County Ditch #1

The main upstream flow and drainage feature for the Ditch #1 system is the outlet flow from Stone Lake. Currently the Stone Lake outlet flows west along Stone Lake Road through ditch M03 to the intersection with ditch M10. At the intersection of M03 and M10 (M10 is also historically referred to as Mile and a Quarter Ditch), flow can go south down M10 and some can continue west to County Road 7 along M03. At Co. Rd. 7, Ditch #1 M01 is located adjacent to the road on the east side and flows from north to south. It appears from historical references that ditch M10 was built to relieve flooding of properties along Ditch M01 and Co. Rd. 7, as mentioned in the 1954 letter from St. Louis County Highway Engineer:

“During the years from 1947 to 1950, the county expended about \$12,000 for the opening of an auxiliary ditch 1 mile to the east of the original main ditch and this is indicated by solid red line on the map. The idea was to intercept along this line as much of the water as we could that was coming from the east both out of State Ditch No.54 and that part of Ditch No.1 and carry the water to a point one mile below Sax which would relieve the main ditch and thus eliminate the flooding conditions adjacent to the improved property. This has worked out quite successfully and we have relieved some of the flooding conditions that formerly existed along the main ditch.”

Personal correspondence with retired St. Louis County public works staff indicates that ditch M10 also went through a major maintenance project in the 1970s.

Ditch M10 flows south to a point approximately one mile south of Sax, MN where the east-west ditch M07 carries flow west to the Co. Rd. 7 ditch (M01). Flow that is not carried south in M10, flows in M03 west to Co. Rd. 7, and then south in ditch, M01, on the east side of Co. Rd. 7. Several lateral and main ditches crisscross the land between the mainline ditches of M01 and M10. At the south end of the project site, County Ditch #1 passes under Co. Rd. 7 and a railroad track before discharging into the Whiteface River west of Kelsey, MN. Refer to Figure 1 for an overview of the ditch systems.

County Ditch #6

The primary drainage feature for the Ditch #6 system in this area is ditch M15. M01 carries overland flows south before terminating at the east-west ditch M02. M02 conveys water west from Co. Rd. 7 and becomes ditch M15 when the ditch turns south. M15 continues south, picking up flows from laterals to the east, before discharging into Joki Creek.

State Ditch #53

The primary upstream flow and drainage feature for the Ditch #53 system in this area is the secondary outlet from East Stone Lake. Ditch M14 flows from north to south. M12 and M06 carry overland flows west into M14. It appears some connections have been made to the west into the Ditch #1 system. M14 continues south, picking up flows from laterals to the east, before discharging into the Whiteface River.

Proposed Abandonment

In order to abandon ditches, it must be determined that it meets the Minnesota 103E.806 Statute on ditch abandonment stating a ditch may be abandoned if it is “not of public benefit and utility and does not serve a substantial useful purpose to property remaining in the system.” The evaluation of whether the ditch abandonment is reasonable is based on a lack of drainage needed for certain areas, such as the wetland bank site. It is also appropriate if the proposed flow conditions remain consistent with the existing conditions outside of the project area, thus still serving upstream properties.

Ditch #1 Proposed Abandonment

To allow for wetland credit to be generated, the wetland bank proposers have asked that the ditches M01, M06, M10, M12 and M14 (and several other public lateral ditches) be abandoned within the bank project boundary and is shown on the attached map.

The following is a list of proposed abandoned ditches for Ditch #1 System based on the attached map:

- M04 – portion of ditch
- M05 – portion of ditch
- M06 – portion of ditch
- M07 – portion of ditch
- M08 – portion of ditch
- M09 – portion of ditch
- M10 – portion of ditch
- M11
- M12 – portion of ditch
- M13
- L01
- L02
- L03
- L04
- L05
- L06 – portion of ditch
- L07 – portion of ditch
- L08

- L09
- L10
- L11
- L12
- L13
- L15 – portion of ditch
- L16
- L17
- L18
- L24
- L25
- L26
- L27
- L28 – portion of ditch

Ditch #6 Proposed Abandonment

In the upstream, northern portions of Ditch #6 west of Co. Rd. 7, ditches M01, M02, M15 and some laterals will be abandoned. Much of the rest of the system to the south will stay in place.

The following is a list of proposed abandoned ditches for Ditch #1 System based on the attached map:

- M01 – portion of ditch
- M02
- M15 – portion of ditch
- L19
- L20
- L21
- L22
- L23
- L29 – portion of ditch
- L30 – portion of ditch

State Ditch #53 Proposed Abandonment

In the upstream, northern portions of State Ditch #53 west of State Highway 53, ditches M06, M12, M15 will be abandoned. Much of the rest of the system to the south will stay in place.

The following is a list of proposed abandoned ditches for Ditch #1 System based on the attached map:

- M06 – portion of ditch
- M12 – portion of ditch
- M14 – portion of ditch

The table below shows a summary of the total length of ditches to be abandoned within the wetland bank site, for County Ditch #1 and #6 and State Ditch #53. Some of the ditches inside the bank site property are remaining to allow for drainage from off-site ditches upstream.

Table 1. (Wetland Bank Plan, June 5, 2015)

		Within Bank (miles)	To be Abandoned (miles)
Public Ditch #1	Laterals	23.89	22.35
	Main Ditches	30.82	27.42
Subtotal		54.71	49.77
Public Ditch #6	Laterals	3.96	3.97
	Main Ditches	4.82	4.25
Subtotal		8.78	8.22
State Ditch #53	Laterals	-	-
	Main Ditches	9.03	8.37
Subtotal		9.03	8.37
Total		72.52	66.36

Segments of ditches outside the proposed wetland bank project are not proposed to be abandoned and can be maintained to provide their drainage benefit to upstream properties. There is a gradual, positive slope of the landscape from northeast to southwest that will continue to allow surface flow to move down gradient toward the Whiteface River.

Findings

The information and analysis provided by the wetland bank applicant was reviewed in response to an abandonment petition for numerous mainline and lateral ditches. The applicant has proposed portions of 15 mainline ditches and 30 lateral ditches be abandoned within the 23,590 acre wetland bank site as shown in Figure 2.

Ditch #1 M10/M03 Flow Splitting

M10 flows from the north to the south, crossing M03 at East Stone Lake Road (Co. Rd. 319), passing under East Stone Lake Road through twin 48" reinforced concrete culverts. Flows coming from Stone Lake travel via M03 on the north side of East Stone Lake Road. At the intersection of ditches M03 and M10, the flow can split, either flowing south in M10 or west in M03. Flow that does not travel south via M10 can continue west to Co. Rd. 7 ditch (M01) where it would flow south. Along the Co. Rd. 7 ditch seven sets of twin box culverts provide access for local road crossings to properties on the east side. Concerns exist that increasing flows west via M03 into the Co. Rd. 7 ditch corridor, due to blocking ditch M10, could worsen flooding of improved properties along Co. Rd. 7.

Repair to Ditch No. 1

To alleviate the concern of flooding along Co. Rd. 7, the intersection and split flows at M10 and M03 will be managed to not direct more flow to Co. Rd. 7 (via M03), where increased flooding could occur. M03 is proposed to remain in its current condition. Where M10 passes under East Stone Lake Road (Co. Rd. 319), a 4'1" x 9'7" aluminum box culvert is proposed to replace the existing twin 48". The box culvert will be installed at the same location and same inverts as the current culverts. This repair is necessary to provide a lower maintenance crossing and ensure sufficient capacity for M10 through an increase in

cross sectional area from 25.1 to 32.6 square feet. The plans for this repair have been prepared by SEH and the applicant has agreed to contract and pay for the entirety of the repair. Thus, a detailed description of the plans, specifications and costs of the repair is not necessary in this case. M10 will remain functional for a distance south of East Stone Lake Road sufficient to maintain a profile for free water flow. M10 will then be abandoned starting 4,856 feet south of East Stone Lake Road (Co. Rd. 319) and through its remaining length in the central and southern portion of the system.

Ditch #1 M10 Laterals By-pass

Concerns related to increasing flows to Co. Rd. 7/ M01 ditch that could exacerbate flooding problems along the Co. Rd. 7 corridor were not limited to the split of flow at M10 and M03. M10 in the north is proposed to be abandoned beginning 1,534 feet south of Co. Rd. 557 to the intersection with M03. Ditch blocks in M10 were reviewed to determine if flow would use east-west laterals and mains to re-enter into Co. Rd. 7 ditch unintentionally. The elevations of the proposed lateral ditch checks between ditches M10 and M01 were reviewed to determine if M10 abandonment could cause flow back into ditch M01 from M10 (short-circuiting of flows). It is of interest to the County to ensure sufficient flows continues to be routed down M10 such that the flooding risk for properties and infrastructure along Co. Rd. 7 is not exacerbated by the project. Laterals 01-06 were identified as representing the most crucial of these pathways, and due to the location of private properties on Co. Rd. 7.

Laterals 01, 02, and 03 are located north of Stone Lake Road. These laterals drain towards Co. Rd. 7. Filling of these laterals is proposed as well as the construction of ditch checks. The ditch check elevations on the east end of each lateral was compared with the nearest downstream check on M10. In each case the nearest downstream check on M10 is proposed to be lower than the first check on the lateral. The ditches in this area are also to be filled with debris to further obstruct them. Table 2 below summarizes the pertinent elevations.

Table 2. (SEH Memorandum, June 25, 2015)

Lateral	First lateral check elevation	High point of finished ditch profile interpreted from lateral profile plan sheets	Closest Downstream M10 Check Elevation
L01	1335.5	1337	1335.2
L02	1336.2	1336	1334.3
L03	1335.1	1336	1333.3

Laterals 04, 05 and 06 are located south of M03 and Stone Lake Road. The first check proposed on M10 is located south (downstream) of Laterals 04, 05 and 06. Table 3 below summarizes the pertinent elevations.

Table 3. (SEH Memorandum, June 25, 2015)

Lateral	First lateral check elevation	High point of finished ditch profile interpreted from lateral profile plan sheets	Downstream M10 Check Elevation
L04	1333.4	1336	None
L05	1332.0	1336	None
L06	1330.9	1333	1328.3

On the east of CSAH 7 is the Polymet property that currently have two mainline and three lateral ditches running through the property that were also investigated as potential short circuiting locations for flow back to Co. Rd. 7. A berm currently exists along the east property line, apparently to prevent flooding from upstream flows in M10. This system therefore prevents flow short circuiting from east to west.

The analysis demonstrated that all the lateral ditch checks will be higher than the M10 ditch blocks and the applicant has committed to filling the entire length of the channels listed above, preventing by-pass flow back to M01 on Co. Rd. 7

Off-Site Ditch Impacts

An evaluation of upstream, off-site properties was provided by the applicant for Ditch #1 M10, and later for M10/M03 for downstream effects; and for Ditch #6 M01 and State Ditch #53 M06, M12 and M14. Other areas were not reviewed in detail, beyond that conducted by the wetland bank applicant, since there was not considered a likelihood of impact.

Based on questions about off-site effects of ditch abandonment, Table 4 below was provided to illustrate the water surface elevations at the project boundary for each of the mainline ditch checks to be installed for the 2-year, 10-year and 100-year, 24-hour storm events.

Table 4. (SEH Memo, June 25, 2015)

Ditch ID	2-Year Surface Elevation			10-Year Surface Elevation			100-Year Surface Elevation		
	Pre	Post	Diff	Pre	Post	Diff	Pre	Post	Diff
M01	1331.0	1331.0	0.0	1331.3	1331.3	0.0	1331.6	1331.6	0.0
M06	1337.7	1337.8	0.1	1339.5	1339.5	0.0	1341.2	1341.2	0.0
M10	1342.4	1342.4	0.0	1342.8	1342.8	0.0	1343.1	1343.1	0.0
M12	1348.0	1348.1	0.1	1349.3	1349.3	0.0	1350.4	1350.4	0.0
M14	1339.6	1339.6	0.0	1340.9	1340.9	0.0	1342.3	1342.3	0.0

No off-site concerns of abandoning the ditch segments for the wetland bank project have been identified in the analysis provided.

Summary

Based on the proposed changes, water will enter the wetland bank project by the same avenues as it currently does, carried by County Ditch #1 M10, County Ditch #6 M01 and State Ditch #53 M06, M12 and M14. Several factors were reviewed and addressed as part of the review of the proposed abandonment. Those aspects include:

1. Preserving M10 capacity at E. Stone Lake Road to prevent increasing of flooding of Co. Rd. 7 corridor by approving the proposed repair and installing the new culvert
2. Ensuring flow did not inadvertently get routed via east-west laterals back to the Co. Rd. 7 corridor
3. Review off-site areas to determine if impacts would occur and adjust ditch blocks within the project to minimize off-site drainage impacts
4. Remapping of the revised Ditch #1, Ditch #6 and Ditch #53 Systems

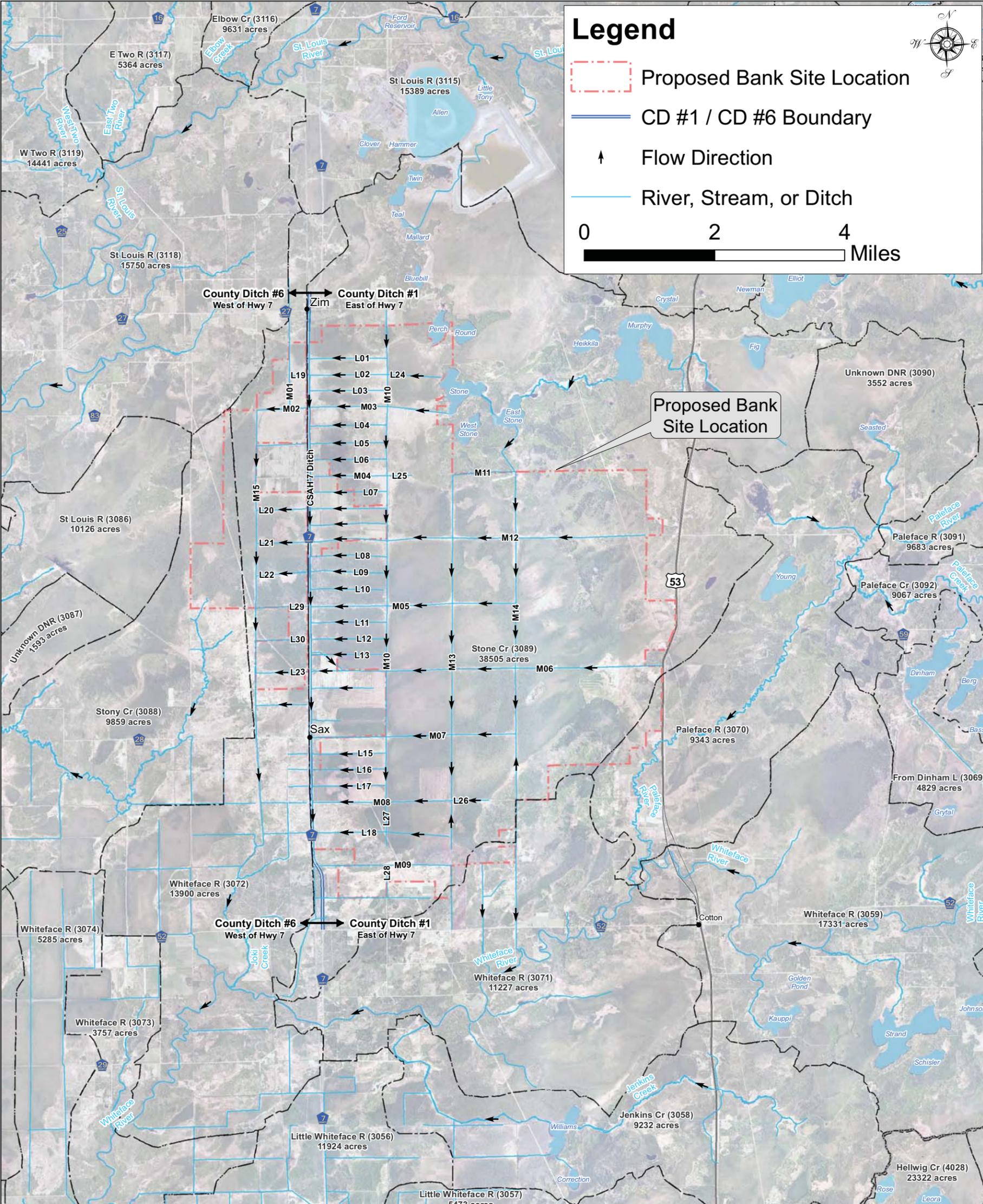
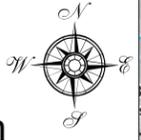
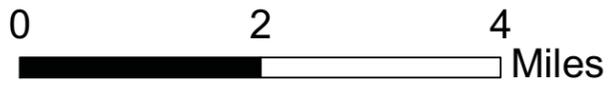
July 14, 2015

The flows from off the site will be able to flow into the system by ensuring ditch checks are sufficiently low. After flows are within the wetlands, the flow paths will be dispersed within the wetlands, reducing the channelized flow therein. The repair to be made at the Ditch #1 M10 and M03 intersection should prevent preferential or increased flow to areas at flood risk along the Co. Rd. 7 corridor.

The County will want to monitor the construction of the blockages for key locations, elevations, and intent of the blockages are met in order to ensure the drainage system as designed will still function as needed.

Legend

- Proposed Bank Site Location
- CD #1 / CD #6 Boundary
- Flow Direction
- River, Stream, or Ditch



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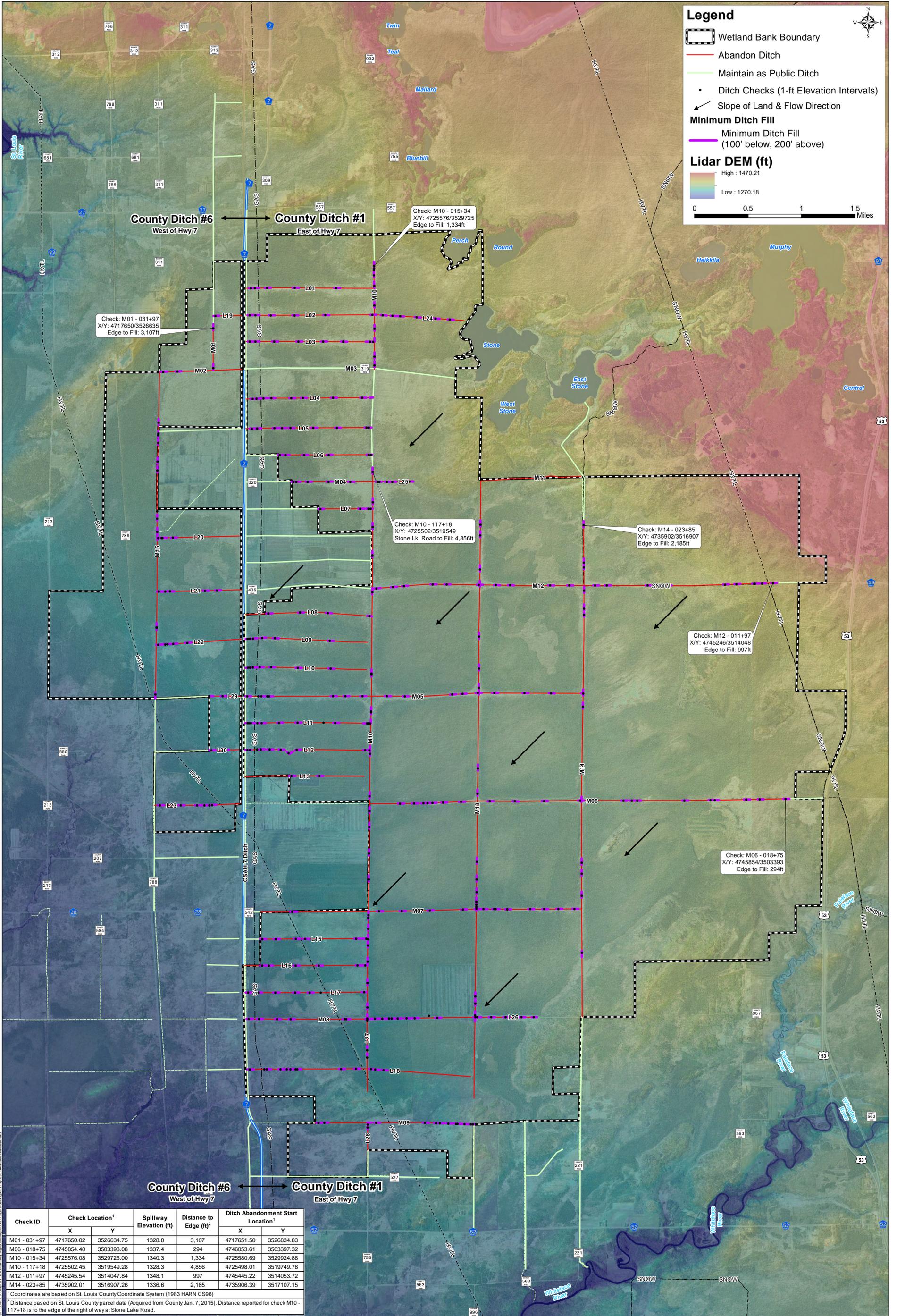
Map by: B. Tolcser
 Projection: NAD83 UTM15N
 Source: MnDNR, EcoSy
 Background: 2010 FSA

EXISTING CONDITIONS

St. Louis County Ditch #1 & #6
 Ditch Abandonment Engineer's Report

Figure
 1

This map is neither a legally recorded map nor a survey map and is not intended to be used as one. This map is a compilation of records, information, and data gathered from various sources listed on this map and is to be used for reference purposes only. SEH does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and SEH does not represent that the GIS Data can be used for navigational, tracking, or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The user of this map acknowledges that SEH shall not be liable for any damages which arise out of the user's access or use of data provided.



Legend

- Wetland Bank Boundary
- Abandon Ditch
- Maintain as Public Ditch
- Ditch Checks (1-ft Elevation Intervals)
- Slope of Land & Flow Direction

Minimum Ditch Fill

- Minimum Ditch Fill (100' below, 200' above)

Lidar DEM (ft)

- High : 1470.21
- Low : 1270.18

0 0.5 1 1.5 Miles

Check: M01 - 031+97
X/Y: 4717650/3526635
Edge to Fill: 3,107ft

Check: M10 - 015+34
X/Y: 4725576/3529725
Edge to Fill: 1,334ft

Check: M10 - 117+18
X/Y: 4725502/3519549
Stone Lk. Road to Fill: 4,856ft

Check: M14 - 023+85
X/Y: 4735902/3516907
Edge to Fill: 2,185ft

Check: M12 - 011+97
X/Y: 4745246/3514048
Edge to Fill: 997ft

Check: M06 - 018+75
X/Y: 4745854/3503393
Edge to Fill: 294ft

Check ID	Check Location ¹		Spillway Elevation (ft)	Distance to Edge (ft) ²	Ditch Abandonment Start Location ¹	
	X	Y			X	Y
M01 - 031+97	4717650.02	3526634.75	1328.8	3,107	4717651.50	3526834.83
M06 - 018+75	4745854.40	3503393.08	1337.4	294	4746053.61	3503397.32
M10 - 015+34	4725576.08	3529725.00	1340.3	1,334	4725580.69	3529924.88
M10 - 117+18	4725502.45	3519549.28	1328.3	4,856	4725498.01	3519749.78
M12 - 011+97	4745245.54	3514047.84	1348.1	997	4745445.22	3514053.72
M14 - 023+85	4735902.01	3516907.26	1336.6	2,185	4735906.39	3517107.15

¹Coordinates are based on St. Louis County Coordinate System (1983 HARN CS96)
²Distance based on St. Louis County parcel data (Acquired from County Jan. 7, 2015). Distance reported for check M10 - 117+18 is to the edge of the right of way at Stone Lake Road.

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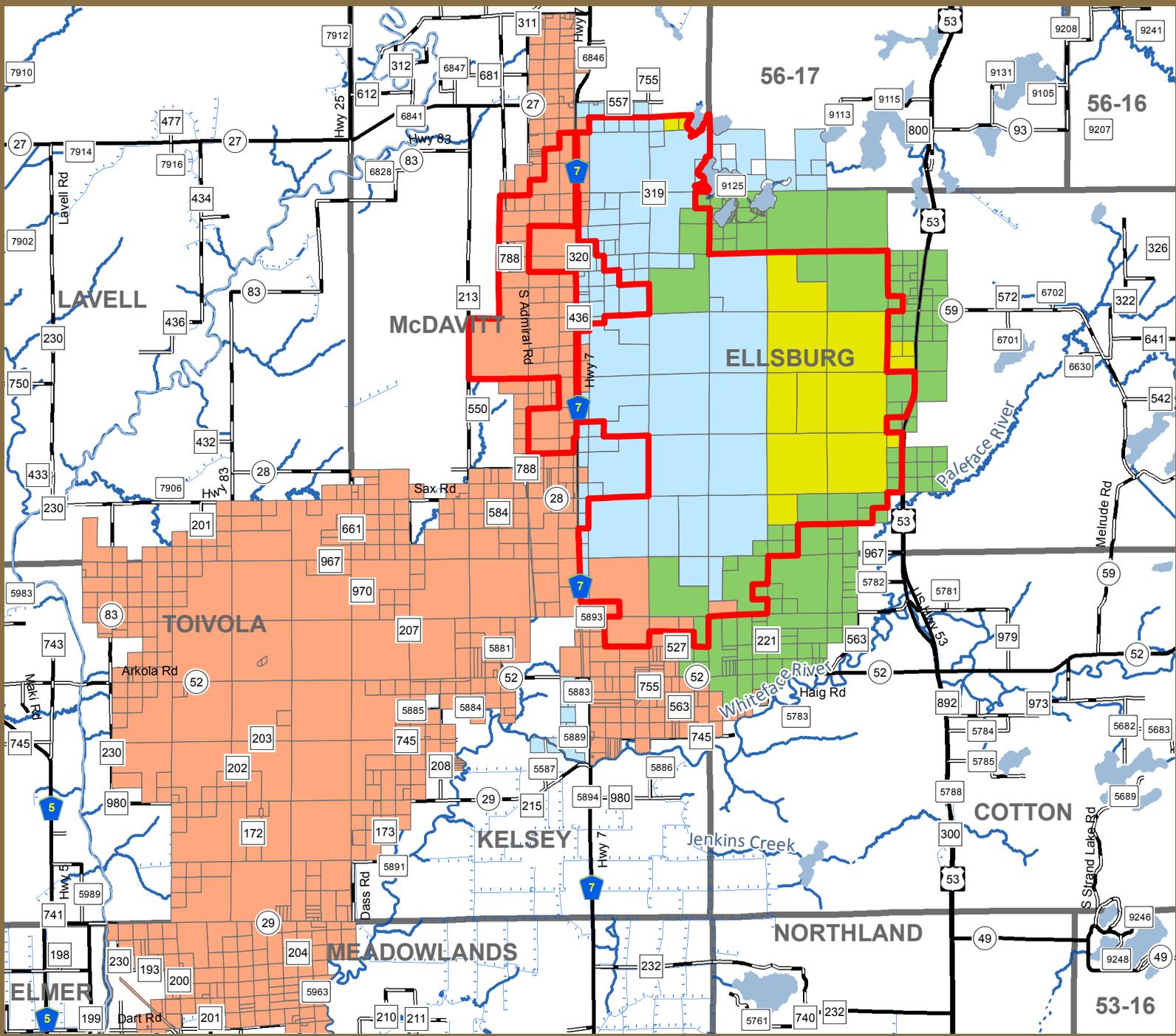
EIP Project Area



St. Louis County MN

Legend

- Proposed EIP Boundary
- Ditch 1
- Ditch 6
- Ditch 53
- Unidentified Ditch System
- SLC Minor Civil Division



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Team Credits: Planning, Land, Public Works, 911

Source: St. Louis County, DNR

Map Created: 7/30/2015

Disclaimer
 This is a compilation of records as they appear in the St. Louis County Offices affecting the area shown. This drawing is to be used only for reference purposes and the County is not responsible for any inaccuracies herein contained.

