

# DITCH INSPECTION 39

CD39

DRAFT

**STEARNS COUNTY MINNESOTA**

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Authored by: Martini, Chad

Adopted by Stearns County Board of Commissions acting as the Drainage Authority

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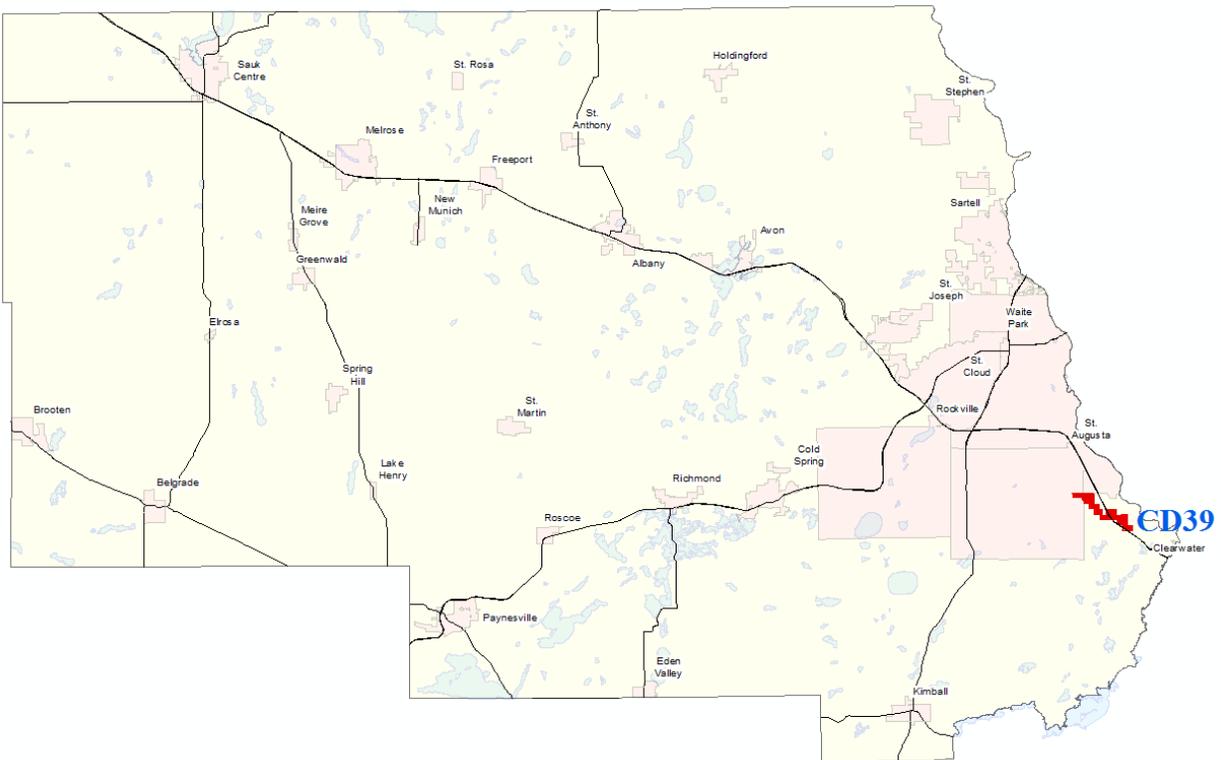
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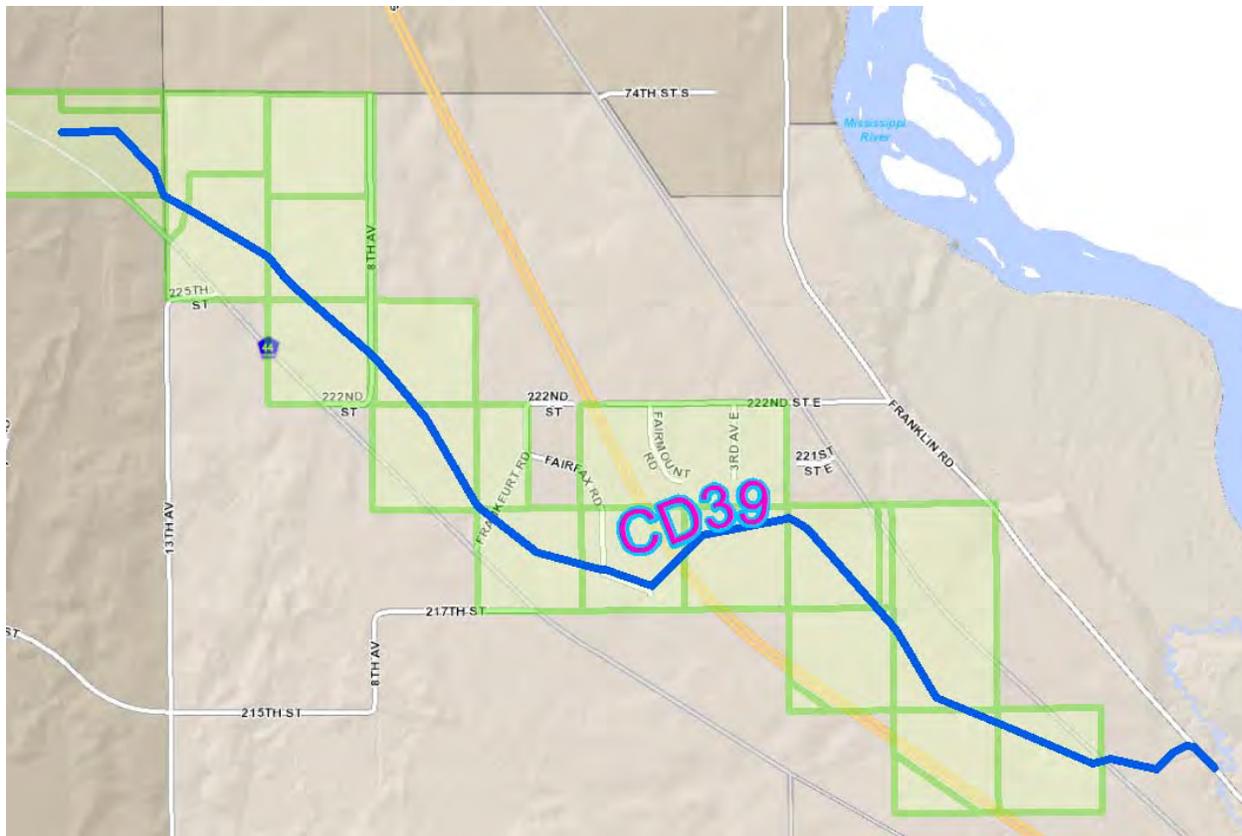
CD39

## Introduction

Stearns County has had an issue with an obstruction on CD39 since the early 2000's in the form of a dam built by the US Fish and Wildlife in cooperation with a previous landowner.

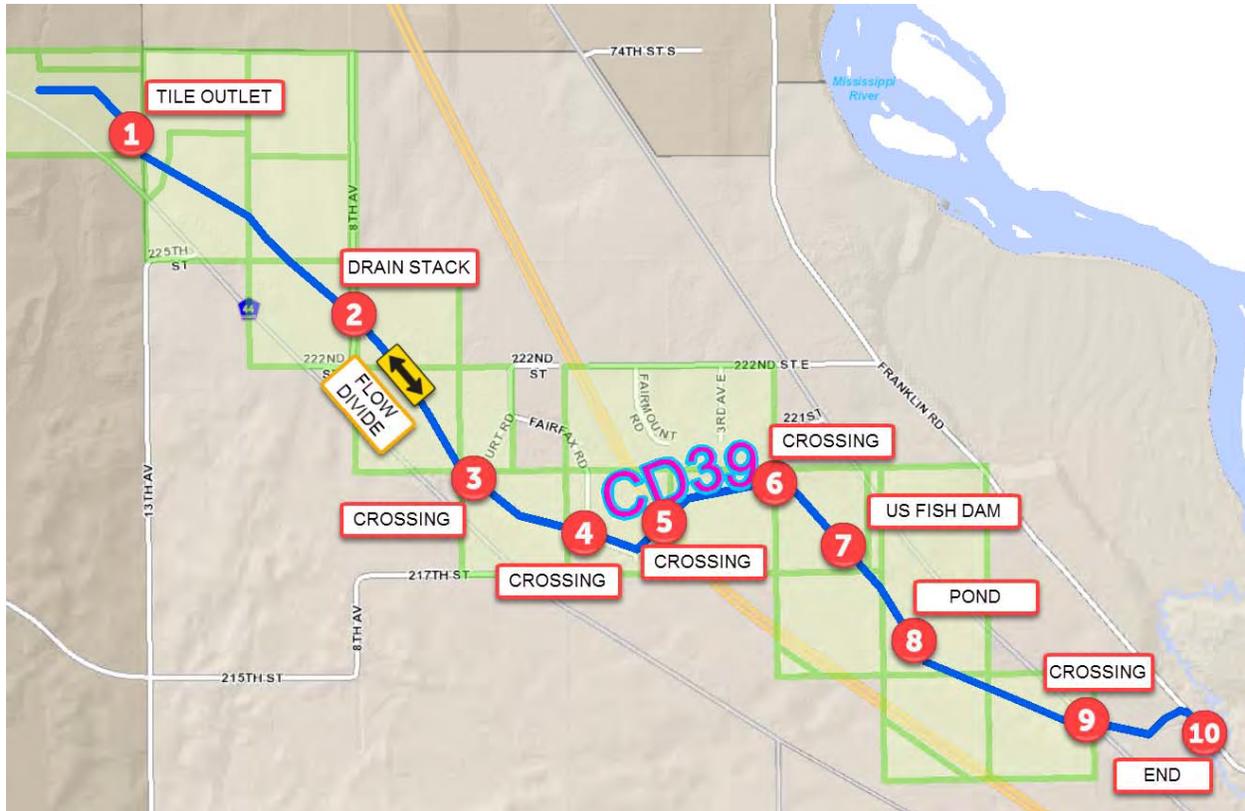
The owner of the property where the dam is located is Jim Studniski. Mr. Studniski has been requesting that the issue be dealt with for several years. During the course of dealing with that issue, Stearns County also completed an inspection on the entire ditch system.





## Inspection

The inspection focuses on areas where tile daylight, crossings, and known issues such as the US Fish and Wildlife dam. The field inspection was completed by the Stearns County Survey Crew, Dean Schramel and Craig Welle, from 2016 through the present. A map of inspection locations is shown below.



1. Tile Outlet – The ditch flows to the northwest and daylights to open ditch here.
2. Drain stack in tile – The result of a 2015 repair, there is a new pipe with a stack to allow water into tile.
3. Crossing – Frankfurt Rd Tile Crossing
4. Crossing – Fairfax Rd Tile Crossing
5. I-94 culverts – work was performed during the installation of the CAPX power line. Manholes exist for inspection.
6. Crossing – Private crossing between Martin and Studniski properties is a known obstruction.
7. US Fish and Wildlife Dam – Installed in the early 2000's, the dam is a known obstruction.
8. Pond – An area of open ditch and tile.
9. Crossing – Culvert on Co Rd 75 and trail
10. End – Ditch terminates

### Inspection Section 1

The area was visited as part of the 2016 Buffer Law interviews Stearns County performed. Local property owners had completed maintenance around the outlet, but there is no indication of a problem.

### Inspection Section 2

CD39 crosses 8<sup>th</sup> Ave where a repair was completed in 2015 to add a drain stack to allow water into the clay tile. This area is functioning without blowouts or any other visible issues.



8<sup>th</sup> Ave Crossing – As Constructed shown due to current vegetation

### Inspection Section 3

Observation was done from Frankfurt Rd looking up and downstream. This section of the ditch is clay tile. No blowouts or other indications of problems on CD39 were observed.

### Inspection Section 4

Observation was done from Fairfax Rd looking up and downstream. This section of the ditch is clay tile. No blowouts or other indications of problems on CD39 were observed.



Looking southeast from Fairfax Rd



Looking northwest from Fairfax Rd

There is manhole access to the tile structures under I-94. Work was performed in 2011 due to a break in the tile from power line tower construction. The culverts have water in them, but at this time, there does not appear to be immediate issues. This area should be monitored periodically to evaluate issues with CD39 backing up from the Martin property to make sure I-94 is not being negatively affected. A private crossing on the Martin and Studniski properties downstream is a known obstruction that holds water on the Martin property. Approximately 10 feet west of the private crossing a 12 inch clay tile was found approximately 3-4 feet below the surface. The invert of the tile was located at an elevation of 975.2 feet.

## Inspection Section 6

June 21, 2017

Using a piece of equipment named the Marsh Master, the ditch was reviewed from the dam location to the Studniski field road. The inspection occurred AFTER the ditch channel had been restored at the dam.



Traveling Northwest upstream of the ditch, the channel was clearly defined and contained little water. Tall grass made it difficult to see the channel but the Marsh Master allowed for travel in water and along the channel for a better view. The water was observed to be flowing slowly. The channel remains open for roughly 850 feet from the dam.

The channel narrows and eventually closes for about 400 feet until reaching the field road. Water was observed flowing from culvert under the field road. Visual inspection of the area immediately east of the field road show minimal standing water. The water works its way southeast into the ditch channel. The area around the culverts where no ditch channel was clearly defined was wetter than areas on either side of the open channel.

Water immediately began to flow in the tracks left by the Marsh Master indicating a repaired channel would offer better flow and capacity through the area.

Standing water could be observed on the west side of the field road. It appears several attempts at installing plastic culverts have been made on the field road. The field road is currently viewed as an obstruction. The field road prevents water moving west to east. Potential concerns are flooding of the Martin property and the culverts under I-94.

### **Inspection Section 7**

June 21, 2017 – Re-establishment of ditch channel and inspection of ditch

Using an excavator, the US Fish and Wildlife staff removed portions of the dam to allow CD39 to flow. Under supervision of Stearns County staff using GPS equipment, the ditch channel was reestablished at the location of the dam. Seeding of exposed soil was done when the work was complete.

Upon completion of the excavating, water could be seen flowing through opening in the dam. Once the ditch channel was reestablished, inspection of the ditch upstream from the dam was performed.

### **Inspection Section 8**

The section of ditch from the dam to the pond was originally clay tile. Broken tile pieces are observed along this stretch indicating a complete failure of the original tile. Water continues to flow through the area either in newly formed water ways or over the depression left by collapsed tile. It is unclear whether the ditch is flowing along the original alignment or a new path created by overland water continuing to flow. There is no evidence of water backing up or pooling, however, the ditch function in this area cannot be considered ideal.



### Inspection Section 9

Section 9 relates to the private crossing used to access PID: 19.10499.0000, which is owned by Clearwater Ranch, LLC, Mark Muller is the contact for this property. At this location we know the following:

1. There is an existing 20 inch clay tile that runs under the private crossing.
2. Above the tile there is an 18 inch corrugate metal pipe which would allow for water to flow in cases of high water flow or culvert failure.
  - a. The northwest invert is 969.02 feet.
  - b. The southeast invert is 969.45 feet.

The field data collected shows that the culvert flows from southeast to northwest, and appears to be in working order. This section is considered to be in working condition.

### Inspection Section 10

Section 10 relates to the end point of CD39 where the ditch flows into Plum Creek. Approximately 900 feet northwest of the end point, there is a private crossing, on PID: 19.10495.0000, Michael and Geraldine Leonard, with a 36 inch corrugate metal pipe. The northwest invert is 965.69 feet and the southeast invert of 967.22 feet. After the private crossing the ditch enters a steep ravine with a defined channel before flowing into the Plum Creek. The ditch in this section is considered to be in working condition.

## Conclusion

Inspection of County Ditch 39 shows it to be functioning reasonably well based on visible inspection of crossing, but no video inspection of the tiled portions was performed because there was no observed evidence of issues that would warrant the cost of more invasive inspection.

There several concerns on the ditch in and around the area of I-94.

The area of the ditch from the Studniski field road to the old dam moves water but the flow and capacity are negatively impacted by the condition of the ditch and the field road. Specifically, there is no defined channel immediately downstream of the field road and the road itself is a clear obstruction to ditch flow.

The lack of a defined ditch channel in the area of the field road allows water to collect. During times of high water, it should be expected that the wetland in the area east of the field road would hold water for a time until it makes its way to the defined channel downstream. A repair to the ditch from the location of the old dam to the field road should be considered by the Drainage Authority. The area between the old dam and the pond on the Clearwater Ranch property should be considered for repair based on visible evidence of broken tile that cannot be functioning as designed.

The condition of the field road culverts greatly impacts the ability of the ditch to move water downstream. In accordance with MN103E.075, the obstruction at the field road should be considered by the Drainage Authority.

## Photos



Photo 1 US Fish and Wildlife Equipment Used on June 21, 2017



Photo 2 –View of dam opening where ditch channel was reestablished.



Photo 3 – Standing on dam looking upstream at ditch channel



Photo 4 – Area east of field road. Water moves towards the defined channel, but clearly spreads throughout the immediate area.