

**Date** | 2-24-2016  
**To** | Chisago Lakes LID Board of Managers  
**cc** | Jerry Spetzman  
**From** | Greg Graske  
**Regarding** | Winter Channel and Outlet Structure Inspection

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On January 29, 2016 an inspection of the Chisago Lakes Outlet Channels and Structures was conducted. EOR engineer Greg Graske and District administrator Jerry Spetzman performed the field inspection of the channel system. This inspection focused on key winter areas. The following summarizes the inspection, actions performed, and any future actions recommend. Actions in red are recommended for follow up in the near future, actions in orange are actions that require future follow up or monitoring but are not urgent, and actions in green are minor maintenance items that were completed in field prior to this report.

### **Outlet Structure and Pipe between Lake Ellen and Swamp Lake**

Due to high water levels the gate was opened on July 23rd, 2015 with a few inches of water flowing over the weir. By the time of the inspection on July 30th, the water level has receded such that the water was just barely overtopping the weir. The gates were closed during the fall inspection and the structure inspected for debris build up around the perimeter. Significant debris build up was not observed. Due to high precipitation in November, water levels rose slightly above the weir just prior to freeze up. Due to ice safety concerns and following the Emergency Management Plan the gates were left closed. A winter inspection was performed to determine the need to open the gates and to assess the ability to operate the gates in the winter. Water levels had not significantly increased, therefore the management plan called for the gates to remain closed. The door had to be broken loose due to ice and snow build up. After chiseling around the shaft we were able to slightly open the gate, but it was very stiff due to the ice and cold. The gate was returned to the shut position. Once spring melt occurs the gates will be opened to allow for spring flows. An inspection is scheduled for March 10th to determine if the gates should be opened.



Photo: outlet structure access door

**Recommended Action:**

- Open gates once spring melt allows

**Suggested Follow Up:**

- None

**Minor Maintenance Items Completed:**

- None

**Swamp Lake Outlet**

The Swamp Lake outlet pipes under County Road 80 were visited. This location has 7 pipes under the road to convey flow. Water was flowing at the time of the inspection. Vegetation is starting to get thick near several of the culverts. It is recommended that this vegetation be removed by a contractor in 2016.



Photo: Pipes leaving Swamp Lake

**Recommended Action:**

- Have contractor remove vegetation build up in 2016

**Ivywood Outlet Structure**

The culvert crossing under Ivywood Trail was visited. This site is not generally part of the outlet conveyance due to the outlet channel to Carlos Avery WMA never being fully completed. No issues noted.



Photo: Top view of outlet structure

**Recommended Action:**

- None

### Channel between North Center and North Lindstrom

The channel between North Center Lake and North Lindstrom Lake was visited. Significant flow between the lakes was observed. No issues were noted.



Photo: Left: channel leaving North Center Lake, Right: flow under County Road 20 Bridge

#### Recommended Action:

- None