

Technical Memorandum

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To: Jered Ottenwess, Village of Northport
From: Jenny Pitcher, P.E.
Date: July 21, 2026
Re: Post Storm Event Northport Dam Assessment
Northport, MI
Project No. 2503882

This memorandum summarizes visual inspection findings and repair recommendations related to a flood event that occurred on Jun 29, 2026, which resulted in overtopping of the dam. A photo log is included that documents the conditions during and after the flood.

Storm Event Summary

On Monday, June 29, 2026, the Village of Northport received more than five inches of rain in approximately ninety minutes. During the storm, the Northport Dam overtopped and was eventually submerged due to the limited hydraulic capacity of the downstream road culvert. The flood floated the wooden pedestrian bridge over the dam and the adjacent wooden fishing pier and washed them downstream before they were removed from the floodwater near the peak of the flood (see photos 1 and 2). The fishing pier became lodged against the downstream roadway culvert and may have partially blocked flow before Village Department of Public Works (DPW) removed it. We understand that no stoplogs were removed in advance of the flood.

The downstream roadway culvert reached capacity during the storm, causing water levels upstream of 3rd Street and downstream of the dam to rise well above the top of the culvert and to within approximately five feet of the road low point (see photos 1 and 2). This backwater condition temporarily impounded water upstream of the roadway culvert, submerged the dam, and eliminated freeboard at the spillway. At that point, flow over the dam was no longer controlled by the stoplogs. Village DPW reported that the water level reached approximately two to three feet above the spillway crest.

Beginning June 30th, Village DPW removed stoplogs to manage flow and drew down the impoundment for dam inspection, potential repairs, and dam safety considerations (see photos 3 -7). After the drawdown, Village DPW observed displaced riprap at the dam and noted that most of the cobble-sized rock had washed downstream. Village DPW did not observe apparent changes in the concrete spillway structure.

Field Assessment

On July 7th, GEI dam safety engineers visited the site to complete a post-storm dam assessment. The team observed matted vegetation and vegetation debris (flotsam) that generally matched the water surface elevation described by Village DPW staff. Matted vegetation from overtopping extended approximately thirteen feet onto the right side of the dam (see photo 15) and approximately eight feet onto the left side of the dam (see photo 16).

The downstream embankment appears to have experienced erosion and movement of material, most notably along the upper portions of the left and right downstream embankments (see photo 8 and photos 13-18). The areas of material loss are generally consistent with photographs provided by the Village (see photos 5-7), which show conditions as floodwaters receded and downstream water levels dropped below the embankment crest while overtopping continued above the spillway. The temporary backwater condition at the downstream culvert which submerged the dam during the flood event likely reduced erosive forces on the embankment and structure. This may have limited additional erosion along the downstream embankments.

On the upstream side, some riprap appeared to be missing from the toe of the right upstream embankment (see photo 10). The remaining riprap on the left and right embankments were generally twelve inches in diameter or larger (see photo 11 and 12). Based on previous inspection photographs from 2023 (see photo 19), the spillway condition appeared unchanged, with no visible increase in concrete spalling, cracking, or deterioration. GEI probed the apron with a measuring rod, and the apron and corners appeared intact.

Existing deficiencies such as dense and woody vegetation along the downstream embankment remain (see photo 9). GEI did not observe evidence of internal material movement or embankment instability; however, dense vegetation and remaining riprap limited the visual assessment. Undercutting was noted on the right downstream bank near the widest part of the plunge pool.

GEI also observed the downstream roadway culvert during the field assessment. At the culvert's outlet, water levels remained high, and the culvert was perched above the tailwater at the time of the observation (see photo 20). Slope deterioration was observed along the slope on the left downstream side of the culvert. GEI did not access the area more closely because of safety concerns (dense vegetation, high velocity flows, and limited visibility). GEI recommends that the Village coordinate with their Engineer to evaluate the affected slope and culvert and identify appropriate repairs.

Repair Recommendations

If the Village intends to refill the impoundment, GEI recommends the Village take the following actions prior to refilling:

- Complete maintenance along the left and right downstream embankments to restore the crest and stabilize the slopes along the training wall to the original grades.
- Complete the previously proposed and permitted concrete repairs.

- Assuming the fishing pier and pedestrian bridge will not be returned to their original position, the exposed ground should be restored to match the adjacent grade and be stabilized with grass. (The fishing pier and pedestrian bridge are not critical components of the dam and are not required for dam safety, therefore replacement of these structures is considered optional.)

Note that the dam is not designed to accommodate flows over the top of the embankment.

In 2023, GEI developed a feasibility study which discusses options for both removal and replacement of the dam and their associated conceptual costs. GEI strongly recommends continuing efforts for the selection and implementation of a long-term path forward for the dam. In the meantime, GEI recommends keeping the impoundment drawn down until the immediate repairs are complete.

Standard Limitations and Disclaimer

This report was prepared exclusively for the use of the Village of Northport. The findings and conclusions, if any provided by GEI in this report, are based solely on the information reported to GEI as of the date of this report. Future investigations or additional information not provided to GEI at the time of this report may result in modification of this report. GEI's scope of work did not include verifying the completeness or accuracy of information provided by others. Accordingly, GEI shall not be liable for any damages, costs, or other consequences resulting from reliance on such information if it is later determined to be inaccurate or incomplete. GEI's professional services for this project have been performed in a manner consistent with that degree of skill and care ordinarily exercised by members of the same profession currently practicing in the same locality, performing similar services under similar conditions. GEI makes no other representations and no warranties, express or implied.

We thank you for the opportunity to serve the Village of Northport. Please let us know if we can assist you in any other way. If you have any questions regarding the memorandum, please feel free to contact me at 847.946.1941 or jpitcher@geiconsultants.com.

Sincerely,

GEI CONSULTANTS OF MICHIGAN, P.C.



Jenny Pitcher, P.E.
Project Manager



Dan DeVaan, P.E.
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Northport Post Storm Dam Assessment

Photo Log



<i>Photo 1. – Photo taken from left downstream embankment looking west. Flood is on trailing limb of hydrograph as can be seen by the flotsam. Note backwater caused by hydraulic limiting of road culvert and displaced fishing pier. (6/29/2026 @ 2:01 PM– Provided by the Village)</i>	2
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Northport Post Storm Dam Assessment Photo Log

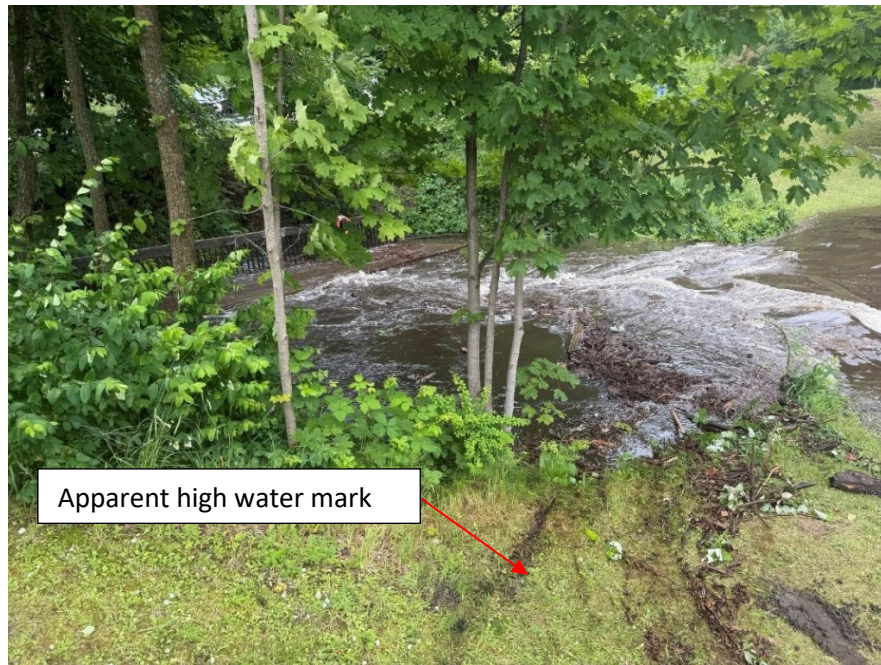


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Northport Post Storm Dam Assessment Photo Log



Photo 3 – Left embankment looking from the right embankment during flood as the water recedes.
(6/30/2026– Provided by the Village)



Photo 4 – Looking upstream towards the concrete structure before the stop logs were pulled.
(6/30/2026 – Provided by the Village)

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Photo 5 – Left embankment looking from the right embankment during dewatering of impoundment.
(7/1/2026– Provided by the Village)



Photo 6 – Right downstream embankment along the right downstream training wall. (7/1/2026–
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Photo 7 – Left downstream embankment during drawdown. (7/1/2026– Provided by the Village)



Photo 8 – Looking upstream at the concrete spillway after the stop logs were pulled. (7/7/2026)

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Photo 9 – Right embankment looking eastward from the right abutment. (7/7/2026)



Photo 10 – Right upstream embankment looking from the left embankment. (7/7/2026)

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Photo 11 – Left upstream embankment looking eastward after dewatering. (7/7/2026)



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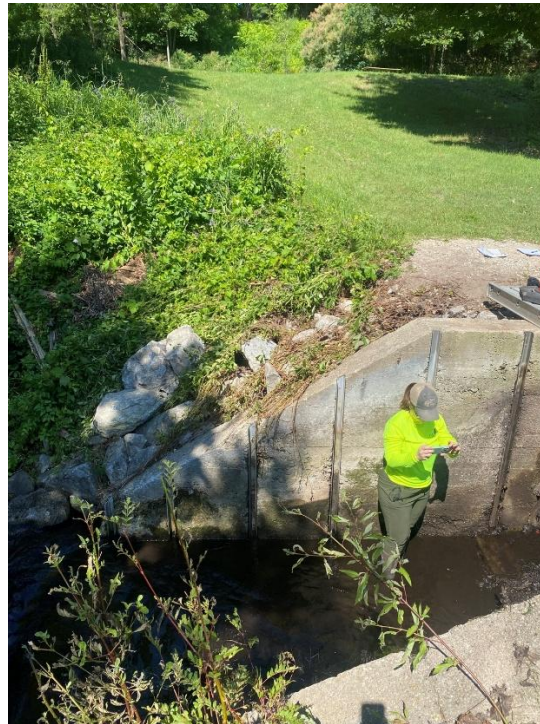


Photo 13 – Right downstream embankment looking towards the right abutment. (7/7/2026)



Photo 14 – Right downstream embankment looking towards the reservoir. (7/7/2026)

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2023 Photo	7/7/2026 Photo

Photo 15 – Right downstream embankment and training wall comparison. (7/6/2026)



Photo 16 – Left downstream embankment and left training wall. (7/7/2026)

Northport Post Storm Dam Assessment Photo Log



Photo 17 – Left downstream embankment looking toward the reservoir. (7/7/2026)

	
2023 Photo	7/7/2026 Photo

Photo 18 – Left downstream embankment and left training wall comparison. (7/7/2026)

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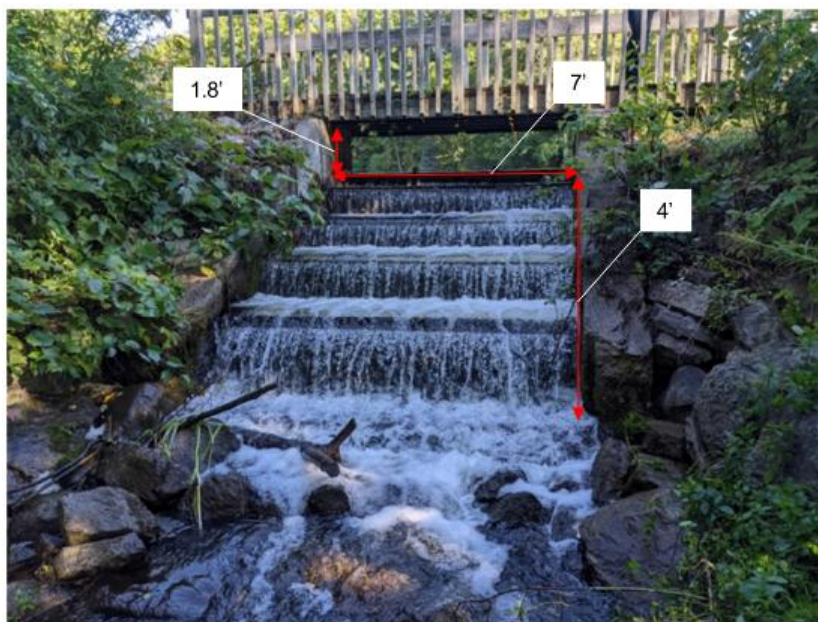


Photo 19 – Looking upstream toward the concrete spillway in 2023. (2023 Dam Inspection Report-GEI)



Photo 20 – Downstream end of 3rd Street culvert looking from the left. (7/7/2026)