

July 30, 2024

Mr. Ken Recker, P.E. – Chief Deputy  
Livingston County Drain Commissioner  
2300 E. Grand River Ave. #105  
Howell, MI 48843

Consulting  
Engineers and  
Scientists

RE: Long Lake control structure & downstream culvert – Work & Cost Summary

Mr. Ken Recker, P.E.

This letter summarizes proposed costs for potential improvements and/or rehabilitation to the existing Long Lake Dam structure and replacement of the existing outlet culvert immediately downstream of the culvert underneath Blaine Road. Also addressed in this letter is the surface drainage issues on Blaine Road over the culvert crossing. We have included all costs for which we think would be necessary for total reconstruction of these items, including design, engineering, permitting, public engagement, bidding, construction, surveying and even a 10% contingency on all costs.

In both recent and in prior inspections of the Long Lake control structure, some piping is occurring below the top of the sheet piling in the northern portion of the control structure. The concrete headwall on the east side of the crossing where it meets the control structure is also deteriorated and large cracks are present. Correction and repair of these issues is proposed as part of the work outlined in this letter.

Immediately downstream of the control structure underneath Blaine Rd. is an existing 44"x72" arched, plated CMP culvert, which is not part of a county drain route-and-course. Also noted on multiple inspections of the downstream culvert crossing is a large protrusion in the top portion of the arched culvert that appears to be directly underneath the centerline of Blaine Road. This protrusion would degrade the structural integrity of the arched culvert and has been noted for repair on past inspections of the system. There are also some portions on the structural plated CMP culvert where significant rust is present and these areas appear to have significant rusting near the haunch of the arch culvert that may impact its structural integrity in the future.

The road in this area of the culvert crossing is also at a low-point in Blaine Road in this area and the existing catch basins and concrete curb on either side do not seem to be placed and graded correctly in order to adequately drain the road surface; as evidenced by the presence of persistent standing water over the culvert crossing in this location. Repair of the road drainage issues over the culvert crossing is intended to be done as part of this overall work. At the time of the drafting of this letter, the Road Commission had planned to resurface Blaine Road in the

location of the control structure and culvert crossing. However, it appears as though this resurfacing work may be pushed off until 2025, in order to coordinate with the culvert replacement and control structure repairs. For purposes of outlining all costs, we have included the costs for correcting the road and curb drainage issues in this summary, but have itemized those costs separately, in case the road commission either does this work on its own or pays directly for this work as part of the overall drainage and structure repair work by the Livingston County Drain Commissioner's (LCDC) office.

To address the issues with existing CMP culvert, we are proposing to replace the culvert with a new 44" x 72" CMP arch culvert. We have pulled flood flows from EGLE for this particular culvert and a 44"x72" CMP arch culvert can pass a 100-yr flood flow at this crossing location, so we anticipate that an in-kind culvert would be permitted for this replacement. Necessary repairs to the headwall and control structure will be made once further investigation is completed. Repair of the road grade and drainage issues would include revising the sub-base and road grade to fix where the low-point is relative to new drainage infrastructure with catch basins and/or spillways to drain the road. This work would involve resurface approximately 125 SYD of HMA with approximately 100 linear feet of concrete curb restoration. The road restoration limits will also be dependent on the grading limits of the drainage issues and the extent of the repairs as ultimately needed. In addition to fixing the culvert and the road drainage issues, the construction of the culvert would address the slumping and erosion along the back of curb on the south side of Blaine Road. Currently, the back of curb is exposed at the crossing and material is slumping away from the road with signs of erosion above the outlet pipe. By constructing the new culvert, the material above the pipe and behind the back of curb would be replaced and restabilized.

Regarding the associated repairs and reconstruction of the Long Lake control structure, the existing 48"x72" CMP arch culvert and the associated repairs to the road drainage items, we have outlined a general level of tasks to be completed as part of this work summary letter:

1. Perform a site visit to gather survey information and measurements of site features.
2. Perform a MISS DIG Design Ticket to gather all available utility information at the crossing. The LCDC's office may facilitate further utility investigation for critical elements.
3. Obtain required EGLE permit for the control structure repairs and culvert crossing replacement.
4. Obtain other required permits necessary (Road ROW, SESC, etc.).
5. Prepare a set of drawings for proposed rehabilitation of control structure and culvert replacement for LCDC's review and road drainage work for Road Commission review. Incorporate comments and prepare a final, for bid and construction set of drawings.

6. Hold a public informational meeting with impacted Lake riparian residents to review work.
7. Solicit bids and retain a contractor for the work.
8. GEI engineers to assist Owner during construction with RFI responses and other requests.  
Work also includes the construction administration and general oversight during construction by GEI, including construction staking and surveying

Below is a general summary of what we envision as to the construction work elements of this summary letter:

1. Work to be performed by installing sheet piling upstream of work area and by-pass pumping as applicable and as required by EGLE permitting.
2. The portion of the sheet piling that has deterioration is to be either removed or left in-place and new sheet piling to be installed in its place.
3. The east side of the headwall to either be repaired, if applicable, or replaced altogether.
4. The fence is to be removed during construction and to be re-installed using existing material afterwards.
5. At the south side of Blaine Road at the culvert outlet, riprap should be installed at the downstream side of new culvert and all woody vegetation should be cleared.
6. Adjust sub-grade elevations to position low point in road to match existing catch basins or move catch basins and allow drainage with spillways to the ditch on either side of the road.

Below is a summary of all proposed costs for this work. A detailed summary of these costs is listed on the last page of this work summary letter. As mentioned prior, the total proposed costs listed encompasses all engineering related work and all construction necessary to make all improvements as proposed in this letter. This should be treated as a 'total financing amount' to complete all work regarding this project.

#### **PROPOSED COST SUMMARY**

Construction of Long Lake control structure improvements and culvert replacement = \$139,000

Road drainage and road repair costs = \$53,875

Engineering (design, permitting, surveying, bidding, public mtg, const. admin, etc.) = \$37,500

Contingency (10%) = \$23,037.50

**Total Proposed Cost = \$253,412.50**

Should you have any questions please contact me on my mobile number at 517-449-3478, thanks.

Sincerely,



Brian J. Cenci, P.E.

**Long Lake Control Structure & Culvert Replacement Costs**

Item	Qty.	Units	Unit Price	Total
44" by 72" CMP arch Culvert	45	LF	\$ 1,200.00	\$ 54,000.00
Removals	1	LS	\$ 7,500.00	\$ 7,500.00
Headwall Restoration/Reconstruction	1	LS	\$ 8,500.00	\$ 8,500.00
Control Structure Repair	1	LS	\$ 17,500.00	\$ 17,500.00
Fencing	1	LS	\$ 2,000.00	\$ 2,000.00
Riprap	70	SYD	\$ 100.00	\$ 7,000.00
Vegetation Clearing	1	LS	\$ 2,500.00	\$ 2,500.00
Road grading, sub-base restoration	1	LS	\$ 15,000.00	\$ 15,000.00
HMA Road Restoration	125	SYD	\$ 175.00	\$ 21,875.00
Concrete Curb	100	LF	\$ 50.00	\$ 5,000.00
Catch Basins/Spillways	2	EA	\$ 6,000.00	\$ 12,000.00
SESC (incl. dewatering)	1	LS	\$ 20,000.00	\$ 20,000.00
Traffic Control	1	LS	\$ 7,500.00	\$ 7,500.00
Mobilization (4% Max.)	1	LS	\$ 12,500.00	\$ 12,500.00
<b>SUB-TOTAL (Drain costs):</b>				<b>\$ 139,000.00</b>
<b>TOTAL (road costs only):</b>				<b>\$ 53,875.00</b>
<b>TOTAL (all costs)</b>				<b>\$ 192,875.00</b>

Summary	
Construction	\$ 192,875.00
Engineering	\$ 37,500.00
Total	\$ 230,375.00
Contingency (10%)	\$ 23,037.50
Total	\$ 253,412.50