



March 13, 2018
Our File: 518014

Municipality of South Huron
322 Main Street South
P.O. Box 759
Exeter, ON N0M 1S6

Attention: Don Giberson
Environmental Services Director

Re: Mollard Line Culvert
Structure No. 1056
Emergency Closure

Dear Mr. Giberson,

The Municipality of South Huron contacted GM BluePlan Engineering Limited (GM BluePlan) requesting that an inspection of Structure No. 1056 on Mollard Line be completed to examine the condition of the structure. Upon the clearing of brush and debris completed by the Municipality to provide access, the structure was inspected on March 12th, 2018 to examine the existing condition and structural integrity of Structure No. 1056.

The corrugated steel plate pipe-arch culvert was observed to be in overall poor condition. Severe global deformation was noted primarily in two locations along the barrel of the culvert. Firstly, the obvert of the culvert is sagging with deflection for approximately 10 – 15m through the mid-length of the barrel. Secondly, severe global deformation was noted between the obvert and the springline with the deformation most prominent on the south half of the culvert (on the south side of the temporary timber bracing). Severe springline cracking was observed along approximately 15m of the south side of the culvert. While crack reinforcement, consisting of 25mm x 25mm (1" x 1") steel bars welded to the inner corrugation of the culvert, was installed along the south side for approximately 10 – 15m, various locations at springline displayed crack widths of 5mm or greater. Additionally, the temporary timber support wall was noted to be cracked and splitting at the west end along the top member of the wall. The above noted conditions were recorded and compared to the results of the 2013 Ontario Structure Inspection Manual (OSIM) inspection completed by B.M. Ross and Associates Ltd., and the 2015 OSIM inspection completed by GM BluePlan. In general, it was noted that the structure had undergone noticeable deterioration and structural deformation since the 2013 and 2015 OSIM inspections were completed. For reference, photos from the March 12th, 2018 inspection are included in Appendix 'A'.

Based on the site observations, and upon comparing the observations to the 2013 and 2015 OSIM reports, we feel that the deformation on the obvert and below the obvert position on the south wall of the structure and the severe springline cracking are of significant structural concern. We recommend that the structure be closed to all traffic until an appropriate replacement strategy is designed and implemented.

We trust that the above information addresses your concerns regarding the condition of Structure No. 1056 on Mollard Line. If you require further information or have any questions, please do not hesitate to contact us.

All of which is respectfully submitted,

GM BLUEPLAN ENGINEERING LIMITED

Per:

A handwritten signature in blue ink, appearing to read 'Brad Bunke'.

Brad Bunke, P. Eng.



Appendix 'A' - Existing Conditions Photos





Plan view, facing south



East end of structure, facing west



West end of structure, facing east



Crack reinforcement along south side of structure



Cracking at springline along south side of structure



Timber bracing displaying cracking/splitting