



TOWN OF MINTO

DATE: October 31, 2018

REPORT TO: Mayor and Council

FROM: Mike McIsaac, Roads & Drainage Manager

SUBJECT: Brunswick St Structure N, Palmerston

STRATEGIC PLAN:

11.3 Develop a transportation plan that includes a roads and bridges inventory and capital replacement program keeping in mind sustainable funding sources, impact on tax rate, and minimum construction and maintenance standards.

BACKGROUND

March 20, 2018 Council made the follow motion regarding Structure N on Brunswick St in Palmerston.

THAT Council of the Town of Minto receives the Road Foreman's report dated March 12, 2018 Bridge and Culvert Biennial Inspection and directs staff to have the Brunswick St culvert in Palmerston inspected every six months to monitor the rate of deterioration and that \$600,000 for the culvert replacement be identified separately in the five year project plan for 2022.

The location of Structure N is shown in the adjacent map. As a result of a follow up inspection by Burgess Engineering, the attached letter was received recommending immediate closure of Structure N as advancing deterioration has placed its structural integrity in question.

The map shows alternate access routes are available to area residential properties by way of Lett and Nelson Streets to Wellington Rd 5 (Whites Rd). At this time there are no known issues or construction projects scheduled with the structure on Whites Rd (Yellow Star) that will impact traffic flow or access for



emergency services during this closure. The closure is a minor inconvenience to area residents who have to travel an extra block to go downtown. The bridge is open for pedestrians. The pictures below document its condition in spring 2017.





COMMENTS:

Staff closed Structure N October 31, 2018 upon receiving the recommendation from Burgess Engineering Inc. June 23, 2017 and February 20, 2018 flooding has been hard on this structure. Current approximate limits of deterioration at the headwalls are shown in red.



Prior to replacing structure, water and wastewater infrastructure needs require consideration so they are not impacted for future development. The project indirectly links in to the West Palmerston Master Plan work currently underway as the sewage lift station to remove 19 homes from individual pumping systems would be nearby Structure N.

FINANCIAL CONSIDERATIONS:

Council may recall the Town had applied twice for grants to replace Structure N, install the sewage lift station, and other infrastructure upgrades. The estimated cost of that larger project exceeded \$2 million. Depending on design and width replacement cost should be under \$500,000. The culvert will be identified in the Five Year Project Plan presented at Budget 2019.

RECOMMENDATION:

That Council receives the Roads and Drainage Manager's report dated October 31, 2018 Brunswick St Structure N, Palmerston and directs that Structure N, on Brunswick St in Palmerston remain closed until budget for a replacement structure is approved.

Mike McIsaac, Roads & Drainage Manager



October 31, 2018

Mike McIsaac
Public Works,
Road Foreman & Drainage Superintendant
Town of Minto

Re: Bridge N, Brunswick St. Drain

Dear Mike,

Based on our recent field review in follow up to our letter dated March 8, 2018 we offer the following summary.

As previously noted the exterior sections (inlet/outlet) of this culvert have advanced concrete deterioration. Basically the concrete is disintegrating back into gravel. The concern is when this deterioration/breakdown advances into the inner barrel regions. In addition when this process of deterioration is this advanced the further rate of breakdown increases.

Based on our recent inspection we noted that further deterioration and propagation of this deterioration has advanced into the inner barrel region. We are at the point where the structural integrity of this culvert is in question and we recommend closure. The existing culvert could be replaced with a pre-cast box or open footing rigid frame if this road is to be opened in the future.

Let me know if you require any clarifications.

Yours truly,

A handwritten signature in blue ink, appearing to read "A. Burgess", is written over a circular blue ink stamp.

Andrew D. Burgess, P.Eng
President
ADE/bb

Burgess Engineering Inc., Consulting Engineers
137 Lake Street, Grimsby, ON, L3M-4M6 (905) 741-5427
Email: bei@mailburgesseng.com



March 8, 2018

Mike McIsaac
Public Works,
Road Foreman & Drainage Superintendant
Town of Minto

Re: Bridge N, Brunswick St. Drain, Sub-structure Flood Review

Dear Mike,

Based on our field review of the above captioned site on Wednesday March 7th we offer the following summary.

This concrete box culvert (non-rigid) is in poor condition. The top slab has advanced concrete deterioration (break-down) at both the inlet and outlet. This deterioration is advancing inward and starting to affect the inner barrel. In addition the walls are rotating inward due to soil pressure and insufficient rigidity of the connection to the top slab.

This structure is exposed to fast water flows. The existing embankment protection is comprised of various concrete sections and is slightly undermined at the inlet.

Currently there is no sign of critical structural distress. However due to the advanced state of deterioration, wall inward movement, and fast water flows, we recommend this culvert be inspected every 6 months until replaced or closed.

Let me know if you require any clarifications.

Yours truly,

A handwritten signature in blue ink, appearing to read "ADB", is written over a faint, circular blue ink stamp.

Andrew D. Burgess, P.Eng
President
ADB/mb

Burgess Engineering Inc., Consulting Engineers
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