J+B ENGINEERING INC.
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Memorandum

Date: July 29, 2024

To: Paul Walsh, Municipality of Brighton – Director of Planning and Development

From: James Sam, P.Eng – Senior Project Manager

RE: **214 Ontario Street, Brighton, ON**
Draft Ditch Analysis for Discussion

EXISTING CONDITIONS

1. J+B was retained by the ownership group "Tomba Enterprises Ltd." as the civil consultant for the proposed development.
2. The existing study area is currently undeveloped and being utilized for agricultural purposes with an existing greenhouse.
3. The existing drainage sheet flows in the south-westerly direction onto adjacent property and eventually into conservation area and ultimately into the existing watercourse feature which outlets into Lake Ontario.
4. Due to the uncertainty and timeline of future development for the adjacent neighbor, we are proposing to discharge storm water onto Ontario Street road side ditch
5. Based on discussions with the impacted stakeholders, we are proposing to discharge approx 50% of the subject development into Ontario Street roadside ditch. The purpose of this memorandum is to confirm the existing roadside ditch has sufficient capacity to accept the flows from this future development.
6. The existing ditch has a slope of 0.7% and has a bank height of 0.75 (min.) above the bottom of the ditch. Refer to appendix for existing cross-section of the ditch.

DITCH ANALYSIS

1. A ditch analysis was done on the ditch located on the westerly side of Ontario St. running from Raglan St. to Presquile Gate. The goal of the analysis is to see if the ditch could convey the increased drainage coming from the proposed development on 214 Ontario Street in a 10 year event without overflowing its banks on to Ontario Street.
2. Assuming that the ditch takes drainage from the east half of the new development, half of Ontario Street and from adjacent properties to the north, an analysis was done to find the drainage areas and runoff coefficients as can be seen from drawing P-306: *Ditch Analysis* located in the appendix.

3. The areas were then used to calculate the runoff quantity as per the rational method. The calculations are shown below:

Ditch Analysis

half of site entering ditch	
area (ha)	1.18
C	0.5

full area(m2)	25005.41
full area(ha)	2.50
C	0.54

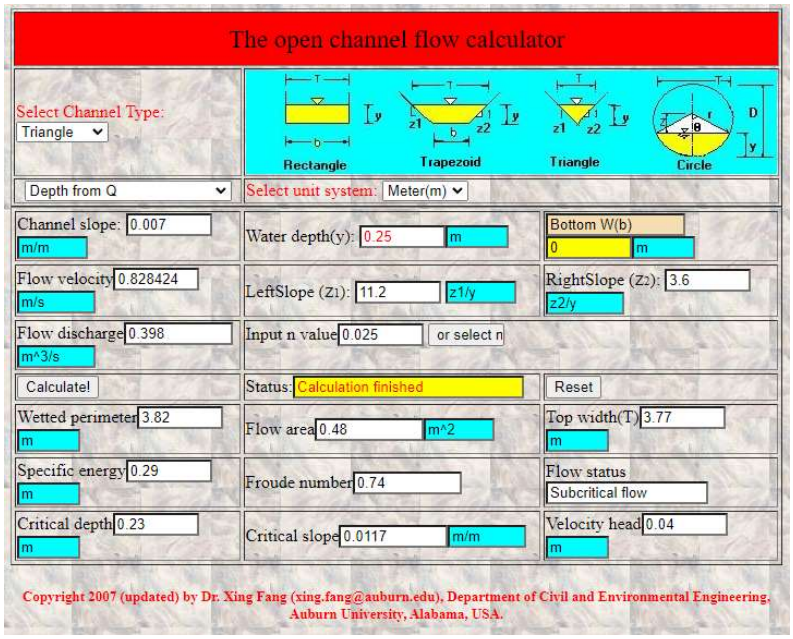
road entering ditch	
area (ha)	0.28
c	0.9

time of concentration	10

Private Properties	
area (ha)	1.04
c	0.5

Storm Event	Rainfall Intensity (mm/hr)				Flow (m3/s)
	a	b	c	I	
10-Year	2470.0	0.000	13.500	105.11	0.398
100-Year	3620.0	0.000	14.700	146.56	0.555

4. The flow rate was then taken and plugged into an open channel flow calculator to determine the height that the water would reach within the ditch. The results are shown below. As the calculations show, the height of the water within the ditch during a 10 year event, would reach 0.22m which is lower than the bank height of 0.75. Please see drawing P-306 in the appendix for a cross section of the ditch and water line



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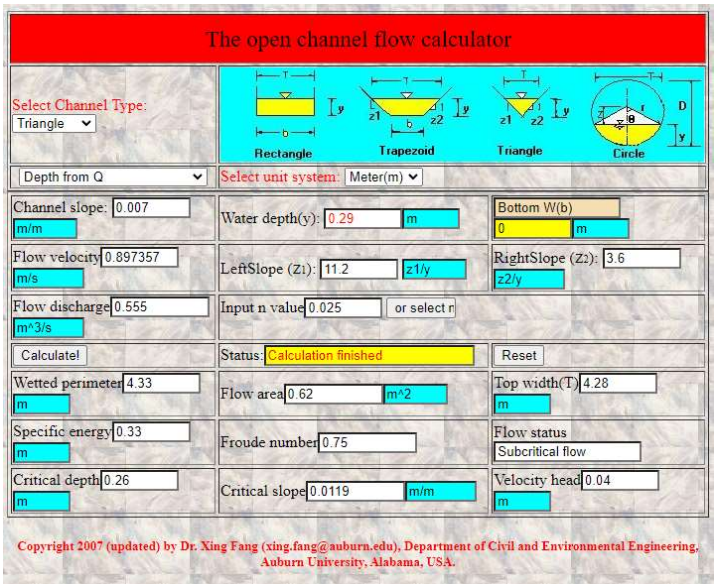
5. During a 100 year even the depth of the water within the ditch would reach 0.29m as shown below:



CONCLUSION

1. Based on the shown calculations the flow within the ditch will not overflow its banks in a 10 year storm event nor an 100-year event. The existing roadside ditch will have sufficient capacity to accept the flows from the proposed development.