

January 31, 2024

**FLOODPLAIN & EROSION ANALYSIS**  
**2255718 ONTARIO INC. – OWNER**  
**621 DUNDAS STREET EAST, BELLEVILLE (Former Bakelite Property)**

A Function Servicing Report dated January 24th, 2024 was prepared for the subject property in support of an Applications for Draft Plan of Subdivision Approval and Zoning By-Law Amendment.

To clarify the information in the Functional Servicing Report and address a Floodplain & Erosion Analysis, we confirm the development of the property is setback from the limits of the Floodplain for the Bay of Quinte based on a Flood Elevation of 76.1.

There is overland runoff during a 100-year storm event coming south along Haig Road and will be continuing along the proposed road network before discharging through the wetland into the bay of Quinte.

A Vegetated Spreader Berm will also be constructed to disperse runoff into the wetland area.

The depth of flow over the vegetated spreader berm will range from 24mm to 38m and velocities of 0.26 m/s to 0.33 m/s being less than 0.5m/s which is considered acceptable for flow in grass swales.

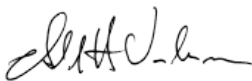
A copy of Table 3 from the Functional Servicing Report and Drawing Dun/621-St4 are attached for reference to the location of the various Vegetated Spreader Berms being proposed.

For your information, Stormwater quality treatment units are also being installed to ensure 80% removal of Total Suspended Solids during the Quality Storm Event.

In our opinion the runoff during 100-year storm events will be managed within the road allowance and erosion measures are in place for during construction and after development of the property.

Yours Truly,

**van MEER limited**



Arnold H. Vandermeer, P.Eng  
Pres.

AHV/  
Attach:



**Vegetated Spreader Berm Weir Flow**

MOE SWM Planning & Design Manual Equation 4.4: Weir Flow					
$Q = aLH^{1.5}$					
<b>Spreader Berm Filter Strip Outlet Weir (Subcatchment 100 to 600)</b>					
	<u>5<sub>yr</sub></u>		<u>100<sub>yr</sub></u>		
100-year Peak Flow			1.87		
Less 5-year Outlet to Bay (ST-A4 to Outlet)			0.67		
Less 5-year to SQU-600 to Outlet			0.16		
Q =	0.67	m <sup>3</sup> /s	1.05	m <sup>3</sup> /s	Flow Volume
a =	1.67		1.67		Broad Crested Weir Coefficient
L =	170	m	170	m	
H =	17.6	mm	23.9	mm	Flow Depth (max)
V =	0.22	m/s	0.26	m/s	Velocity

<b>Spreader Berm Filter Strip Outlet Weir (Subcatchment 600 / SQU 600)</b>					
	<u>5<sub>yr</sub></u>		<u>100<sub>yr</sub></u>		
Q =	0.16	m <sup>3</sup> /s	100 <sub>yr</sub> Overland Flow to Spreader Berm Filter Strip 100		
a =	1.67				
L =	40	m			
H =	17.7	mm			
V =	0.22	m/s			

<b>Spreader Berm Filter Strip Outlet Weir (Subcatchment 700 / SQU 700)</b>					
	<u>5<sub>yr</sub></u>		<u>100<sub>yr</sub></u>		
Q =	0.1940	m <sup>3</sup> /s	0.3957	m <sup>3</sup> /s	Flow Volume
a =	1.67		1.67		Broad Crested Weir Coefficient
L =	32	m	32	m	
H =	23.6	mm	38.0	mm	Flow Height (max)
V =	0.26	m/s	0.33	m/s	Velocity

<b>Spreader Berm Filter Strip Outlet Weir (Subcatchment 800 / Spreader Berm Filter Strip 800)</b>					
	<u>5<sub>yr</sub></u>		<u>100<sub>yr</sub></u>		
Q =	0.179	m <sup>3</sup> /s	0.37	m <sup>3</sup> /s	Flow Volume
a =	1.67		1.67		Broad Crested Weir Coefficient
L =	30	m	30	m	
H =	23.4	mm	37.6	mm	Flow Height (max)
V =	0.26	m/s	0.32	m/s	Velocity

**Table 3 - VEGETATED SPREADER BERM WEIR FLOW (Berm Nos. 100, 600, 700 and 800)**

During a major storm event, the depth of flow over the Vegetated Spreader Berm will range from only 24mm to 38mm with velocities ranging from 0.26m/s to 0.33m/s; being less than 0.5m/s which is considered acceptable for flow in a grassed swale.

The SWM facilities in conjunction with lot level controls, sedimentation and erosion control practices during construction of the roads and services, as well as the dwellings, will provide protection to the Bay of Quinte. The placement of the Vegetated Spreader Berms has also been shown on the Engineering Drawings.



NO.	DATE	DESCRIPTION
1	08/11/2014	ISSUED FOR PERMIT
2	08/11/2014	ISSUED FOR PERMIT
3	08/11/2014	ISSUED FOR PERMIT
4	08/11/2014	ISSUED FOR PERMIT
5	08/11/2014	ISSUED FOR PERMIT
6	08/11/2014	ISSUED FOR PERMIT
7	08/11/2014	ISSUED FOR PERMIT
8	08/11/2014	ISSUED FOR PERMIT
9	08/11/2014	ISSUED FOR PERMIT
10	08/11/2014	ISSUED FOR PERMIT

