
MEMORANDUM

DATE: 2017-09-01

EMAIL

TO: City of Ottawa IAD Review Officer

SUBJECT: Proposed Amendment to 1450 and 1454 Merivale Road
Functional Servicing Report – Submission # 2

OUR FILE: DSEL Project No.17-914

ATTACHMENTS:

- Approved Site Plan by Scoler Lee and Associates Architects Inc., dated May 22, 2014
- Revised Site Plan by Fotenn Planning and Design, dated August 29, 2017
- Water Boundary Conditions received April 24, 2014
- Water Demand Proposed Conditions – prepared by DSEL dated February 3, 2014
- Water Demand Proposed Conditions – prepared by DSEL dated April 17, 2017
- FUS Calculations – prepared by DSEL dated August 15, 2014
- FUS Calculations – prepared by DSEL dated April 17, 2017
- Sanitary Discharge Proposed Conditions – prepared by DSEL dated February 3, 2014
- Sanitary Discharge Proposed Conditions – prepared by DSEL, dated April 17, 2017
- Previously Approved Stormwater Management Plan Drawing SWM-2 – prepared by DSEL dated November 24, 2014
- Stormwater Management Calculations – prepared by DSEL, dated January 12, 2014
- Stormwater Management Plan Drawing SWM-1 and SWM-2 – prepared by DSEL dated September 1, 2017
- Stormwater Management Calculations – prepared by DSEL, dated September 1, 2017.

First Capital Assessment Management ULC has retained DSEL to prepare an addendum to support proposed changes to the approved site plan (**September 2014 Plan**) for 1450 and 1454

Merivale Road. The following memo describes how the revised site plan prepared by Fotenn Planning and Design (**September 2017 Plan**) will impact the servicing discussed in the approved Functional Servicing and Stormwater Management Report for 1450 and 1454 Merivale Road prepared by DSEL, November 2014, Revision 4 (**November 2014 FSR**).

Please refer to attachments for the approved and revised site plan.

Existing conditions (**EX-1**), grading (**GP-1**), servicing (**SSP-1**), stormwater management plan (**SWM-1** and **SWM-2**) and erosion control (**EC-1**) plans prepared by DSEL, revision 10, dated September 24, 2014, have been previously approved by the City of Ottawa. The following memo is accompanied by a revised drawing package, dated September 1, 2017.

The revised **September 2017 Plan** includes the development of a **202.3m²** A&W Restaurant and associated parking and drive thru, which was previously described as a **418.0m²** commercial building in the **September 2014 Plan**.

Water Supply Servicing

The A&W will be serviced by an existing 50mm water service connecting to the private 150mm watermain.

Water demand for the **September 2014 Plan** and **September 2017 Plan**, as well as boundary conditions are summarized in **Table 1** below for Phase 1.

Table 1: Water Demand and Boundary Conditions

Design Parameter	September 2014 Anticipated Demand ¹ (L/min)	September 2017 Anticipated Demand ¹ (L/min)	Boundary Condition (H ₂ O / kPa)	
Average Daily Demand	1.4	1.0	71.7	703.4
Max Day + Fire Flow	Flow rate @ 20 PSI	1.5	18,000 L/min	
Peak Hour	3.7	2.7	58.1	570.0
1) Water demand calculation per Water Supply Guidelines . See attachments for detailed calculations.				

Required fire flow for the A&W was estimated using the Fire Underwriter Survey at **3,000 L/min**. See calculations of water demand and fire protection in the attachments. Fire protection for the proposed building will be provided by the existing hydrant at the east corner of the intersection of Burris Lane and Merivale Road. Based on the available fire flow at 140 kPa of **18,000 L/min**, there is sufficient flow to provide fire protection for the proposed building.

Wastewater Servicing

Sanitary servicing will be achieved by an existing 200mm sanitary that conveys flows to the 200mm sanitary sewer within Merivale Road.

Table 2 below summarizes the sanitary discharge to Merivale Road from the previously approved plan and the updated site plan.

Table 2: Anticipated Wastewater Discharge to Merivale Road

Design Parameter	September 2014 Sanitary Discharge (L/s)	September 2017 Sanitary Discharge (L/s)
Average Dry Weather Flow Rate	0.09	0.16
Peak Dry Weather Flow Rate	0.14	0.24
Peak Wet Weather Flow Rate	0.14	0.24

The proposed development contemplates a **0.1 L/s** increase in wastewater discharge to the Merivale Road sanitary sewer compared to the previously approved report. It is anticipated this small increase will not have adverse impacts to the existing sanitary sewer capacity.

Stormwater Management

The stormwater management plan is consistent with the previously approved report, including rooftop, surface and underground storage. A reduction in sheet flow from the subject property is proposed as well as maintaining the external area runoff. Due to existing constraints, the City of Ottawa previously approved an increased release rate of **6.5 L/s** greater than the target. There is a high HGL within the receiving system constraining where subsurface storage can be placed. The storage was maximized on-site, however, was still not sufficient to meet the target release rate.

Table 3 summarizes the anticipated release rates and on-site storage from the **November 2014 FSR**.

Table 3 – Summary of Anticipated Peak Storm Flow Rates in September 2014

Control Area	2-Year Release Rate (L/s)	2-Year Storage (m ³)	100-Year Release Rate (L/s)	100-Year Storage (m ³)
Sheet Flow	24.7	0.0	71.9	0.0
Internal Area to Sewers	26.0	24.1	43.3	71.6
External	8.1	0.0	20.8	0.0
Total	58.8	24.1	136.0	71.6

Table 4 summarizes the anticipated release rates and on-site storage for the **September 2017** Plan.

Table 4 – Summary of Anticipated Peak Storm Flow Rates in September 2017

Control Area	Area (Ha)	Area ID	2-Year Release Rate (L/s)	2-Year Storage (m ³)	100-Year Release Rate (L/s)	100-Year Storage (m ³)
Sheet Flow	0.18	S1	24.6	0.0	71.6	0.0
Internal Area to Sewers	0.30	A1, A2, A3	22.8	24.0	43.0	76.3
External	0.35	EX1, EX2	8.1	0.0	20.8	0.0
Total	0.83	-	55.5	24.2	135.5	76.3

The updated stormwater management plan meets the increased allowable release rate determined in the previous report. The total sheet drainage remains less than the existing sheet drainage within the limit of construction. Approximately **76.3m³** of storage is required during the 100-year storm event.

See the **Appendix** for the stormwater calculation sheets supporting the proposed stormwater management plan and for correspondence from the City of Ottawa. Please note that the storm sewers located downstream of inlet control devices are sized for the controlled flow in the 100-year storm event.

We trust that the above will be sufficient to support an amendment to the previously approved stormwater management plan and allow the proposed development to proceed. Please contact the undersigned if you have any questions.

Yours truly,
David Schaeffer Engineering Ltd.

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JOB # 17-914

Per: Steven L. Merrick, P.Eng.

Per: Adam D. Fobert, P.Eng.