
MEMORANDUM

DATE: September 26, 2018

TO: **City of Ottawa**
110 Laurier Avenue

Attention: Shoma Murshid

SUBJECT: Mattamy Homes
Summerside West – Phase 4, 5 and 6
Alternative Servicing Approaches

OUR FILE: 15-766 A-7

As previously discussed, several options were investigated for storm servicing of SS West Phase 4. This memo provides additional support to describe the options that have been explored. The following options were considered:

1. Oil and grit separator (OGS);
2. Independent SWM pond;
3. SWM pond expansion not encroaching on McKinnon's Creek; and
4. SWM pond expansion per MSS encroaching on McKinnon's Creek

OIL AND GRIT SEPARATOR OPTION

Option 1: Oil and Grit Separator

The potential to use an OGS for Phase 4 was investigated in conjunction with a pond expansion as the OGS will only provide quality control, while quantity control is also required. The parameters used are presented in the following table and are based on the Mer Bleue MSS.

Subject lands	Total treatment area (per MSS)	C-Value	2-year release rate based on pre-development flow	100-year storage required
Tenth Line & Claridge	7.8 ha	0.78	260 L/s	3,430 m ³
SS West Ph4	13.1 ha	0.68	437 L/s	2,470 m ³
Total	20.9 ha		697 L/s	5,900 m³

To confirm whether adequate storage is available, the proposed pond expansion block was used. The area is 1.8 ha with the bottom of the pond expansion at 87.87 m and a depth of 0.60 m during the 100-year storm. The available volume is 11,286 m³ without impacting McKinnon's Creek.

The proposed OGS discharge location at McKinnon's Creek is at an elevation of 82.80 m and the maximum pipe size is 1800 mm per the MSS. The minimum obvert of the pipe is pond permanent pool of 83.15 m + 1.8 m = 84.95 m.

It is estimated that there is a 0.40 m head loss through the OGS unit, assuming that the outlet is not submerged. The minimum centerline of road grade in SS West Phase 4 is 87.29 m with full basements as shown on the attached figure for Option 1.

The resulting centerline of road grades from this option will be higher than the design grades proposed in the MSS.

This option was not carried through further due to the additional grade beyond the MSS levels that would be required on site due to the estimated headlosses on the OGS. The site is subject to grade raise constraints and the design is required to be kept as low as possible. In addition, a pond would be required in conjunction with the OGS as quantity control would need to be provided.

POND OPTIONS

For the following pond options, further information is presented in the attached **Summerside West Phase 4 / Comparison of 100-Year Maximum Water Levels in the Avalon West Stormwater Management Pond** (Water Level Comparison) by J.F. Sabourin and Associates dated September 26, 2018. The memo provides a summary of the maximum water levels in the Avalon West SWM Pond during the 100-Year 24-Hour SCS Type II design storm, as reported over the history of the pond design.

Option 2: Independent SWM Pond

Please refer to attached Figure 8A, which shows the conceptual independent SWM pond design. Although this pond could be functional for Phase 4, it does not provide any opportunity to improve conditions for the existing Avalon West SWM Facility. As reported in the JFSA Water Level Memo, the maximum 100-year pond level is 84.50 m based on the September

2018 Existing SWM Facility Modelling. Please refer to the JFSA Water Level memo for a complete history and status of the pond modelling.

Option 3: SWM Pond Expansion

Please refer to attached Figure 8, which shows the conceptual SWM pond expansion, which does not encroach onto McKinnon's Creek. This option is preferable because it provides 20,000 m³ of additional storage and provides opportunities to improve conditions for the Avalon West SWM Facility. This pond is designed such that it could be modified in the future to a larger pond expansion, per the MSS, once the McKinnon's Creek project is approved. This option provides an improvement to existing conditions and could provide further improvement in the future. As reported in the JFSA Water Level Memo, the maximum 100-year pond level is 84.47 m.

Option 4: Ultimate SWM Pond Expansion

Please refer to the attached sketch, which shows the conceptual SWM pond expansion per the Mer Bleue MSS, which encroaches on a portion of McKinnon's Creek. Although this is a reasonable long term solution, the encroachment presents an issue for servicing of Phase 4 due to timing. Modifications to McKinnon's Creek will be undertaken though the detailed design, of which a draft Terms of Reference has been submitted to start the discussions with the various agencies and stakeholders. As reported in the JFSA Water Level Memo, the maximum 100-year pond level is 84.35 m.

Yours truly,
David Schaeffer Engineering Ltd.

Per: Jennifer Ailey, P. Eng

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