



December 20, 2024

Project No.: 24-019

2601370 Ontario Inc.
6345 Disputed Road
LaSalle ON
N9H 1X6

Attention: Dr. Mohamed Tabib

Re: Riverview Subdivision
Impact Assessment Supporting Redline Amendment

Dear Mohamed:

We submit this letter summarizing our impact assessment of the proposed redline amendment as it relates to municipal services (i.e., sanitary sewer, storm sewer and watermain) as well as stormwater management (SWM) for the subject development.

Overview

The proposed Riverview Subdivision is located in the Town of Amherstburg, on the east side of Front Road, immediately north of Thrasher Drive – which is approximately 2.1 kilometres south of River Canard. The approved design, prepared by Baird AE Inc. (hereafter: Baird), was based on a Draft Plan of Subdivision (DPS) that included 37 single family lots.

The foregoing DPS is attached in Appendix A with redline revisions depicting the proposed change from 37 single family lots to 44 single family lots. This change does not have any adverse impacts to the approved design of municipal services and SWM. Supporting analysis and discussion is presented in the remainder of this letter.

Sanitary Sewer Design

The approved design prepared by Baird estimated a total population of 134 people. The revised DPS would add 25 people (i.e., 7 additional units x 3.5 people per unit). It should be noted that the approved design accounted for four (4) lots along Front Road (i.e., Baird's sanitary drainage area A5) whereas there are only three (3) lots and 11 people rather than 14. In summary, the revised total population is 156 people.

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Appendix B includes a preliminary sanitary sewer design sheet prepared by Landmark comparing the approved design to the revised design. As shown, the increase in sanitary flow is 0.46 Litres per second (L/s) – representing a 12% increase. The design sheet also shows that the immediate receiver (i.e., the existing 200mm dia. sanitary sewer along Front Road) is at 22% of full capacity under the approved design and is increased by 3% to 25% of full capacity as a result of the revised lot plan. Thus, the revised plan has a negligible impact on the proposed new sanitary sewer design as well as the immediate receiver.

Watermain

The revised plan would increase domestic water demand by 0.54 L/s based on the following parameters:

- Average Flow = 450 L/cap/day
- Additional Population = 25 people
- Peak Rate Factor = 4.13

The approved design prepared by Baird consists of a 150mm dia. watermain of approximately 360m length from Front Road to the Street A cul-de-sac. Over this length, we estimate that the additional water flow of 0.54 L/s would yield a 0.063 kPA (0.009 psi) pressure loss. Thus, the revised plan has a negligible impact on the watermain.

Storm Sewer Design

The approved design prepared by Baird allocated an imperviousness of 60% for single family residential. The revised plan is increasing the number of lots, however the proportional lot coverage and imperviousness is expected to remain at 60%. That being said, the storm sewer layout is proposed to be revised as follows:

- New easement to accommodate the stormwater pond outlet between revised Lots 41 and 42. This easement is included with the pond area as revised Block 6.
- Revised Lots 42 to 44 drain direct to Higgs Drain (i.e., not conveyed to stormwater pond).
- The storm sewer network is modified to convey flows to the pond via a single inlet sewer between revised Lots 36 and 37.
- The residential storm sewer design excludes flows from agricultural lands. While the agricultural lands require drainage, the peak flow from these lands would be relatively small and delayed (i.e., occurring well after the peak flows from the residential development). Drainage of these lands should not be combined with residential storm sewer design.

Appendix C includes a storm sewer design sheet as well as Figure C1 depicting the revised storm sewer layout. The agricultural lands can be drained by 200mm dia. perforated pipe, which is sized to drain 108 mm of rainfall (i.e., 100-year 24-hour storm) within 24 hours. Swales would still be necessary to direct major flows that cannot be contained within the subject agricultural lands.

Stormwater Management Design

The revised storm sewer layout and revised low flow berm configuration changes the SWM design details, however the approved SWM block and pond surface area remains appropriately sized to address stormwater management requirements. Details of the functional level revised design are summarized in Appendix D. As an overview, **Table 1** below provides a comparison of pond water levels for the approved design and revised design.

Table 1 – Pond Water Levels

Storm	Distribution	Approved Design	Revised Design
		m	m
WQS	Chicago	176.79	176.74
5-year 4-hour	Chicago	177.28	176.91
100-year 4-hour	Chicago	178.18	177.77
100-year 24-hour	SCS	178.12	177.82
Stress Test	Chicago	178.62	177.92
Stress Test - No Outflow	Chicago	-	178.49

Regarding major storm conveyance, our modelling confirms that the surcharged storm sewer network can convey a large portion of the major storm runoff and that excess runoff can be conveyed to the pond via overland routing from the roadway towards swales in easements connecting the roadway to the pond – see Figure C1 depicting overland routes.

Closing

I trust that the foregoing demonstrates that: the proposed redline revisions do not have any adverse impacts to the sanitary sewer and watermain designs; and, the revisions to the DPS allow for a more efficient storm sewer layout and storm pond outlet.

Respectfully,

Landmark Engineers Inc.

Alain Michaud, P.Eng.

Attachments:

- Appendix A – Redline Revisions to Approved Draft Plan of Subdivision
- Appendix B – Sanitary Sewer Design
- Appendix C – Storm Sewer Design
- Appendix D – Stormwater Management Design