APPENDIX C

EXISTING SANITARY SEWER AND
SERVICED AREA

MEMORANDUM

To: The Town of Blue Mountains

From: Jamie Witherspoon, P.Eng.

Date: October 25, 2022

Re: 21-2061 – Long Point Road Sanitary Sewer and Craigleith Wastewater Treatment Plant Upgrades Municipal Class – Existing Sanitary Sewer and Serviced Area

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The following memorandum is intended to be an interim update to review the available background information for the Long Point Road sanitary sewer and Craigleith Wastewater Treatment Plant Upgrades Municipal Class EA. This information will be integrated into the final project report.

1 BACKGROUND

1.1 Project Scope

The Town of The Blue Mountains has initiated a Municipal Class Environmental Assessment to evaluate and select the preferred solution to address the need for the extension of a gravity sewer and associated sewage lift station, at the Town's Craigleith Wastewater Treatment Plant (WWTP). The proposed work will include the following:

- Extending the sewage collection system from the existing gravity sewer on the southern boundary of the intersection of Grey Road 21 and Highway 26 north.
- Development of solutions for a new lift station to raise the wastewater from the new sanitary sewer into the treatment plant.
- Developing solutions for the relocation of the septage and leachate receiving station from its current location on Lakeshore Road to the WWTP site.
- Design of all facilities to accommodate imminent near-term and build out needs.

The preferred solution will be selected in consultation with regulatory agencies and the public to allow for the Town to proceed to implementation with a clearly identified scope, cost and risk in order to maximize value for the system.

1.2 Existing Sanitary Sewer

In 2012, a trunk sanitary sewer was designed along Grey Road 21 to collect and convey wastewater from existing and proposed development lands located within the Town and upstream of Grey Road 21. Although the trunk sewer was originally designed with the intent to be extended from Highway 26 south to Osler Bluff and Castle Glen development, in 2012 just 2.5 km of the trunk sewer was completed, providing service to the Mountain House and Windfall development. While the trunk sewer was designed to accommodate a total of 4,622 residential units, currently, there are approximately 400 units served by the trunk sewer.

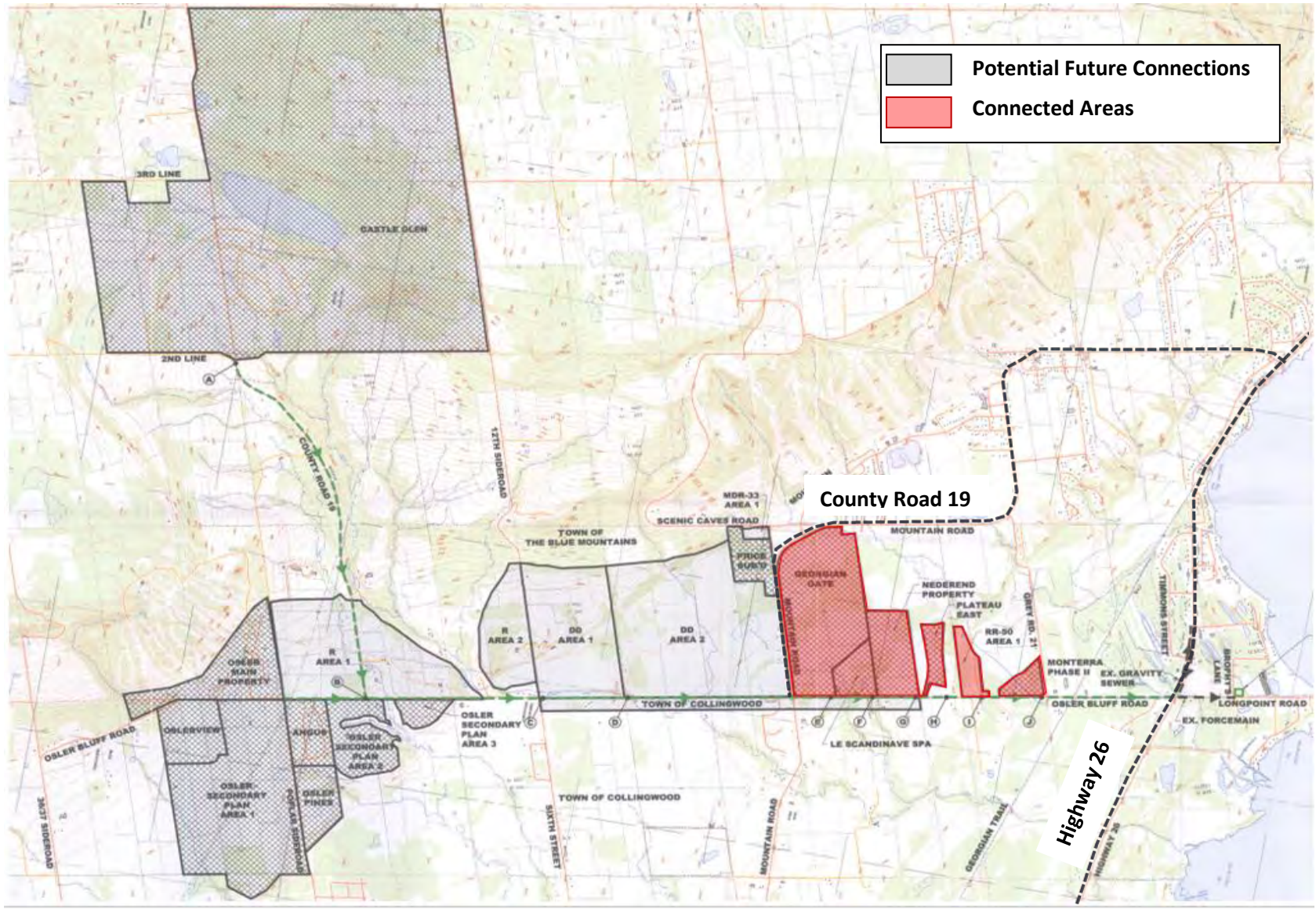

Figure 1 - Map of the Trunk Sewer from Castle Glen to the Highway 26. Current connected areas (red) and Potential areas to be connected (grey)

In Figure 1, a map of the trunk sewer is provided. The sanitary sewer starts as a 450mm near County Road 19 and increases to a 525mm sewer at the corner of County Road 21 and Highway 26. As showed in Figure 2, the sanitary sewer then decreases to 300mm and extends west to the existing Craigleith Sewage Lift Station prior to being pumped to the Craigleith WWTP via dual force mains.

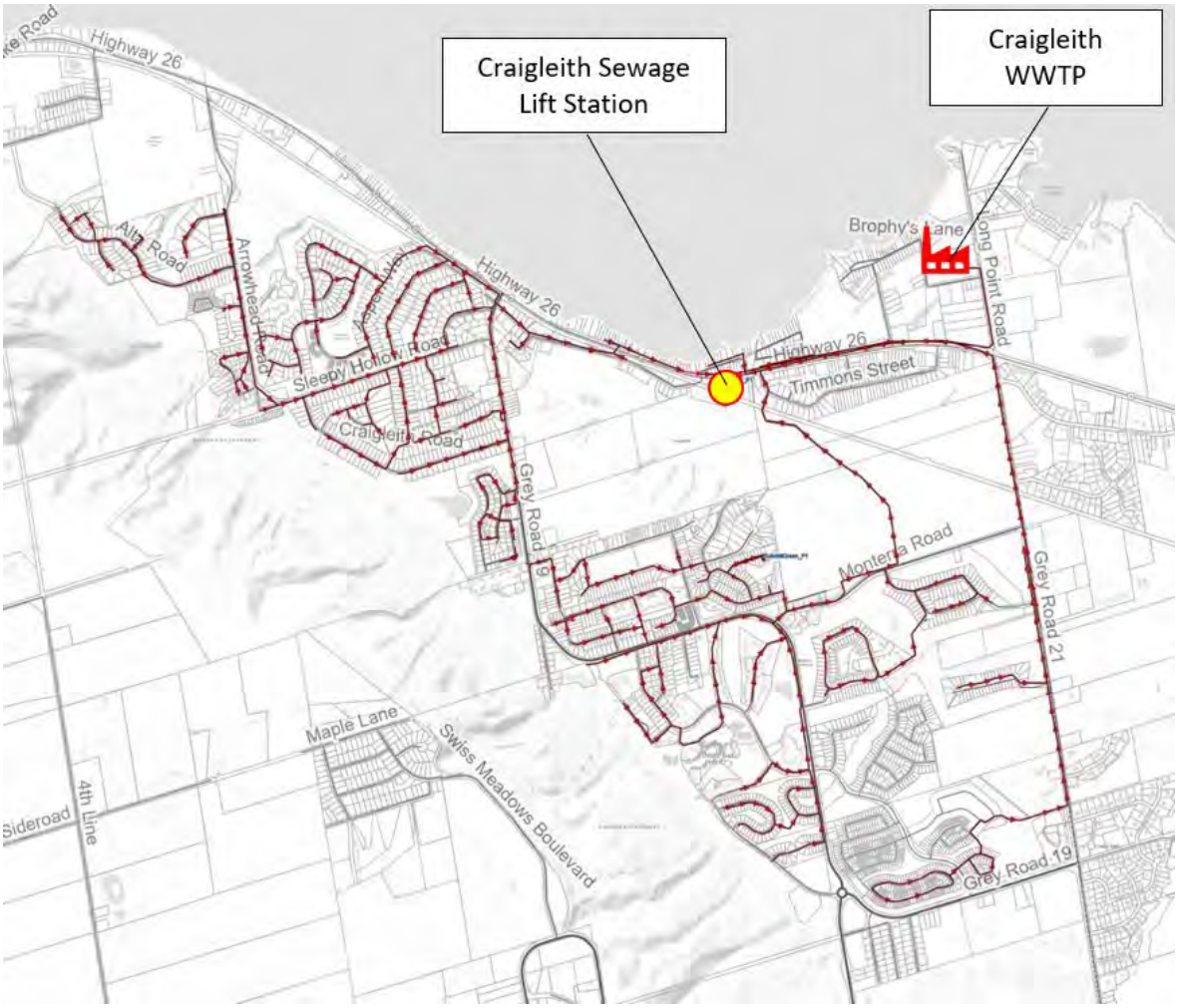

Figure 2 - Map of the Sanitary Sewer extending west to the Trunk Sewer

2 DESIGN CRITERIA

An essential element in the design of sanitary sewer infrastructure is the consideration of initial flow and subsequent build-up of flow with time. According to the Town of Blue Mountain Engineering Standards (2009), to estimate current and future flow, the following design criteria have been used:

- Average Residential Flow for current population = 280 Lpcd
- Average Residential Flow for future population = 450 Lpcd
- Average Persons per Dwelling = 2.3 person/unit
- Peaking Factor: Harmon formula
- Peak Extraneous Flow = 0.23 L/s/ha
- Sanitary Loading Condition: Peak Domestic Flow plus I&I

The section below identifies current and future sanitary flows generated by the existing and proposed connections along the trunk sewer.

2.1 Current Trunk Sewer Capacity

Currently, the contributing area of the trunk sewer is limited to Plateau East, Windfall/Mountain House, and few units from the Town of Collingwood. In particular, the following units have been identified:

- 358 units in Windfall/Mountain House
- 39 units in Plateau East
- 20 units from the Town of Collingwood

Therefore, the trunk sewer serves 417 units and 959 residents, resulting in a peak flow of 19 L/s along Grey Road 21. It must be noted that the number of units within the drainage area was determined through a review of aerial photography and background material while the population was estimated by multiplying the units counted and the model person per unit value of 2.13.

As the trunk sewer was designed to service 4,622 units, the sanitary sewer did not report any capacity constraints.

2.2 Future Growth

The trunk sewer along Grey Road 21 has been designed to convey flow from 4,622 units, which would equate to about 290 L/s of sewage peak flow to be conveyed.

To date, several development applications have been identified within the area serviced by the trunk sewer. In particular:

- Windfall Development: 659 new units
- Blue Vista Development: 180 new units
- Monterra Phase 2: 32 new units

Due to the aforementioned development applications, a total of 871 new units will be serviced by the trunk sewer in the near future. The new development applications will generate additional sewage flow, increasing peak flow wastewater production from 19 L/s to 45 L/s. This would equate to reach approximately 21% of the total trunk sewer capacity.

3 CONCLUSIONS AND RECOMMENDATIONS

The Town's sanitary sewer collection and pumping infrastructure within the Craigleith area requires upgrades and enhancements to meet the projected demands of growth in a sustainable manner. In this memo, the wastewater produced by the area serviced by the trunk sewer was quantified and the capacity of the trunk sewer under current and future development was assessed.

The main findings of this study are listed as follows:

- Currently, approximately 417 units and 959 residents are serviced by the trunk sewer, resulting in 19 L/s of wastewater produced and collected by the sewer.
- Several development applications have been identified, which will result in additional 871 new units and 2,003 new residents serviced by the trunk sewer in the near future. This will increase peak wastewater flow up to 45 L/s.
- The trunk sewer has been designed to convey flow from 4,622 units. This would equate to a peak flow of approximately 290 L/s of wastewater produced under full build-out.

WT INFRASTRUCTURE

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