Attachment-3 Summary of the MESP

Introduction

The Master Environmental Servicing Plan (MESP) studied various water, wastewater, stormwater, and mobility alternative solutions to support growth in the Clair-Maltby Secondary Plan (CMSP) area. The MESP was undertaken as a Master Plan Environmental Assessment (EA), meeting the study and consultation requirements of Class EA Schedule B. Individual projects requiring further level of study were identified (Schedule C project).

Water

The CMSP is not currently serviced by City water infrastructure. Through study of the existing water system in Zone 3, the supply from Zone 1, and analysis of the full build-out population domestic water demands and fire protection, it was determined that a 5ML storage reservoir is required to support the growth. The location and type (underground or elevated) of the reservoir was studied and evaluated based on natural, technical, economical, and social impact criteria. The preferred alternative utilizes an elevated 5ML Storage reservoir as shown in pink **Error! Reference source not found.**, and requires approximately 17.35km of 300mm diameter watermain and 3.3km of 600mm watermain. A photo of Guelph's existing Speedvale Water Tower is shown in **Error! Reference source not found.** for reference.

Figure 1 - Preferred Water Servicing Strategy

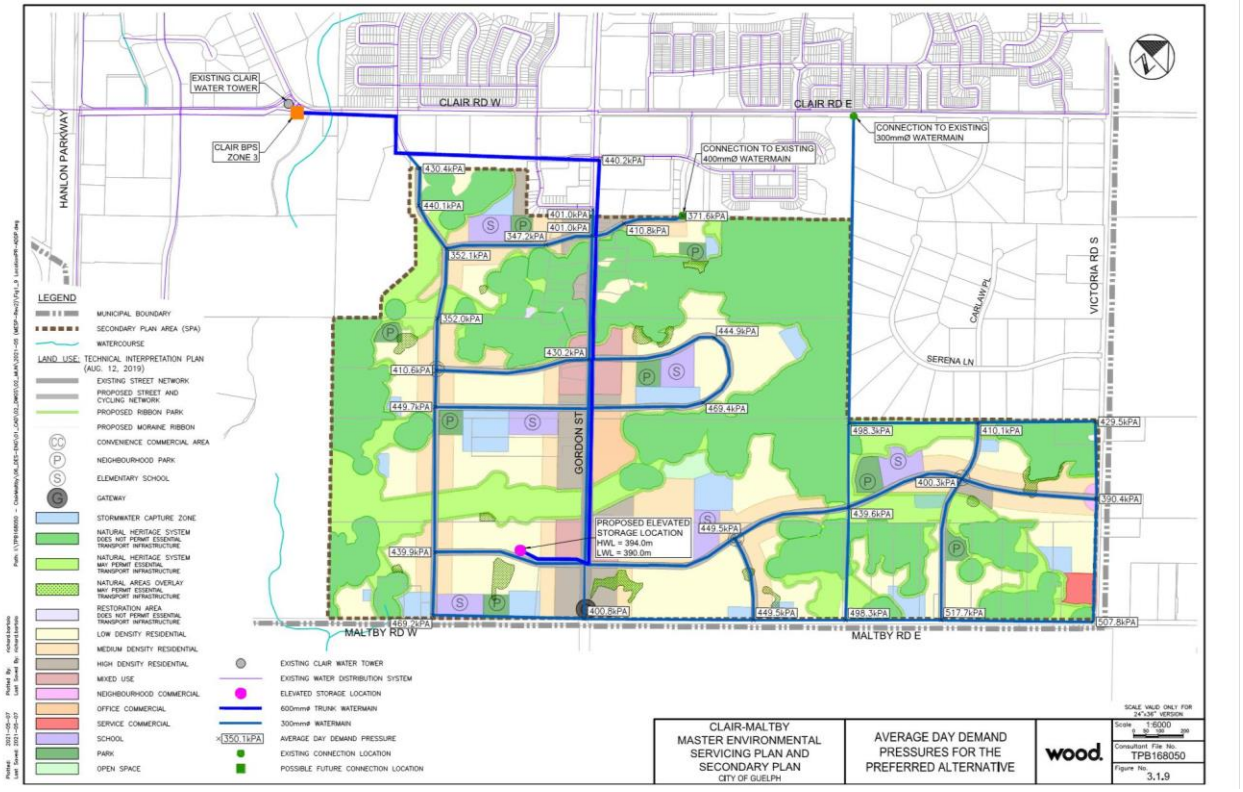


Figure 2 Speedvale Water Tower (example of elevated water storage)

Modelling of the preferred alternative demonstrated Average Day Demand pressures between 517 – 347 kPa, which are within the acceptable range for City of Guelph, and demonstrated adequate fire flow during the Maximum Day Demand scenario.

Wastewater

The CMSP is not currently serviced by City wastewater infrastructure. Through study of existing trunk sewer capacities and analysis of the full-build out population's wastewater discharge, several servicing strategies were established, studied, and evaluated based on natural, technical, economical, and social impact criteria. The hummocky terrain posed a challenge for wastewater collection purely by gravity and several of the proposed alternatives contained pumping stations.

The preferred alternative recommends a network of gravity sewers supported by three (3) pump stations and forcemains, shown in **Error! Reference source not found.**.

Figure 3 - Preferred Wastewater Servicing Alternative

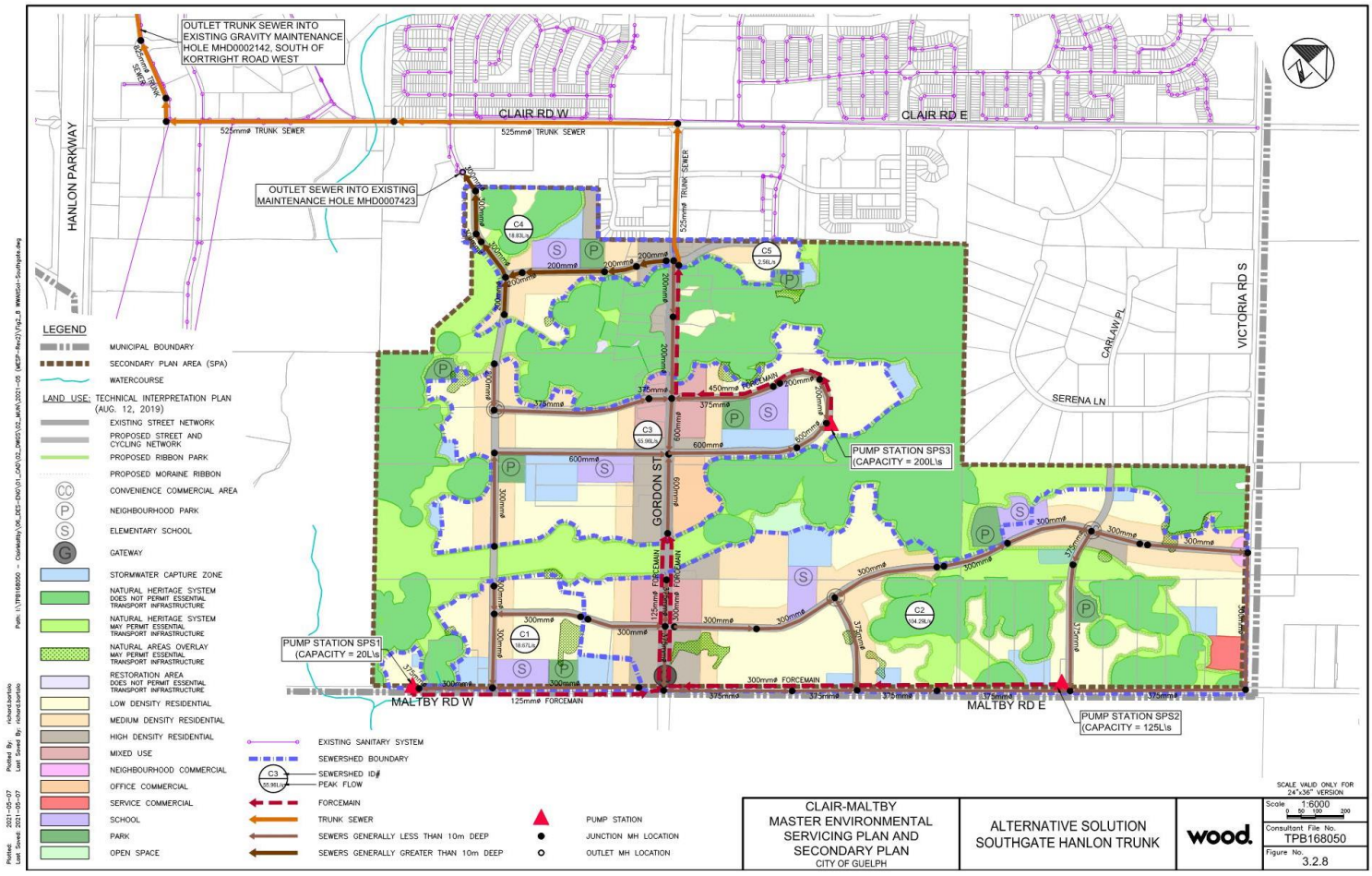
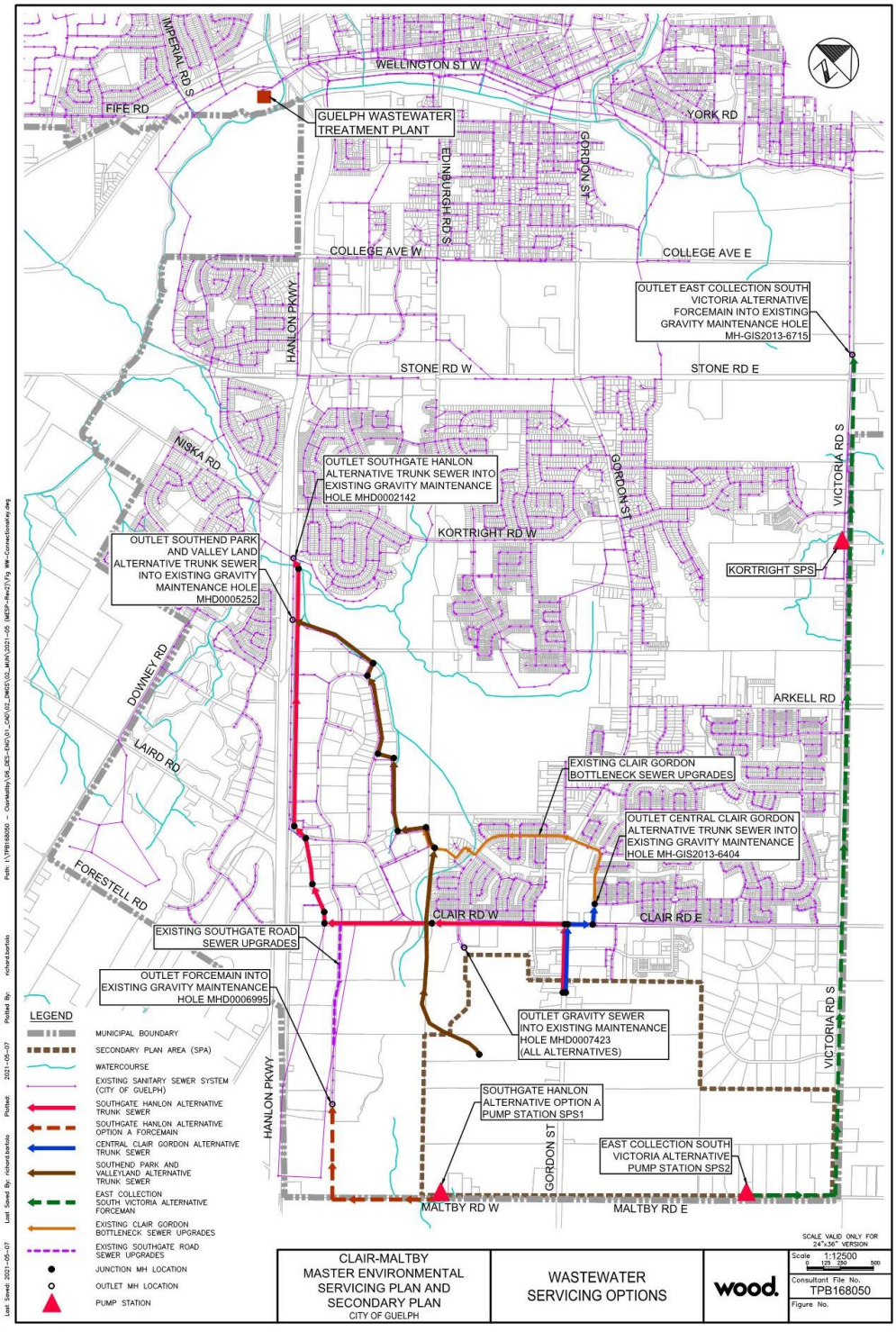


Figure 4 - Preferred Off-Site Wastewater Servicing Alternative



The CMSP system ultimately discharges to the Southern Trunk Sanitary Sewer at MD00002142 (pink alignment in **Error! Reference source not found.**), by way of a new trunk sewer from Clair Road to the proposed connection point, following existing sewer easements.

Stormwater

The stormwater management strategy within the MESP reflect the outcomes and recommendations of the Comprehensive Environmental Impact Study (CEIS). Alternatives included source and conveyance controls both on private and public lands, stormwater capture areas (SWCAs) and combinations of the alternatives. The preferred stormwater management alternative based on an assessment of the various criteria associated with the respective environments considered is the combination alternative, including at source/ conveyance controls located on both public and private property and SWCAs that will receive the residual drainage after source and conveyance controls to provide at-source infiltration of either clean drainage or pre-treated drainage. This provides a sustainable approach by using a distributed approach for Low Impact Development Best Management Practices (LID BMPs) within the land use fabric, with the objective of providing water quality control, contributing to the water balance requirement and reducing frequent discharge to the SWCAs. Innovation can be applied through a collective suite of LID BMPs that will be determined through the design process. Additionally, the MESP and CEIS recommend a number of salt management strategies (in line with the City's 2017 Salt Management Plan) to reduce the impacts of salt on the groundwater system. The stormwater management strategy and conceptual piping layout are shown in **Error! Reference source not found.** and **Error! Reference source not found.**.

Figure 5 - Preferred Stormwater Management Alternative

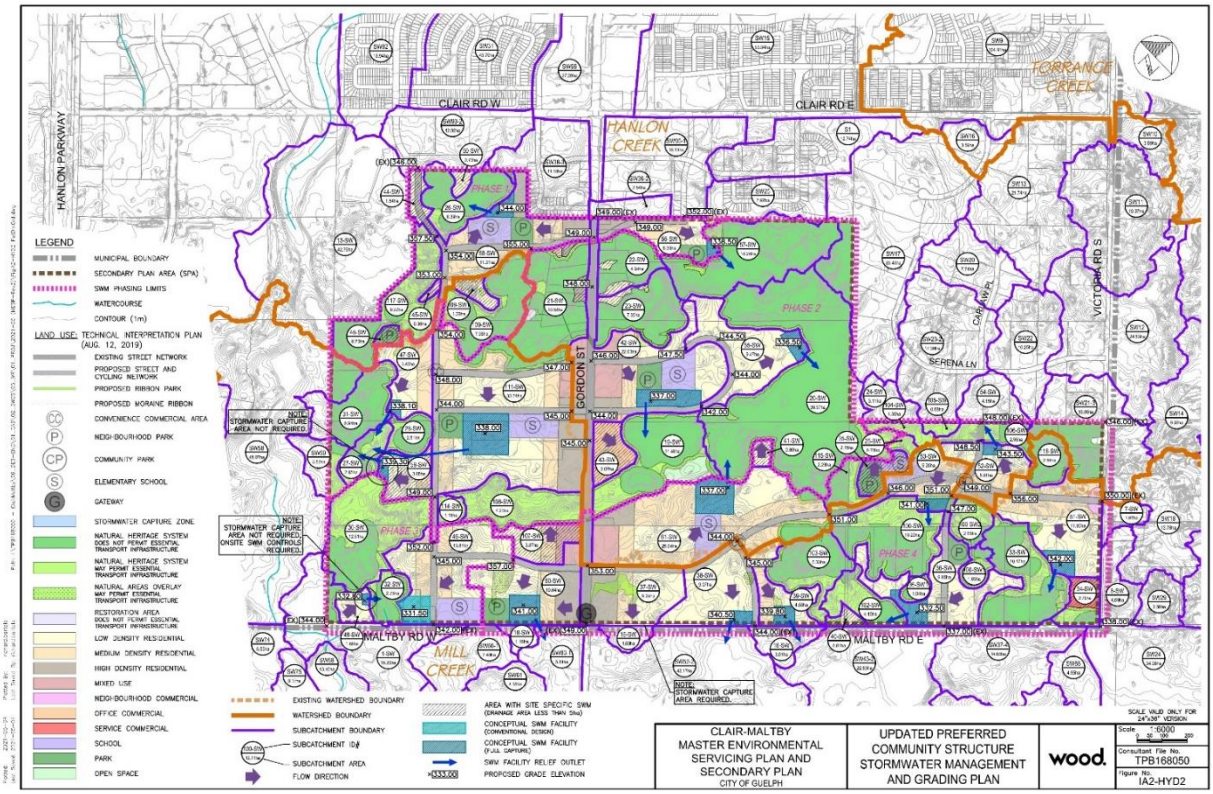
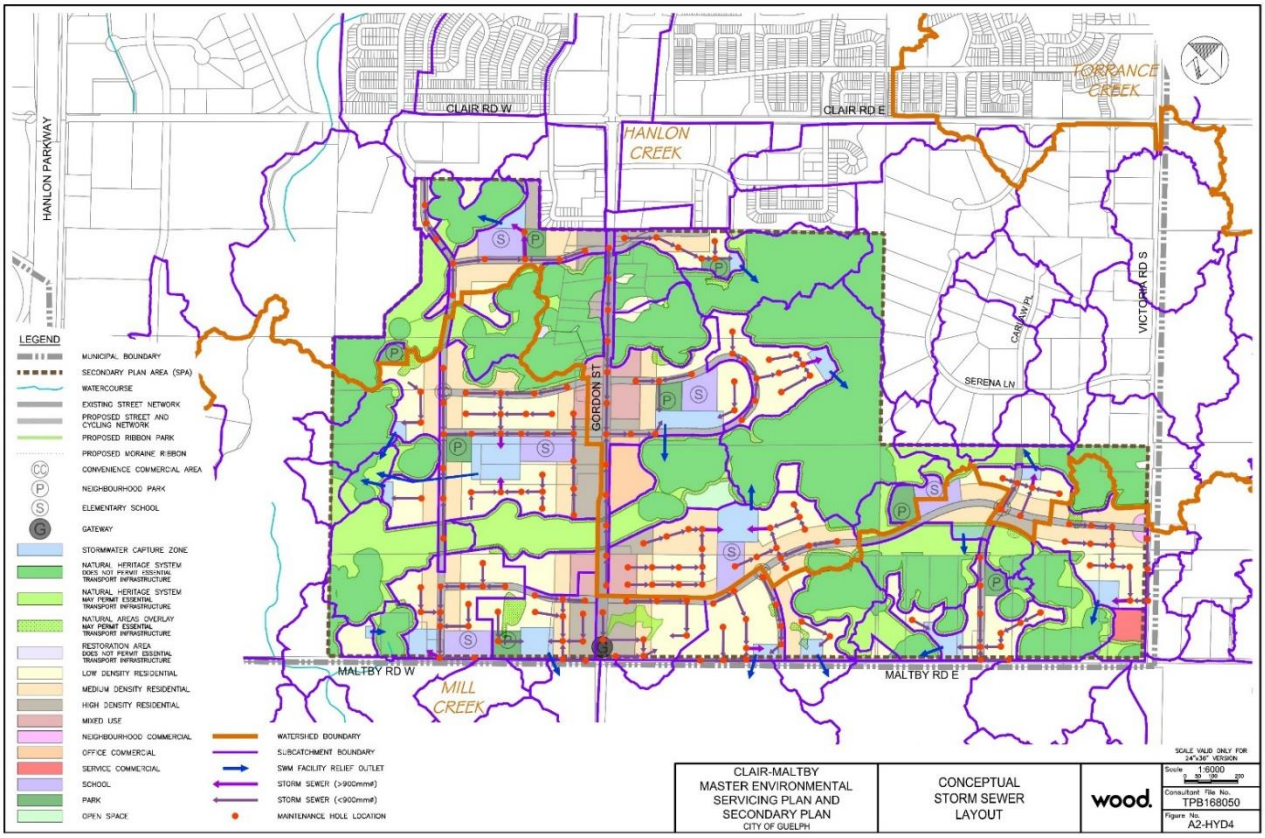
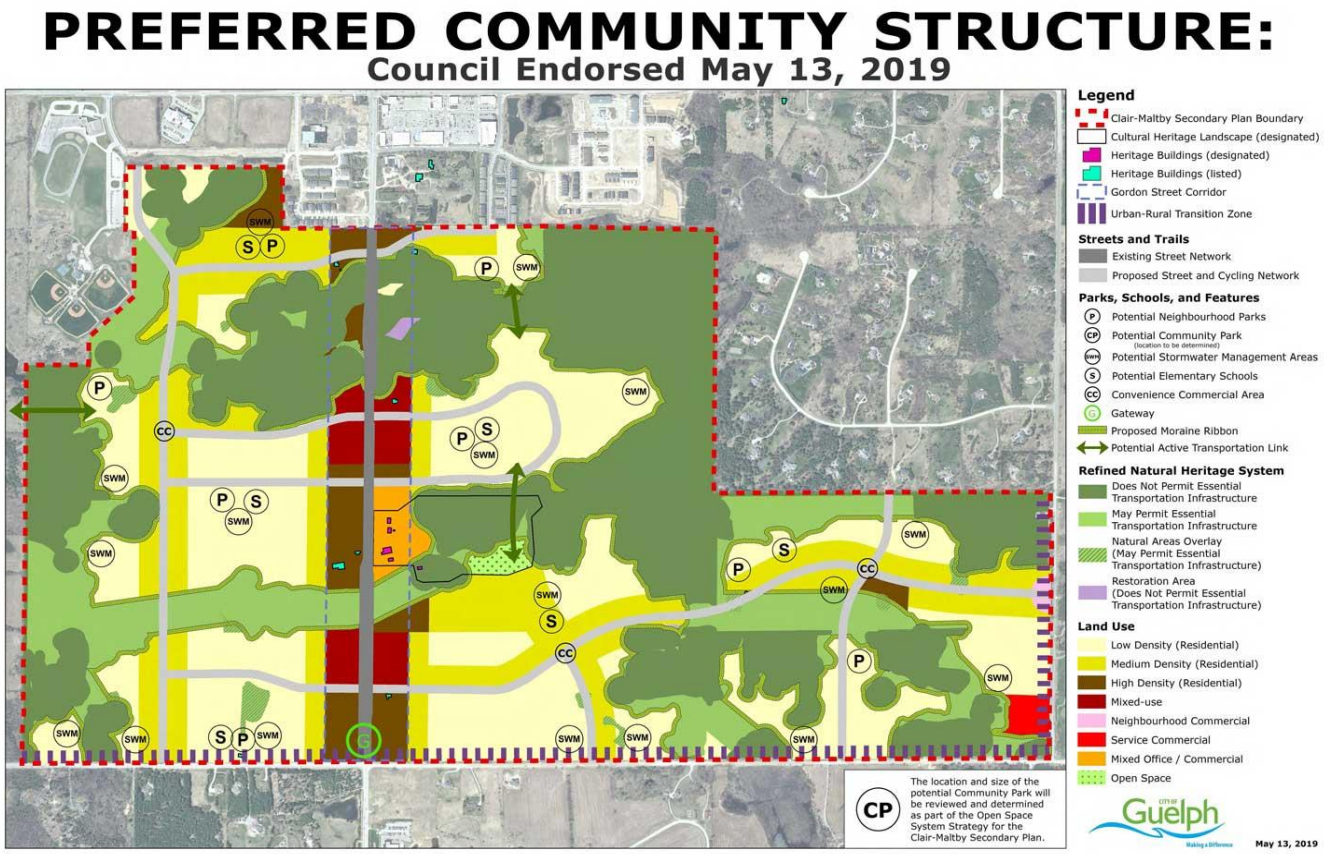


Figure 6 - Stormwater Management Piping Layout



Mobility

Mobility has been evaluated based on the four primary land-use plans established in 2018 (Featuring the Green, Focus on Community Services, Urban and Connected and Preferred Community Structure Plan). These were assessed against criteria regarding the street network, active transportation, transit, trails, and alignment with the objectives of the secondary plan, and the Preferred Community Structure Plan was selected.



The MESP also identifies improvements to existing roads and their associated study structures:

Road	Improvement	From	To	Anticipated EA Schedule
Clair Road East	Widen from 2 to 4 lanes with active transportation and sidewalks	Beaver Meadows Drive	Victoria Road South	Schedule C EA
Victoria Road South	Urbanize and add active transportation and sidewalks	Clair Road East	Maltby Road	Schedule A+[1]
Maltby Road East	Urbanize and add active transportation and sidewalks	Hanlon Parkway	Victoria Road South	Schedule A+[1]
Gordon Street	Widen from 2 to 4 lanes, Urbanize to include cycle tracks and sidewalks	Clair Road	Maltby Road	EA Update to former study

1. Widening or change in number of lanes would modify this to a Schedule C.

Phasing and Implementation

The MESP has identified preliminary phasing of the CMSP development. For road works and stormwater infrastructure, it recommends that the phasing of those works will occur on a per-parcel/per-application basis. Road works should line up with required excavation for water, wastewater, and stormwater infrastructure. For water, Phase 1 may proceed without the additional storage tower and transmission main. For wastewater, sewersheds C4 and C5 (Phase 1) may proceed without any pumping stations and will connect to existing infrastructure. To support Phase 2 onwards, the pump stations, collector sewers, forcemains and trunk sewer are required.