JLR No. 32814-000
Revision: 03

November 26, 2025

Prepared for:

TOWNSHIP OF HAMILTON
8285 Majestic Hills Dr.
Cobourg, ON
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Phase 1 Report: Final

Township of Hamilton Water Supply Master Plan

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Table of Contents

List of Figures

List of Tables

List of Appendices

1.0 Introduction

1.1 Background

The Township of Hamilton (the Township) initiated a Class Environmental Assessment (Class EA) Master Plan exercise to identify existing conditions, residual capacity in the current system, and future upgrades to the water supply infrastructure to accommodate future growth in the Township. This Master Plan is being completed in accordance with the Municipal Engineers Association (MEA) Class EA Approach 1 master planning process. The objective of this Water Supply Master Plan is to develop a strategy to accommodate the existing serviced population and future growth within the Township's three drinking water serviced areas including Creighton Heights, Camborne and Buttersfield for the next 20 years that can be implemented in a prioritized fashion to improve the overall performance and reliability of the water systems.

The Township is located between Rice Lake and Lake Ontario and is bordered by the Municipality of Port Hope, the Township of Otonabee-South Monaghan, and the Township of Alnwick/Haldimand. The Township also borders the Town of Cobourg to the south.

The Township's water supply and distribution system consists of three water systems: Creighton Heights (three groundwater wells, a water treatment plant and a distribution system), Camborne (two artesian groundwater wells, a water treatment plant and a distribution system), and Buttersfield (which is supplied from the Town of Cobourg and operated by Lakefront Utility Services Inc.). The groundwater wells in Creighton Heights and Camborne are considered to be not groundwater under the direct influence of surface water (non-GUDI) sources.

The Study Area, as shown in Figure 1, includes the serviced areas of Camborne and Buttersfield communities within the Township and the entire settlement area of Creighton Heights.

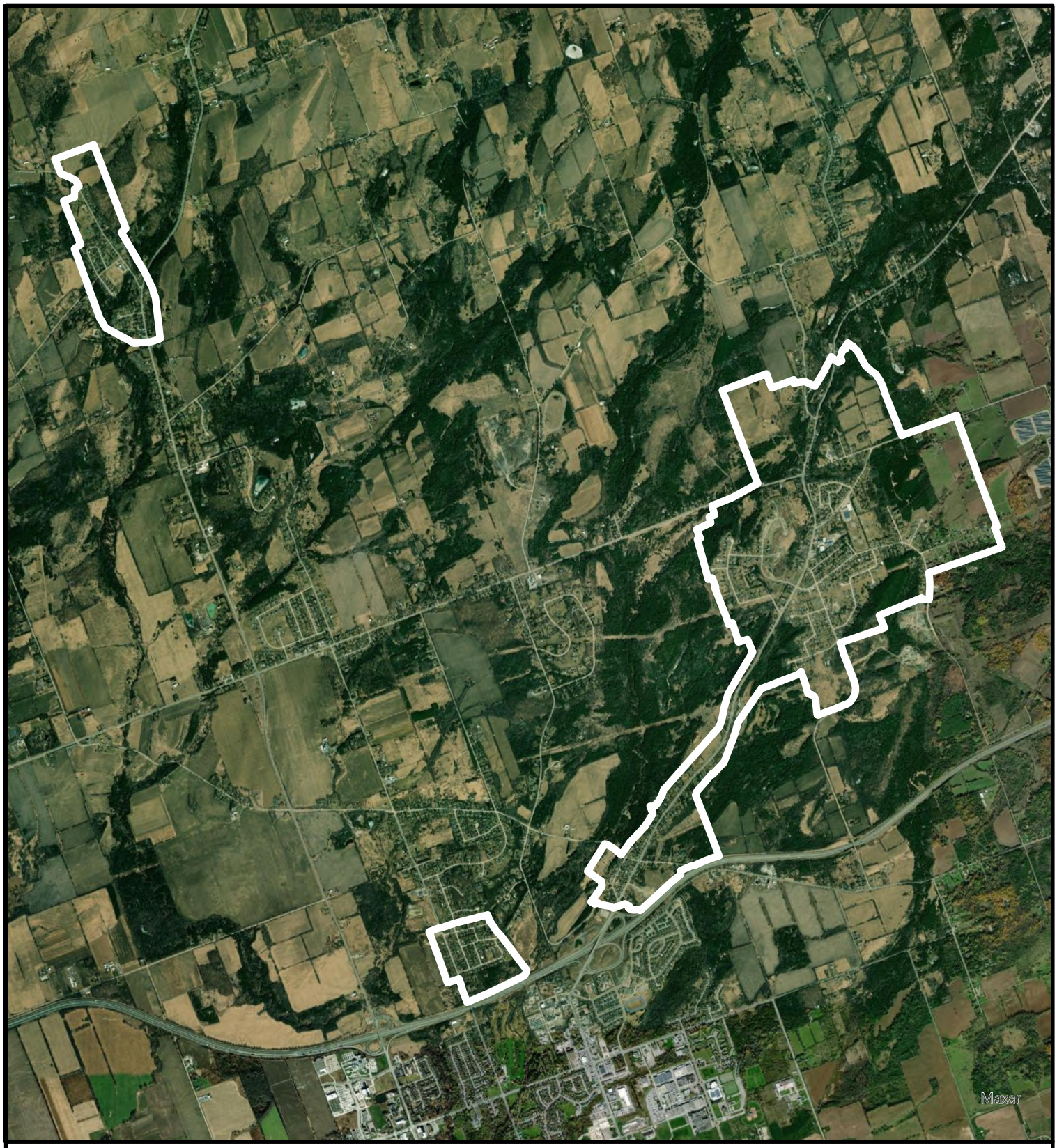
The Creighton Heights drinking water system is operated under the Ministry of Environment, Conservation and Parks (MECP) Municipal Drinking Water License (MDWL) Number 139-102 and Drinking Water Works Permit (DWWP) Number 139-202. The Creighton Heights drinking water system is supplied by three ground water wells, TW1, TW6 and TW7. TW6 and TW7 are primary production wells where only one can operate at a time. The maximum total raw water taken per day is 979 m^3/day and TW1 is a back-up well which has a maximum of 490 m^3/day as per the PTTW. There are several naturally occurring chemicals in the groundwater in the Township including ammonia, iron, manganese, methane, and organics. The Creighton Heights water treatment plant consists of chemical feed systems (for potassium permanganate, sodium hypochlorite, and sodium thiosulphate), two greensand filters, UV units, methane stripper and high lift pumps. There is also an in-ground two-celled water storage reservoir with a storage capacity of 1,130 m^3. The Creighton Heights distribution system has four pressure zones, approximately 14 km of watermains, and 78 fire hydrants. There are several dead ends in the water system. Two of the dead ends, on the southernmost and northernmost ends of the system, bleed water continuously to maintain chloramine residuals in the system. The continuous bleed was addressed on the southernmost dead end with the installation of a timed control valve to reduce waste of water and maintain residuals.

In 2015, the water supply to 75 properties that were serviced by the Town of Cobourg was cut off due to construction of the interchange at Highway 401 and County Road 45. These properties were not reconnected to Cobourg's system but were instead added to the Creighton Heights Water System.

The Camborne drinking water system is operated under the MECP MDWL number 139-103 and DWWP Number 139-203. This water system is supplied by two artesian wells, 1A and 2A, that have a rated maximum total per day of 415 m^3/day. The Camborne water treatment system consists of chemical feed systems (for sodium hypochlorite, and sodium thiosulphate), greensand filters, pressure tanks, and high lift pumps. The distribution system includes 2.5 km of watermains and does not provide fire flow. The site also has a two-cell storage reservoir with a capacity of 206 m^3.

The third water system, Buttersfield distribution system is operated under the MECP MWDL number 139-201, and DWWP number 139-201. The system is serviced by water from the Cobourg Water Treatment Plant operated by LUSI. The system is serviced by a single 300mm diameter watermain crossing under Highway 401 from Cobourg. On August 1st, 2018, the Township signed a 25-year service agreement with the Town of Cobourg to supply water to Buttersfield.

J.L. Richards & Associates Limited (JLR) was retained by the Township to assist in the preparation of the Water Supply Master Plan. The purpose of this report is to summarize the findings from Phase 1 of the Master Plan process. This includes a comprehensive description of the existing water supply, treatment and distribution systems, an understanding of the residual capacity of each system under current conditions, existing servicing constraints, and future growth projections and servicing needs. This information has been used to develop the Problem and Opportunity Statement that will form the basis of undertaking Phase 2 of the Master Plan process.



PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

LOCATION PLAN

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DESIGN:	TB
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JLR #:	32814

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FIGURE 1

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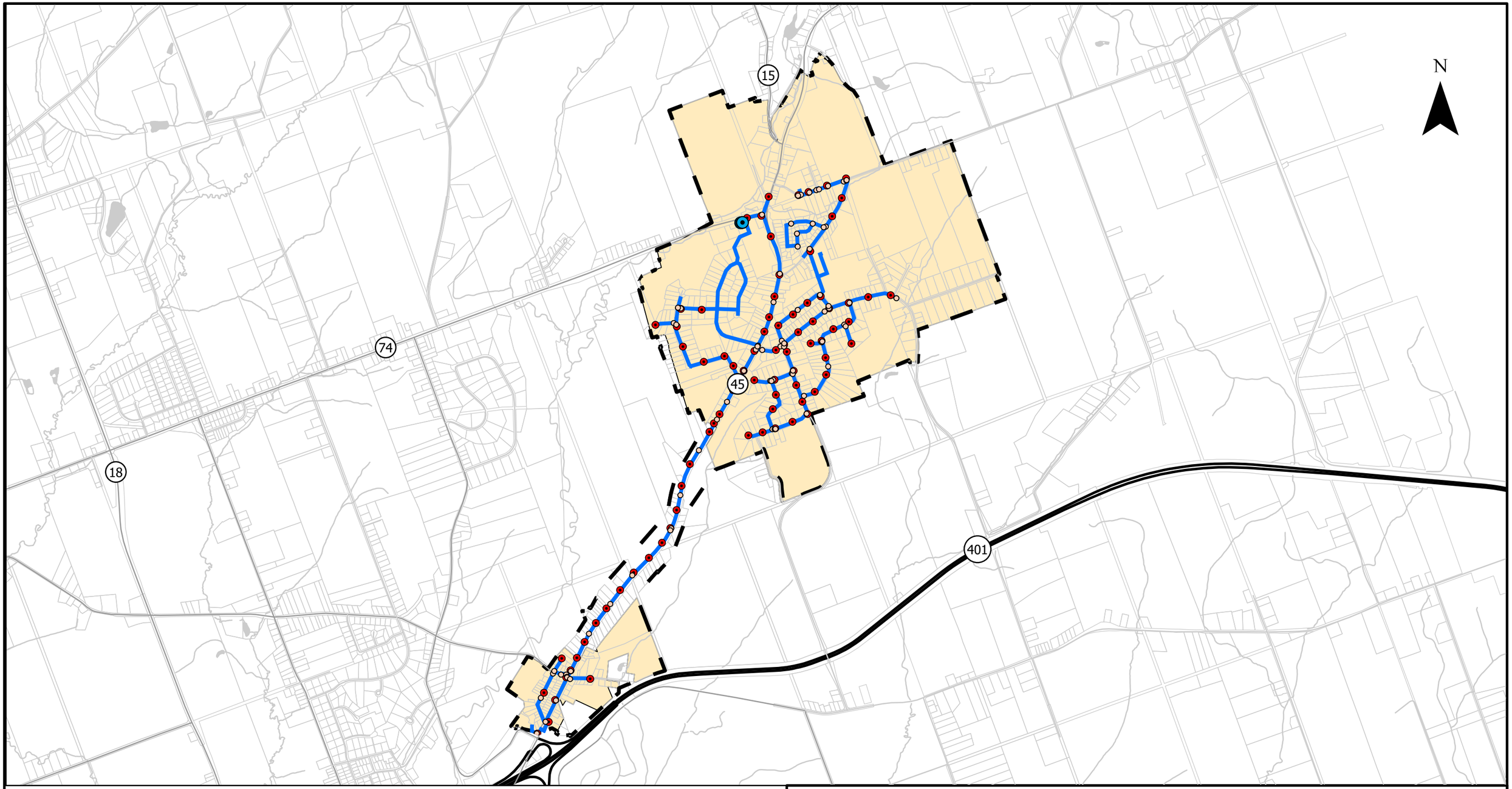

Wells
Hydrant
Valve Box
Watermain
Water Course
Waterbody
Settlement Area
Study Area
Road Class
Highway
Arterial; Collector
Others

PROJECT:
TOWNSHIP OF HAMILTON MASTER PLAN
TOWNSHIP OF HAMILTON, ON

DRAWING:
CREIGHTON HEIGHTS STUDY AREA WITH KEY INFRASTRUCTURE

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FIGURE 2

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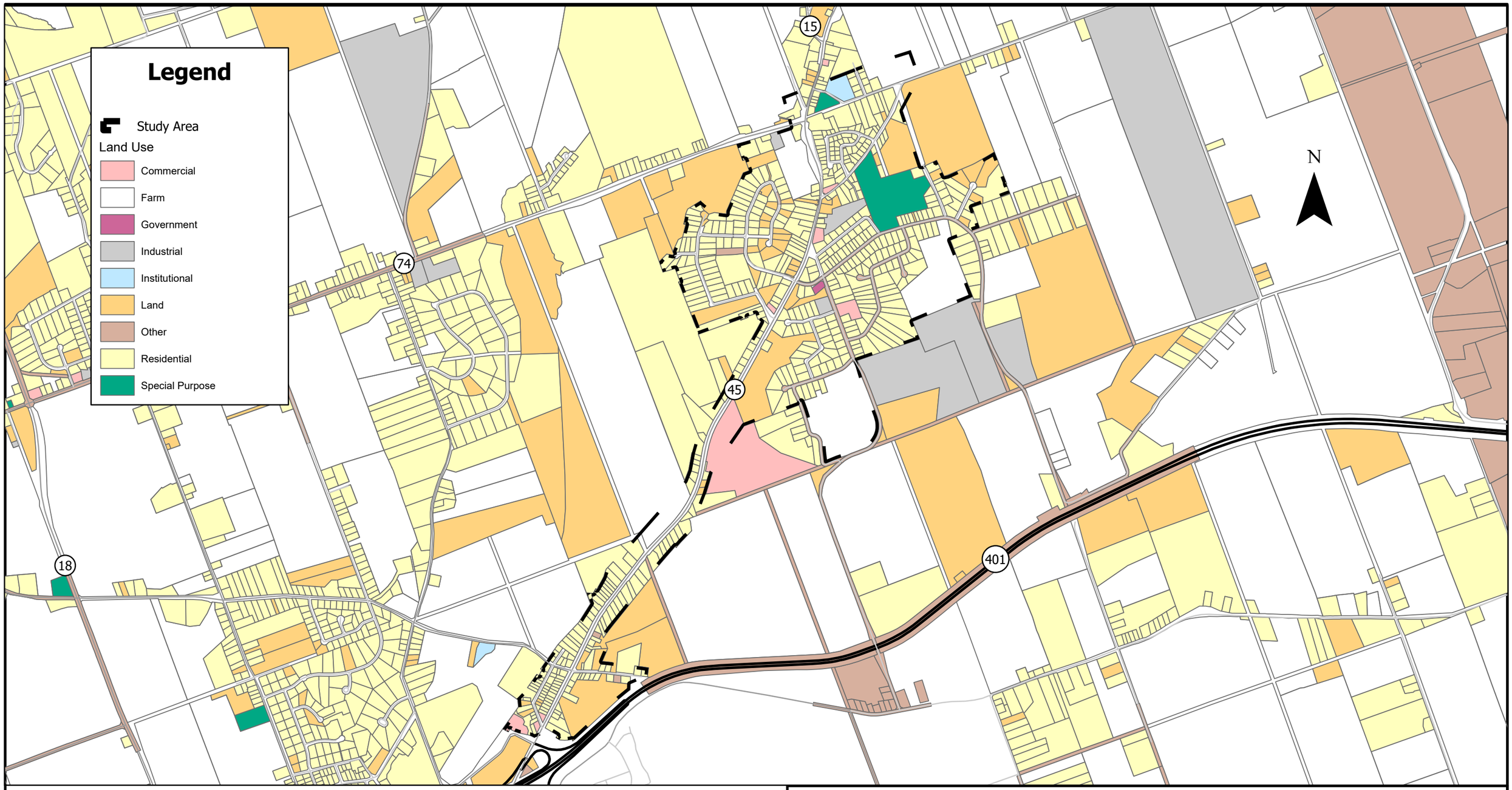

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

CREIGHTON HEIGHTS LAND USE

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

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FIGURE 3

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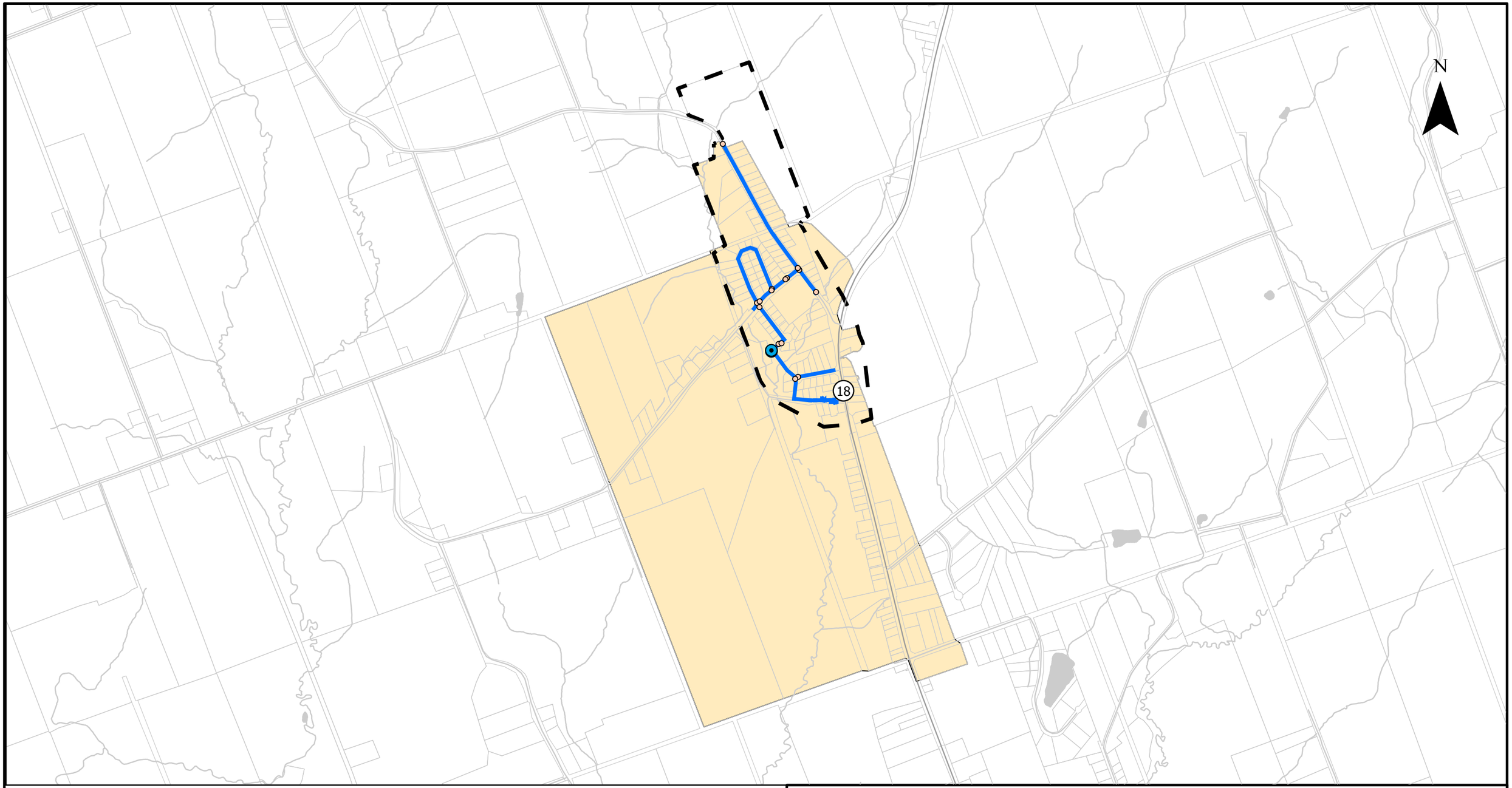

Wells
Valve Box
Watermain
Water Course

Waterbody
Settlement Area
Study Area

Road Class
Highway
Arterial; Collector
Others

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

CAMBORNE STUDY AREA WITH KEY INFRASTRUCTURE

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

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FIGURE 4

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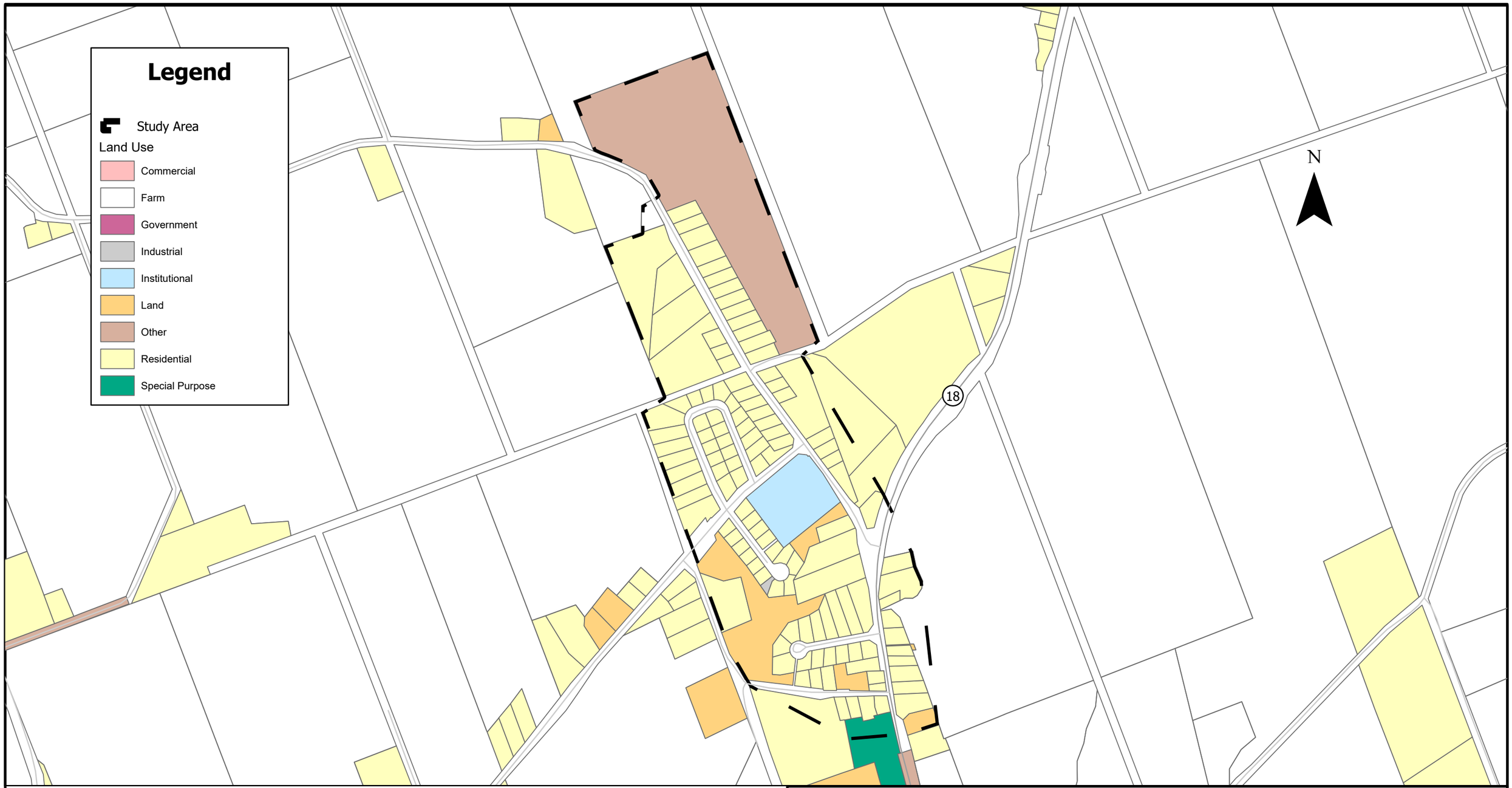

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

CAMBORNE LAND USE

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FIGURE 5

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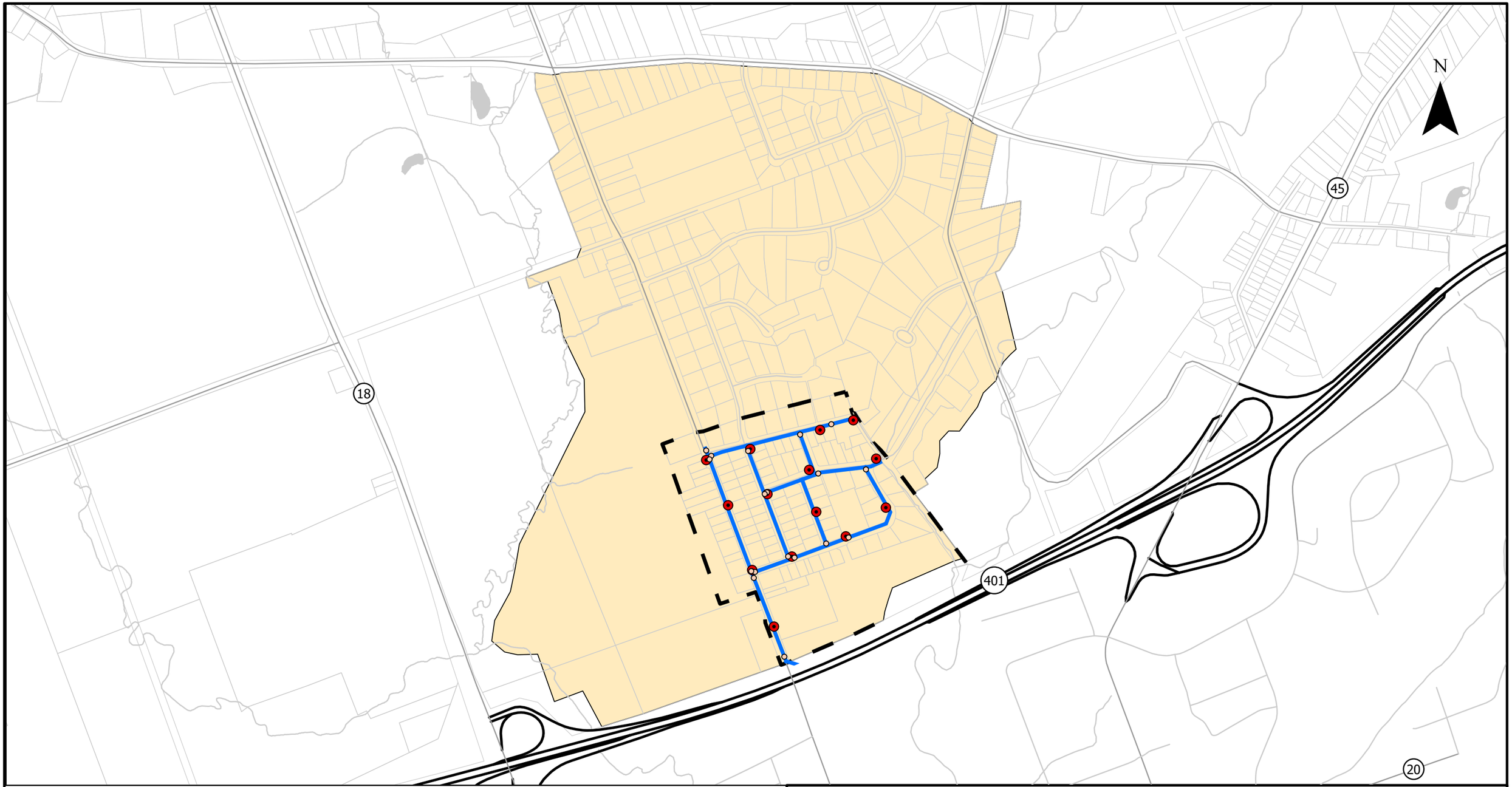

Hydrant
Valve Box
Watermain
Water Course

Waterbody
Settlement Area
Study Area

Road Class
Highway
Arterial; Collector
Others

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

BUTTERSFIELD STUDY AREA WITH KEY INFRASTRUCTURE

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FIGURE 6

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PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

BUTTERFIELD LAND USE

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FIGURE 7

1.2 Summary of Previous and Ongoing Work

The following is a list of recent, previously completed, and ongoing water infrastructure studies for the Township's three water systems.

- Water Annual Reports (Ongoing)
- Hydrant Fire Flow Test (June 2024)
- Water Systems Capital Needs Assessment Report (GM BluePlan, 2020)
- Township of Hamilton Development Charges Update Study (Watson & Associates Economists, 2021). A new update is in progress but was not ready at the time of this report.
- Baltimore Settlement Area – Servicing Options Report (Fotenn, 2021)
- Comprehensive Water Department Review (GM BluePlan, 2021)
- Creighton Heights Water Treatment Plant Uncommitted Reserve Capacity (GM BluePlan, 2022)
- Township of Hamilton Master Fire Plan (The Loomex Group, 2022)

The following table is a summary of works completed on the water systems.

Table 1: Township of Hamilton Water Systems Summary of Works

Year	Works completed
Creighton Heights	
1993	Drilling and installation of Wells TW1 and TW6 as test wells in a hydrogeological investigation to determine the most favourable aquifer conditions for the new municipal well system.
1994	Drilling and installation of Well TW7 as a pilot well for a future large-diameter production well at this location. However, around this time the decision is made to utilize TW6 and TW7 as primary production wells.
1996	Construction of Creighton Heights Water Treatment Plant completed.
1997	TW7 deepened.
1997	New pump (15HP) installed for TW6.
2003	New pump (10HP) installed for TW6.
2005	TW1 was equipped to become functional.
2006	Major upgrade/ expansion of Creighton Heights Water Treatment Plant including building expansion and installation of second filter.
2015	75 properties were disconnected from the water distribution system from Cobourg due to upgrades to Highway 401 and connected to the Township's Creighton Heights water system.
2018	Installation of Deerfield Estates pumping station and two precast fire tanks.
2020	SCADA and communications upgrades were completed to WTP.
2021	Rehabilitation and repair of TW1 and TW6.
2022	Rehabilitation and repair of TW7.

Year	Works completed
Creighton Heights	
2024 (ongoing)	Pilot Test by Walkerton Clean Water Centre for a US EPA granular media filter design for ammonia removal. (ongoing).
2024	Hydrant fire flow testing.
Camborne	
1998	Drilling and installation of Well 1A.
2005	Drilling and installation of Well 2A. Installation of new treatment plant.
2013	Pump replacement and casing cleaning of Well 2A.
2017	Installed casing seal in Well 2A to prevent sand entering pump. During a complete road reconstruction, the distribution system was extended north on Kennedy Road.
2019	A form of rehabilitation on Well 2A was attempted to prevent sand from entering. SCADA and communications upgrades were completed to WTP.
2020	Failure and temporary repair of Well 1A. Permanent repair completed in 2021 (new pump, new stainless steel riser, grouting of annular space).
Buttersfield	
2022	Cement re-lining of cast iron and ductile iron watermains on June Avenue and Catherine Street.

1.3 Class Environmental Assessment and Master Planning

The *Ontario Environmental Assessment Act* (EA Act), enacted in 1976, outlines requirements for EA approval. The Municipal Class EA process and Master Planning process apply to municipal infrastructure projects, including roads, water, and wastewater projects. To ensure that environmental impacts and effects are considered for each project as per the EA Act, proponents are required to generally follow the planning process set out in the Municipal Class EA Guidelines, prepared by the Municipal Engineers Association (MEA), as amended in 2015 and 2023 (www.municipalclassea.ca). The Class EA process includes the following stages:

- **Phase 1 – Problem or Opportunity:** Identify the problems or opportunities to be addressed and the needs and justification.

- **Phase 2 – Alternative Solutions:** Identify alternative solutions to the problems or opportunities by taking into consideration the existing environment, and establish the preferred solution considering public, review agency, stakeholder and Indigenous Communities review and input. This phase also compiles an environmental 'inventory', identifies impacts, and outlines mitigation measures.

- **Phase 3 – Alternative Design Concepts for the Preferred Solution:** Examine alternative methods of implementing the preferred solution based upon the existing environment, public and agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.

- **Phase 4 - Environmental Study Report:** Document in an Environmental Study Report, a summary of the rationale, planning, design, and consultation process for the project as established through Phases 1 to 3 above and make such documentation available for scrutiny by the public, review agencies, stakeholders and potentially impacted Indigenous Communities.

- **Phase 5 - Implementation:** Complete contract drawings and documents, proceed to construction and operation, and monitor construction for adherence to environmental provisions and commitments. Also, where special conditions dictate, monitor the operation of the completed facilities.

Since projects may vary in their environmental impact, they are classified in terms of the following schedules, pursuant to the most recent amendment to the MCEA process in 2023:

- 'Exempt' projects, most of which were formerly classified as Schedule A and A+ projects, include various municipal maintenance, operational activities, rehabilitation works, minor reconstruction or replacement of existing facilities, and new facilities that are limited in scale and have minimal environmental effects. While these projects are exempt from the MCEA process, proponents should consider whether notice about the project should be given or consultation on the project should be carried out. Furthermore, proponents are also responsible for obtaining any other applicable permits, approvals, and authorizations for the project.
- 'Eligible for Screening to Exempt' projects may be eligible for exemption based on the results of a screening process. Proponents may choose to complete the applicable screening process to determine whether the project is eligible for exemption or proceed with the applicable Schedule 'B' or Schedule 'C' process, as noted below.
- Schedule 'B' projects have the potential for some adverse environmental impacts and therefore, the proponent is required to undertake the first two phases of the MCEA process. This includes mandatory consultation with Indigenous Communities, the public and other affected stakeholders as well as relevant review agencies; and the preparation of a Project File which documents the Class EA process and is placed on the public record for review and comment. If there are no outstanding concerns and the regulatory process has been completed, then the proponent may proceed to implement the project. Generally, these projects include improvements and minor expansions to existing facilities or smaller new projects.
- Schedule 'C' projects have the potential for greater environmental impacts and are subject to the full MCEA process. This includes mandatory consultation with Indigenous Communities, the public and other affected stakeholders as well as relevant review agencies; identifying, assessing, and refining alternative solutions to determine a preferred solution; and preparing the ESR which documents the Class EA process and is placed on the public record for review and comment. If there are no outstanding concerns and the regulatory process has been completed, then the proponent may proceed to implement the project. Generally, these projects include the construction of new facilities and major expansions to existing facilities.

A Master Plan is conducted under the framework of the MEA Class EA Process. It is a planning tool that identifies infrastructure requirements for existing and future land use, through the application of environmental assessment principles, and is intended to satisfy Phases 1 and 2 of the Class EA process. The Municipal Class EA guideline identifies four (4) basic approaches of the Master Planning process, including:

- Approach No.1: This approach concludes at the end of Phases 1 and 2 of the Municipal Class EA Process. With this approach, the Master Plan is being completed at a broad level of assessment and may require further detailed assessment at the project-specific level depending on the nature of the project.

- Approach No.2: This approach also concludes at the end of Phases 1 and 2 of the Municipal Class EA Process. However, the level of detail (i.e., investigation, consultation and documentation) fulfills the requirements for Schedule 'B' projects.

- Approach No.3: This approach involves the preparation of a Master Plan document at the conclusion of Phase 4 of the Municipal Class EA Process. The level of detail of the Master Plan document can fulfill requirements for Schedule 'B' and/or Schedule 'C' projects.

- Approach No.4: This approach involves integration with the approvals under the Planning Act.

The Township of Hamilton Water Supply Master Plan has followed Approach No. 1, which involves the preparation of a Report at the conclusion of Phases 1 and 2. The Master Plan was undertaken with a broad assessment of alternative solutions. The level of detail at a project-specific level is minimal. In this case, the Master Plan will form the basis for future specific Schedule 'B' and 'C' projects. Additional work and project-specific level investigations required to fulfill the Municipal Class EA documentation requirements for any Schedule 'B' and 'C' projects will be identified within the Master Plan.

This Master Plan should be reviewed every five years to determine the need for detailed formal review and/or updates. Potential changes, which may trigger the need for an update, include:

- Major changes to the original assumptions
- Major changes to components of the Master Plan
- Significant new environmental effects
- Major changes in the proposed timing of projects within the Master Plan based on changed conditions relative to the original projections/predictions.

2.0 Phase 1 Methodology

2.1 Project Initiation Meeting and Site Visits

A project initiation meeting was held on January 25th, 2024, with representatives from the Township and JLR to confirm roles and responsibilities, project understanding, proposed work plan, schedule and to review current and historical issues associated with the Township's water systems. The project initiation meeting was held on-site at the Creighton Heights water treatment

plant to understand conditions of the drinking water pump house and equipment. The site visit was limited to visual observations and discussion with the Township operators.

2.2 Compilation and Review of Existing Documentation

A comprehensive inventory of available historical reports, permits/approvals, studies, drawings, and GIS data related to the current water infrastructure were compiled. The documentation provided was publicly available or provided by the Township. Several key documents are referenced herein. The data collected was reviewed and analyzed to establish current operating conditions for each system.

2.3 Consultation Planning and Contact with Stakeholders

A Public Consultation Plan was developed and submitted to the Township for review, taking into consideration mandatory requirements and objectives of effective consultation with the public and other potential stakeholders, as outlined in the MEA Class EA document (refer to Appendix A for a copy of the Stakeholder Consultation Plan, dated March 15th, 2024). The Plan identifies potential stakeholders, defines the level of consultation, establishes appropriate means of contact, and provides a schedule highlighting the general timing of contact. A comprehensive stakeholder contact list was developed, consisting of the MECP's Government Review Team and Agency Contacts and the Township's local stakeholders to ensure all interested agencies and stakeholders are involved in the consultation process. Upon issuance of the Notice of Commencement, additional public members have expressed interest in the project and have been added to the distribution list. Refer to Appendix E for the ongoing stakeholder list.

2.4 Phase 1 Report

This Phase 1 Report was prepared to summarize the findings from the first phase of the Master Plan process and to use it as a basis for the identification and evaluation of alternative options during Phase 2.

The objectives of this Report are:

- To establish 20-year future growth projections.
- To confirm the needs to connect properties that are currently on private systems within the municipally serviced areas in Creighton Heights, Camborne and Buttersfield.
- To provide a description of existing conditions and constraints associated with the municipal water infrastructure within the Township, including a summary of historical groundwater water intake, treated water flows and quality and treated water storage for Creighton Heights and Camborne systems.
- To establish a WaterCAD ® model for the water distribution system in Creighton Heights and identify servicing constraints.
- To determine the residual capacity for water supply/treatment in Creighton Heights and Camborne and provide anticipated timing for when rated capacities of each system will be reached.

- To establish proposed design basis for future servicing needs.
- To identify land use and planning constraints, and natural environment constraints.
- To establish a Problem/Opportunity Statement.

3.0 Design Basis

3.1 Existing Serviced Connections

The 2021 Census cites a population of 11,059 persons in the Township and a total of 4,685 private dwellings. Currently there are 501 water service connections in Creighton Heights distribution system, and 71 in the Camborne distribution system. The Buttersfield distribution system has 114 connections.

The following table demonstrates the breakdown of serviced population in each of the three servicing areas.

Table 2: Existing Serviced Connections and Servicing Population

	Serviced Connections	Serviced Population (1)
Creighton Heights	501(2)	1,283
Camborne	71	182
Buttersfield	114	292
Total	**686**	**1,757**

Notes:
(1) Using the 'Mid-2019' persons per unit (P.P.U.) of 2.561 from the Development Charges Update Report (Watson & Associates, 2021)
(2) As of December 2024, the number of connections in Creighton Heights is 509. The additional connections will not impact the study results, and it is recognized that new connections will be made over the years.

3.2 Growth Projections

3.2.1 Planning Periods

Planning periods were established for the master plan report to guide the Township's implementation of infrastructure and accommodate growth in a way that is economically sustainable and aligned with long-term community goals. These periods identified are short term (0-5 years; 2024 to 2029), mid term (5-10 years; 2029-2034), and long-term (10-20 years; 2034 to 2044). The purpose of planning periods is to ensure that development occurs in a phased, strategic manner. This approach allows for the careful management of resources, minimizes environmental impact, and supports the Township's growth without compromising its future needs. Planning periods were used to provide an estimation for development growth, population growth and increases in water demands.

3.2.2 Growth Scenarios

By request of the Township two growth scenarios were established in alignment with the Township's planning framework for the basis of this report. The two future growth projection scenarios were a low growth scenario and a high growth scenario. The low growth scenario reflects water demand projections based on a more conservative approach to development, assuming a lower density growth pattern that remains within expected possibilities. In contrast, the high growth scenario anticipates that the lots and properties designated for future growth may be developed at higher densities than initially projected, resulting in a corresponding increase in water demand.

JLR exclusively used growth projections as advised by the Township's Development Services Department.

3.2.3 Future Growth

To provide a comprehensive assessent of the Township's water infrastructure needs, a detailed map and tables were prepared to identify all properties in the study area. Future residential units, mixed use units and population and industrial, commercial, and institutional (ICI) land use projections are summarized by these timeframes in the following tables**.** The growth estimates presented in these tables were used as the design basis for this Master Plan.

Tables 3 to 5 show the development plan for Creighton Heights for the next 20 years. The Township provided a list of new developments and their anticipated timing. There are also existing properties within the municipally serviced areas that currently have private services. In consultation with the Township, the growth projections allow and accommodate the potential future connections of these properties to the municipal drinking water system.

3.2.4 Intensification of Units

A 5% intensification factor was applied to the existing units to provide contingency for factors such as additional developments and the effects of Ontario Bill 23 – More Homes Faster Act. Bill 23 allows homeowners to build up to three additional residential units on their property. The Municipality noted that they have not received any permit applications to date for additional units due to Bill 23.

Table 3: Creighton Heights Growth Projections – Residential

Lot Identifier	Property Owner/Title	Type	Timeline	Low Growth Scenario		High Growth Scenario	
				Growth (Units)	Population[1]	Growth (Units)	Population[2]
A	Stalwood Homes: Deerfield Estates	Single Detached Dwelling	0-5	5	15	5	15
B	Stalwood Homes	Single Detached Dwelling	0-5	5	15	5	15
C	4765 County Road 45	Multi-unit residential (1-bedroom)	0-5	10	13	10	13
D	Baltimore Estates: Phase II	Single Detached Dwelling	0-5	43	128	86	256
E	Habitat for Humanity	Multi-unit residential (assumed 2+bedroom)	0-5	7	12	7	12
F	47 Community Centre Road	Single Detached Dwelling	0-5	20	59	40	119
New Service Connections [3]		Single Detached Dwelling	0-5	8	24	8	24
Intensification of Units [4]			0-5	8	25	8	25
			Total	**106**	**291**	**169**	**478**
G	Rose/Behan Subdivision	Duplexes & Singles	5-10	55	138	110	275
H	Rolling Heights	Single Detached Dwelling	5-10	25	74	50	149
New Service Connections [3]		Single Detached Dwelling	5-10	25	74	25	74
Intensification of Units [4]			5-10	8	25	8	25
			Total	**113**	**311**	**193**	**523**
I	2856 Baltibrook Road	Single Detached Dwelling	10-20	50	149	100	297
J	Vacant Parcel	Single Detached Dwelling	10-20	25	74	50	149
K	2505 Hircock Road	Single Detached Dwelling	10-20	20	59	20	59
L	Slater Street	Single Detached Dwelling (avg of 14-26)	10-20	20	59	40	119
New Service Connections [3]		Single Detached Dwelling	10-20	50	149	50	149
Intensification of Units [4]			10-20	8	25	8	25
			Total	**173**	**515**	**268**	**798**

Overall Total	**393**	**1,117**	**631**	**1,798**

Notes:

(1) P.P.U from 2021 DC Study by Watson & Associates:
- Single and Semi-Detached Dwellings: 2.972
- Apartments (2+ bedrooms): 1.748
- Apartments (0-1 bedrooms): 1.284
- Other Multiples (duplex, triplex): 2.031

(2) High Growth Scenario Population is equal to the Low Growth Scenario Population if no high scenario estimate was expected.

(3) These represent properties that are not currently connected to municipal services but may be connected in the future due to potential well failures.

(4) A 5% intensification factor was applied to the existing units to provide contingency for factors such as additional developments and the effects of Ontario Bill 23 – More Homes Faster Act. Bill 23 allows homeowners to build up to three additional residential units on their property. The Municipality noted that they have not received any permit applications to date for additional units due to Bill 23.

Table 4: Creighton Heights Areas of No Growth Projections

Lot Identifier	Property Owner/Title	Type
N	2920 Harwood Road	No Anticipated Development
O	McCarty Drive	No Anticipated Development
P	Vacant Parcel	No Anticipated Development
Q	Vacant Parcel	No Anticipated Development
R	Vacant Parcel	No Anticipated Development
S	GRCA Land	No Anticipated Development

Table 5: Creighton Heights Growth Projections – ICI

Lot Identifier	Property Owner/Title	Timeline	Type	Area
M	Tredree Lands Commercial - Highway 401 & Road 45	10-20	Food Court, Fuel/Convenience, Service Repair, Hotel	9.06 ha

Currently, no new developments have been identified in the Camborne water system. The additional demand in the water system primarily consists of future service connections to existing properties which are currently on private wells. The estimated distribution of potential future service connections was provided by the Township. Table 6 shows the summary of future potential residential service connections. In the future, if there are development interests, the Township may wish to review the growth projections for Camborne.

Table 6: Camborne Future Residential Service Connections

Development	Type	Timeframe	Units	Population (1)
Potential Future Service Connections (Existing Properties on Private Wells)				
Properties along Kennedy Road	Single Detached	0-5 years	33	98
Various	Single Detached	5-10 years	1	3
Various	Single Detached	10-20 years	2	6

Notes:
(1) P.P.U from 2021 DC Study by Watson & Associates:
- Single and Semi-Detached Dwellings: 2.972
- Apartments (2+ bedrooms): 1.748
- Apartments (0-1 bedrooms): 1.284
- Other Multiples (duplex, triplex): 2.031

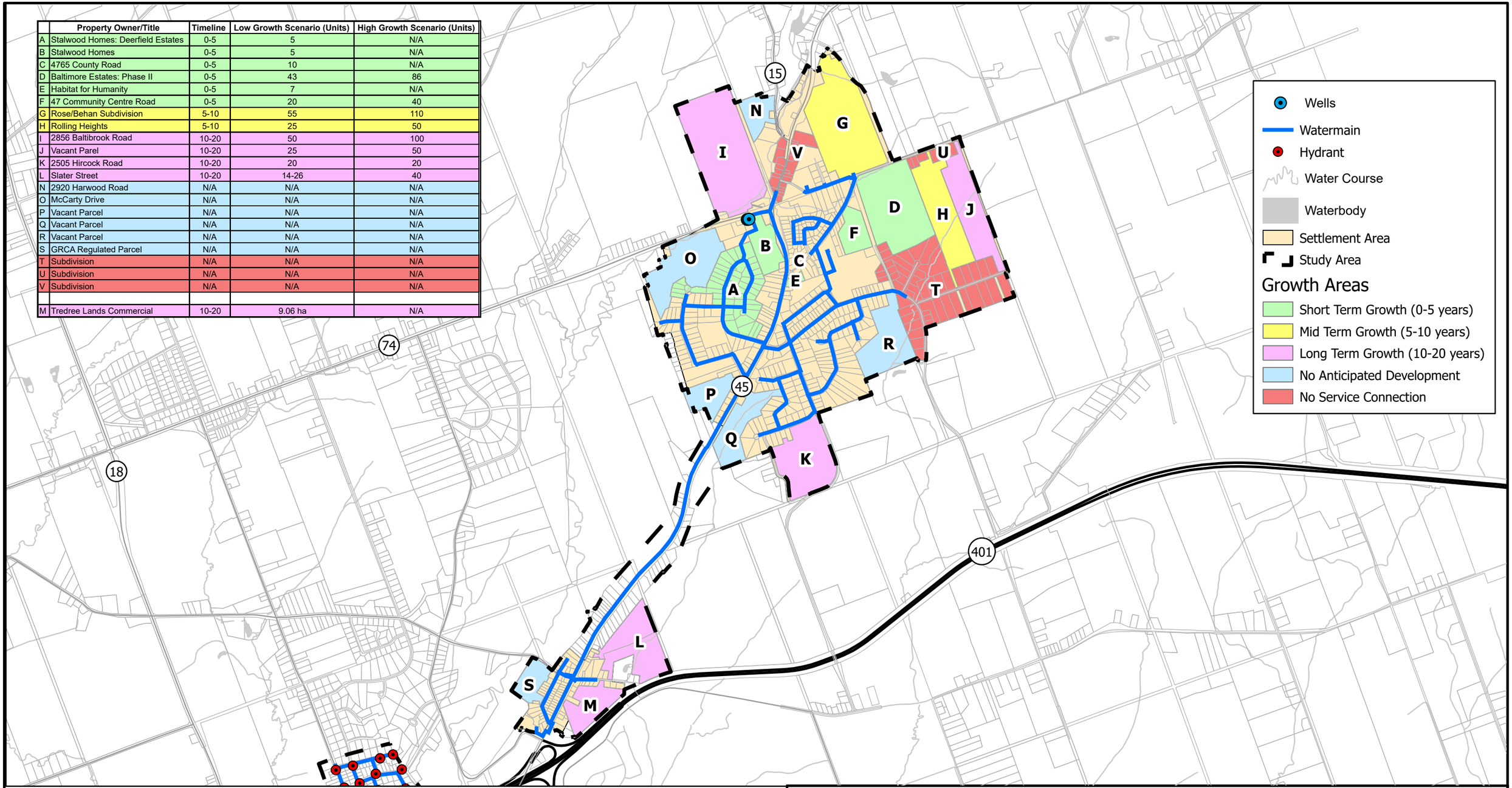
There is one new residential development anticipated within the Buttersfield Water System.

Table 7: Buttersfield Growth Projections – Residential

Development	Type	Timeframe	Units	Population (1)
New Development – Residential				
Beth Street	Single Detached	5-10 years	10	30

Notes:
(1) P.P.U from 2021 DC Study by Watson & Associates:
- Single and Semi-Detached Dwellings: 2.972
- Apartments (2+ bedrooms): 1.748
- Apartments (0-1 bedrooms): 1.284
- Other Multiples (duplex, triplex): 2.031

	Property Owner/Title	Timeline	Low Growth Scenario (Units)	High Growth Scenario (Units)
A	Stalwood Homes: Deerfield Estates	0-5	5	N/A
B	Stalwood Homes	0-5	5	N/A
C	4765 County Road	0-5	10	N/A
D	Baltimore Estates: Phase II	0-5	43	86
E	Habitat for Humanity	0-5	7	N/A
F	47 Community Centre Road	0-5	20	40
G	Rose/Behan Subdivision	5-10	55	110
H	Rolling Heights	5-10	25	50
I	2856 Baltibrook Road	10-20	50	100
J	Vacant Parel	10-20	25	50
K	2505 Hircock Road	10-20	20	20
L	Slater Street	10-20	14-26	40
N	2920 Harwood Road	N/A	N/A	N/A
O	McCarty Drive	N/A	N/A	N/A
P	Vacant Parcel	N/A	N/A	N/A
Q	Vacant Parcel	N/A	N/A	N/A
R	Vacant Parcel	N/A	N/A	N/A
S	GRCA Regulated Parcel	N/A	N/A	N/A
T	Subdivision	N/A	N/A	N/A
U	Subdivision	N/A	N/A	N/A
V	Subdivision	N/A	N/A	N/A
M	Tredree Lands Commercial	10-20	9.06 ha	N/A



PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

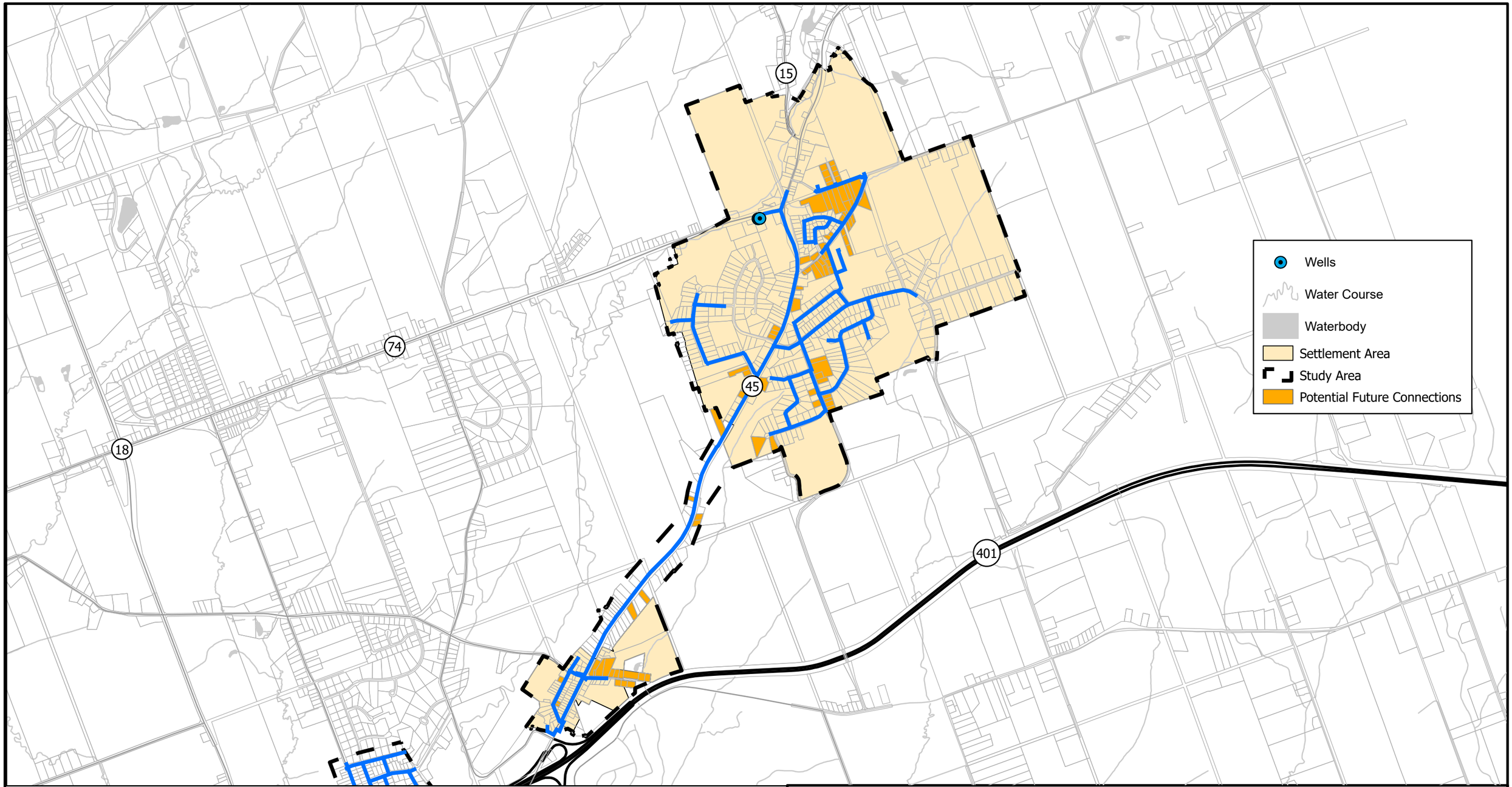
CREIGHTON HEIGHTS GROWTH AREAS

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

DESIGN:	TB
DRAWN:	TB
CHECKED:	MM
JLR #:	32814-000

DRAWING #:

FIGURE 8



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PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

CREIGHTON HEIGHTS POTENTIAL FUTURE CONNECTIONS

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

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DRAWN:	TB
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JLR #:	32814-000

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FIGURE 9

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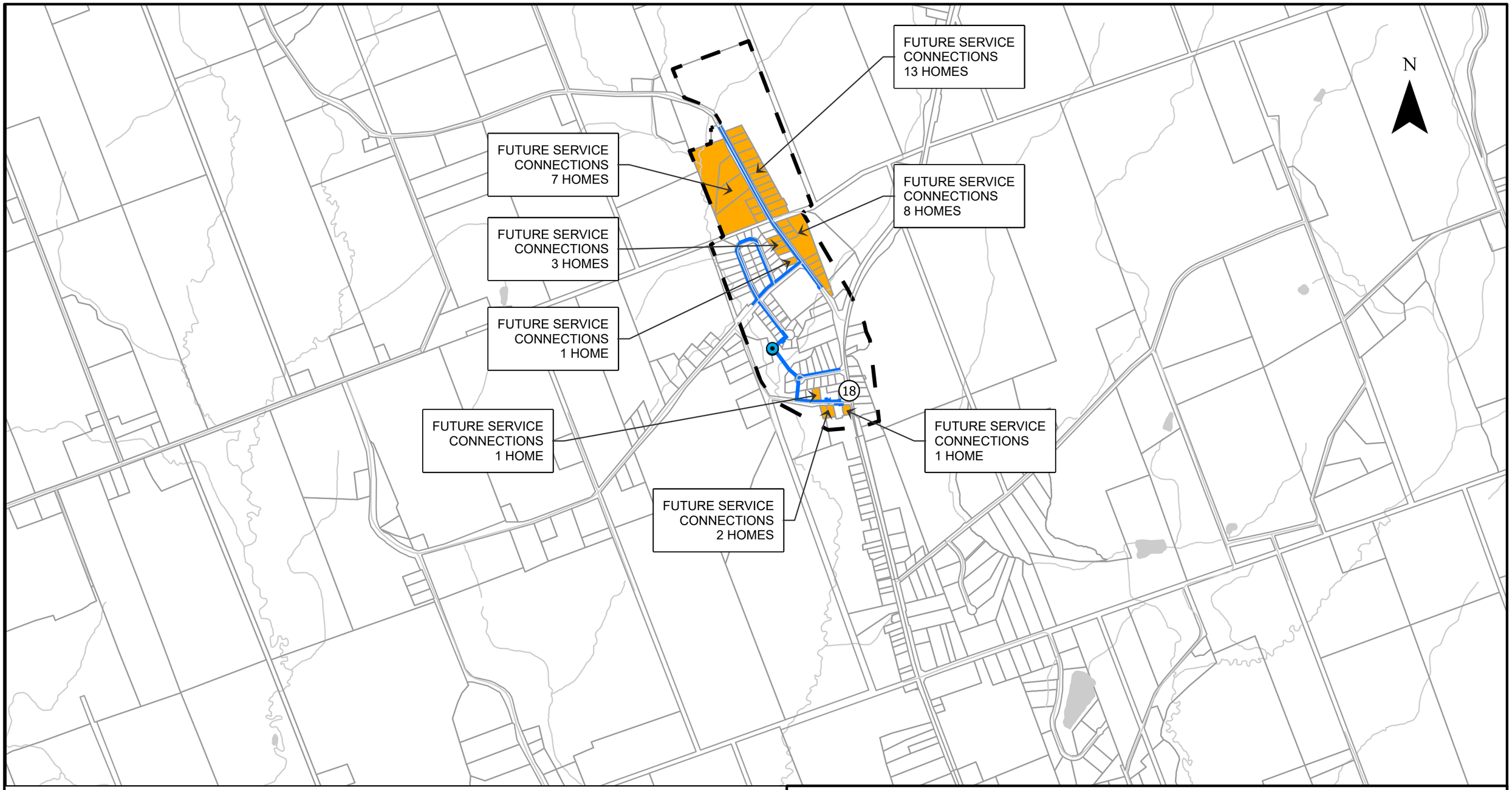

Wells
Watermain
Valve Box
Water Course
Waterbody
Study Area

Growth Areas
Short Term Growth (0-5 years)
Mid Term Growth (5-10 years)
Long Term Growth (10-20 years)
Potential Future Connections

PROJECT:
TOWNSHIP OF HAMILTON MASTER PLAN
TOWNSHIP OF HAMILTON, ON

DRAWING:
CAMBORNE POTENTIAL FUTURE CONNECTIONS

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

DESIGN:	TB
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FIGURE 10

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Plot Date: September 11, 2024 9:24 AM

N

18

401

New Development
Beth St
10 Units

Watermain
Hydrant
Valve Box
Water Course

Study Area

Growth Areas
Short Term Growth (0-5 years)
Mid Term Growth (5-10 years)
Long Term Growth (10-20 years)
Potential Future Connections

PROJECT:
TOWNSHIP OF HAMILTON MASTER PLAN
TOWNSHIP OF HAMILTON, ON

DRAWING:
BUTTERSFIELD POTENTIAL FUTURE CONNECTIONS

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

DESIGN:	TB
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FIGURE 11

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Plot Date: September 11, 2024 9:25 AM

3.3 Hydrogeological Review

BluMetric Environmental was retained by JLR, as the hydrogeological sub-consultant, to undertake a high-level desktop hydrogeological review of available groundwater resources and local aquifer properties for the Creighton Heights and Camborne water supply systems. Refer to Appendix B for full report.

The review included available well records, annual reports and a Well Construction Program Report for the Creighton Heights community, prepared by Rural Development Consultants Ltd (RDCL) in 1996. The desktop hydrogeological review concluded that there is a high likelihood that additional hydrogeological resources are available in the Creighton Heights community to meet projected water demands. The preliminary findings also appear to show that there is sufficient hydrogeological resources available to support the future demand in Camborne.

As such, the following is a summary of recommendations for further investigation and consideration for Creighton Heights:

- Install a large diameter production well on the existing well site near test well TW9 (refer to Figure 12), as was originally planned for the site. In the 1996 RDCL report, it was suggested that this well could be equipped with a pump capable of 965 L/min (or 1,390 m³/day) or greater, which is in alignment with the capacity demonstrated by the upper bedrock aquifer in test well TW7.
- Assess the former Township municipal well sites along Maple Crescent and Elm Avenue to determine if upgrading the wells can bring them back into service. Refer to Figure 13. If the current WTP well site cannot meet the water supply demand, this may be a potential site to provide additional flow.
- Assess the area around the former Winter and Perron artesian wells for new water sources. Refer to Figure 13. The 1996 RDCL report noted these sites appear to have potential as a significant groundwater resource.

The Township also identified an old test well location on Gordon Street, east of the community centre, which could be another candidate for further investigation.

BluMetric also recommended for the Township to conduct an updated review of the hydrogeological resources in Creighton Heights to update and supplement the 1996 RDCL Report. The review would use recent data and investigations to identify and verify new potential test well sites.

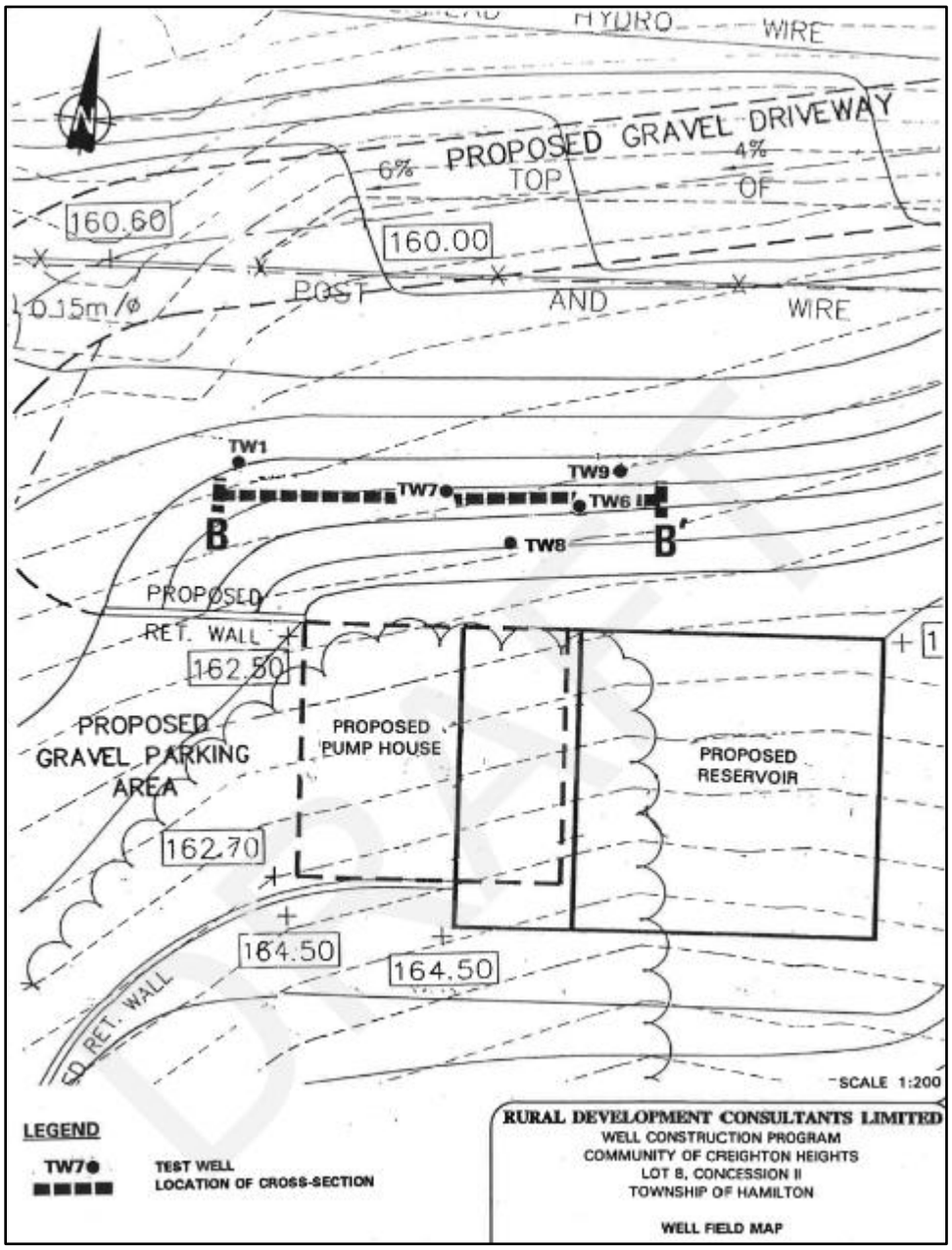


Figure 12: Location of Drinking Water Supply Wells at the Creighton Heights Municipal Pump House (RDCL, 1996)

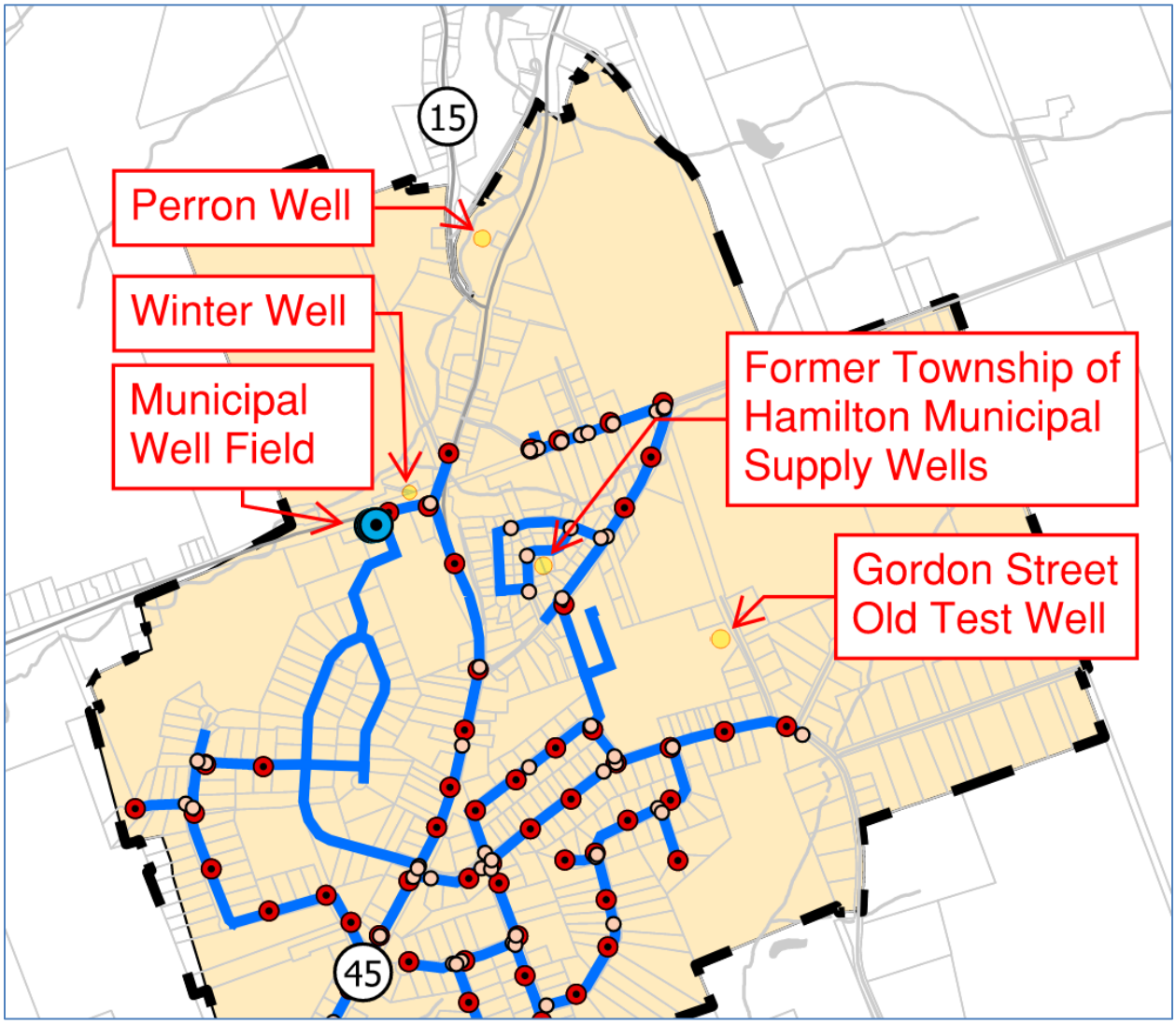
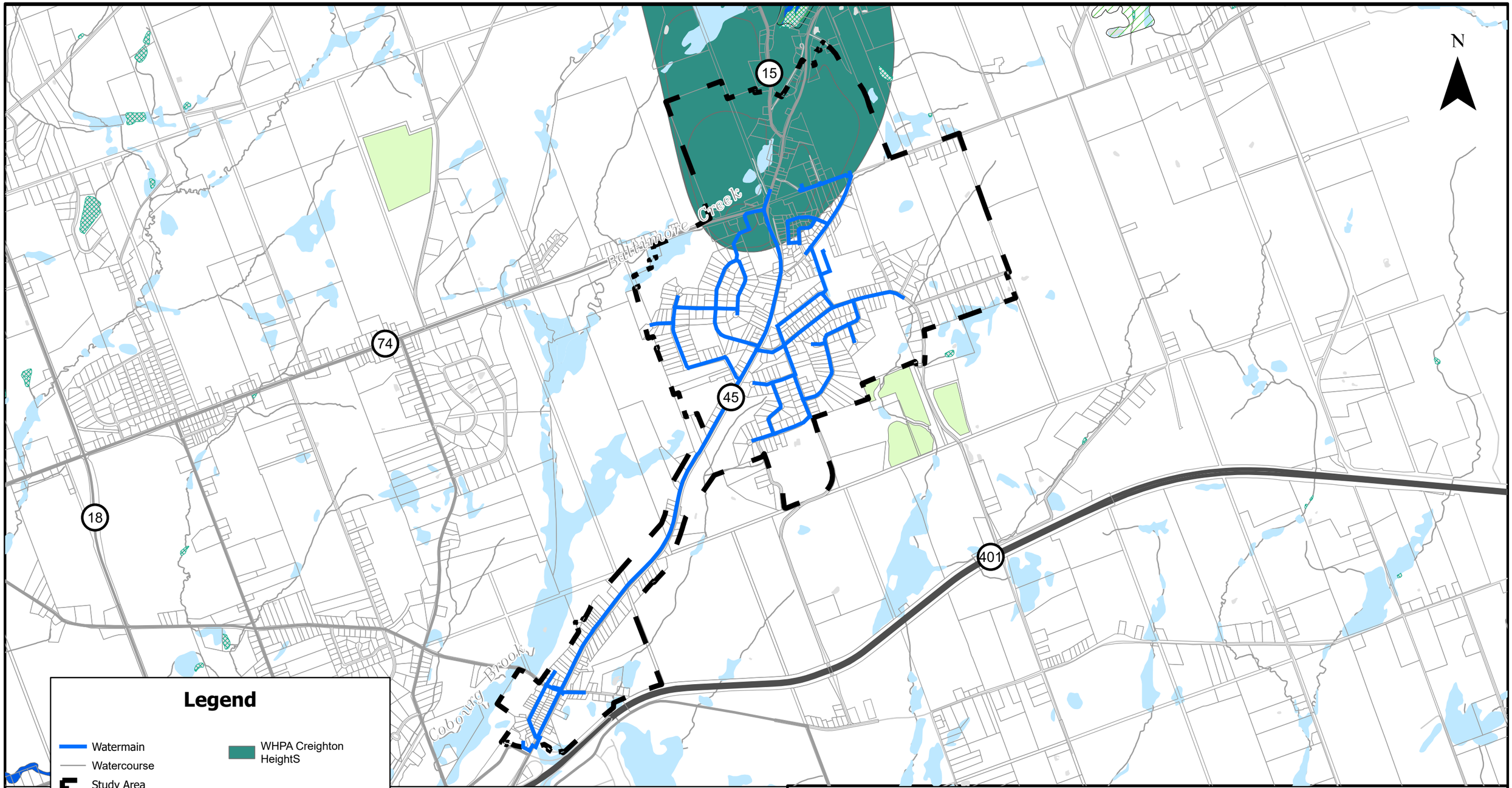


Figure 13: Approximate Location of Old Wells with Groundwater Potential

3.4 Natural Environment

The following figures show an overview of natural environmental features in the Township. Other than the wellhead protection areas (WHPA) as a result of the Township's wells, there are no significant natural environment constraints within the study area.



Legend

- Watermain
- Watercourse
- Study Area
- Waterbody
- Candidate ANSI, Life Science
- Thermal Regime - Cold
- Aggregate Extraction Area

Wetland

- Evaluated-Provincial
- No Data
- WHPA Creighton HeightS

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

CREIGHTON HEIGHTS NATURAL CONSTRAINTS

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

DESIGN:	TB
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JLR #:	32814-000

DRAWING #:

FIGURE 14

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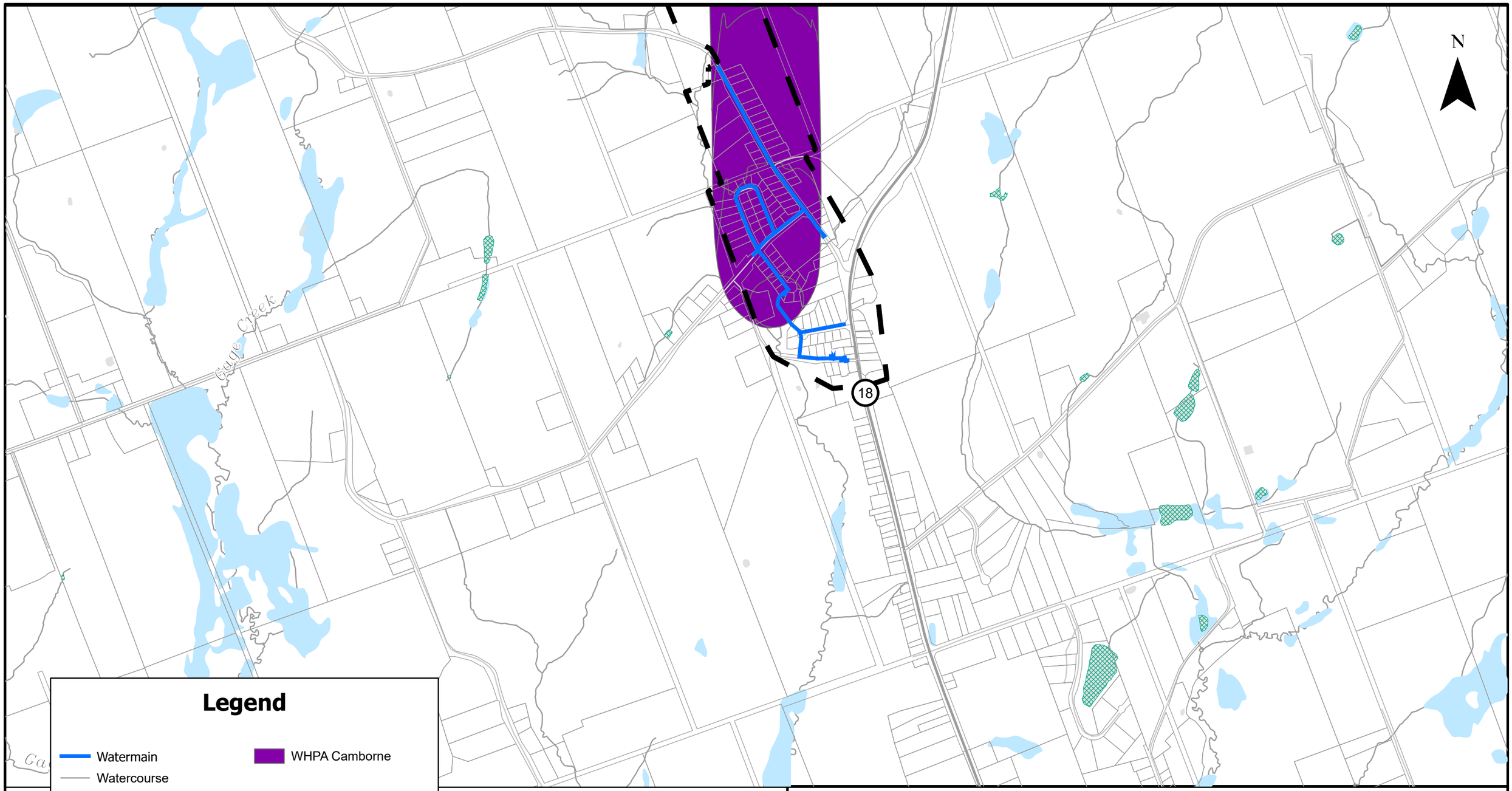

Legend

- Watermain
- Watercourse
- Study Area
- Waterbody
- Thermal Regime - Cold
- Wetland
- No Data
- WHPA Camborne

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

CAMBORNE NATURAL CONSTRAINTS

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

DESIGN:	TB
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JLR #:	32814-000

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FIGURE 15

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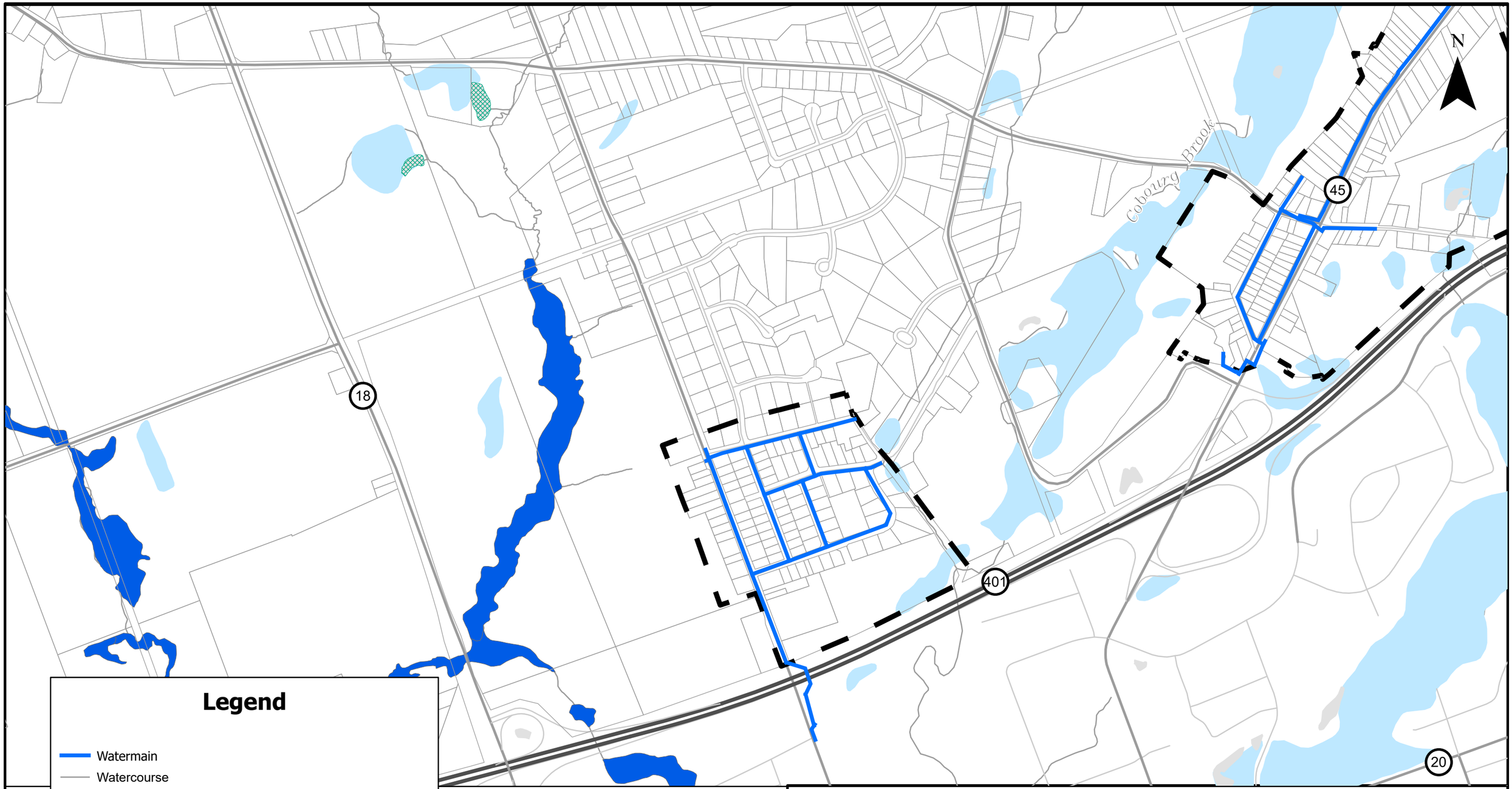

Legend

- Watermain
- Watercourse
- Study Area
- Waterbody
- Thermal Regime - Cold

Wetland

- Evaluated-Provincial
- No Data

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

BUTTERSFIELD NATURAL CONSTRAINTS

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

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JLR #:	32814-000

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FIGURE 16

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Plot Date: Thursday, November 27, 2025 8:12 AM

4.0 Description of Existing Conditions (Water Supply and Treatment)

4.1 Creighton Heights

4.1.1 Water Supply, Treatment and Pump House Descriptions

The Creighton Heights drinking water systems are owned and operated by the Township. Creighton Heights operates under Drinking Water Works Permit (DWWP) No. 139-202, Issue #3 and Municipal Drinking Water License (MDWL) 139-102 Issue #4. The system is supplied by three groundwater wells, primary wells TW6 and TW7 and back-up well TW1. All wells are considered non-GUDI.

Creighton Heights treatment plant and wells TW1, TW6 and TW7 are located at 9235 Dale Rd. Per the DWWP, only one well between the primary production wells TW6 and TW7 can operate at a time but can operate in conjunction with TW1.The maximum total raw water taken per day is 979 m^3/day and TW1 is a back-up well which has a maximum total per day of 490 m^3/day as per the PTTW. Water is pumped up to the Creighton Heights treatment plant from the wells and is treated for naturally occurring manganese and iron with the addition of potassium permanganate and filtration through greensand filters, followed by ultraviolet (UV) for primary disinfection and sodium hypochlorite addition for secondary disinfection. The water then passes through a methane stripper to remove naturally occurring methane. From the methane stripper the water is discharged to underground clearwells and a high lift pumping system (three pumps for regular system pressure and two for fire flow pressure) that directs water to the distribution system. A separate pumping system comprising of three booster pumps equipped with variable frequency drives (VFDs) directs water to the adjacent Deerfield subdivision. Online monitoring instruments measure chlorine and chloramine residual, pressure, and flow to maintain compliance and are tied into the plant's SCADA system. The treatment plant has a backup power generator.

4.1.2 Historical Flow Rates – Raw Water Production

Annual Drinking Water System Reports over four (4) years, from 2020 to 2023, were provided by the Township. The reports were used to determine the current raw water production from the Township's wells. The following table summarizes the average day and maximum day flows for Creighton Heights water system. The 4-year historical raw water productions show the maximum day production is under the PTTW capacity limits.

However, the Township observed the wells are no longer capable of producing the raw water capacity noted in the PTTW, even after repair and rehabilitation efforts on the wells. In the Capital Needs Assessment Report (GM BluePlan, 2020), the Township defined an operational limit of raw water taking from the wells at approximately 700 m^3/d. For the purposes of assessing the Creighton Heights water supply capacity, this report will be using the same operational limit.

Note that later sources suggest that the operational limit may have increased since 2020; for example, the Uncommitted Reserve Capacity memo (GMBP, 2022) lists actual operating capacity values of 778 m^3/d based on production from Wells TW1 and TW6 operating together, and 864 m^3/d based on production from Wells TW1 and TW7 operating together. In addition, the Creighton Heights Well 7 Inspection and Rehabilitation report (Lotowater, 2022) suggests that the TW7

capacity post-rehabilitation had increased compared to pre-rehabilitation. It is recommended that the operational limit of the system be confirmed through on-site evaluations.

Table 8: Creighton Heights Raw Water Production (2020-2023)

Years	Average Day (m^3/day)	Maximum Day (m^3/day)
2020	353	643
2021	386	696
2022	335	659
2023	345	664
4-Year Flow (m^3/d)	**355**	**696**
PTTW Rated Capacity (m^3/d)	N/A	1303
Percent (%) of PTTW Rated Capacity Used	N/A	53%
Operational Limit (m^3/d)	N/A	700 (1)
Percent (%) of Operational Limit Used	N/A	99%
MDWL Rated Capacity	N/A	979
Percent (%) of MDWL Rated Capacity Used	N/A	71%

Notes:
(1) Capital Needs Assessment Report (GM BluePlan, 2020). It is recommended that operational limit be confirmed through on-site evaluations.

The figure below demonstrates the monthly variation in raw water taking between 2020 and 2023. The water system is operating below the PTTW water taking limit. However, the max day flows are very close to the assumed operation limit of the wells, particularly in the spring, summer and fall months.

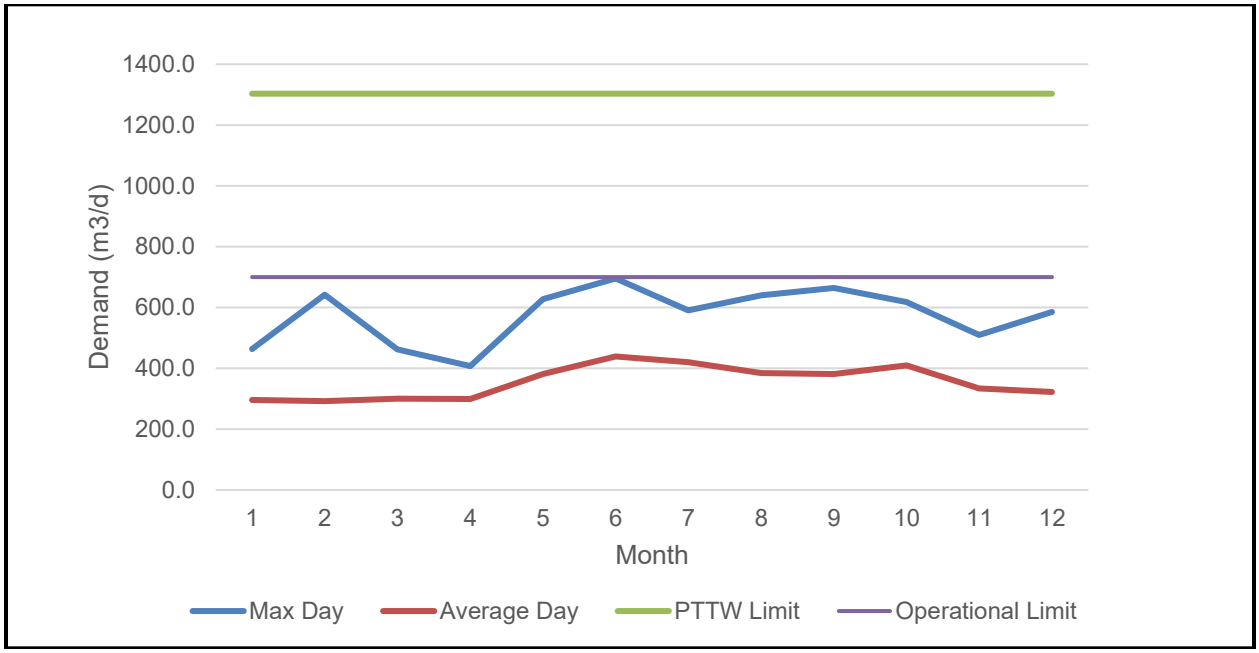


Figure 17: Creighton Heights Monthly Raw Water Production (2020-2023)

4.1.3 Historical Flow Rates – Treated Water

The annual reports were used to determine the current treated water production for the water distribution system. The following tables and figures summarize the average day and maximum day flows for Creighton Heights water system.

Table 9: Creighton Heights Treated Water Demand (2020-2023)

Years	Average Day (m^3/day)	Maximum Day [1] (m^3/day)
2020	331	590
2021	332	668
2022	318	526
2023	328	653
4-Year Flow (m^3/d)	**327**	**668**
MDWL WTP Rated Capacity (m^3/d)	N/A	979
Percent (%) of MDWL WTP Rated Capacity Used	N/A	68%

Notes:
(1) The maximum day demand historically has been a result of watermain leaks, seasonal denitrification and maintenance activities such as fire hydrant and system flushing. Maximum day demand can be managed via extending maintenance activities over multiple days to reduce the effects on the system demand. Enforcement of By-Law 2004 28 Regulation of Water usage will further reduce the water demand.

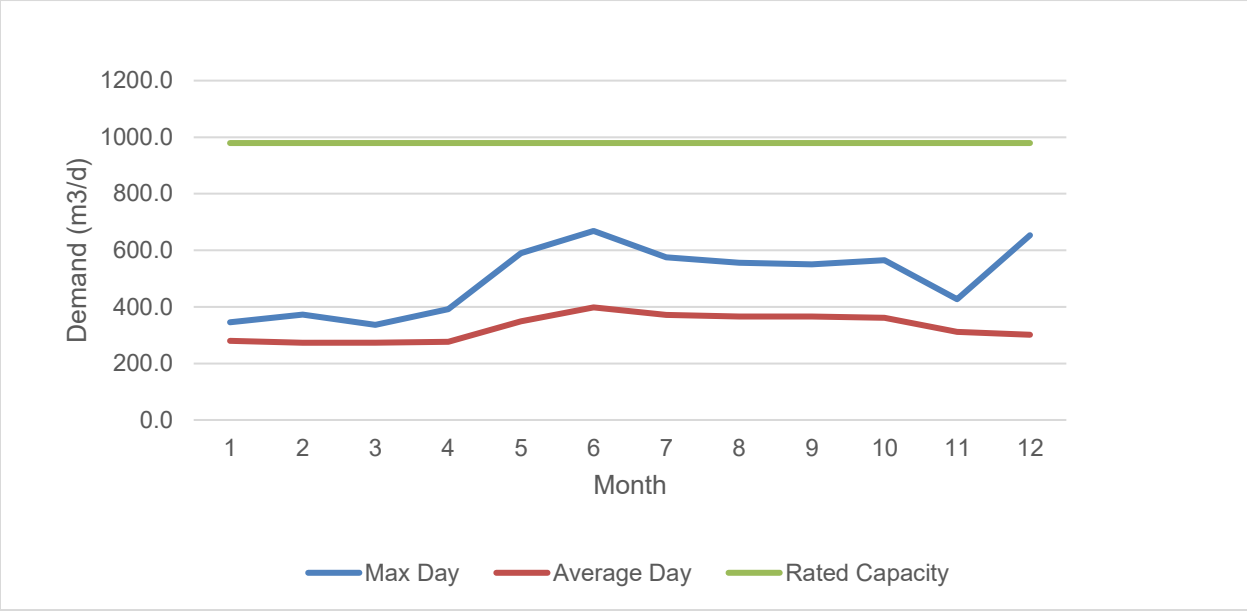


Figure 18: Creighton Heights Monthly Treated Water Demand (2020-2023)

As shown above, the Creighton Heights water treatment plant 4-year production is within the MDWL limits.

4.1.4 Water Quality

The following is a summary of reportable adverse water quality events in the Creighton Heights drinking water systems.

Table 10: Summary of Reportable Adverse Quality Events (Creighton Heights)

Year	Description
Sept 2020	Spike in chloramine level to 3.05 mg/L due to switching from chloramination disinfection to free chlorination disinfection for watermain cleaning. Dosing levels were adjusted until levels dropped below 3 mg/L.
Oct 2021	(2 instances) Spike in chloramine level to 3.05 mg/L due to switching from chloramination disinfection to free chlorination disinfection for watermain cleaning. Dosing levels were adjusted until levels dropped below 3 mg/L.
2021	Several instrumentation anomalies from January to June showing spike in chloramine levels.
2022	5-year sodium testing result was 32.4 mg/L. Above 20mg/L sodium limit. Public health unit informed customers connected to water system. Sodium levels in 2017 was 27.2 mg/L.
Sept 2022	Spike in chloramine levels (instrumentation anomaly).
Oct 2022	Spike in chloramine level to 3.01 mg/L due to switching from chloramination disinfection to free chlorination disinfection for watermain cleaning. Dosing levels were adjusted until levels dropped below 3 mg/L.

Year	Description
2023	Several instrumentation anomalies from January to May showing spike in chloramine levels and dips in chloramine residual.
June 2023	Total Coliform result of 28 cfu. Incident was reported and boil water advisory was issued. Watermain was flushed and dosing of sodium hypochlorite was increased. After flushing bacti results were acceptable and boil water advisory was rescinded.
Dec 2023	(2 instances) chlorine analyzer dip due to instrument error.

4.1.5 Operational Challenges

The following tables are a summary of the Township's operational challenges noted by the Township for the Creighton Heights water system.

Table 11: Creighton Heights Water System Operational Challenges

Water Supply	• Increasing number of serviced homes, but a drop in water demand affecting rate revenues. • 75 homes disconnected from Cobourg were connected to Creighton Heights water system, contributing to increased demand and an additional pressure zone • Wells do not produce as much as rated capacities, even after rehabilitation • Water supply in Creighton Heights system is significantly limited by well production • Discrepancy between MDWL WTP rated capacity of 979 m^3/d and PTTW capacity of 1,303 m^3/d, i.e., WTP rated capacity is lower than the approved groundwater taking limit.
Water Treatment	Water quality: • Source water quality is poor, requiring treatment for iron, manganese, methane and ammonia • Township receives customer complaints about treated water quality due to manganese and ammonia (most recently about green water colour) Plant operational challenges: • Plant hydraulics is challenging. The operators noted frequent pipe turns and choke points in plant. • Operators noted the piping and valving arrangement after the high lift pumps such that there is no way to bypass and divert flow for servicing and shut down. • Methane stripper does not have redundancy. • Township noted high O&M costs primarily from the hydro for high lift pumps) • Township noted that well pumps are required to run constantly in the summer months to keep up with demand.

Distribution	• No watermain looping resulting in flushing at dead ends to maintain residuals (wasting ~30m^3/d during summer months). • Township noted groundwater infiltration into aging valve chambers. • Annual flushing with free chlorine for watermain denitrification. • Township noted 2" feeder to school is undersized. • During a fire event, the fire pumps turn on at the WTP which shut off the other distribution pumps. Operators would manually turn on the distribution pumps to provide additional flow. • Township noted that several properties on private wells are claiming their wells are failing and are requesting to be connected onto the Township's water distribution system.

There have been no recent water main breaks, but the Township recorded a number of service saddle failures in the Creighton Heights water system that are fairly tightly clustered:

Table 12: Creighton Heights Service Saddle Failures

Date	Location
Dec 26, 2007	4168 Cty Rd 45
July 24, 2015	4176 Cty Rd 45
Aug 15, 2017	4175 Cty Rd 45
Feb 5, 2020	4168 Cty Rd 45
Dec 4, 2023	4211 Cty Rd 45
Dec 20, 2023	4171 Cty Rd 45
Feb 4, 2024	4173 Cty Rd 45

4.2 Camborne

4.2.1 Water Supply, Treatment and Pump House Descriptions

The Camborne drinking water systems are owned and operated by the Township. The water system operates under DWWP No. 139-203, Issue #2, and MDWL No. 139-103, Issue #3.

Camborne water treatment plant and wells 1A and 2A are located at 23 Ford Street. Camborne is supplied by two artesian wells, 1A and 2A, both are considered non-GUDI. Both wells are artesian wells and only one can run at a given time for drinking water production. Overflow from the artesian wells is directed to a storm water system discharging to an adjacent creek. The wells have separate flow meters for the artesian overflow and raw water flow. Well 1A and Well 2A have a maximum raw water taking totals of 288 m^3/day and 412 m^3/day, respectively as per the PTTW. The system is also limited to a maximum daily volume of treated water that flows from the treatment subsystem into the distribution system with a rated capacity of 415 m^3/day in accordance with the MDWL. The Camborne water treatment plant doses water from wells with sodium hypochlorite for disinfection prior to directing it to greensand filters for iron removal. Water is discharged to underground clearwells and a high lift pumping station with three pumps and a series of pressure tanks that provide flow and pressure through the Camborne distribution system. Online monitoring instruments measure chlorine residual, pressure, and flow to maintain

compliance and are tied into the plant's SCADA system. The treatment plant has an on-site backup power generator.

4.2.2 Historical Flow Rates – Raw Water Production

Annual Drinking Water System Reports over four (4) years, from 2020 to 2023, were provided by the Township. The reports were used to determine the current raw water production from the Township's wells. The following table and figure summarize the average day and maximum day flows for the Camborne water system. The Camborne water system is operating under the raw water production limits of the wells.

Table 13: Camborne Raw Water Production (2020-2023)

Years	Average Day (m^3/day)	Maximum Day (m^3/day)
2020	50	122
2021	50	177
2022	48	95
2023	43	83
4-Year Flow (m^3/d)	**48**	**177**
Well PW-1A		
PTTW Capacity	N/A	288
Percent (%) Pump Rated Capacity	N/A	61%
Well PW-2A		
PTTW Capacity	N/A	412
Percent (%) Pump Rated Capacity	N/A	43%

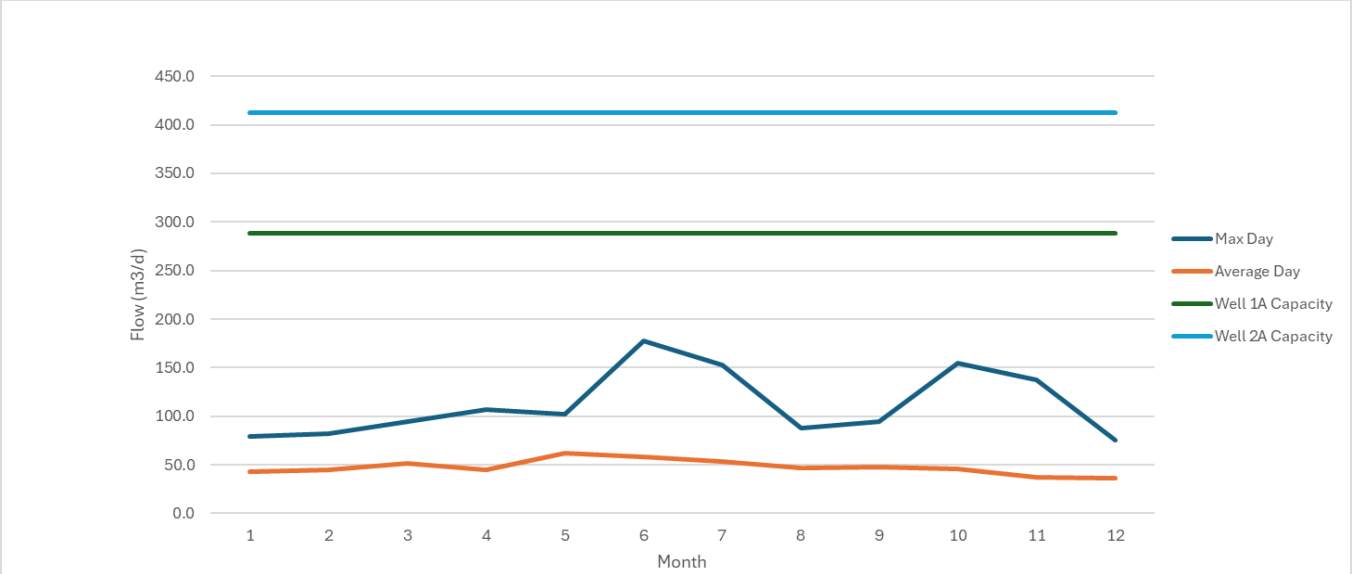


Figure 19: Camborne Monthly Raw Water Production (2020-2023)

4.2.3 Historical Flow Rates – Treated Water

The Annual Drinking Water System Reports reports were used to determine the current treated water production for the water distribution system. The maximum daily volume of treated water that flows from the treatment subsystem into the distribution system shall not exceed the rated capacity of 415 m^3/day which is in accordance with the Camborne Municipal Drinking Water License. The following tables and figures summarize the average day and maximum day discharged treated water flows for the Camborne water system.

Table 14: Camborne Treated Water Demand (2020-2023)

Years	Average Day (m^3/day)	Maximum Day (m^3/day)
2020	50	104
2021	47	143
2022	42	73
2023	41	83
4-Year Flow (m^3/d)	**45**	**143**
MDWL Max Daily Treated Water Capacity (m^3/d)	N/A	415
Percent (%) of Capacity Used	N/A	34%

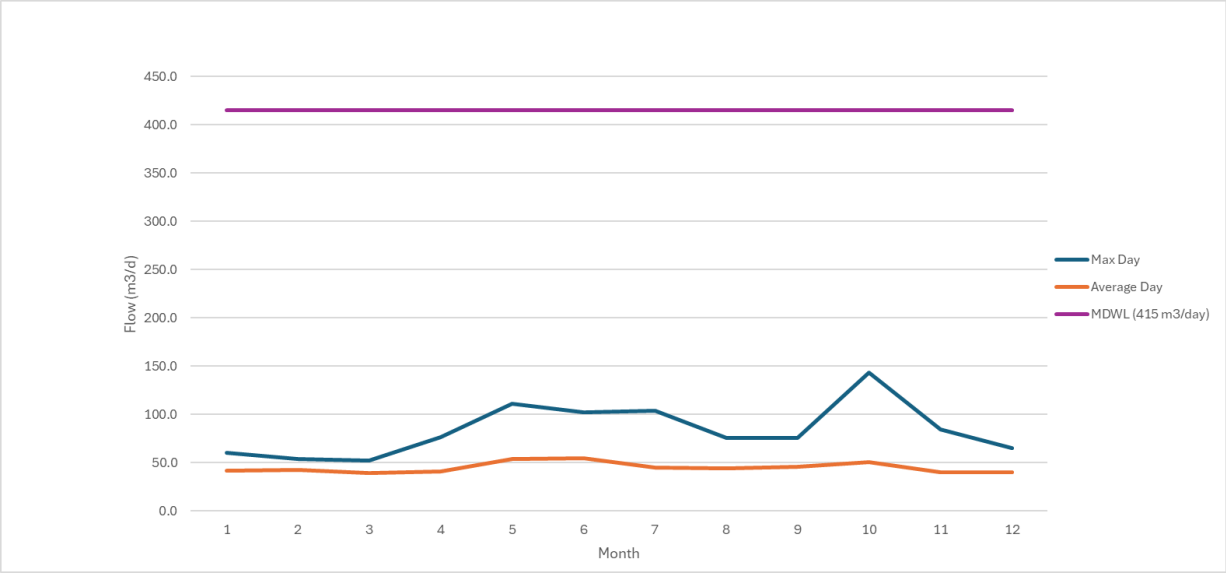


Figure 20: Camborne Monthly Treated Water Demand (2020-2023)

As shown above, the Camborne water treatment plant 4-year production has been operating within the DWWP limits.

4.2.4 Water Quality

The following is a summary of reportable adverse water quality events in the Camborne drinking water systems.

Table 15: Summary of Reportable Adverse Quality Events (Camborne)

Year	Description
July 2020	Loss of pressure due to failed flange on the high lift header in the clearwell. The repairs were completed during a boil water order, and bacti results were acceptable.
Aug 2021	SCADA data gaps over 8 days in August 2021.
Nov 2021	Due to valving operation error, a very low amount of raw water flow through Well 1A flowmeter while Well 1A was out of service during rehabilitation work on Well 2A. Issue was quickly resolved and Well 1A sodium hypochlorite dosing factor was raised to increase free chlorine residual.
2022	No reportable adverse water quality incidents.
2023	No reportable adverse water quality incidents.

4.2.5 Operational Challenges

The following tables are a summary of the Township's operational challenges noted by the Township for the Camborne water system.

Table 16: Camborne Water System Operational Challenges

Water Supply	No noted concerns
Water Treatment	No noted concerns
Distribution	• Fire protection is not currently provided by the water distribution system. • Sand buildup in watermains. • New watermain was installed on Kennedy Road during full road reconstruction. One home was connected at the end of watermain. There are ~30 terminations that did not connect leading to water quality concerns for the single user along Kennedy Road. Routine flushing is needed to manage water age and water quality.

4.3 Buttersfield

4.3.1 Water Supply and Treatment

Buttersfield water system is serviced by the Cobourg Drinking Water System, via a single watermain crossing under Highway 401. The Cobourg Water Treatment Plant draws and treats water from Lake Ontario. It is assumed that Buttersfield will continue to be serviced by the Cobourg Drinking Water System beyond the next 20-year period.

4.3.2 Operational Challenges

The following tables are a summary of the Township's operational challenges noted by the Township for the Buttersfield water system.

Table 17: Buttersfield Water System Operational Challenges

Water Supply	• Water supply is provided by the Town of Cobourg.
Water Treatment	• No noted concerns
Distribution	• Single watermain servicing community, crossing Highway 401 from Cobourg; there is no secondary supply of drinking water available if this watermain is offline.

5.0 Future Water Demand

5.1 Creighton Heights

5.1.1 Future Water Demands

The future water demands under the Low Growth and High Growth scenarios presented in Table 18 and Table 19, respectively, were calculated using the projected populations and methodology outlined in section 3.2.

Table 18: Creighton Heights Future Water Demands – Low Growth Scenario

Low Growth Scenario				
Demand Scenario	**Existing Conditions (2024)**	**Short-Term (2024-2029)**	**Mid-Term (2029-2034)**	**Long-Term (2034-2044)**
Serviced Population Growth	-	291	311	515
Total Serviced Population	1,283	1,574	1,885	2,400
Additional Average Day ICI (m^3/day) (1)	-	-	-	254
Additional Average Day (m^3/day) – Residential (2)	-	74	79	131
Total Average Day (m^3/day)	327 (3)	401	481	866
Total Maximum Day (m^3/day)	668(5)	819	981	1,630
Total Peak Hour (m^3/day) (6)	1,002	1,228	1,471	2,650

Notes:
(1) MECP Design Guidelines for Drinking Water Systems, Section 3.4.3 Commercial and Institutional Water Demands, 28,000 L/ha/day (Commercial).
(2) These flow rates represent the projected average flow increase that would be caused based on serviced population growth in each time period. Calculated as population x water usage which is the 4-year average day demand divided by the total service population (255 L/cap/day).
(3) Existing average day flow is the 4-year (2020 – 2023) average flow at the WTP.
(4) Maximum day demand is determined by multiplying the average day demand by a peaking factor. The residential peaking factor (2.04) is the residential average day flow determined from 4-year average day demand divided by the total service population. The ICI peaking factor was assumed to be 1.5.
(5) The existing max day is the 4-year (2020 – 2023) maximum flow at the WTP.
(6) Peak hour peaking factor is calculated by multiplying maximum day peaking factor by 1.5, consistent with MECP Design Guidelines for Drinking Water Systems, Section 3.4.2 Domestic Water Demands Table 3-1.

Table 19: Creighton Heights Future Water Demands – High Growth Scenario

High Growth Scenario				
Demand Scenario	**Existing Conditions (2024)**	**Short-Term (2024-2029)**	**Mid-Term (2029-2034)**	**Long-Term (2034-2044)**
Serviced Population Growth	-	478	523	798
Total Serviced Population	1,283	1,761	2,284	3,081
Additional Average Day ICI (m^3/day) (1)	-	-	-	254
Additional Average Day (m^3/day) – Residential (2)	-	92	164	203

High Growth Scenario				
Demand Scenario	**Existing Conditions (2024)**	**Short-Term (2024-2029)**	**Mid-Term (2029-2034)**	**Long-Term (2034-2044)**
Total Average Day (m^3/day) (3)	327	449	583	1,040
Total Maximum Day (m^3/day) (4)(5)	668	917	1,189	1,984
Total Peak Hour (m^3/day) (6)	1,002	1,375	1,783	3,182

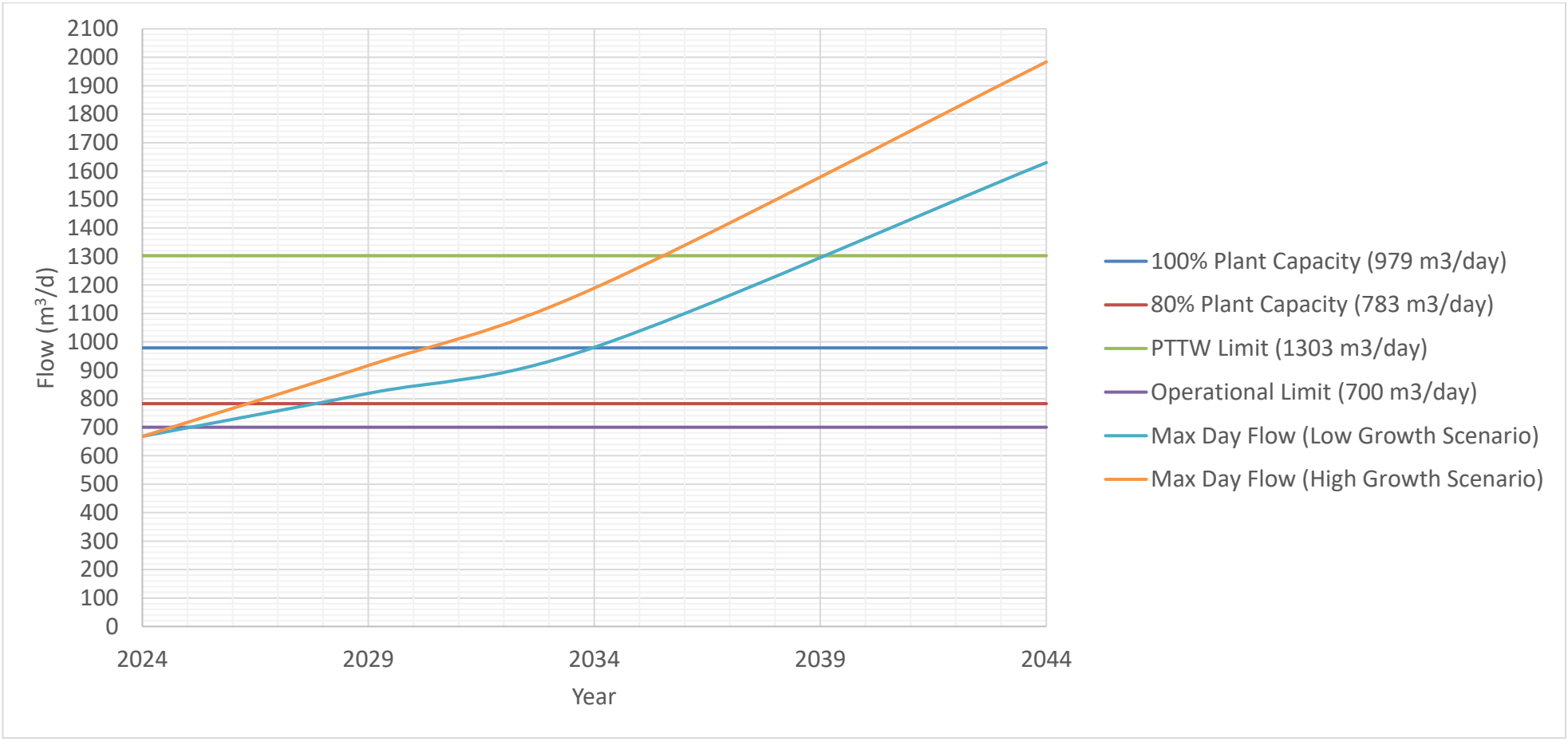
Notes:
(1) MECP Design Guidelines for Drinking Water Systems, Section 3.4.3 Commercial and Institutional Water Demands, 28,000 L/ha/day (Commercial).
(2) These flow rates represent the projected average flow increase that would be caused based on serviced population growth in each time period. Calculated as population x water usage which is the 4-year average day demand divided by the total service population (255 L/cap/day).
(3) Existing average day flow is the 4-year (2020 – 2023) average flow at the WTP.
(4) Maximum day demand is determined by multiplying the average day demand by a peaking factor. The residential peaking factor (2.04) is the residential average day flow determined from 4-year average day demand divided by the total service population. The ICI peaking factor was assumed to be 1.5.
(5) The existing max day is the 4-year (2020 – 2023) maximum flow at the WTP.
(6) Peak hour peaking factor is calculated by multiplying maximum day peaking factor by 1.5, consistent with MECP Design Guidelines for Drinking Water Systems, Section 3.4.2 Domestic Water Demands Table 3-1.

5.1.1 Projected Timing for Water Supply and WTP Expansion

The following figures represents the projected maximum day water demand from the Creighton Heights WTP and anticipated timing to reach 80% and 100% of the rated capacity. The anticipated growth was based on existing water demands and anticipated development timelines provided by the Municipality.

For the Creighton Heights Water System low growth scenario, Figure 21 indicates that 80% WTP rated capacity will be reached by 2029, and 100% WTP rated capacity will be reached in the next 10 years. In a more condense build out, the high growth scenario, Figure 21 indicates that 80% WTP rated capacity will be reached in 2026, and 100% WTP rated capacity will be reached in 2030. In both scenarios the figure shows the water demand already reaching the assumed operational limit in 2025. See discussion in Section 4.1.2; it is recommended that the actual current operational limit of the existing system be confirmed through on-site evaluations.

Figure 21: Creighton Heights 20-Year Projected Water Demand



5.2 Camborne

5.2.1 Future Water Demands

The future water demands presented in Table 20 were calculated using the projected populations and methodology outlined in section 3.2.

Table 20: Camborne Future Water Demands

Parameter	Existing Conditions (2024)	Short-Term (2024-2029)	Mid-Term (2029-2034)	Long-Term (2034-2044)
Serviced Population Growth	-	98	3	6
Total Serviced Population	182	280	283	289
Total Average Day (m^3/day) (1)(2)	45	69	70	71
Total Maximum Day (m^3/day) (3)(4)	143	220	222	227
Total Peak Hour (m^3/day) (5)	214	330	333	340

Notes:

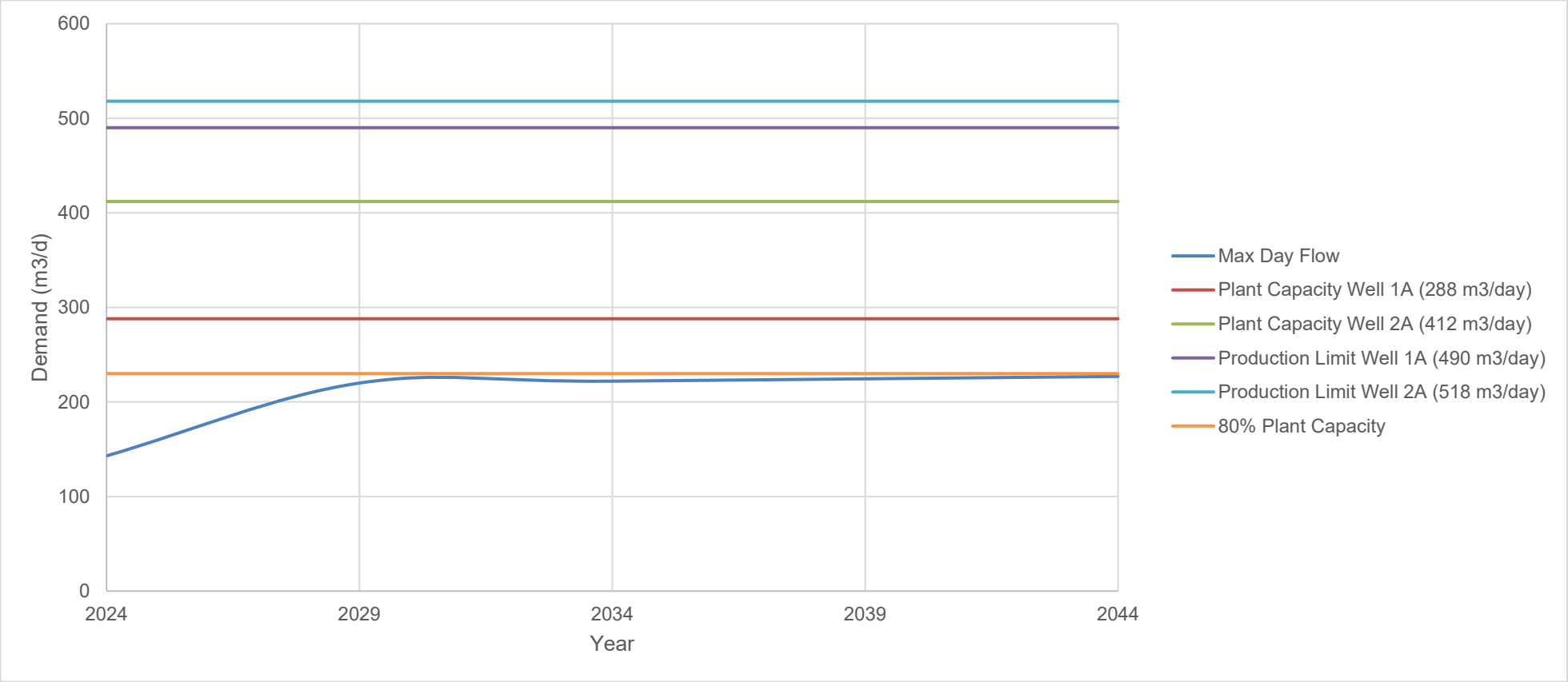
(1) Calculated as population x water usage which is the 4-year average day demand divided by the total service population (246 L/cap/day).
(2) Existing average day flow is the 4-year (2020 – 2023) average flow at the WTP.
(3) Maximum day demand is determined by multiplying the peaking factor by the average day demand. The peaking factor (3.19) is the residential average day flow determined from 4-year average day demand divided by the total service population.
(4) The existing max day is the 4-year (2020 – 2023) maximum flow at the WTP.
(5) Peak hour peaking factor is calculated by multiplying maximum day peaking factor by 1.5, consistent with MECP Design Guidelines for Drinking Water Systems, Section 3.4.2 Domestic Water Demands Table 3-1.

5.2.1 Projected Timing for WTP Expansion

The following figure represents the projected maximum day water demand from the Camborne WTP and anticipated timing to reach 80% and 100% of the rated capacity. The anticipated growth was based on existing water demands and anticipated development timelines provided by the Municipality.

For the Camborne Water System, 80% WTP rated capacity will be reached in 2041 with the current anticipated growth.

Figure 22: Camborne 20-Year Projected Water Demand (2024-2044)



5.3 Buttersfield

The Township is recommended to coordinate with the Town of Cobourg with any additional developments to ensure there is adequate capacity for the new growth. The Township noted there is provisions in the current agreement to address some growth in the community, so it is assumed that the Cobourg Drinking Water System will have adequate capacity to service the system beyond the next 20-year period.

6.0 Treated Water Storage

Per MECP Design Guidelines for Drinking-Water Systems (2008), total available treated water storage within the system should at least amount to the sum of the required fire storage (A), equalization storage (B), and emergency storage (C) allowances, as depicted in Figure 23. The total water storage requirement was compared against the existing available storage.

For determining existing available storage, the MECP Guidelines excludes storage needed for the operation of the water treatment plant.

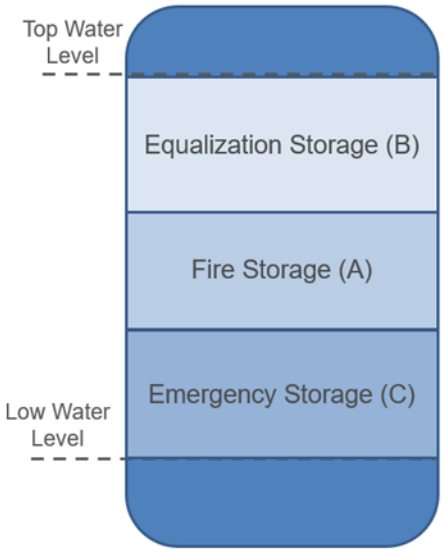


Figure 23: Total Required Treated Water Storage

6.1 Creighton Heights

Below is a summary of available storage volume from the existing reservoirs at the Creighton Heights Water Treatment Plant. Clearwell #3 is required for backwash pumping of the greensand filter and is therefore excluded from the total available storage volume. The Creighton Heights Water Treatment Plant has two disinfection systems: UV and sodium hypochlorite. During normal operation, UV is used for primary disinfection, while sodium hypochlorite is used for secondary disinfection and chloramine residual. Therefore, the reservoirs are not required for the operation of the water treatment plant and can be considered as available storage volume.

Table 20: Creighton Heights Water Treatment Plant Reservoir and Clearwell Volume

Cell Description	Length (m)	Width (m)	Operating Bandwidth (m)	Available Storage Volume (m^3)
Reservoir Cell 1	15	5.475	4.2	345
Reservoir Cell 2	15	5.475	4.2	345
Clearwell Cell 1	4	5.2	4.2	87
Clearwell Cell 2	4	5.75	4.2	97
Clearwell Cell 3	4	2.4	4.2	N/A(1)
Total				**874**

Source: Creighton Heights Water Supply System Operations Manual (Nov 2006)

(1) Clearwell 3 is excluded from available storage volume as it is required for operation of the water treatment (greensand filter backwash pumping)

The table below is a summary of the estimated existing, short, mid, and long-term total storage requirements for Creighton Heights.

Table 21: Future Water Storage Requirements – Creighton Heights Low Growth Scenario

Parameter	Existing	Short-Term (2024-2029)	Mid-Term (2029-2034)	Long-Term (2034-2044)
Average Daily Flow (m^3/d)	327	401	481	866
Maximum Daily Flow (m^3/d)	668	819	981	1630
Cumulative Equivalent Population (1)	1,282	1,574	1,885	3,394
Fire Flow (2) (L/s)	72	81	91	116
Duration (2) (Hours)	2	2	2	2
A – Fire Storage (3) (m^3)	522	586	657	835
B – Equalization Storage (4) (m^3)	167	205	245	407
C – Emergency Storage (5) (m^3)	172	198	226	311
Total Storage Requirements (m^3)	861	988	1,128	1,553
Existing Available Storage (m^3) (6)	874	874	874	874
Surplus (+) / Deficit (-) (m^3)	**13**	**-114**	**-255**	**-679**

Notes:
(1) Estimated to be equal to average day demand / per capita usage of 255 L/cap/d.
(2) Values interpolated from Table 8-1 of the MECP Design Guidelines (2008) based on equivalent service population.
(3) Largest expected fire volume = fire flow x duration
(4) 25% of Maximum Day Demand
(5) 25% of the sum of 'A' and 'B'
(6) Total volume of reservoir and clearwells, minus Clearwell #3, required for backwash pumping

Therefore, the Creighton Heights Water system has sufficient available storage to accommodate existing conditions, but insufficient storage for short-, mid- and long-term growth projections. This evaluation was based on the low growth scenario signifying the high growth scenario would also have insufficient storage.

6.2 Camborne

The Camborne water system will not be used for providing fire protection. Therefore, the total storage requirements are estimated to be 25% of the Max Day Flow plus 40% of the Average Day Flow (MECP Drinking Water Design Guidelines, 8.4.3).

Below is a summary of available storage volume from the existing reservoirs at the Camborne Water Treatment Plant. Although both Reservoirs 1A and 2A are currently used for primary disinfection, only one is required to achieve minimum primary disinfection requirements (Primary Disinfection Report, Gamsby and Mannerow Engineers, July 2007). Therefore, only one reservoir is excluded from the total available storage volume.

Table 22: Camborne Water Treatment Plant Reservoir Volume

Cell Description	Length (m)	Width (m)	Operating Bandwidth (m)	Available Storage Volume (m^3)
Reservoir Cell 1	2.6	3.8	2.6	26
Reservoir Cell 1A	5.0	3.8	2.6	N/A(1)
Reservoir Cell 2	2.6	3.8	2.6	26
Reservoir Cell 2A	5.0	3.8	2.6	49
Total				**101**

Source: Camborne Water Supply System Operations Manual (Sept 2006)

(1) Reservoir 1A is excluded from available storage volume as it is required for operation of the water treatment (primary disinfection) (Primary Disinfection Report, Gamsby and Mannerow Engineers, July 2007)

The table below provides a summary of the estimated existing, short, mid, and long-term total storage requirements for Camborne.

Table 23: Future Water Storage Requirements – Camborne

Parameter	Existing (2023)	Short-Term (2024-2029)	Mid-Term (2029-2034)	Long-Term (2034-2044)
Average Daily Flow (m^3/d)	45	69	70	71
Maximum Daily Flow (m^3/d)	143	220	222	227
Total Storage Requirements (m^3) (1)	**54**	**83**	**84**	**85**
Existing Available Storage (m^3) (2)	**101**	**101**	**101**	**101**
Surplus (+) / Deficit (-) (m^3)	**+47**	**+18**	**+17**	**+15**

Note:

(1) Estimated to be 25% of MDF plus 40% ADF (MECP Drinking Water Design Guidelines, 8.4.3)

(2) Available storage volume of reservoir and clearwells, minus one reservoir (1A or 2A) required for primary disinfection.

Camborne WTP has sufficient available storage to accommodate existing conditions and long-term growth projections.

6.3 Buttersfield

There are no water storage facilities within the Buttersfield water system. It is assumed that sufficient storage is provided by the Cobourg water system.

7.0 Existing Level of Service Conditions and Linear Infrastructure Model Updates

7.1 Hydraulic Water Model – Creighton Heights Water System

A hydraulic water model of the existing Creighton Heights distribution system including Deerfield sub-system was developed in Bentley's WaterCAD® software for this Master Plan.

7.1.1 Water Model Construction

The model was constructed by importing the GIS data provided by the Township, which consisted of the locations of the existing hydrants and watermains, as well as the diameter, length, and material of the existing watermains in the Creighton Heights system. This data was imported from the GIS data using WaterCAD, except for the watermain on Carleton Boulevard, south of Danforth Road West. This neighbourhood was unable to be imported and had to be drawn in manually by referencing the provided GIS data. The overall imported model was manually reviewed to ensure all hydrants, junctions, and watermains were correctly connected.

The Deerfield water distribution system was also drawn in manually, by referencing a drawing provided by the Township as no GIS data is currently available. It is understood the Deerfield system provides only domestic water supply as no fire hydrants are installed this pressure zone.

The water treatment plant (WTP) was represented in the model based on the drawings provided by the Township, including pipe lengths, pump curves for the five High Lift Pumps (HLPs) that service Creighton Heights, and the three pumps with Variable Frequency Drives (VFDs) that serve Deerfield.

Elevations at the junctions and hydrants in the system were imported from data provided by the Ministry of Natural Resources and Forestry (MNRF) in the LiDAR-Derived Ontario Digital Terrain Model. The elevations of the pumps, water source, and junctions within the WTP were determined using the drawings of the WTP provided by the Township. Model pipe diameters and C-factors were applied according to the City of Ottawa Drinking Water Design Guidelines for water models. These are summarized in Table 24.

Table 24: Model Watermain Diameters and C-Factors

Nominal Diameter (mm)	Modelled Internal Diameter (mm)	C Factor
150	155	100
200	204	110
300	297	120

The WaterCAD results display the modelled internal diameter of each watermain.

The overall model schematic is included in Appendix C.

7.1.2 Water Model Demand Inputs

The existing water demands was distributed evenly across the Creighton Heights and Deerfield systems based on data provided by the Township. The methodology is summarized in Table 25.

Table 25: Water Model Demand Inputs

	Average Day Demand	Maximum Day Demand	Peak Hour Demand
Total Treated Water (m^3/d)	327 (1)	668 (1)	933 (2)
Flow from Bleeder Hydrants (m^3/d)	22.7		N/A (2)
Remaining Demand (m^3/d)	305	646	933 (2)
Demand per Junction (L/s) (3)	0.0598	0.1267	0.1830

Table Notes:

(1) Four-year average of monthly ADD and MDD data provided by the Township from 2020 to 2023. Data was not available for PHD.

(2) Peak hour peaking factor is calculated by multiplying observed maximum day peaking factor by 1.5, consistent with MECP Design Guidelines for Drinking Water Systems, Section 3.4.2. Domestic Water Demands Table 3-1. Peaking calculation excludes the continuous flow from bleeder hydrants which was assumed to be constant.

(3) There were four demand junctions in Deerfield and 55 demand junctions in the main Creighton Heights System, for a total of 59 demand junctions in the water model.

As representation of the bleeder valves identified by the Township, a constant demand was applied to Hydrants 69 and 79. The flow at these hydrants was taken to be the weighted annual average of the bleeder flow rates in the summer and the rest of the year. This equalled 18.7 m^3/d at Hydrant 79 and 4.0 m^3/d at Hydrant 69, for a total of 22.7 m^3/d, as seen in the table above.

The remaining demand was distributed evenly across all 59 junctions within the Deerfield and Creighton Heights systems. This excludes the seven junctions within the WTP used to connect the pumps to the distribution system. Each of the 59 junctions have the same demand as listed in the table above.

It is recommended that flow to the Deerfield system be further examined, particularly if future development were to occur in this pressure zone.

7.1.3 Water Distribution System Design Criteria and Operating Parameters

The newly constructed hydraulic water model was used to simulate the performance of the current system under existing steady-state conditions. The operating parameters discussed in this section were assumed for simulations under the existing average day, maximum day plus fire flow, and peak hour demand scenarios.

To conservatively assess system pressure and expected fire flow availability, the High Lift Pumps (HLPs) running in the model scenarios were determined based on the operating parameters described by the Township for Creighton Heights. They are as follows:

- **Average Day Demand:** Jockey pump HLP-4.
- **Maximum Day and Peak Hour Demand**: HLP-4 with duty pump HLP-2 or HLP-3.
- **Maximum Day Demand with Fire Flow:** HLP-2 with high-capacity pump HLP-5 or HLP-1.
    - The system, when it reaches an elevated level of demand, turns on one of the high-capacity pumps, assumed to be HLP-5 in the model, while shutting off the remaining pumps. The remaining pumps can be turned on manually if required.
    - It was assumed an operator would turn on HLP-2 or HLP-3 to support HLP-5 in satisfying demand and increase available flow during a fire.

The Township provided a Process Control Narrative (PCN) for the operation of the pumps in Deerfield. The pumps simulated in the model scenarios are as follows:

- **Average Day Demand**: Duty pump DP-1.
- **Maximum Day Demand, Peak Hour Demand, and Maximum Day Demand with Fire Flow:** Duty pump DP-1 with Lead pump DP-2.
- The pumps are controlled by VFDs for a discharge pressure of 724 kPa.

Under the average day, maximum day, and peak hour scenarios, the following MECP Design Guidelines are applicable:

- The maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi), and while in occupied areas, shall not exceed 552 kPa (80 psi).
- **Average Day:** Pressures shall be within the range of approximately 350 kPa (50 psi) to 480 kPa (70 psi) and not less than 276 kPa (40 psi).
- **Maximum Day with Fire Flow:** Residual pressures at any point in the distribution system shall not be less than 140 kPa (20 psi).
- **Peak Hour:** Pressures shall be a minimum of 276 kPa (40 psi).

7.2 Water Distribution System Model Simulation Results

The results of the model simulations are summarized in Table 26 and Table 27. Refer to Appendix C for more detailed WaterCAD® results, including the model inputs and outputs.

Table 26: Percentage of Junctions within Listed Pressure Ranges during Each Demand Scenario

Pressure Range (kPa)			Existing Average Day Demand	Existing Maximum Day Demand	Existing Peak Hour Demand
	Less than	276	0%	0%	0%
276	up to	350	8%	7%	10%
350	up to	400	5%	5%	3%
400	up to	450	36%	17%	36%
450	up to	500	39%	53%	39%
500	up to and incl.	552	7%	14%	7%
	Greater than	552	5%	5%	5%

The simulation of pressures in the system under ADD, MDD, and PHD illustrate that all junctions are expected to provide the minimum pressure of 276 kPa recommended by the MECP under all demand scenarios.

Additionally, 5% of the 59 junctions exceed the MECP's maximum recommended pressure of 552 kPa in occupied areas during all demand scenarios. These three junctions are the same in all scenarios. Two are located near the dead end at the northern tip of the system, and one is located at the southernmost end of a long pressure zone. The high pressure at these nodes is attributed to their lower ground elevations relative to the rest of the system's hydraulic grade level (HGL). It is recommended any future development in these areas consider individual pressure reducing valves (PRVs) within new units to mitigate long-term wear and tear of household plumbing fixtures caused by operation at elevated pressures.

Table 27: Percentage of Junctions within Listed Fire Flow Ranges during Maximum Day Demand

Available Fire Flow Range (L/s)			Percentage of Hydrants
	Less than	30	9%
30	up to	45	42%
45	up to	67	28%
67	up to and incl.	83	21%
	Greater than	83	0%

The maximum day demand with automatic fire flow scenario shows that 9% of hydrants are unable to provide at least 30 L/s of fire flow. Additionally, 79% of hydrants cannot supply at least 67 L/s of fire flow, which is the flow rate recommended by the current Fire Underwriters Survey (FUS) guidelines for detached single family or small two-family residences with three to ten metres of separation distance.

It is recommended that the required fire flow target be reviewed by the Township to establish the level of service for existing and future development conditions. It is expected that upgrades to the existing potable water distribution system will be required to meet a minimum available fire flow target of 67 L/s at all junctions and hydrants in the system.

The water model inputs and results for all scenarios are provided in Appendix C.

8.0 Summary of Existing Conditions and Constraints

Based on a review of the available background information undertaken as part of Phase 1 of the Master Plan process, the following is a summary of the key findings and constraints:

Creighton Heights Drinking Water System:

- Production limitations of existing groundwater wells.
- Discrepancy between water treatment plant rated capacity and the allowable permit to take water capacity.
- Challenges of existing water treatment plant and distribution system operation.
- The water system has a number of dead ends requiring wasting to maintain residuals.
- Fire flow and pressure limitations due to physical constraints in the water system.
- Insufficient water supply, storage and water treatment capacity to accommodate anticipated future growth.

Camborne Drinking Water System:

- Insufficient number of connections of existing properties to the new Kennedy Road watermain
- Sufficient supply, treatment and storage capacity to accommodate future growth.

Buttersfield Drinking Water System

- Single watermain crossing Highway 401 to service the community; no secondary supply is available if the watermain is offline.
- It is assumed that Buttersfield system will continue to be serviced by the Cobourg Water System.

9.0 Problem and Opportunity Statement

Based on the work completed during the Phase 1 Master Plan Process, the following Problem/Opportunity Statement has been developed:

> *The Township of Hamilton drinking water servicing consists of the following water systems: Creighton Heights, Camborne and Buttersfield.*
>
> *The Creighton Heights drinking water system is supplied by three groundwater wells. Despite the Township's effort in rehabilitation, the wells have a maximum production rate that is significantly lower than the approved water taking limits. The raw water contains ammonia, iron, manganese and methane, making treatment challenging. There will be insufficient water supply, treatment and storage to accommodate future growth. In addition, the distribution system contains dead ends with require wasting to maintain residuals. The physical configuration of the system is challenging, leading to limitations in fire flow and pressure.*
>
> *The Camborne drinking water system is supplied by two artesian groundwater wells. While there is sufficient water supply, treatment and storage to accommodate the existing and future growth, there is an insufficient number of connections of existing properties to the new Kennedy Road Watermain, which results in wasting to maintain residuals.*

The Buttersfield drinking water system is serviced by the Town of Cobourg through a single watermain crossing under Highway 401. It is expected that that Cobourg will continue to service the community into the future. However, there is no secondary water supply if the single watermain is offline.

There is an opportunity through the Master Planning process to review the water systems and servicing strategies holistically and develop a strategic plan that can be prioritized and implemented logically with the intended goal of addressing future servicing needs and ensuring appropriate performance and reliability of Township's water systems for the upcoming planning period of 20 years and beyond.

10.0 Agency and Stakeholder Consultation

10.1 Notice of Study Commencement

The Notice of Commencement was issued on March 25, 2024. Key stakeholders, agencies and property owners near the site were issued the notice directly by mail or email. Refer to Appendix D for the Notice.

10.2 Public Information Consultation

A public information consultation session was held on September 19th, 2024.

10.3 Agency/Stakeholder Comments

Table 28 is a summary of initial stakeholder comments received to date. Refer to Appendix E for the consultation records and an updated stakeholder distribution list.

Table 28: Stakeholder and Agency Comments

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
Review Agency **Ministry of Citizenship and Multiculturalism (MCM)**
Comment: 1. The MCM provided a letter to provide guidance on the archaeological resources, built heritage resources, and cultural heritage landscapes aspects to be addressed during this Class EA.
Response: 1. JLR will advise MCM whether any technical heritage studies will be completed for this master plan and provide them to MCM before issuing a Notice of Completion.
Review Agency **Ministry of Environment, Conservation and Parks (MECP)**
Comment: 1. The MECP provided a letter that provided general guidance on the Class EA Process, MECP contacts, MECP technical review details and 2. The MECP provided a list of First Nations and Métis Communities to include in consultations:

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
• Chippewas of Rama First Nation • Chippewas of Georgina Island • Beausoleil First Nation • Alderville First Nation • Curve Lake First Nation • Hiawatha First Nation • Mississaugas of Scugog Island First Nation • Mohawks of the Bay of Quinte • Kawartha Nishnawbe
Response: 1. JLR is considering MECP's comments in Phase 1 and Phase 2 of the Master Plan and subsequent public consultation process.
Review Agency **Ministry of Transportation (MTO)**
Comment: 1. MTO is interested in attending upcoming PICs and prepared to have any necessary consultations with the Township to discuss MTO requirements triggered by any future works in accordance with the Public Transportation and Highway Improvement Act (PTHIA) and Highway Corridor Management Manual.
Response: 1. JLR will continue to provide updates as the project progresses.
Stakeholder: Behan Construction Ltd. **Representative: Tom Behan**
Comment: 1. Mr. Behan owns a local construction company owner (Behan Construction Ltd.). Mr. Behan is interested in discussing past history and possible future directions for the Township water supply. 2. Tom requested an update on the project.
Response: 1. JLR will continue to provide updates as the project progresses. 2. JLR to respond after Phase 1 Report is complete.
Stakeholder: Private Property Owner **Lynda Gowling and Roy Hircock**
Comment: 1. Ms. Gowling requested for 2505 Hircock Road and 5 properties on the south side of Hircock Road to be included in the study area and requests to be kept updated.
Response: 1. The study area will include the noted properties on Hircock Rd. JLR will continue to provide updates as the project progresses. 2. JLR met with Ms. Gowling via virtual meeting on January 28, 2025, at 2:30pm to provide an update on the revised growth projections and provided answers to her email from September 20, 2024.
Stakeholder: GEI Consultants (formerly GM BluePlan Engineering) **Representative: Grant Parkinson**
Comment:

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
1. GEI Consultants would like to be kept on the contact list and kept informed of the progress made during this Master Plan Study.
Response: 1. JLR will continue to provide updates to GEI Consultants.
Stakeholder: R.W. BRUYNSON INC. **Representative: Richard Bruynson**
Comments: 1. Mr. Bruynson provided a written request to be considered in the study of the Water Supply Master Plan and provided a site plan of their lands for our use to be used as a concept plan for the potential development. 2. Mr. Bruynson requested information about the next PIC.
Response: 1. JLR will continue to provide updates as the project progresses. 2. JLR will contact Mr. Bruynson once a second PIC date is confirmed.
Stakeholder: LINMAC **Representative: Drew Macklin, RPA**
Comment: 1. Linmac recommends that Creighton Heights and Buttersfield should negotiate with the Town of Cobourg for water supply.
Response: 1. JLR will consider this recommendation in Phase 2.
Stakeholder: McDermott & Associates Limited **Representative: John McDermott, MCIP, RPP, PLE**
Comment: 1. McDermott & Associates Ltd. Is interested in receiving subsequent notices regarding the master plan updates.
Response: 1. JLR confirmed that McDermott & Associates Ltd. will continue to receive updates.
Post PIC 1 Comments and Additional Consultation Occurrences
Stakeholder: Ganaraska Conservation **Representative: Cory Harris, P.Eng**
Comment: 1. Mr. Harris requested a copy of the Phase 1 Report as well as requested a meeting with JLR and Anita Schoenleber, Manager of Water Operations for the Municipality to discuss if the MP will require a Section 34 Amendment of the Clean Water Act.
Response: 1. JLR will provide a response and arrange a meeting after the Phase 1 Report has been completed.
Stakeholder: Lakefront Utilities Services (LUSI) **Representative: Larry Spryka**
Engagement: 1. JLR emailed Mr. Spryka to discuss if the Town of Cobourg had interest in being a supply option for the deficiencies in the Township of Hamilton water system.
Comment: 1. Any further discussion on this matter would have to come as a request from the Mayor of the Township of Hamilton to the Mayor of the Town of Cobourg.
Stakeholder: Ministry of Transportation, Corridor Management, Operations East

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
Representative: Shanna Foreman
Comment: 1. MTO is interested in attending upcoming PICs and prepared to have any necessary consultations to discuss MTO requirements triggered by any future works in accordance with the Public Transportation and Highway Improvement Act (PTHIA) and Highway Corridor Management Manual.
Response: 1. JLR will send the updated Phase 1 Report once complete.
Stakeholder: Private Property Owner **Dick Kauling**
Comments: 1. Mr. Kauling requested more information on the scope of the MP.
Response: 1. JLR will send the updated Phase 1 Report once complete.
Stakeholder: Creighton Heights/Baltimore Residents **Representative: Brent and Julie Morrill**
Comment 1. Mr. and Mrs. Morrill attended the first PIC and provided feedback pertaining to concerns they have about the water pressure at their residence, green tinted water, pinky/orange residue left in their water fixtures and an overall concern about the security of the water within their system.
Response: 1. The Township confirmed that the groundwater in the area does have aesthetic issues such as hardness and colour. The Township also sent a water operator to the home of Mr. and Mrs. Morrill where testing showed water pressure at the house faucet was 60 to 70 psi and pressure inside the house after the meter was over 90 psi and the pressure at laundry tap was 80 psi.
Stakeholder: Creighton Heights/Baltimore Residents **Representative: Julie and Glenn Verge**
Comment: 1. Mr. and Mrs. Verge expressed their wishes that the GRCA be consulted on the project. As well as concerns over the approved developments not having adequate water resources and lack of water pressure for fire hydrants.
Response: 1. The Township replied confirming that the GRCA was brought on to the project and attended the PIC. The Township also recognised that the Township does lack fireflow however, fire protection is achieved with Tanker Shuttle Accredited Fire Trucks and other resources managed by the Fire Department. As well it was explained that the purpose of this master plan is the correct path forward to manage water systems nearing capacity.
Stakeholder: Township of Hamilton **Representative: Trevor Clapperton**
Trevor Clapperton, Manager of Parks and Facilities for the Township of Hamilton was added to stakeholder distribution list.
Post Phase 1 Report Posting on Municipality Website
Stakeholder: McDermott & Associates Limited **Representative: John McDermott, MCIP, RPP, PLE**
Comment:

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
1. McDermott & Associates requests Phase 1 Report be revised to reflect that the lands located at 47 Community Centre Road be moved from the 5 – 10 year timeframe to the 0 – 5 year timeframe.
Response: 1. JLR updated report to reflect change.
Stakeholder: Engage Engineering Ltd. **Representative: Jason Armstrong**
Comment: 1. The study boundary shown on Figure 3 appears to be different from the other figures. For example, it doesn't include the areas identified on Figure 8 as Growth Areas O, I, N, F, D, U, H, and J. This limited study area is also shown on Figure 14. 2. See Appendix E for remaining comments.

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
Response: 1. JLR updated figures with the correct study area boundary for Creighton Heights. 2. See Appendix E for remaining responses.
Stakeholder: GHD Engineering **Representative: Adam Bonner**
Comment: 1. GHD shared comments and concerns regarding water supply enhancement concerns, well field capacity, lack of well field capability study and inaccurate future growth estimations. See Appendix E for further detail.
Response: 1. JLR acknowledges GHD's concerns and agrees that water storage will be addressed in a future Class EA. They confirm the need for well field enhancements and will work through recommendations in the Master Plan Phase 2 Report. JLR did not provide specific responses to the well field study or growth projections but agreed to further review and address these issues in future planning.
Stakeholder: Private Property Owner **Representative: Ken Burgess**
Comment: 1. Mr. Burgess comments express concern about the water table in Baltimore, particularly regarding the wells near his property, which have been increasingly overused since the loss of Cobourg water. He is worried about the sustainability of his well and its ability to meet future needs. Mr. Burgess also inquired about the possibility of building a reservoir to help manage water demand during peak periods and asks when the next stage of the water study will be available.
Response: 1. JLR acknowledges Ken's email and appreciates his interest and concerns. They thank him for reaching out to Susan at J.L. Richards, who is the point person for the project, and express their anticipation for the continuation of the project.
Stakeholder: Southern Region Ministry of Natural Resources and Forestry **Representative: Sarah Bale**
Comment: 1. The Ministry of Natural Resources and Forestry (MNRF) acknowledges receipt of the study commencement notice and clarifies that no screening of natural heritage or resource values has been completed yet. They confirm that, if no MNRF interests are identified in the project, no further notices are required. However, if any MNRF interests are found, the proponent should seek permits or technical advice as necessary
Response: 1. JLR acknowledges the response and thanks them for their guidance. They note that they will review the provided information regarding natural heritage, hazards, and relevant legislation as they continue with the project. JLR also confirms that any necessary permits or further consultations with MNRF will be addressed as the project progresses.

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
Stakeholder: GEI Consultants **Representative: Grant Parkinson**
Comment: 1. GEI's comments highlight the need for recirculating flow to maintain safe pump operation, and note that the system lacks elevated storage, relying on pressure tanks to maintain flow during low demand periods. They also suggest comparing modeling results with LHS's fire flow testing from May 2024 to identify any similarities or differences in the results.
Response: 1. JLR acknowledges GEI's comments and confirms they will update the report to reflect the feedback on the "Pump Houses" section. They note that validating and calibrating the water model is outside the current scope, and they recognize the continuous operation of high-lift pumps for both the main system and Deerfield Estates Phase 2.
Stakeholder: Ministry of Citizenship and Multiculturalism **Representative: Dan Minkin**
Comment: 1. The Ministry of Citizenship and Multiculturalism (MCM) reviewed the Phase 1 Report for the water supply infrastructure project and noted that there was no assessment of potential impacts to cultural heritage resources. However, since the master plan follows Approach #1 under the Municipal Class EA, MCM is comfortable with the cultural heritage assessment being completed later for each Schedule B and C component. They encourage continued consultation throughout the process and offer their support for any further questions.
Response: 1. JLR acknowledges comments and will continue to consult with the MCM.

11.0 Next Steps and Preliminary List of Alternative Solutions

This Phase 1 report is the culmination of the work completed during Phase 1 of the Master Plan. It is intended that it be used as a reference when working through Phase 2. Phase 2 is intended to identify alternative solutions to the problems/opportunities developed in Phase 1. A high-level assessment will be undertaken, and options will be evaluated based on technical, economic, environmental, and other factors. Based on information available at this time, the following options have been identified for consideration during Phase 2.

This Phase 1 report assessed Camborne, Buttersfield and Creighton Heights Water Supply/Distribution Systems inclusively. The analysis concluded that Camborne and Butterfield are expected to experience limited growth and expansion within the next 20-year time period and therefore the recommendation for both systems is to do nothing as there is sufficient water supply capacity. The Creighton Heights growth projections are expected to impact the water supply drastically, surpassing the operational limit (approximately 700 m^3/day) and 80% plant capacity (783 m^3/day) within the short-term time period (2024-2029), the 100% plant capacity (979 m^3/day) in the mid-term time period (2029-2034) and the current PTTW (1303 m^3/day) in the long-term time period (2034-2044). The following alternative solutions are recommended:

Option 1. Do nothing (evaluate as baseline)
Option 2. Rehabilitate existing wells; limit community growth; practice water conservation
Option 3. Install new drinking water wells
    i. Install large production well on existing site
    ii. Install new wells off-site
Option 4. Switch water supply and connect to Town of Cobourg

12.0 Limitations

This report has been prepared by J.L. Richards & Associates Limited for the Township of Hamilton's exclusive use. Its discussions and conclusions are summary in nature and cannot properly be used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report is based on information, drawings, data, or reports provided by the named client, its agents, and certain other suppliers or third parties, as applicable, and relies upon the accuracy and completeness of such information. Any inaccuracy or omissions in information provided, or changes to applications, designs, or materials may have a significant impact on the accuracy, reliability, findings, or conclusions of this report.

This report was prepared for the sole benefit and use of the named client and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited, and anyone intending to rely upon this report is advised to contact J.L. Richards & Associates Limited in order to obtain permission and to ensure that the report is suitable for their purpose.

J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

Michelle Mulvihill
Environmental Engineering Graduate

Reviewed by:

Susan Shi, P.Eng., M. Eng.
Senior Environmental Engineer

Appendix A

Stakeholder Consultation Plan

JLR No.: 32814-000
Revision: 0

March 15, 2024

Public Consultation Plan

Township of Hamilton Water Supply Master Plan

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Value through service and commitment

Table of Contents

1.0 Introduction

The Township of Hamilton (the Township) has initiated a Class Environmental Assessment (Class EA) Master Plan exercise. The intent of the Master Plan is to identify existing conditions, and future upgrades to the water supply infrastructure to accommodate future growth in the Township of Hamilton.

The Master Plan is proceeding in accordance with the requirements of the Ontario Municipal Class EA, October 2000, as amended in 2015 and 2023. Public Consultation is a key element of the Master Plan process. As a result, this Public Consultation Plan has been developed to ensure that the public and other stakeholders have opportunities to be involved and to provide comments throughout the Master Plan.

2.0 Key Considerations

Upon review of the background materials, several considerations likely to impact the implementation of the public consultation plan emerged. They represent both opportunities and constraints for engagement and influence how this public consultation plan is structured. These considerations include the following:

- The public consultation activity will seek meaningful inputs from the municipal staff, Council, local developers, major industries, and other stakeholders. Approval and buy-in on key milestone deliverables from Council must be obtained. Final approval of project deliverables will be obtained from the Township.

- The Township may experience increased development pressures as the Master Plan project progresses.

- The Township may experience increased interest in this project as the Master Plan project progresses, due to limited capacity particularly in summer months in Creighton Heights.

- The Township currently receives water supply from the Town of Cobourg serving the Buttersfield water distribution system. It is anticipated that cross-municipal services will continue but no additional development will be serviced by the Town of Cobourg.

- It will be essential to engage key stakeholders that govern the compliance and operation of the water systems (e.g., Ministry of the Environment, Conservation and Parks) or may influence the outcome of the planning process (e.g., indigenous communities).

- All public notices will be in English and in compliance with AODA guidelines.

3.0 Consultation Objectives

The research and analysis conducted during the development of this public consultation plan have led to the identification of the following objectives for the consultation process for the Master Plan:

- Compile a comprehensive list of stakeholders, including the MECP's Government Review Team and the Township's key local stakeholders.
- Analyze the stakeholder list to identify level of influence / anticipated involvement, consultation strategies, and timing. The list will be updated as the Master Plan progresses.
- Provide easy ways for the public and key stakeholders to learn about the Master Plan process using the Municipal Website, social media, newspaper (if available) and publishing project contacts.
- Host the Phase 1 Public Information Centre (PIC) in Summer 2024 to obtain public buy-in at the initial stage of the Master Plan.
- Host the Phase 2 PIC in Winter 2024 / Spring 2025 to present findings and recommendations from the Master Plan.
- Encourage engagement at the PICs so that the Project Team can understand local concerns and issues.
- Facilitate effective communication with local stakeholders, regulatory agencies, and the public through AODA compliant notices by mail, email, newspaper advertisements, and the Township's Website/social media.
- Compile feedback from the public and key stakeholders obtained from communication with the Township, public responses to notifications, emails, PIC comments and meetings for the Project Team's review and understanding.

4.0 Target Groups for Consultation

To satisfy the objectives of this public consultation plan, target groups should be identified. The list will generally consist of the Township's Stakeholder List and the MECP's Government Review Team. The Project Team will identify key stakeholders and anticipated level of involvement, jurisdictions, and consultation strategies. As the Master Plan unfolds, additional target groups may be identified and included. Critical audiences would generally include the following and will be confirmed upon finalizing the stakeholder register:

- The general public, including:

  - Property owners adjacent to the water treatment plants;
  - Local residents and business owners;
  - Local developers;
  - Affected indigenous communities, and
  - Local fire department
- Government organizations and agencies, including:
  - Neighboring Municipalities
  - County Staff
  - Ministry of the Environment, Conservation and Parks (MECP)
  - Haliburton, Kawartha, Pine Ridge District Health Unit (HKPR District Health Unit)
  - Infrastructure Ontario (IO)
  - Ministry of Agriculture, Food and Rural Affairs (MAFRA)
  - Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)
  - Ministry of Indigenous Affairs (IAO)
  - Ministry of Municipal Affairs and Housing (MMAH)
  - Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF)
  - Ministry of Solicitor General (MSG)
  - Ontario Provincial Police (OPP)
  - Fisheries and Oceans Canada (DFO)
  - Impact Assessment Agency of Canada (IAAC)

5.0 Accessibility Standard for Customer Service

It will be critical throughout the Master Plan that services are provided in accordance with the Accessibility for Ontarians with Disabilities Act (AODA). This includes having respect for persons with a disability and using all reasonable efforts to ensure they have an equal opportunity to obtain and provide input.

Throughout the Master Plan, the consulting team will:

- Ensure PIC and other consultation activities, when conducted in-person, are held in buildings with barrier-free access; and
- Work with the Township in providing accessible formats and communications supports, upon request.

6.0 Key Messages

Consistent messages with the appropriate tone and content will improve understanding among target audiences. The message statements listed below are built on a current understanding of the existing audiences, constraints, opportunities, and environmental concerns surrounding the Master Plan. These messages should be communicated throughout the Master Plan and refined, as required, as it unfolds.

- To make important servicing decisions, an implementable plan is required by the Township and property owners. Given the critical nature of the water infrastructure, the ultimate planned solution(s) need to ensure the systems are reliable and robust such that it can accommodate existing and future servicing needs.
- The Township and consulting team members are committed to this Master Plan and are placing an emphasis on a seamless, open, transparent, and traceable Master Plan process.

7.0 Recommended Stakeholder Consultation Activities

A variety of public consultation vehicles and mechanisms are recommended to achieve the objectives of this public consultation plan. Care has been taken in selecting activities that recognize the needs of the local community and government organizations along with their specific information requirements.

7.1 Technical Steering Committee (TSC)

To facilitate the consultation process and communications between the JLR team and the Township, a TSC will be formed. The TSC will comprise of:

Name	Agency	Project Role
Anita Schoenleber	Township	Manager of Water Operations
Arhtur Anderson	Township	Chief Administrative Officer
John Corey	Township	Operator in Charge
Matthew Morkem	JLR	Project Manager
Susan Shi	JLR	Environmental Assessment Lead

7.2 Consultation Meetings

The Project Team anticipates hosting separate meetings with the key stakeholders, such as the MECP, conservation authority, indigenous groups, industry developers, residents, landowners, and local special interest groups.

7.3 Public Information Centres (PICs)

PICs, either in-person or virtually, provide a good mechanism for the local community to be informed about and comment on the Master Plan. One (1) PIC will be conducted at the end of Phase 1 and one (1) PIC will be conducted near the end of Phase 2.

Both PICs will be designed to be welcoming and provide an opportunity for residents to speak directly with the consulting team, and Township Staff. The appropriate PIC format and delivery method (in-person vs. virtual) will be dictated by the complexity of the alternatives, length of slides, accessibility requirements, and public health restrictions at the time of the PIC. The format can take a variety of forms such as formal presentations with a question-and-answer session and/or display boards with informal one-on-one discussions, etc. Residents will be encouraged to complete comment sheets to provide feedback to the consulting team.

Technical Memorandum 1 will present the current state of infrastructure and any identified shortfalls in providing services to existing and committed future developments, as well as the problem and opportunity statement for the Master Plan study. Technical Memorandum 2 will present the design criteria, capacity assessment and preliminary alternatives. The Phase 1 PIC will be conducted following the Township's review of Technical Memorandum 2 – Preliminary Alternatives. The public, agencies, and other interest groups (e.g., Council Members, etc.) will be given an opportunity to review and comment on the information presented. The Consulting Team will compile comments collected during the PIC to help inform recommendations in the Master Plan Report.

The Phase 2 PIC will be conducted following the Township's review of the Draft Master Plan report. The Draft Master Plan report will provide alternative future servicing options and an evaluation matrix to present the preferred solution. Once staff and public comments are incorporated, the Master Plan Report will be finalized and a Notice of Master Plan Completion will be placed on record for a 30-day review period, during which time any unresolved issues may be addressed.

7.4 Ongoing Promotion and Consultation

To engage the public and other stakeholders, Master Plan and PIC notices should be placed in the information pages of local newspapers (if required), Township's website, social media and posted at the Township office. Notices will also be direct mailed/emailed to identified stakeholders, agencies, and adjacent property owners. Master Plan notices could also be provided to the Township Council to allow Councillors to inform their constituents about the Master Plan. Phone

calls will be made to all interested Indigenous and First Nations groups to confirm that formal notices have been received.

7.5 Website and Social Media

To assist the public in obtaining information about the Master Plan and to provide an on-going mechanism for feedback to the consulting team, the Township should provide space on their website and/or social media for the Master Plan. Information for the website and social media should include notices for the PIC, reports, technical memos and contact information.

7.6 Opportunities to Comment

At all public meetings, the public and other stakeholders will be encouraged to leave comments following the meeting. Following each consultation activity, a report would be written that summarizes and records the comments and input received from the participants.

At the beginning of the Master Plan, email and voice mail feedback tools will be established to provide the public and other stakeholders with numerous avenues to provide input and ask questions. These feedback tools will be promoted on all communications materials.

Additional informal meetings may be required and could be considered if local residents or the business community appear disengaged or dissatisfied with the extent or frequency of consultation activities.

7.7 Timing of Public Consultation

The following schedule lists anticipated dates of key stakeholder consultation activities. These dates are subject to change as the Master Plan moves forward and based on the level of project interest shown by stakeholders.

Activity	Anticipated Date
Notice of Commencement	March 2024
Phase 1 PIC	Summer 2024
Phase 2 PIC	Winter 2024 / Spring 2025
Notice of Master Plan Completion	Fall 2025

8.0 Evaluation Mechanisms

The following activities should be undertaken to evaluate the effectiveness of this public consultation plan:

- Reviewing attendance numbers at the PIC;
- Requesting formal and informal feedback on the consultation process at the PIC and on the study website;

- Tracking the number of visits to the study website and evaluating changes in traffic that occur in response to consultation events (e.g., mailing or emailing out notices); and
- Examining the number and content of emails received from the public and other stakeholders.

9.0 Conclusions

The activities contained in this public consultation plan reflect the need to have an enhanced outreach program for local residents and regulatory agencies throughout the Master Plan process. The public consultation plan has been developed ensure that the public and other stakeholders are meaningful participants in the Master Plan process.

Maintaining a clear, transparent, and inclusive consultation process will help to ensure that meaningful dialogue takes place so that innovative and achievable servicing strategies can be realized.

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Appendix B

Hydrogeological Review of the
Creighton Heights and
Camborne Water Supply Systems
– BluMetric 2024

July 31, 2024
Project Number: 240363

Matthew Marcuccio
Senior Environmental Engineer
J.L. Richards and Associates Ltd.
203-863 Princess Street
Kingston, ON K7L 5N4

Re: Hydrogeological Review of the Creighton Heights and Camborne Water Supply Systems, Township of Hamilton, Ontario

Dear Cailey:

INTRODUCTION

BluMetric Environmental Inc. (BluMetric ®) was retained by the J.L. Richards and Associates Ltd. (J.L. Richards) to complete a review and summary of available hydrogeological information for the Creighton and Camborne drinking water supply systems located within the Township of Hamilton. The scope of the hydrogeological review includes the following:

- Review and analysis of current aquifer conditions and supply well capacities through a desktop study for each system operating under Permits to Take Water (PTTW), Municipal Drinking Water Licences (MDWL) and Drinking Water Works Permits (DWWP).
- Analysis of water taking data and maximum daily pumping volumes.
- High-level desktop hydrogeological review of available groundwater resources and local aquifer properties within the Township.

DESCRIPTION OF DRINKING WATER SYSTEMS

CAMBORNE

The Camborne Drinking Water System is located in the town of Camborne, ON, and is owned and operated by the Township of Hamilton. The System is considered a Small Residential system and serves about 71 residential connections, including homes, a school, a community hall, and a church,

with no commercial or industrial connections. It sources water from two potable flowing artesian wells that are considered Non-GUDI (Groundwater that is Under the Direct Influence of Surface Water). The groundwater is treated with sodium hypochlorite for disinfection and filtered through greensand filters to remove oxidized iron. Filtered water is stored in underground clearwells before being pumped to users through a high lift pumping system. Continuous monitoring ensures regulatory compliance, with SCADA alarms alerting operators to any deviations. Process wastewater is treated and discharged into the stormwater system, with solids removed periodically. The distribution system is comprised of approximately 3 km of watermains but does not include provisions for fire protection.

CREIGHTON HEIGHTS

The Creighton Heights Drinking Water System is located in the town of Creighton Heights, Ontario, and is owned and operated by the Township of Hamilton. The System is considered a Large Residential system and serves approximately 508 connections, including residential customers, commercial properties, and public facilities such as schools and recreation centers. The system draws water from three (3) potable water wells and treats it with potassium permanganate and greensand filtration to remove iron and manganese. Sodium hypochlorite and ultraviolet disinfection ensure primary and secondary disinfection, with methane removal before storage in underground clearwells. The water in the Creighton system also has been reported to have elevated methane and ammonia concentrations. High lift pumps maintain system pressure and provide fire protection, with continuous monitoring for regulatory compliance. The distribution system spans approximately 14 km with fire protection provisions including 79 hydrants.

GEOLOGICAL/HYDROGEOLOGICAL CONTEXT

Based on the Ontario Geological Survey's (OGS) surficial geology of southern Ontario map, the surficial geology of the Camborne (as shown on **Figure 1**) and Creighton Heights (as shown on **Figure 2**) regions are characterized by the presence of glacial till deposits (interpreted as drumlins) along the ridges of the region, and a mixture of modern alluvial deposits (clay, silt, sand, gravel) and coarse-textured glaciolacustrine deposits (sand, gravel, minor silt and clay; foreshore and basinal deposits) in the valleys. Both the Camborne and Creighton Heights water treatment plants are located in valleys, in the modern alluvial deposit unit (Camborne) and in coarse-textured glaciolacustrine deposits (Creighton Heights). The overburden in both areas is underlain by limestone, dolostone, shale, arkose and sandstone bedrock of the Shadow Lake Formation of the Simcoe Group.

CAMBORNE

Based on the well records of the two (2) Camborne supply wells, the overburden at the site is primarily comprised of clay from ground surface to 16.2 mbgs, underlain by a sequence of gravel with clay and sand from 16.2 mbgs to 34.1 mbgs. This sequence is then underlain by a thick horizon of silty clay from 34.1 m to 64.6 m, followed by a medium to coarse sand unit from 64.6 mbgs to 69.2 mbgs (borehole termination) which serves as the aquifer of the municipal water supply system. The two (2) flowing artesian wells of the Camborne water supply system have total approximate well depths of 68.3 m (Well 1A) and 69.2 m (Well 2A), both of which are screened within a medium-coarse grained sand and gravel aquifer from approximately 65 mbgs to 68 mbgs. The aquifer is confined within an alternating sequence of clay and silty clay. Based on maintenance records, well 2A was constructed in 2005 and has a 250 mm diameter steel casing advanced through the clay aquitard to 15.8 m. The casing is reduced to 150 mm to approximately 64.4 m and attached to a stainless-steel wire wrap screen from 64.4 m to 67.0 m. The well is under approximately 14 m of artesian pressure.

Based on the well maintenance records, well 2A was reportedly pumped at a maximum flow rate of approximately 300 L/min during construction, which is slightly above the maximum permitted flow rate (L/min) of 286 L/min listed in the PTTW for the water supply system.

CREIGHTON HEIGHTS

Based on the well records of the Creighton Heights supply wells, the overburden in this area is primarily comprised of clay from ground surface to 53 mbgs, underlain by a sequence of fine to coarse sand from 53 mbgs to 65 mbgs (borehole termination). The sand unit is considered the aquifer supplying the municipal water system.

The three (3) potable water wells have total well depths of approximately 60.6 m (Well TW1), 64.9 m (Well TW6) and 65.5 m (Well TW7), all of which are screened within a fine-medium grained sand aquifer and upper bedrock. Well TW6 is located approximately 7 meters from well TW7. The location of the wells is shown in **Figure 3**.

The Well Construction Program report for the Community of Creighton Heights completed by Rural Development Consultants Limited in 1996 (RDCL, 1996), outlines the hydrogeological investigation conducted in 1993, 1994 and 1995 including the selection of prospective test well sites, construction supervision of six test wells and several aquifer tests of the test wells for the new municipal well system to serve the Community of Creighton Heights. At that time the water demands of the community were 84 litres per minute (or 121 m^3/day; average daily water demand) and 231 litres per minute (or 333 m^3/day; maximum daily water demand).

The most favourable aquifer conditions were encountered at test wells TW1 and TW6, which is the location of the existing municipal well system. The report recommended that a large diameter gravel packed municipal well be constructed between test wells TW1 and TW6.

Test Well TW1 was constructed in 1993 by Northern Well Drilling Ltd and features a 150 mm diameter steel casing reaching a depth of 57.2 m, which is underlain by a telescopic stainless-steel wire wrapped screen that extends from 57.2 to 60.6 m. Based on the well maintenance records, well TW1 was pumped at a maximum flow rate of approximately 254 L/min during a 90 minute step test, which is slightly above the maximum permitted flow rate (L/min) of 225 L/min listed in the PTTW for the water supply system.

Test Well TW6 was drilled in March 1993 by Northern Well Drilling Ltd., to a depth of 61 m. The well was constructed with a 6 metre long telescopic stainless-steel wire wrapped screen of slot 014 from 55 to 61 m below surface. The well record indicates that the well was tested at a pumping rate of 680 l/min, the water level dropped 22 m during the first hour of testing.

Test well TW7 was drilled in December 1994 and was intended as a pilot well for a larger diameter production well at this location. The well features a 150 mm diameter steel casing reaching a depth of 61.5 m, attached to a telescopic stainless-steel wire wrapped screen that extends from 61.5 to 62.6 m in bedrock. In 1998, Well TW7 was deepened to 65.5 m. Aquifer tests carried out on well TW7 indicated a yield in excess of 965 L/min with a strong hydraulic connection to well TW6. Test well TW7 was pumped at a rate of 965 L/min for 8 hours and registered a total drawdown of approximately 16 metres. There was significant available drawdown in TW7 of 51 metres and therefore the well/aquifer could produce well in excess of 965 L/min. The slope of the drawdown curved from 10 minutes to about 80 minutes where it then flattened afterwards. During the test, test well TW6 and TW1 exhibited drawdowns of 13 metres and 7 metres, respectively, showing that there is significant interference between the test wells. A shortfall in recovery on the order of 5% was measured at test well TW7 and at other test well locations at the end of the various aquifer tests that were conducted. Recovery shortfall was attributed to a combination of interference from the test wells and flowing wells in the area, or from other water taking in the region. The RDCL, 1996 report has shown that there is significant interference between test wells TW1, TW6 and TW7 due to their proximity to one another and from drawing water from the same overburden-upper bedrock aquifer.

The Well Construction Program report for the Community of Creighton Heights (RDCL, 1996), indicates that TW6 and TW7 have proven yields greater than 680 L/min, however 680 L/min is an operational limit of the pump that can fit inside a 150 mm diameter well.

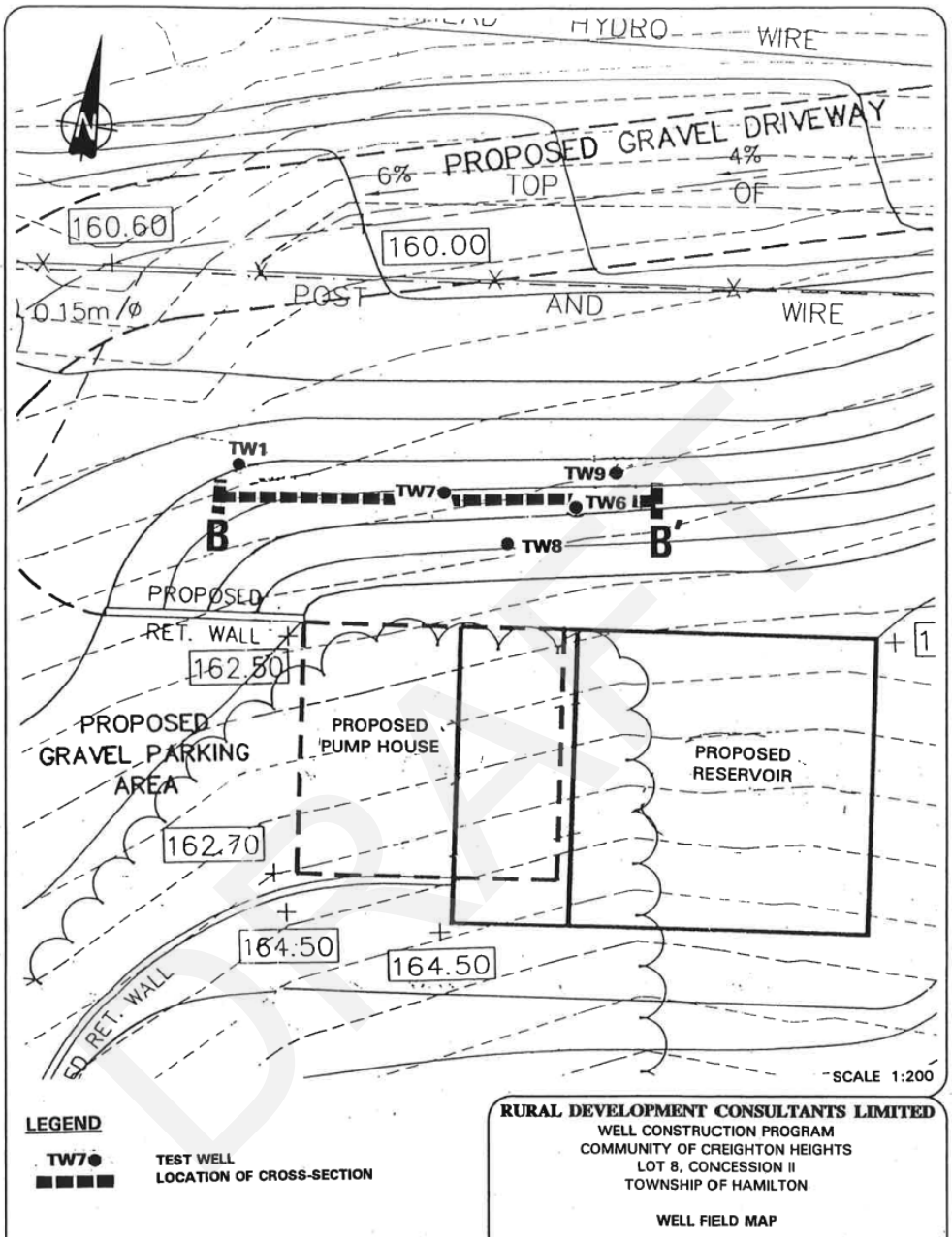

Figure 3: Location of Supply Wells at the Creighton Heights Municipal Pump House (RDCL, 1996)

Two additional test wells (TW8 and TW9) were advanced as pilot holes for a larger production well, as shown on **Figure 3**. The construction of a large diameter production well near test well TW9 was put on hold at the time to allow for the construction of the pump house. Both test wells TW9 and TW8 were abandoned. At the time of the RDCL report, the construction of a large

diameter gravel-packed production well near well TW9 was still under consideration, however, the Township has been utilizing the test wells, TW1, TW6 and TW7 as production wells for the municipal water supply since 1994. The RDCL, 1996 report states that the most favourable design for the large diameter gravel-packed production well would be for it to be screened in overburden and in the upper bedrock near test well TW9; the screen should span 53.5 to 61.5 metres below ground surface (including 1.5 m into bedrock).

GROUNDWATER RESOURCES

There are four (4) notable groundwater-related PTTWs located within a 10-km radius of Camborne and Creighton Heights, as shown in Table 1 below. Groundwater-related PTTWs are related to either construction dewatering for natural gas pipeline projects or for commercial activity (bottled water). Permitted volumes range from approximately 2.9 million L/day to 218,869 L/day.

Table 1: Notable Groundwater-related PTTWs near the Camborne Creighton Heights Region

Permit Holder Name	Purpose	PTTW#	Distance	Permitted Volume (L/day)
Enbridge Pipelines Inc.	Dewatering Construction	7407-CALSAB (expires in 2032)	5 km east of Creighton Heights	1,309,000
Enbridge Pipelines Inc.	Dewatering Construction	6250-CADM7D (expires in 2032)	5 km west of Creighton Heights	2,945,808
Robins Holdings Inc.	Commercial - Bottled Water	2305-6TDH43	6.6 km northeast of Creighton Heights	218,869
Gott Enterprises Inc.	Commercial - Bottled Water	5457-CC74KJ 8404-7YBLB2	9.5 km east of Creighton Heights	647,600

The presence of bottled water commercial activity in the region suggests that there are potentially important groundwater resources in the area due to the presence of deep fine-medium sand deposits overlain by potentially thick sequences of confining clay deposits, as-is the case for both the Creighton Heights and Camborne drinking water systems. Based on the well records and regional surficial geology, however, the confining clay layer is not ubiquitous across the region. Based on the well records, domestic and commercial/industrial supply wells in the Camborne-Creighton Heights region do not appear to be extracting groundwater from a regionally extensive aquifer; domestic supply well depths vary from under 5 metres where unconfined lenses of sand and gravel are intercepted, to deep wells over 50 m in depth that intercept thick sequences (i.e., over 10 m) of confining clay deposits underlain by fine-medium sand deposits (akin to the Camborne-Creighton Heights supply well systems).

Based on the RDCL, 1996 report, there are two (2) flowing artesian wells (referred to as the Winter and Perron wells in the report) located to the north of County Road 74 from the test wells TW1, TW6 and TW7, that are completed within the same overburden- upper bedrock aquifer. Both wells were flowing at a combined rate of 160 L/min at the time of the RDCL 1996 report and have been shown to be influenced during the aquifer tests that were conducted in the RDCL 1996 study.

The RDCL 1996 report also stated that the former Hamilton Township municipal supply wells (Hamilton Township Well #1 and Hamilton Township Well #2,) were also monitored and used as observation wells during the aquifer tests completed as part of the study. Hamilton Township Well #1 and Hamilton Township Well #2 are also completed within the same overburden - upper bedrock aquifer as wells TW1, TW6 and TW7. Based on the wells records, one of the wells was pumped at approximately 151 L/min for 4.5 hours with a drawdown of approximately 3 m, whereas of the other well was pumped at a rate of 115 L/min (drawdown information not included in the well record). Based on this information, important groundwater resources may be present in this area.

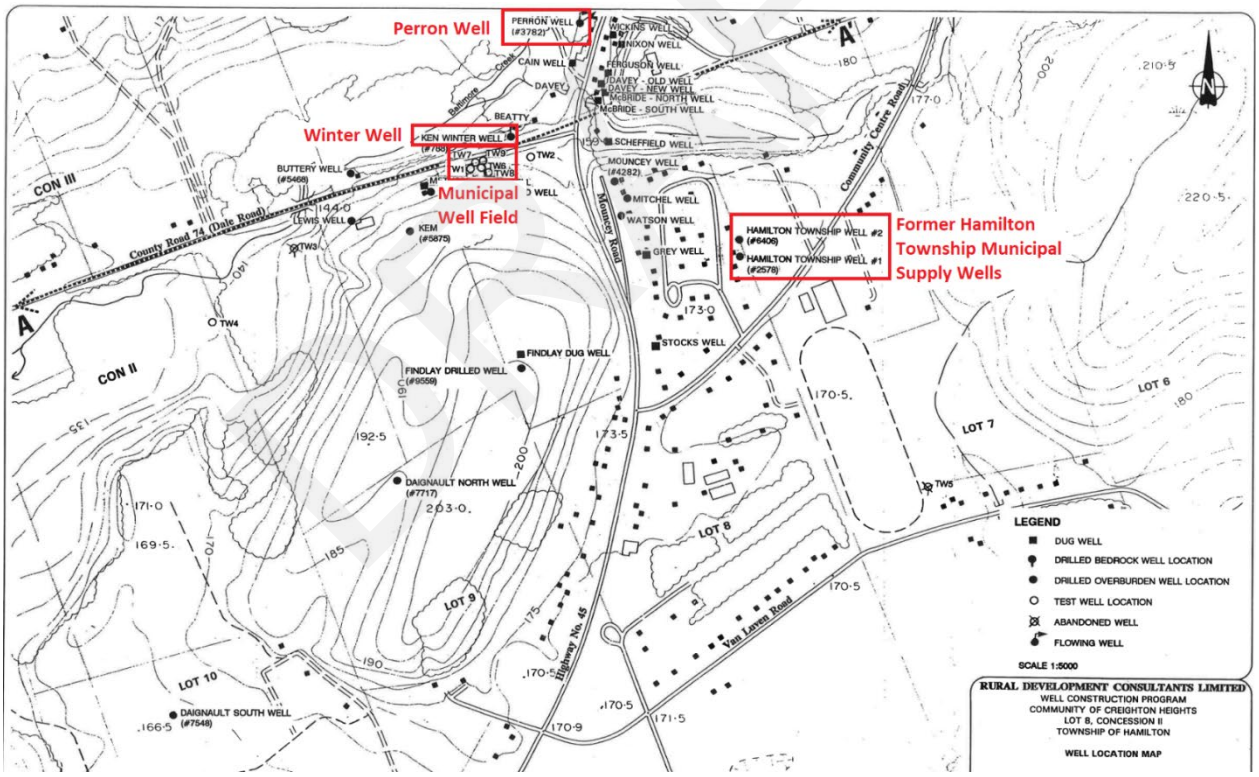

Figure 4: Location of the Perron well, Winter well and former Hamilton Township municipal supply wells (RDCL, 1996)

ANALYSIS OF WATER TAKING DATA

CAMBORNE

The daily maximum permitted groundwater pumping rates and volumes of the two (2) Camborne supply wells are outlined in PTTW# 2140-AP5P6D, which requires renewal by June 2027 and is summarized in Table 2 below.

Table 2: PTTW Summary of Camborne Water Supply System

Wells	Type	PTTW#	Maximum Permitted Flow Rate (L/min)	Maximum Permitted Volume per Day (m^3)
PW1A	Plant Flow	2140-AP5P6D	200	288
PW2A	Plant Flow		286	412
PW1A	Artesian Overflow		340	489.6
PW2A	Artesian Overflow		360	518.4

The Camborne wells feature flowing artesian conditions, therefore groundwater inside the wells is consistently overflowing into a stormwater system that leads to a nearby creek. The flow remains constant and is within permitted levels. Separate flow meters monitor both drinking water production and artesian flow to meet regulations. Only one well is used for drinking water production at a time.

Based on the 2023 Annual and Summary Report of the Camborne drinking water system (as summarized in Table 3), wells 1A and 2A pumped average daily volumes of 20.05 m^3/day and 22.72 m^3/day of raw water, respectively, during the 2023 calendar year. These takings amounts to approximately 7% and 5.5% of maximum permitted daily volumes outlined in the PTTW. The maximum daily raw water volumes measured in the 2023 calendar year for well 1A and 2A were 66 m3/day and 79.66 m3/day, respectively, which amounts to 22.9% and 19.3% of the of maximum permitted daily volumes outlined in the PTTW.

Table 3: Summary of Camborne 2023 Raw Water Pumping Volumes Relative to Maximum Permitted Volumes in PTTW

Wells	2023 Average Daily Volume pumped (m^3)	Percent of PTTW Maximum Permitted Daily Volume	2023 Maximum Daily Volume per Day (m^3)	Percent of PTTW Maximum Permitted Daily Volume	Artesian flow Rate (m3/day)
PW1A	20.05	7.0%	66	22.9%	346
PW2A	22.72	5.5%	79.66	19.3%	216

Based on the information summarized in Table 3, the Camborne drinking water system is well within the limits of the existing PTTW and has room to accommodate additional demand in groundwater resources. Based on future projections over the next 20 years, the Camborne municipal supply wells are projected to remain within their well production limits.

CREIGHTON HEIGHTS

The daily maximum permitted groundwater pumping rates and volumes of the three (3) Creighton Heights supply wells are outlined in PTTW# 2320-CGPMQ5, which is summarized in Table 4 below. The Creighton Heights PTTW was renewed in July 2022 and is due for renewal in July 2032.

Table 4: PTTW Summary of Creighton Heights Water Supply System

Wells	Type	PTTW#	Maximum Permitted Flow Rate (L/min)	Maximum Permitted Volume per Day (m^3)
TW1	Primary	2320-CGPMQ5	225	324
TW6	Primary		680	979.2
TW7	Backup		680	979.2

The Creighton Heights Water Treatment Plant (WTP) extracts groundwater from three (3) supply wells. Wells TW6 and TW7 are the main production wells, with only one well permitted to operate at a time. Well TW1 can run concurrently with either of the primary wells. Metering ensures the water taken for treatment and distribution adheres to permitted quantities.

As summarized in Table 4, wells TW6 and TW7 are both permitted to pump at maximum flow rates of 680 L/min, however both wells cannot be pumped at the same time and therefore the actual maximum permitted volume per day for all three (3) wells (TW1, TW6, TW7) is 1,303.2 m^3/day. Maintenance records of wells TW1 and TW7 mention that all three (3) wells have shown evidence of interfering with one another during operation; the interference decreases the capability of the system from being able to supply groundwater at the maximum permitted rate of 1,303.2 m^3/day.

Based on the 2023 Annual and Summary Report of the Creighton Heights drinking water system (as summarized in Table 5), wells TW1, TW6 and TW7 pumped average daily volumes of 68.75 m^3/day, 144.04 m^3/day and 132.32 m^3/day of raw water, respectively, during the 2023 calendar year, which amounts to approximately 14% of maximum permitted daily volumes outlined in the PTTW for each well. The maximum daily raw water volumes measured in the 2023 calendar year for wells TW1, TW6 and TW7 were 187 m^3/day, 499.75 m^3/day, and 462.71 m^3/day,

respectively, which amounts to 58%, 51%, and 47% of the of maximum permitted daily volumes outlined in the PTTW for each well.

Table 5: Summary of Creighton Heights 2023 Raw Water Pumping Volumes Relative to Maximum Permitted Volumes in PTTW

Wells	2023 Average Daily Volume per Day (m^3)	Percent of PTTW Maximum Permitted Daily Volume	2023 Maximum Daily Volume per Day (m^3)	Percent of PTTW Maximum Permitted Daily Volume
TW1	68.75	21.2%	187.66	57.9%
TW6	144.04	14.7%	499.75	51.0%
TW7	132.32	13.5%	462.71	47.3%

Based on the information summarized in Table 5, the Creighton Heights drinking water system is within the limits of the existing PTTW when considering the average daily volume of raw water pumped per day on a yearly basis, however wells TW6 and TW7 are pumping close to 50% of the maximum permitted daily volumes allowed by the existing PTTW during the days of peak water demand in a calendar year, such as during hot summer periods. Pumping records for 2023 show that the peak month of water demand was in September, where wells TW6, TW7 and TW1 pumped maximum daily volumes of 494.69 m^3, 422.29 m^3 and 169.71 m3, respectively, over the course of this month. If all three (3) wells pumped these volumes on the same day, the combined volumes would equal approximately 1,086.69 m^3, which amounts to 83.3% of the permitted daily volume of 1,303 m^3/day.

Table 3 of the Hamilton Township Request for Proposal: RFP No. WTR 2023-02 Water Supply Master Plan indicates an operational capacity of approximately 700 m3/day, significantly less than the sum of the maximum allowable daily extractions and less than the estimated maximum pumping rate in the 150 mm well of 980 m3/day. The cause of this operational limitation is unknown. Higher yields from this well field are considered likely.

Based on 20-year projections (to the year 2044), the projected maximum daily water demand for Creighton Heights approximately 1,788 m^3/d. Based on the Township's planned growth, the existing PTTW limits for the municipal water supply system would be reached by 2039.

RECOMMENDATIONS

- To meet the projected increased water demands of Creighton Heights community, it is recommended that a large diameter production well be installed near test well TW9, as was originally recommended in the RDCL 1996 report. The larger diameter production well could be outfitted with a more powerful pump capable of pumping in excess of 965 L/min (or 1,390 m^3/day), as the upper bedrock aquifer in test well TW7 has been demonstrated of being able to sustain this rate (RDCL, 1996) for up to 8 hours with 68% of available drawdown remaining in the well. A pumping rate of 965 L/min (or 1,390 m^3/day) is approximately 78% of the 20-year projected maximum daily water demand for Creighton Heights.
- If the required flow is not available solely from the existing well field location, the original Hamilton Township wells (Hamilton Township Well #1 and #2) provided a reliable water supply for the population prior to the use of the new well field. It is recommended that these wells be assessed to determine if they could be upgraded and brought back into service.
- Based on the information reviewed as part of this desktop study, the area near the former Winter and Perron artesian flowing wells could also be assessed for the location of new water supply wells. These locations historically had supply wells installed in the same aquifer as those of the municipal well field and appear to have potentially significant groundwater resources based on the 1996 RDCL report and on information shown on the well records. **Figure 4** shows the location of these prospective areas.
- In addition, it is recommended that an updated review of existing hydrogeological resources in the community of Creighton Heights be undertaken to update and supplement that one that was conducted by RDCL in 1993 using more recent and modern geoscience information. Based on the findings of this report, prospective test sites could be selected, and test wells could be advanced at these locations to verify groundwater resources.

LIMITATIONS

The conclusions presented in the above captioned report represent our professional opinion, in light of the terms of reference, scope of work, and the limiting conditions noted herein.

The findings presented in this report are based on conditions observed at the specified dates and locations, the analysis of data for the specified parameters, and information obtained for this project. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, locations that were not investigated directly, or types of analysis not performed.

BluMetric makes no warranty as to the accuracy or completeness of the information provided by others, or of conclusions and recommendations predicated on the accuracy of that information. Nothing in this report is intended to constitute or provide a legal opinion.

Respectfully submitted,
BluMetric Environmental Inc.

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Erik Lalonde, M.Sc, P.Geo.
Hydrogeologist

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Jackie Harman, M.Sc, P.Eng.
Senior Hydrogeologist

DRAFT
Ian Macdonald, M.Sc, P.Geo.
Senior Hydrogeologist

Encl.

Ref: 240363 Letter JLR_DRAFT 31July2024.docx

FIGURES

LEGEND

Creighton Heights Water Treatment Plant

Well Status

- Water Supply
- Abandoned Wells
- Recharge Well
- Test Hole
- Well of Unknown Status

Surficial Geology

- 5b: Stone-poor, carbonate-derived silty to sandy till
- 8a: Massive-well laminated
- 9b: Littoral-foreshore deposits
- 9c: Foreshore-basinal deposits
- 19: Modern alluvial deposits

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

N W E S

0 100 200 300 400 500 Metres

1:10,000

CLIENT

Township of Hamilton

PROJECT

Hydrogeological Review of the Creighton Heights and Camborne Water Supply Systems

TITLE

Overburden Geology of Creighton Heights, ON

BluMetric Environmental

1682 Woodward Drive
Ottawa, ON K2C 3R8
TEL: (613) 839-3053
Email: info@blumetric.ca
Web: http://www.blumetric.ca

PROJECT #	DATE
240363	June 17, 2024

DRAWN	CHECKED	FIG NO.	REV
PB	EK	01	0

LEGEND

Camborne Water Treatment Plant

Well Status

Water Supply

Abandoned

Well of Unknown Status

Surficial Geology

5b: Stone-poor, carbonate-derived silty to sandy till

8a: Massive-well laminated

9b: Littoral-foreshore deposits

9c: Foreshore-basinal deposits

12: Older alluvial deposits

19: Modern alluvial deposits

REV.	DESCRIPTION	YY/MM/DD	BY	CHK
1				

REFERENCES

N W E S

0 100 200 300 400 500 Metres

1:10,000

CLIENT

Township of Hamilton

PROJECT

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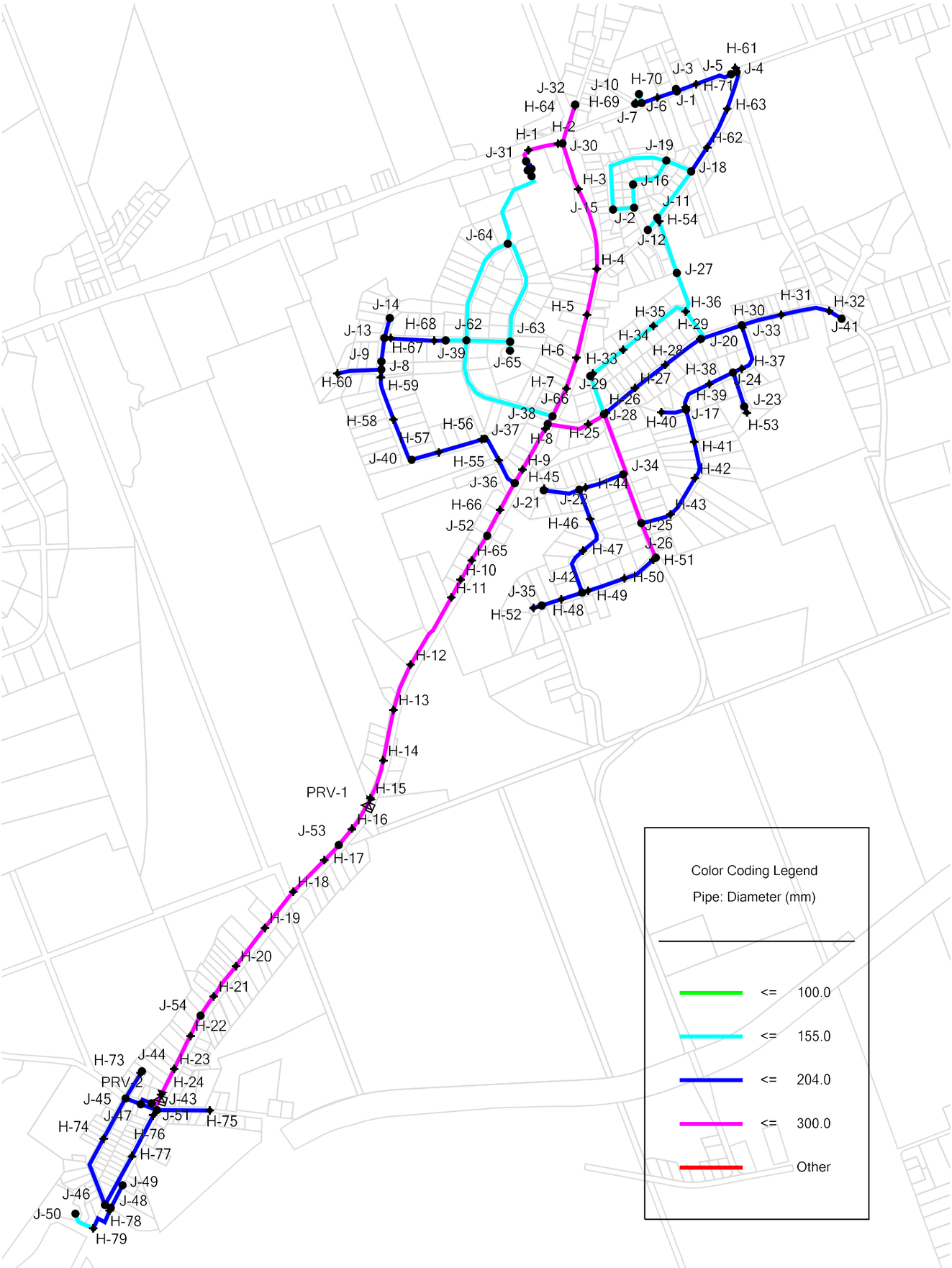
PROJECT #	DATE
240363	June 17, 2024

DRAWN	CHECKED	FIG NO.	REV
PB	EK	02	0

Appendix C

Water Model Results

32814 Township of Hamilton Water Model
Existing Conditions
Overall Network



Junction	Elevation (m)
J-1	182.29
J-2	171.12
J-3	182.87
J-4	180.82
J-5	181.70
J-6	173.49
J-7	172.70
J-8	168.41
J-9	168.52
J-10	174.06
J-11	171.19
J-12	170.95
J-13	167.87
J-14	167.50
J-15	171.69
J-16	171.44
J-17	169.09
J-18	170.96
J-19	170.26
J-20	169.25
J-21	166.96
J-22	167.20
J-23	170.69
J-24	169.24
J-25	170.99
J-26	175.13
J-27	169.94
J-28	170.41
J-29	169.53
J-30	157.44
J-31	165.10
J-32	152.84
J-33	169.27
J-34	170.31
J-35	164.37
J-36	166.58
J-37	168.23
J-38	170.38
J-39	182.43
J-40	165.04
J-41	168.19
J-42	166.23
J-43	122.02
J-44	121.41
J-45	117.36
J-46	113.06
J-47	120.93
J-48	112.44
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J-51	121.48
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J-53	160.10
J-54	144.22
J-57	164.00
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J-60	164.00
J-61	162.60
J-62	187.64
J-63	197.54
J-64	189.23
J-65	200.86
J-66	170.42

Junction	ADD (L/s)	MDD (L/s)	PHD (L/s)
J-1	0.0598	0.1267	0.1830
J-2	0.0598	0.1267	0.1830
J-3	0.0598	0.1267	0.1830
J-4	0.0598	0.1267	0.1830
J-5	0.0598	0.1267	0.1830
J-6	0.0598	0.1267	0.1830
J-7	0.0598	0.1267	0.1830
J-8	0.0598	0.1267	0.1830
J-9	0.0598	0.1267	0.1830
J-10	0.0598	0.1267	0.1830
J-11	0.0598	0.1267	0.1830
J-12	0.0598	0.1267	0.1830
J-13	0.0598	0.1267	0.1830
J-14	0.0598	0.1267	0.1830
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J-17	0.0598	0.1267	0.1830
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J-20	0.0598	0.1267	0.1830
J-21	0.0598	0.1267	0.1830
J-22	0.0598	0.1267	0.1830
J-23	0.0598	0.1267	0.1830
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J-50	0.0598	0.1267	0.1830
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J-52	0.0598	0.1267	0.1830
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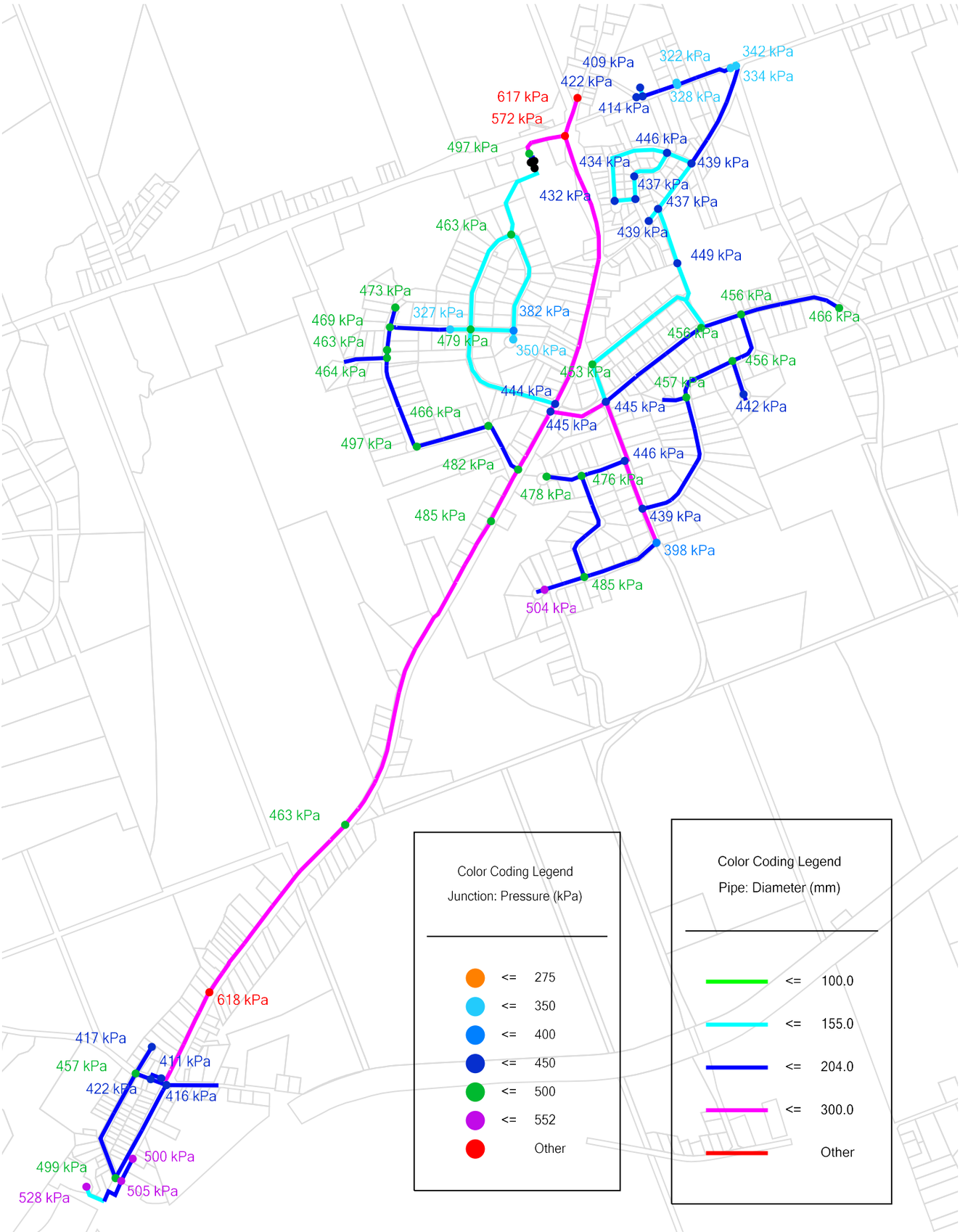
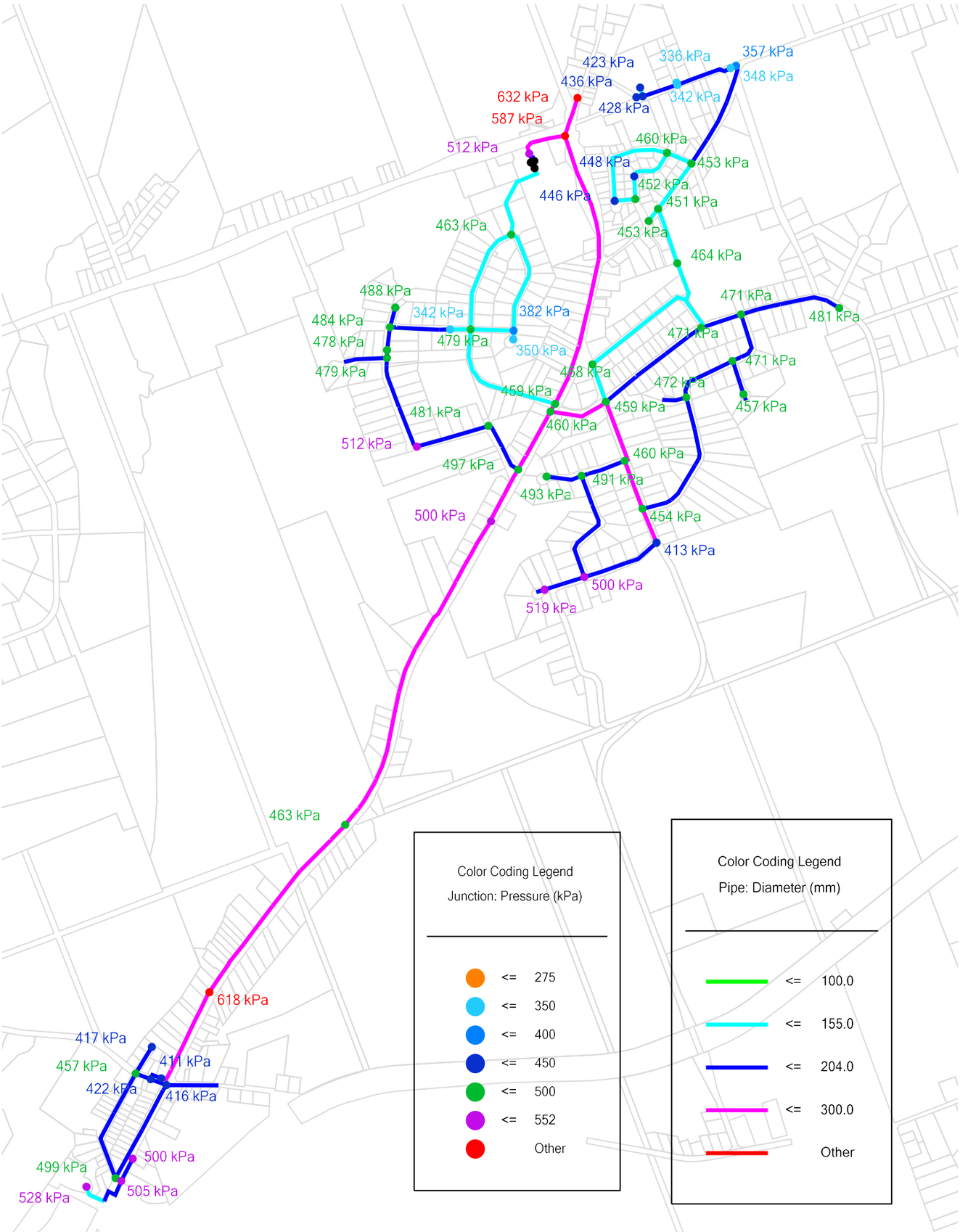
J-54	0.0598	0.1267	0.1830
J-62	0.0598	0.1267	0.1830
J-63	0.0598	0.1267	0.1830
J-64	0.0598	0.1267	0.1830
J-65	0.0598	0.1267	0.1830
J-66	0.0598	0.1267	0.1830

32814 Township of Hamilton Water Model
Existing Conditions
Average Day Demand



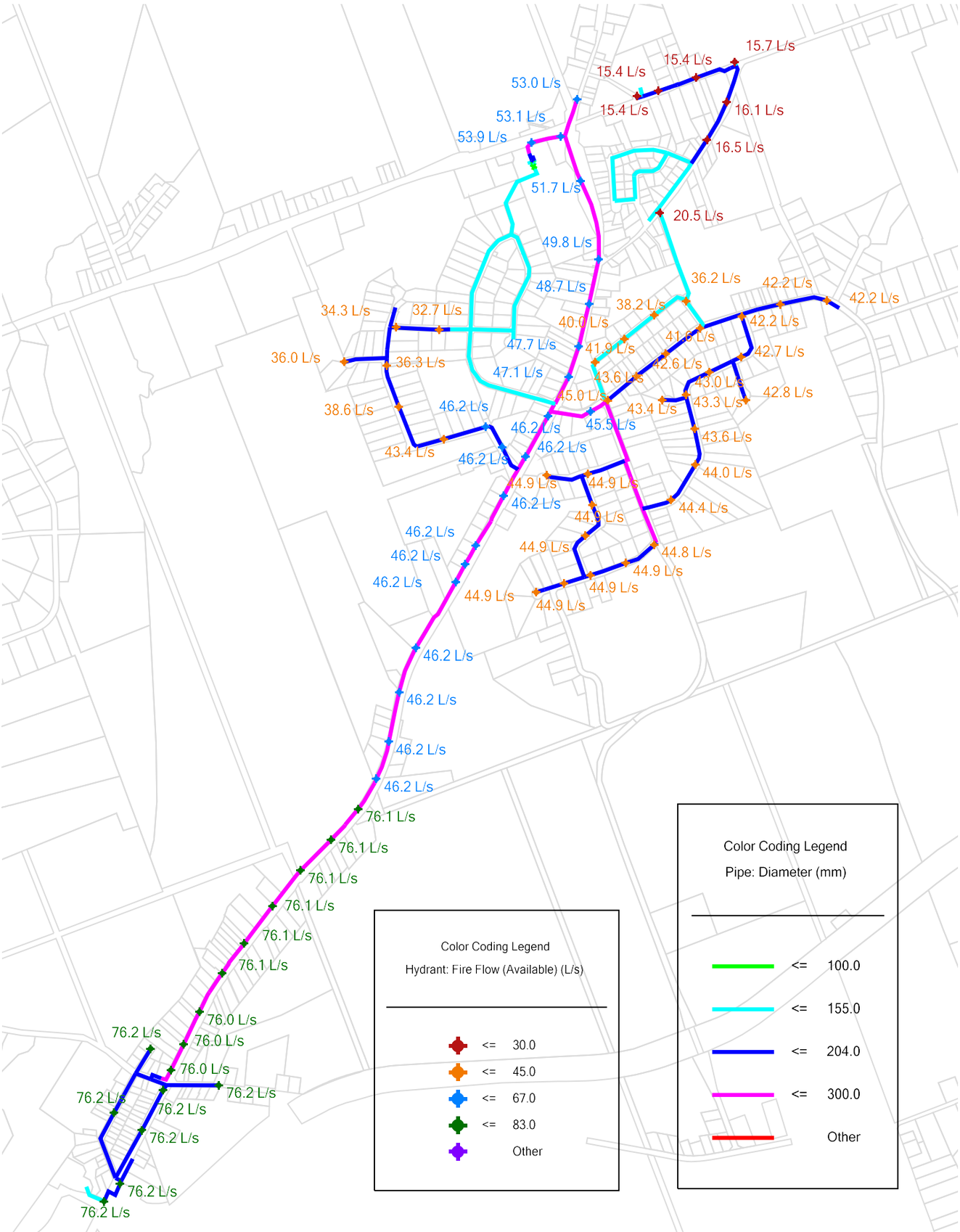
Bentley Systems, Inc. Haestad Methods Solution Center
76 Watertown Road, Suite 2D Thomaston, CT 06787
USA +1-203-755-1666

32814 Township of Hamilton Water Model
Existing Conditions
Maximum Day Demand



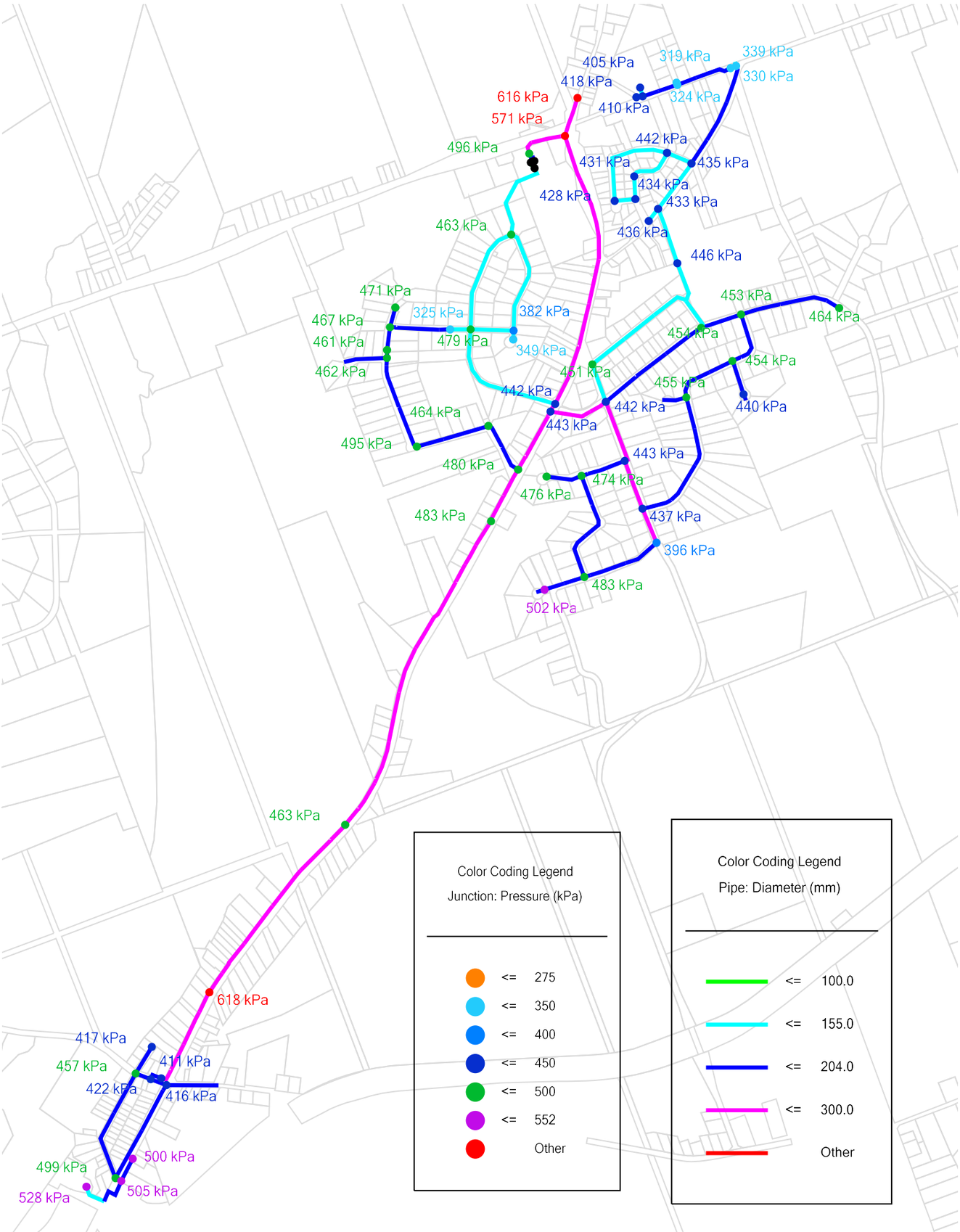
Bentley Systems, Inc. Haestad Methods Solution Center
76 Watertown Road, Suite 2D Thomaston, CT 06787
USA +1-203-755-1666

32814 Township of Hamilton Water Model
Existing Conditions
Maximum Day Demand with Fire Flow



Bentley Systems, Inc. Haestad Methods Solution Center
76 Watertown Road, Suite 2D Thomaston, CT 06787
USA +1-203-755-1666

32814 Township of Hamilton Water Model
Existing Conditions
Peak Hour Demand



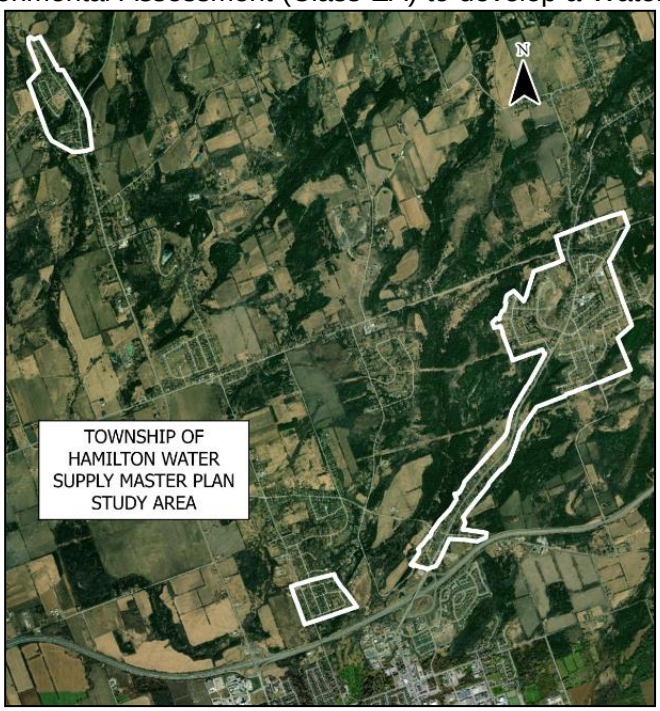
Appendix D

Notice of Commencement

Notice of Study Commencement

Township of Hamilton
Water Supply Master Plan

The Township of Hamilton has initiated a Master Planning process in accordance with Approach 2 of the Municipal Engineers Association (MEA) Class Environmental Assessment (Class EA) to develop a Water Supply Master Plan for the Township of Hamilton.



How Will This Affect Me?

The Master Plan study is assessing various options to improve the performance and reliability of the water supply infrastructure to ensure they can be relied upon to accommodate current and future flows required within the urban servicing areas of the Township, including Creighton Heights, Buttersfield and Camborne.

Public and agency consultation is a key part of the Master Planning process. Based on your input, the Master Plan study will identify preferred solution(s) that will benefit the community over the short, mid, and long terms.

How Do I Get More Information?

Two Public Information Centres will be held in 2024 and 2025 prior to confirming the preferred servicing solutions. The dates of the Public Information Centres have not been set at this time but will be found on the Township's website once determined. In the meantime, the study team will review background information and determine alternative solutions. You can contact a member of the study team listed below with any questions or to provide input on the Master Plan study. Updates will also be provided throughout the Master Plan study on the Township's website.

Susan Jingmiao Shi, P.Eng., M.Eng.
Senior Environmental Engineer
J.L. Richards & Associates Limited
203-863 Princess Street
Kingston, ON K7L 5N4
sshi@jlrichards.ca
343-302-5406

Anita Schoenleber
Manager of Water Operations
Township of Hamilton
8285 Majestic Hills Drive
Cobourg, ON K9A 4W5
aschoenleber@hamiltontownship.ca
905-342-2810

This study is being conducted according to the requirements of Approach 2 of a Master Plan under the Ontario Municipal Class Environmental Assessment process (October 2000, as amended in 2015 and 2023). Please note that ALL personal information included in a Part II Order submission – such as name, address, telephone number and property location – is collected, maintained and disclosed by the Ministry of the Environment and Climate Change for the purpose of transparency and consultation. The information is collected under the authority of the Environmental Assessment Act or is collected and maintained for the purpose of creating a record that is available to the general public as described in s.37 of the Freedom of Information and Protection of Privacy Act. Personal information you submit will become part of a public record that is available to the general public unless you request that your personal information remain confidential. For more information, please contact the ministry's Freedom of Information and Privacy Coordinator at 416-327-1434.

This Notice was issued on March 25, 2024

Appendix E

Stakeholder Responses and
Mailing List

Responses to Notice of Commencement

Review Agency #1:

Ministry of Citizenship and Multiculturalism (MCM)

Response

Ministry of Citizenship and Multiculturalism

Heritage Planning Unit
Heritage Branch
Citizenship, Inclusion and Heritage Division
5th Flr, 400 University Ave
Tel.: 416-786-7553

Ministère des Affaires civiques et du Multiculturalisme

Unité de la planification relative au patrimoine
Direction du patrimoine
Division des affaires civiques, de l'inclusion et du patrimoine
Tél.: 416-786-7553

May 14, 2024 EMAIL ONLY

Susan Jingmiao Shi, P.Eng., M.Eng.
Senior Environmental Engineer
J.L. Richards & Associates Limited
203-863 Princess Street
Kingston, ON K7L 5N4
sshi@jlrichards.ca

MCM File	**:**	**0021261**
Proponent	**:**	**Township of Hamilton**
Subject	**:**	**Municipal Class Environmental Assessment - Notice of Commencement – Master Plan Approach 2**
Project	**:**	**Water Supply Master Plan**
Location	**:**	**Hamilton Township, Ontario**

Dear Susan Jingmiao Shi:

Thank you for providing the Ministry of Citizenship and Multiculturalism (MCM) with the Notice of Commencement for the above-referenced project.

MCM's interest in this master plan relates to its mandate of conserving Ontario's cultural heritage, which includes archaeological resources, built heritage resources, and cultural heritage landscapes.

MCM understands that master plans are long range plans which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. The Municipal Class Environmental Assessment (MCEA) outlines a framework for master plans and associated studies which should recognize the planning and design Process of this Class EA and should incorporate the key principles of successful environmental assessment planning identified in Section A.1.1. The master planning process will, at minimum, address Phases 1 and 2 of the Planning and Design Process of the MCEA.

This letter provides advice on how to incorporate consideration of cultural heritage in the above-mentioned master planning process by outlining the technical cultural heritage studies and the level of detail required to address cultural heritage in master plans. In accordance with the MCEA, cultural heritage resources should be identified early in the process in order to determine known and potential resources and potential impacts.

Master Plan Summary

The Master Plan study is assessing various options to improve the performance and reliability of the water supply infrastructure to ensure they can be relied upon to accommodate current and future flows required within the urban servicing areas of the Township, including Creighton Heights, Buttersfield and Camborne.

Identifying Cultural Heritage Resources

MCM understands that the level of investigation, consultation, and documentation in this master plan is sufficient to fulfill the requirements for Schedule B MCEA undertakings and would provide the basis for future investigations for the specific Schedule C MCEA undertakings identified within it. In regard to cultural heritage resources the master plan document should:

- identify existing baseline environmental conditions;
- identify expected environmental impacts; and
- Include measures to mitigate potential negative impacts.

Archaeological Resources

Schedule B MCEA undertakings included as part of the master plan should be screened using the Ministry's *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. If the EA project area exhibits archaeological potential, then an archaeological assessment (AA) should be undertaken by an archaeologist licensed under the Ontario Heritage Act and submitted for MCM review prior to the completion of the master plan.

Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment shall be undertaken for the entire study area during the planning phase and be summarized in the EA Report. This study will:

1. Describe the existing baseline cultural heritage conditions within the study area by identifying all known or potential built heritage resources and cultural heritage landscapes, including a historical summary of the study area. The Ministry has developed screening criteria that may assist with this exercise: *Criteria for Evaluating for Potential Built Heritage Resources and Cultural Heritage Landscapes*.

2. Identify preliminary potential project-specific impacts on the known and potential built heritage resources and cultural heritage landscapes that have been identified. The report should include a description of the anticipated impact to each known or potential built heritage resource or cultural heritage landscape that has been identified.

3. Recommend measures to avoid or mitigate potential negative impacts to known or potential built heritage resources and cultural heritage landscapes. The proposed mitigation measures are to inform the next steps of project planning and design.

Given that this project covers a large study area, MCM recommends that the Cultural Heritage Report is carried out so that step 1 described above is undertaken early in the planning process. Then, steps 2 and 3 can be undertaken once the preferred alternatives have been selected.

For Schedule B MCEAs undertaken as part of the master plan, where a known or potential built heritage resource or cultural heritage landscape may be directly and adversely impacted, and where it has not yet been evaluated for Cultural Heritage Value or Interest (CHVI), completion of a Cultural Heritage Evaluation Report (CHER) is required to fully understand its CHVI and level

of significance. The CHER must be completed as part of the final EA report. If a potential resource is found to be of CHVI, then a Heritage Impact Assessment (HIA) will need to be undertaken and included in the final EA report. Please send the HIA to MCM for review and make it available to local organizations or individuals who have expressed interest in review.

While some cultural heritage landscapes are contained within individual property boundaries, others span across multiple properties. For certain cultural heritage landscapes, it will be more appropriate for the CHER and HIA to include multiple properties, in order to reflect the extent of that cultural heritage landscape in its entirety.

Community input should be sought to identify locally recognized and potential cultural heritage resources. Sources include, but are not limited to, municipal heritage committees, community heritage registers, historical societies and other local heritage organizations.

Cultural heritage resources are often of critical importance to Indigenous communities. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to them.

Environmental Assessment Reporting
Technical cultural heritage studies are to be undertaken by a qualified person who has expertise, recent experience, and knowledge relevant to the type of cultural heritage resources being considered and the nature of the activity being proposed. Please advise MCM whether any technical heritage studies will be completed for this master plan and provide them to MCM before issuing a Notice of Completion.

Please note that the responsibility for administration of the *Ontario Heritage Act* and matters related to cultural heritage have been transferred from the Ministry of Tourism, Culture and Sport (MTCS) to the Ministry of Citizenship and Multiculturalism (MCM). Individual staff roles and contact information remain unchanged. Please continue to send any notices, report and/or documentation to both Karla Barboza and myself.

- Karla Barboza, Team Lead - Heritage | Heritage Planning Unit (Citizenship and Multiculturalism) | 416-660-1027 | karla.barboza@ontario.ca
- Dan Minkin, Heritage Planner | Heritage Planning Unit (Citizenship and Multiculturalism) | 416-786-7553 | dan.minkin@ontario.ca

Thank you for consulting MCM on this project. Please continue to do so through the master plan process and contact me for any questions or clarification.

Sincerely,

Dan Minkin
Heritage Planner
Dan.minkin@ontario.ca

Copied to: Anita Schoenleber, Township of Hamilton

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. The Ministry of Citizenship and Multiculturalism (MCM) makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MCM be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with *Ontario Regulation 30/11* the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

Review Agency #2:

Ministry of Environment, Conservation and Parks (MECP)

Response

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

Ontario

April 12, 2024

BY EMAIL ONLY

Township of Hamilton

Attention: Anita Schoenleber
Manager of Water Operations
Email: aschoenleber@hamiltonTownship.ca
905-342-2810

Re: **Township of Hamilton**
Water Supply Master Plan
Municipal Class Environmental Assessment
MECP Response to Notice of Commencement

Dear Anita Schoenleber,

This letter is in response to the Notice of Commencement for the above noted project issued on March 25th, 2024.

Background

The Township of Hamilton has initiated a Master Planning process in accordance with Approach 1 of the Municipal Engineers Association (MEA) Class Environmental Assessment (Class EA) to develop a Water Supply Master Plan for the Township of Hamilton.

The Process

The Master Plan study is assessing various options to improve the performance and reliability of the water supply infrastructure to ensure they can be relied upon to accommodate current and future flows required within the urban servicing areas of the Township, including Creighton Heights, Buttersfield and Camborne.

STUDY PROCESS

The Ministry of the Environment Conservation and Parks understands that this study will be conducted in accordance with the Master Planning process (Phases 1 and 2) as outlined in the Municipal Class Environmental Assessment (October 2000, amended 2007, 2011, 2015 and 2023)

by the Municipal Engineers Association, which is an approved process under the Ontario Environmental Assessment Act. The TMP will follow "Approach #1" of the Master Planning process,

As TMP will be following "Approach #1" of the Master Planning process, it therefore provides a broad level of assessment that would become the basis for, and be used in support of, future investigations for specific municipal capital projects.

Approach #1 involves the Master Plan being done at a broad level of assessment thereby requiring more detailed investigations at the project-specific level in order to fulfil the Municipal Class EA documentation requirements for the specific Schedule B and C projects identified within the Master Plan. The Master Plan would therefore become the basis for, and be used in support of, future investigations for the specific Schedule B and C projects identified within it. Schedule B projects would require the filing of the Project file for public review while Schedule C projects would have to fulfil Phases 3 and 4 prior to filing an Environmental Study Report for public review.

Once the Master Plan report is finalized, the proponent must issue a Notice of Master Plan as opposed to a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the Proponent, prior to being approved by the municipality. As the Section 16 Order provisions only apply to specific projects completing the Class EA process and not the Master Plan document itself, there are no Section 16 Order provisions at the time of completion of the Master Plan for approach #1. Projects identified in the Master Plan will be subject to Section 16 Order provisions at the time of filing of a Project File or Environmental Study Report.

The attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. **Further information is provided at the end of the Areas of Interest document relating to recent changes to the Environmental Assessment Act through Bill 197, Covid-19 Economic Recovery Act 2020.**

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to the proposed project**, the MECP is delegating the procedural aspects of rights-based consultation to the proponent through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit. The following Indigenous Communities represent at a minimum the communities to be consulted through this Master Planning update process:

- **Chippewas of Rama First Nation**
- **Chippewas of Georgina Island**
- **Beausoleil First Nation**
- **Alderville First Nation**
- **Curve Lake First Nation**

- **Hiawatha First Nation**
- **Mississaugas of Scugog Island First Nation**

For the above Williams Treaties communities, please cc Karry Sandy McKenzie, William Treaties First Nations Process Co-ordinator, inquiries@williamstreatiesfirstnations.ca

- **Mohawks of the Bay of Quinte**
- **Kawartha Nishnawbe**

If the proponent has undertaken archeological studies and are required to undertake any work related to archeological resources, they should also include:
Huron-Wendat

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process". Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments.

Please also refer to the attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances subsequent to initial discussions with the communities identified by MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right
- Consultation with Indigenous communities or other stakeholders has reached an impasse
- An Order request is expected on the basis of impacts to Aboriginal or treaty rights

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

Should you or any members of your project team have any questions regarding the material above, please contact me at jon.orpana@ontario.ca.

Yours truly,

Regional Environmental Assessment Coordinator – Eastern Region

cc

Brittney Wielgos, (A) Water Compliance Supervisor, Peterborough District Office, MECP
Email: brittney.wielgos@ontario.ca

Susan Jingmiao Shi, P.Eng., M.Eng.
Senior Environmental Engineer
J.L. Richards & Associates Limited
Email: sshi@jlrichards.ca

Attach: Areas of Interest
A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities
The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019)

AREAS OF INTEREST (v. August 2022)

It is suggested that you check off each section after you have considered / addressed it.

☐ **Planning and Policy**

- Applicable plans and policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.
    - Projects located in MECP Central, Eastern or West Central Region may be subject to **A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)**.
    - Projects located in MECP Central or Eastern Region may be subject to the **Oak Ridges Moraine Conservation Plan (2017)** or the **Lake Simcoe Protection Plan (2014)**.
    - Projects located in MECP Central, Southwest or West Central Region may be subject to the **Niagara Escarpment Plan (2017)**.
    - Projects located in MECP Central, Eastern, Southwest or West Central Region may be subject to the **Greenbelt Plan (2017)**.
    - Projects located in MECP Northern Region may be subject to the **Growth Plan for Northern Ontario (2011).**

- The **Provincial Policy Statement (2020)** contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.

- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

☐ **Source Water Protection**

The *Clean Water Act*, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity

that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- The proponent should identify the source protection area and should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.

- If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if this project is occurring within a vulnerable area, proponents can use this mapping tool: http://www.applications.ene.gov.on.ca/swp/en/index.php. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the “Map Legend” bar on the left. The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.

- For further information on the maps or source protection plan policies which may relate to their project, proponents must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the report and include all communication documents/correspondence.**

More Information

For more information on the *Clean Water Act*, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario’s website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the *Clean Water Act*. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional “local” threat activities, as approved by the MECP.

- **Climate Change**

The document "Considering Climate Change in the Environmental Assessment Process" (Guide) is now a part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

- **The MECP expects proponents of projects under a Class EA or EA Act Regulation to:**

1. Consider during the assessment of alternative solutions and alternative designs, the following:
    a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
    b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

- **Air Quality, Dust and Noise**

- If there are sensitive receptors in the surrounding area of this project, a quantitative air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern.

- If a quantitative Air Quality Impact Assessment is not required for the project, the MECP expects that the report contain a qualitative assessment which includes:

    - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;

- A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
- A discussion of local air quality impacts that could arise from this project during both construction and operation; and
- A discussion of potential mitigation measures.

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada. March 2005.

- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

- Noise associated with a proposed transformer station should be evaluated. Note that any noise monitoring and assessment should be conducted in accordance with the requirements of MECP guidelines, such as MECP Publication NPC-233, "*Information to be Submitted for Approval of Stationary Sources of Sound*".

- In order to address potential noise impacts of the transformer station, it may be necessary to first monitor ambient noise levels prior to the installation of the transformer station, and to then conduct a noise assessment after the transformer station is installed and operational. Depending on the results of these studies and the proximity to sensitive receptors, remedial measures may be needed to address noise generated by the transformer station.

Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- Natural heritage and hydrologic features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:
  - Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands, significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
  - Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
  - Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive

Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features.

- **Species at Risk**

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at https://www.ontario.ca/page/species-risk.

- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.

- For any questions related to subsequent permit requirements, SAR Considerations etc., proponents / consultants are highly recommended to contact SAROntario@ontario.ca.

- **Surface Water**

- The report must include enough information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the report and utilized when designing stormwater control methods.

- A Stormwater Management Plan prepared as part of the Class EA process should include:

    - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
    - Watershed information, drainage conditions, and other relevant background information
    - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
    - Information on maintenance and monitoring commitments.

- Any potential approval requirements for surface water taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water

takings that exceed 50,000 L/day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information. Additionally, an Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the report.

- If the potential construction or decommissioning of water wells is identified as an issue, the report should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts. For example, where construction of transmission towers is proposed, any pile driving into the subsurface that is required for steel pile type tower foundations, particularly to the bedrock surface at depth, may have an adverse effect on local groundwater resources.

- Any potential approval requirements for groundwater taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information.

- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

- Groundwater should be protected from the potential for spills, dewatering and wood pole preservative during construction. A plan should be in place for preventing and dealing with spills. All spills that could potentially cause damage to the environment should be reported to the Spills Action Centre of the Ministry of the Environment, Conservation and Parks at 1-800-268-6060.

Excess Materials Management

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don't go to waste and to provide clear rules on managing and reusing excess soil. New risk-based standards referenced by this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit https://www.ontario.ca/page/handling-excess-soil.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

- All waste generated during construction must be disposed of in accordance with ministry requirements

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites. We recommend referring to the MECP's D-4 guideline for land use considerations near landfills and dumps.
    - Resources available may include regional/local municipal official plans and data; provincial data on large landfill sites and small landfill sites; Environmental Compliance Approval information for waste disposal sites on Access Environment.

- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's website).

- The location of any underground storage tanks should be investigated in the report. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Consideration of potential environmental contamination should be given following regulatory guidance where the project involves decommissioning of facilities. Please contact the appropriate MECP District Office for further consultation if contaminated sites are present.

- Where poles are being removed that have been chemically treated, we recommend that the proponent consider soil testing to determine the extent of any related soil contamination. Soil testing may be contingent on factors such as proximity to water bodies or wetlands, proximity to wells, locations where poles are being removed but not replaced, and the treatment chemicals used (i.e. chromated copper arsenate (CCA) or creosote). In the case of poles which have been treated with CCA or creosote, testing for arsenic, copper and creosote should be completed.

Servicing, Utilities and Facilities

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.

- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the project.

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's environmental land use planning guides to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Mitigation and Monitoring

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the report and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- The proponent's construction and post-construction effects monitoring strategies and programs must be documented in the report.

- The proponent must consider cumulative effects when planning projects. The assessment will include the proposed undertaking and any other proposed undertakings in the immediate project area where documentation is available (e.g. other environmental assessments).

-

Consultation

- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout the planning process. The report should also include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments (as directed by the Guide to Environmental Assessment Requirements for Electricity Projects to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

Class EA Process

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. **The Master Plan should clearly indicate the selected approach for conducting the plan**, by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to a Section 16 Order request under the *Environmental Assessment Act,* although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**

- If this project is a Master Plan: Any identified projects should also include information on the MCEA schedule associated with the project(s).

- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage assessments) such that all potential impacts can be identified, and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the report.

- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and to reference any relevant information in the report.

Amendments to the EAA through the Covid-19 Economic Recovery Act, 2020

Once the report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address (for projects in MECP Southwest Region, the email is eanotification.swregion@ontario.ca).

The public has the ability to request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Section 16 Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Section 16 Order requests on those matters should be addressed in writing to:

Minister
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

Review Agency #3:

Ministry of Transportation (MTO)

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: April 22, 2024 8:36 AM
To: Matthew Marcuccio
Subject: FW: Town of Hamilton Water Supply Master Plan - PICs

For filing.

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406

From: Foreman, Shanna (MTO) <Shanna.Foreman@ontario.ca>
Sent: Thursday, April 18, 2024 7:37 PM
To: aschoenleber@hamiltontownship.ca
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: Town of Hamilton Water Supply Master Plan - PICs

Hi Susan,

I am the new Senior Project Manager for the MTO Corridor Section. I am reaching out to discuss the Town of Hamilton Water Supply Master Plan. MTO is interested in attending your upcoming PICs and prepared to have any necessary consultations with the Town to discuss MTO requirements triggered by any future works in accordance with the Public Transportation and Highway Improvement Act (PTHIA) and Highway Corridor Management Manual.

To begin, once you have confirmed the dates and details of the PICs, could you kindly share them with me? If you have any additional supporting documents, please also share them with me.

Kindest-regards,

Shanna Foreman (pronounce here)
Senior Project Manager
Corridor Management | Operations East
Ministry of Transportation | Ontario Public Service
437-991-5387 | shanna.foreman@ontario.ca

Stakeholder #1:

The Metherals

Response

J.L. Richards
& Associates Limited
203-863 Princess Street
Kingston, ON Canada
K7L 5N4

MOVED / UNKNOWN // DEMENAGE OU INCONNU
RETURN TO SENDER
RENVOI A L'EXPEDITEUR
K7L 5N4

Wit on RR6 delivery

The Metherals
9229 Dale Rd
Cobourg, ON K9A 4J9

J.L. Richards
& Associates Limited
203-863 Princess Street
Kingston, ON Canada
K7L 5N4

MOVED / UNKNOWN // DEMENAGE OU INCONNU
RETURN TO SENDER
RENVOI A L'EXPEDITEUR
K7L 5N4

KR

Property Owner
4863 45
Cobourg, ON K9A 4J9

not on RR4 delivery

Stakeholder #2:

Behan Construction

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: April 1, 2024 8:11 AM
To: Matthew Marcuccio
Subject: FW: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

For filing.

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406
-----Original Message-----
From: Tom Behan <tom@behan.ca>
Sent: Tuesday, March 26, 2024 3:07 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Very good, thank you Susan
Tom

-----Original Message-----
From: Susan Jingmiao Shi [mailto:sshi@jlrichards.ca]
Sent: Tuesday, March 26, 2024 2:37 PM
To: Tom Behan <tom@behan.ca>; Rachel Nafziger <rnafziger@jlrichards.ca>
Cc: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: RE: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Hello Tom,

Thanks for reaching out!
We are in the preliminary stages of this study and will reach out in time to discuss.
Thank you!

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate; Senior Environmental Engineer; Practice Lead, Regional Market
203 - 863 Princess Street
Kingston, ON, K7L 5N4
Work: 343-302-5406
sshi@jlrichards.ca
-----Original Message-----
From: Tom Behan <tom@behan.ca>
Sent: Tuesday, March 26, 2024 2:00 PM
To: Rachel Nafziger <rnafziger@jlrichards.ca>
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Caution: This email originated from outside JLR. Do not click links or open attachments unless you recognize the sender and know the content is safe. If in doubt, please forward suspicious emails to Helpdesk.

Hi Rachel

Thank you for your email today.

Yes I am very interested in your Water Supply Master Plan.

I am a land owner with various properties in Hamilton Township, and I am a developer that has completed subdivisions in the Township, and as well I have a construction company in the business of watermain installation for many years in the area. (plus I live here in Hamilton Township)

So I would be happy to talk to you at some point about past history and possible future directions for the Township water supply.

Tom Behan
Behan Construction Ltd
905 372 9862
tom@behan.ca

-----Original Message-----
From: Rachel Nafziger [mailto:rnafziger@jlrichards.ca]
Sent: Tuesday, March 26, 2024 10:14 AM
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Hello,

The Township of Hamilton has retained J.L. Richards & Associates Limited to initiate a Master Planning process in accordance with Approach 2 of the Municipal Engineers Association (MEA) Class Environmental Assessment (Class EA) to develop a Water Supply Master Plan for the Township of Hamilton.

The attached Notice of Study Commencement is being sent to agencies and organizations that may have an interest in this study.

Comments on this study should be sent to the project team by email or mail as provided in the Notice of Commencement.

Thank you,

Rachel Nafziger (she/her)
Project Administrator
203 - 863 Princess Street
Kingston, ON, K7L 5N4
Work: 343-302-5514
rnafziger@jlrichards.ca

From: Matthew Morkem
Sent: September 3, 2024 2:50 PM
To: Susan Jingmiao Shi
Subject: FW: Twp of Hamilton Water Study

Public consultation

Matthew Morkem, P.Eng.
Senior Associate
Environmental Infrastructure Market Chief
Kingston, ON
Work: 343-302-5425
Mobile: 613-483-1237

From: Tom Behan <tom@behan.ca>
Sent: Tuesday, September 3, 2024 11:00 AM
To: Matthew Morkem <mmorkem@jlrichards.ca>
Subject: Twp of Hamilton Water Study

Hi Matt

This Tom Behan from Hamilton Township, I have been talking to you on the phone about the Township water study.

I was wondering how you are making out?
Do you have the date for the Public Information Session?

I would appreciate a face to face meeting if possible before the public meeting, I could drive to your office in Kingston if necessary.
Let me know what dates and times could work for you.

Thanks
Tom

Tom Behan
President
Behan Construction Limited
Phone: 905 372 9862

Email: tom@behan.ca

Stakeholder #3:

Lynda Gowling & Roy Hircock

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: April 1, 2024 8:11 AM
To: Matthew Marcuccio
Subject: FW: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

For filing.

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406

From: Lynda Gowling <lyndagowling@gmail.com>
Sent: Tuesday, March 26, 2024 2:45 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>
Cc: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: Re: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Susan: That will be helpful so thank you. I look forward to further correspondence. When I took a further look at the study area as provided in the study area notice I noticed a number of other properties in the current Baltimore settlement area not included in the delineated study area. I have not seen any planning plans to decrease the settlement area boundary and thus anticipate you will be including all properties within the boundary.

Regards,

Lynda Gowling

On Tue, Mar 26, 2024 at 2:38 PM Susan Jingmiao Shi <sshi@jlrichards.ca> wrote:

> Hello Lynda,
>
> Thanks for reaching out!

The study is still in the preliminary stage, and we are starting to define study areas now. Your response is mostly helpful as we can now clarify the boundaries. Once we receive comments from other stakeholders and public members about the study area, we will send you an update.

The upcoming public meetings will be scheduled with notices sent to the same recipients as this time so you will be in receipt of that in the upcoming months.

Regards,

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate; Senior Environmental Engineer;
Practice Lead, Regional Market

203 - 863 Princess Street
Kingston, ON, K7L 5N4

Work: 343-302-5406
sshi@jlrichards.ca

From: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Sent: Tuesday, March 26, 2024 2:35 PM
To: Lynda Gowling <lyndagowling@gmail.com>
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Hello Lynda, most definitely the settlement areas will be delineated before the 1st Public Meeting.

Do you access have to our Township website? Any new information about the dates of the Public Meetings will be on our Website.

Thank you

Anita Schoenleber

Manager of Water Operations

Township of Hamilton

8285 Majestic Hills Drive

PO Box 1060

Cobourg, ON

K9A 4W5

From: Lynda Gowling <lyndagowling@gmail.com>
Sent: Tuesday, March 26, 2024 1:32 PM
To: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: Re: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Anita:

I appreciate your response although it makes me wonder how the outline didn't include all of the areas within the settlement area. How will I find out when the actual study area is determined?

As I don't do social media I'm how I will find out when the public meetings are scheduled for? I'm thinking that a fair amount of work will already be done by the engineers prior to the first meeting and would hope that the study area would be finalized prior to that.

Regards,

Lynda Gowling

On Tue, Mar 26, 2024 at 1:26 PM Anita Schoenleber <aschoenleber@hamiltontownship.ca> wrote:

> Good Afternoon Lynda, thank you for your inquiry and we appreciate your interest in our study. The study area definitely includes all lands within the settlement area including areas on Hircock. The delineation is just a general outline at this point and will be more detailed as the study progresses. Again, thank you for your question and we do hope this explanation has helped.
>
> Best Regards,
>
> Anita Schoenleber
>
> Manager of Water Operations
>
> Township of Hamilton
>
> 8285 Majestic Hills Drive
>
> PO Box 1060
>
> Cobourg, ON
>
> K9A 4W5

From: Lynda Gowling <lyndagowling@gmail.com>
Sent: Tuesday, March 26, 2024 1:21 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Cc: Rachel Nafziger <rnafziger@jlrichards.ca>
Subject: Re: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Dear Ms. Jingmaio and Ms. Schoenleber:

I am writing with a question concerning the Water Supply Master Plan study area as shown on the attached Notice of Study Commencement that I received today. I would appreciate your explaining why our property at 2505 Hircock Road and the other 5 properties on the south side of Hircock Road (highlighted in the snip below) are not included in the study area - all of these properties are within the Baltimore settlement area. As I understand it, our property (43 acres) is designated within the OCP for future residential housing development and must be serviced by community water due its proximity to the former county municipal landfill on the east side of Nagle Road and closed in the 1980's I believe.

I would appreciate a written email response asap.

Regards,

Lynda Gowling and Roy Hircock

2505 Hircock Rd.

Baltimore, Ontario K0K 1C0

On Tue, Mar 26, 2024 at 10:15 AM Rachel Nafziger <rnafziger@jlrichards.ca> wrote:

> Hello,
>
> The Township of Hamilton has retained J.L. Richards & Associates Limited to initiate a Master Planning process in accordance with Approach 2 of the Municipal Engineers Association (MEA) Class Environmental Assessment (Class EA) to develop a Water Supply Master Plan for the Township of Hamilton.
>
> The attached Notice of Study Commencement is being sent to agencies and organizations that may have an interest in this study.
>
> Comments on this study should be sent to the project team by email or mail as provided in the Notice of Commencement.
>
> Thank you,
>
> Rachel Nafziger (she/her)
> Project Administrator
> 203 - 863 Princess Street
> Kingston, ON, K7L 5N4
> Work: 343-302-5514
> rnafziger@jlrichards.ca

Stakeholder #4:

BluePlan Engineering of GEI Consultants
650 Woodlawn Road West, Block C, Unit 2
Guelph, On.
N1K 1B8

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: April 1, 2024 8:11 AM
To: Matthew Marcuccio
Subject: FW: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

For filing.

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406

From: Grant Parkinson - GM BluePlan <Grant.Parkinson@gmblueplan.ca>
Sent: Wednesday, March 27, 2024 11:39 AM
To: Rachel Nafziger <rnafziger@jlrichards.ca>
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>; Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

Hello Rachel

Notice received. Yes, we would like to be on the contact list and kept informed of progress on this Master Plan Study.

Thank you.

Grant Parkinson, P. Eng.
Senior Project Manager

GM BluePlan Engineering Limited
650 Woodlawn Road West, Block C, Unit 2 | Guelph ON N1K 1B8
tel: (519) 824-8150 Ext. 1231| cell: (519) 831-1520
grant.parkinson@gmblueplan.ca | www.gmblueplan.ca

-----Original Message-----
From: Rachel Nafziger <rnafziger@jlrichards.ca>
Sent: Tuesday, March 26, 2024 10:14 AM
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: [EXT] Notice of Study Commencement: Township of Hamilton Water Supply Master Plan

EXTERNAL EMAIL

Hello,

The Township of Hamilton has retained J.L. Richards & Associates Limited to initiate a Master Planning process in accordance with Approach 2 of the Municipal Engineers Association (MEA) Class Environmental Assessment (Class EA) to develop a Water Supply Master Plan for the Township of Hamilton.
The attached Notice of Study Commencement is being sent to agencies and organizations that may have an interest in this study.
Comments on this study should be sent to the project team by email or mail as provided in the Notice of Commencement.
Thank you,

Rachel Nafziger (she/her)
Project Administrator
203 - 863 Princess Street
Kingston, ON, K7L 5N4
Work: 343-302-5514
rnafziger@jlrichards.ca

Stakeholder #5:

R.W. BRUYNSON INC.
17315 Loyalist Parkway
Wellington, On.
KOK 3L0

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: April 1, 2024 8:10 AM
To: Matthew Marcuccio
Subject: FW: Water Supply Master Plan
Attachments: OP-ZONING.pdf; 401 45 Sample Site Plan on Survey - June 5.pdf

For filing.

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406

From: Rick Bruynson <bruynson@on.aibn.com>
Sent: Wednesday, March 27, 2024 1:43 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; aschoenleber@hamiltontownship.ca
Cc: 'Marvin Pernica' <mpernica@morcap.ca>
Subject: Water Supply Master Plan

Susan/Anita

Please find enclosed a written request to be considered in the study of the Water Supply Master Plan. Also attached is a Site Plan of our lands for your use as well as a concept plan for the potential development.

Rick
Richard W. Bruynson, OAA(Retired), P.Eng.(Retired)
R.W. BRUYNSON INC.
17315 Loyalist Parkway
Wellington, Ontario
KOK 3L0
Tele: 613-399-2810
Email: bruynsonrick@gmail.com

Stakeholder #6:

LINMAC
1005 Elgin Street West, Suite 208
Cobourg, On.
K9A 5J4

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: April 1, 2024 8:10 AM
To: Matthew Marcuccio
Subject: FW: Water Supply Master Plan

For filing.

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406

From: Drew Macklin <drew@linmac.ca>
Sent: Wednesday, March 27, 2024 2:26 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; aschoenleber@hamiltontownship.ca
Cc: 'Hugh Macklin' <hugh@linmac.ca>; Angie Turpin <accounting@linmac.ca>; Arthur Anderson <aanderson@hamiltontownship.ca>; 'Scott Jibb' <scottjibb@hamiltontownship.ca>
Subject: Water Supply Master Plan

Hi Susan and Anita,

Given the proximity, the recommendation, especially for Creighton Heights and Buttersfield, should be to negotiate with the Town of Cobourg for water supply.

Sincerely,

Drew Macklin, RPA
President
ca.linkedin.com/in/drewmacklin/

LINMAC
Creating *Environments* for Business *Success*

1005 Elgin Street West, Suite 208
Cobourg, Ontario, K9A 5J4
P: 905-372-3338
www.linmac.ca

Stakeholder #7:

McDermott & Associates Limited
1550 Kingston Road, Box 1408
Pickering, On.
L1V 6W9

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: May 27, 2024 8:37 AM
To: mcdplan@bell.net
Cc: aschoenleber@hamiltontownship.ca; Matthew Marcuccio
Subject: RE: Water Supply Master Plan / Township of Hamilton

Hi John,

This is to confirm that we received the email and will add the email to our distribution list.

Thank you for reaching out!
Susan

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406

From: mcdplan@bell.net <mcdplan@bell.net>
Sent: Friday, May 24, 2024 4:10 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>
Cc: aschoenleber@hamiltontownship.ca
Subject: Water Supply Master Plan / Township of Hamilton

Good Afternoon Ms. Jingmiao,

In order that we may receive any subsequent notices, please add the writer as a stakeholder in relation to the Township of Hamilton Water Supply Master Plan Study.

Our e-mail address is: mcdplan@bell.net

Thank you for your assistance in this regard.

Sincerely yours,
John McDermott, MCIP, RPP, PLE

McDermott & Associates Limited
1550 Kingston Road, Box 1408
Pickering, Ontario
L1V 6W9
tel (905) 509-5150

Responses to PIC #1

Stakeholder #8:

Ganaraska Conservation
Cory Harris

Response

From: Cory Harris <charris@grca.on.ca>
Sent: October 29, 2024 4:39 PM
To: Susan Jingmiao Shi
Cc: Anita Schoenleber; Jessica Mueller; Jackie Harman
Subject: Township of Hamilton Water Supply Master Plan

Hi Susan,

Further to our discussion at the PIC, could you please send us a copy of the Phase 1 report? We'd like to review the document to gain a better understanding of the water supply system and the work your team has done to-date. We would also like to arrange a meeting with you and Anita in the coming weeks/months to sit down and discuss whether the work you're doing will necessitate a Section 34 Amendment of the *Clean Water Act*.

Copies of the approved Ganaraska Assessment Report and the Ganaraska Source Protection Plan can be downloaded from the following link: https://trentsourceprotection.on.ca/resources/reports-legislation

Let us know if we can be of any assistance.

Best regards,

Cory

Cory Harris, P. Eng.
Watershed Services Coordinator

Ganaraska CONSERVATION

2216 County Road 28
Port Hope, ON L1A 3V8
905.885.8173 x. 226
charris@grca.on.ca / www.grca.on.ca

“Clean Water Healthy Lands for Healthy Communities”

Stakeholder #9:

Lakefront Utility Services Inc.
Larry Spyrka

Response

Michelle Mulvihill

From: Larry Spyrka <lspyrka@lusi.on.ca>
Sent: October 25, 2024 4:43 PM
To: Susan Jingmiao Shi
Cc: Michelle Mulvihill; Adam Taggart
Subject: RE: Township of Hamilton Water Master Plan - Consultation with LUSI/ Town of Cobourg

Hi Susan,
As discussed in our previous conversation, the request will have to come from the Township of Hamilton Mayor's Office to the Town of Cobourg. As all discussion begin with the Mayor's talking to each other, then LUSI will be brought into the conversation. Once your client has contacted the Town of Cobourg Mayor and a meeting can be scheduled with all parties, LUSI will attended.
Thanks.
Larry

Larry Spyrka
Manager of Water Capital Projects
Lakefront Utility Services Inc.
207 Division Street
Cobourg, ON
K9A 3P6

Tei: (905) 372-2193 x5238
Cell: (905) 373-3011
Fax: (905) 372-2581

www.lusi.on.ca

From: Susan Jingmiao Shi <sshi@jlrichards.ca>
Sent: October 25, 2024 3:01 PM
To: Larry Spyrka <lspyrka@lusi.on.ca>
Cc: Michelle Mulvihill <mmulvihill@jlrichards.ca>
Subject: RE: Township of Hamilton Water Master Plan - Consultation with LUSI/ Town of Cobourg

Hello Larry,

Following up on our previous conversation on the water supply master plan for the Township of Hamilton, we would like to request a formal meeting between Town of Cobourg/LUSI and Township of Hamilton.

The intent of the meeting is to discuss our project intent, the “ask” and Town of Cobourg’s requirements.

I have discussed with our client the outcome of our previous phone conversation. This meeting is to formally document the outcome and decisions.

A 1-hour time slot is what we would like to request. Please propose a few days/times that work for LUSI/Town in mid-November. JLR will then set up the virtual meeting.

JLR will circulate a list of questions prior to this meeting to help guide the conversation.

Thank you!
Susan

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate; Senior Environmental Engineer;
Practice Lead, Regional Market

203 - 863 Princess Street
Kingston, ON, K7L 5N4

Work: 343-302-5406
sshi@jlrichards.ca

From: Susan Jingmiao Shi <sshi@jlrichards.ca>
Sent: October 8, 2024 4:22 PM
To: lspyrka@lusi.on.ca
Cc: Michelle Mulvihill <mmulvihill@jlrichards.ca>
Subject: Township of Hamilton Water Master Plan - Consultation with LUSI/ Town of Cobourg

Hello Larry,

J.L. Richards & Associates is working with the Township of Hamilton on their Water Supply Master Plan. I believe you attended our first Public Information Center a few weeks ago.

As we have now identified the system deficiencies and the requirements for future water demand, the project team is moving forward with evaluating various water supply options, one of which is the connection to Cobourg’s drinking water system.

I am wondering if we can have a quick call to discuss the Town/ LUSI’s interest in this project and whether we should organize a formal consultation meeting to explore this option.

Regards,

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate; Senior Environmental Engineer;
Practice Lead, Regional Market

203 - 863 Princess Street
Kingston, ON, K7L 5N4

Work: 343-302-5406
sshi@jlrichards.ca

Stakeholder #10:

Ministry of Transportation, Corridor Management, Operations East
Shanna Foreman

Response

From: Foreman, Shanna (MTO) <Shanna.Foreman@ontario.ca>
Sent: April 18, 2024 7:37 PM
To: aschoenleber@hamiltontownship.ca
Cc: Susan Jingmiao Shi
Subject: Town of Hamilton Water Supply Master Plan - PICs

Hi Susan,

I am the new Senior Project Manager for the MTO Corridor Section. I am reaching out to discuss the Town of Hamilton Water Supply Master Plan. MTO is interested in attending your upcoming PICs and prepared to have any necessary consultations with the Town to discuss MTO requirements triggered by any future works in accordance with the Public Transportation and Highway Improvement Act (PTHIA) and Highway Corridor Management Manual.

To begin, once you have confirmed the dates and details of the PICs, could you kindly share them with me? If you have any additional supporting documents, please also share them with me.

Kindest-regards,

Shanna Foreman (pronounce here)
Senior Project Manager
Corridor Management | Operations East
Ministry of Transportation | Ontario Public Service
437-991-5387 | shanna.foreman@ontario.ca

Ontario

Taking pride in strengthening Ontario, its places and its people

Stakeholder #11:

Lynda Gowling

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: January 30, 2025 1:55 PM
To: Lynda Gowling
Cc: Anita Schoenleber; Michelle Mulvihill
Subject: RE: Water Supply Master Plan - Baltimore Questions

Hello Lynda,

Thanks for your time on Tuesday. We are sending this email to capture the key discussions and action items from the meeting.

- The draft Phase 1 report is being finalized and will be posted on Township's website for public review. The public will have 2 weeks to review and provide comments.
- You have confirmed that the low/high growth scenarios for your property is correct.
- There will be a 2nd Public Information Centre, likely late spring/ early summer.
- We also discussed extending the public consultation list to all council members. We will touch base with Anita to get their contact information for all future public consultation activities.

Please let us know if the above needs correction.

Regards,

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston ON
Work: 343-302-5406

From: Susan Jingmiao Shi <sshi@jlrichards.ca>
Sent: January 26, 2025 2:02 PM
To: Lynda Gowling <lyndagowling@gmail.com>
Cc: Anita Schoenleber <aschoenleber@hamiltontownship.ca>; Michelle Mulvihill <mmulvihill@jlrichards.ca>
Subject: RE: Water Supply Master Plan - Baltimore Questions

Good afternoon Lynda,

Prior to our meeting on Tuesday, we are providing written responses to your questions below. Our responses are highlighted in **bold and blue**.

We intend to release the updated Phase 1 Master Plan report in the upcoming days on Township's website for public review. There will be additional opportunities to provide comments once you see the entirety of the report.

Regards,
Susan

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market

Kingston ON
Work: 343-302-5406

From: Lynda Gowling <lyndagowling@gmail.com>
Sent: September 20, 2024 3:28 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>
Cc: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: Water Supply Master Plan - Baltimore Questions

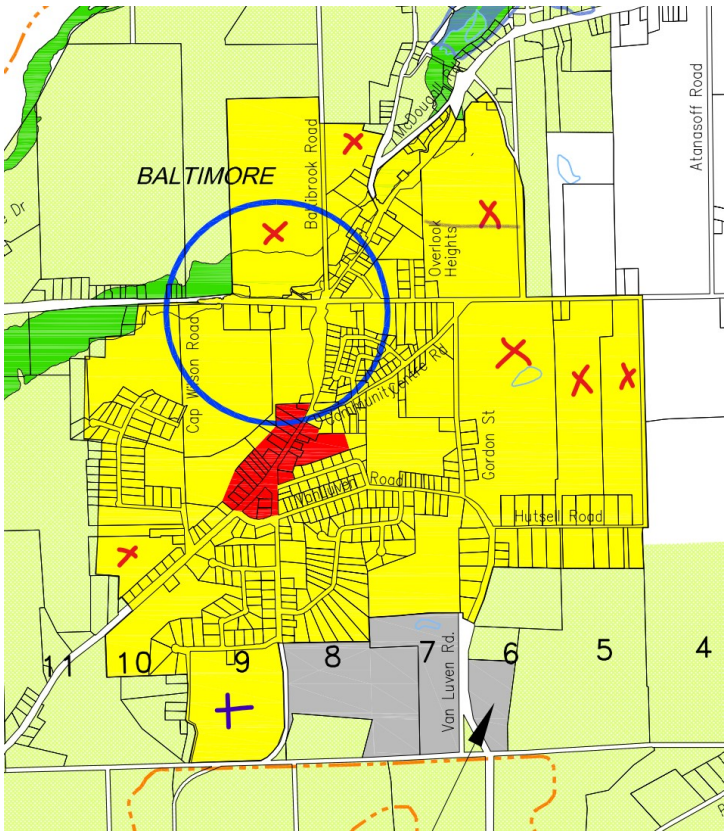
Susan:

Thank you for speaking with me last night at the Public meeting. I have some follow-up questions that I would appreciate you or Anita responding to. My partner Roy Hircock and I own the property located at 2505 Hircock Rd. in Baltimore and shown as a purple "X" on the map (south end of Baltimore) included in item 1 below,

1. Area of Study - Why is the area of study (item 2 below with snip of your figure 8 - growth area outlined with dashed black line) excluding a number of large properties in the Baltimore Settlement area?

I've marked a red "x" on the larger properties in the settlement area - coloured yellow on the OCP Map (as per the OCP - https://www.hamiltontownship.ca/en/business-and-development/resources/Documents/SCHEDULE-A-Land-Use-Designations.pdf)

[JLR Response] Since the last Public Information Centre, JLR met with the Township to re-define the study area and servicing boundary for Creighton Heights. For the purpose of the Master Plan, the study area has now been updated to match the settlement area. Refer to the attached "Figure_ Development Creighton Heights".

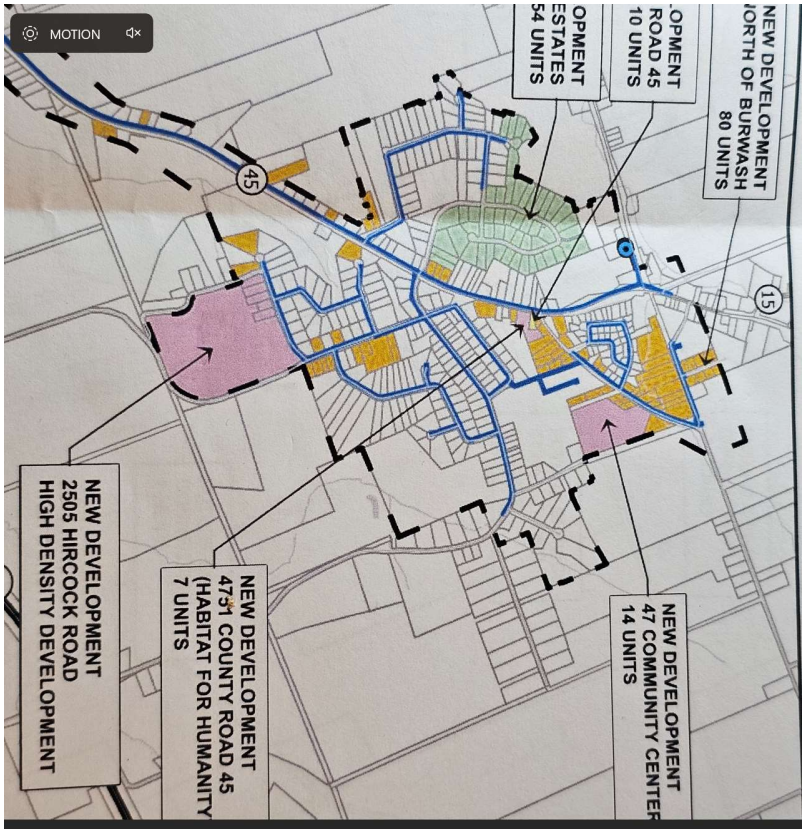


2. Planning for future Growth - I would like to know which planning staff (municipal and county staff) are providing the information as to future growth in Hamilton Township but specifically Baltimore. It seems to me growth projections should come from Planning staff and the Water department would extrapolate the figures to calculate needed water connections.

Figure 8 Creighton Heights Growth area map supplied at the meeting yesterday and shown in a snip below. My concerns/questions are:

a. Who decided to exclude growth on properties currently in the settlement area but not yet under development (as identified above with red "x's" above on the OCP map)? What was the decision criteria to exclude these properties?

[JLR Response] JLR met with Jennifer Current (Township Planner), Tim Jeronimus (CBO), Anita Schoenleber and Arther Anderson in November 2024 to re-define the future growth. The Township staff provided JLR with additional detailed mapping and growth projections which are now incorporated into the attached figures. All the properties with X's on them have been identified with growth projections or confirmed with Township planner as vacant properties that are considered highly unlikely to have any growth in the next 20 years. I can walk you through the details during our call.



b. Why are you including properties already allocated water capacity on the current system and thus not part of future growth - this includes:

(i) Deerfield Estate (green on map 0 - 5 years) - 54 units - this subdivision is almost entirely built out and after driving around it last night I estimate more than 90% are in fact connected (people are living there, some for as long as 4 years) to the municipal system (not private wells) and the remaining (about 3-5 homes will be connected within the year).

[JLR Response] You are correct, we are now listing Deerfield Homes to only have 5 remaining units to be connected to the municipal system and considered future growth.

(ii) Habitat for Humanity - pink on map thus 10-20 years but actually under construction and people will be moving into the homes in approximately 6 months - 7 units- my understanding is they were allowed to proceed because there is existing water capacity to supply water to the housing units.

[JLR Response] You are correct, Habitat for Humanity has been moved to 0-5 year timeline with 7 units. Although there was reserve capacity available for this development, water demand has not been realized and needs to be carried as future growth/demand.

(iii) New Development - County Road 45 - 10 units - this is a stalled conversion of an apartment/commercial property to an apartment building - I believe the # of units is less than 10 and as well I have been previously told by staff that there is enough water capacity to accommodate the units and the existing water service to that building was sufficient for the project.

[JLR Response] We are keeping the growth as 10 units. This is in the short-term.

c. 2505 Hircock Rd. - the property owned by my partner and myself - our property is shown as "high Density" (344 units according to your notes that you consulted) . You indicated that this is something the owners wanted. There are a number of issues with this:

(i) no one consulted us and this plan for growth of this magnitude is not something we asked for. Planning for growth does not typically come from the landowner but is a result of overall municipal and county planning.

(ii) this is in contravention to the growth plans for the next 30 years which designate all of Baltimore as Low Density

(iii) This property has a number of constraints including Natural Heritage protection on the north east corner, a number of protected species live here due to the Natural Heritage area and ponds, plus 2 hydro easements (4 acres). The likely residential developable area of this property in the next 10-20 years is more in the range of 25 acres - taking out roads, storm water ponds, kids park (would be needed with that many housing units) that would leave about 18 acres as developable land - so 19 units per acre - thus a very intensive townhouse development (no yards) or apartment buildings - and where would the septic services go? We do not have sewer services in Baltimore.

It simply isn't realistic and does not meet any of the provincial growth goals of intensifying where there are sewer and water services. Intensification is intended for urban settlement areas and not rural settlement areas and the County OP amendment states this. Furthermore you are allocating over 35% of the future growth allocated to Hamilton Township to one single property in Baltimore - that again doesn't make sense.

The reality is this property will likely accommodate 15-20 residential units depending on municipal water availability. I could see a small townhouse development or small home development with up to double the number of units for single residential but only if water is available .

[JLR Response] Direct input from landowners is the most appropriate and accurate. For that reason, the project team have updated the growth on your property to 20 units in the next 10-20 year timeframe and have not included a higher density growth scenario due to the property constraints you have mentioned.

d. What consultation has been done with County Planning staff pertaining to the Draft Official plan amendment for Growth released by the county in April of 2024? In the amendment they write on page 4:

g) Modify the boundaries of the Trent River, Crowe River, Baltimore, Hamilton West and Hamilton East, Precious Corners, Camborne, Harwood, Campbellcroft, Osaca, Welcome, Orland, Hilton, Smithfield, Eddystone, Vernonville, Lakeport, Wicklow, Roseneath, Dundonald, Salem and Castleton Rural Settlement Areas so that they match up with existing and potential development areas.

On page 6 of the OPA report the county allocates the household growth by municipality - you will see Hamilton Townships allocation is 965 "**LOW DENSITY**" housing. I wonder if the county has reviewed the High Density designation for 2505 Hircock Road and as well the "new development north of Burwash with 80 units - this is not low density with that size of property.

TABLE B

HOUSING FORECASTS FOR 2051 BY MUNICIPALITY - 2016 to 2051

Municipality	Low Density	Medium Density	High Density	Total
Brighton	1,315	715	275	2,305
Trent Hills	1,085	465	185	1,735
Cobourg	1,370	2,645	2,020	6,035
Cramahe	595	170	55	820
Port Hope	1,635	1,740	1,120	4,495
Hamilton	965	0	0	965
Alnwick/ Haldimand	775	0	0	775
Total	**7,740**	**5,730**	**3,650**	**17,120**

Have you consulted with the County as to what changes to the Baltimore settlement area are proposed in the OP Growth amendment to ensure the changes are incorporated into the growth projections for the Creighton Heights water system? I've put a link to the report below.

[JLR Response] Settlement area has now been confirmed with Jennifer Current (Township Planner). We don't believe that additional consultation is required with the County Planning staff at this point. Hircock Rd. growth has been revised to 20 units and the North of Burwash property has been reduced to 55 units. Overall, the cumulative projected low and high growth scenarios provide a range that may be realized in Creighton Heights and is in line with the OPA.

I realize this is a beginning step in the process but if you're starting out with inaccurate growth information then any options to address existing and future capacity issues are likely to be flawed. You advised me you hope to have the options report prepared by February so in about 5 months. It seems to me you have to truly understand the growth and work with municipal and county planning staff before looking to options.

Regards,

Lynda Gowling

Here is a link to the OP amendment: hq-production-canada.s3.ca-central-1.amazonaws.com/339406aca5bc77e6af7458b1d5f48e5f5482017b/original/1715778551/467ee6e792e3cc0e62222bb1a5d0ab63_North_LNA_OPA_April_24_2024_%28A%29.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4KKNQAKIOR7VAOP4%2F20240920%2Fca-central-1%2Fs3%2Faws4_request&X-Amz-Date=20240920T175843Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=ca986f3d99cc19e45cb4fb709b0d6847e1bf762fa401901b7b752efb4f0db30a

Stakeholder #12:

Dick Kauling

Response

From: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Sent: August 8, 2024 11:59 AM
To: Susan Jingmiao Shi; Matthew Morkem; Matthew Marcuccio
Cc: Arthur Anderson
Subject: FW: Township of Hamilton Water Supply Master Plan - March 25, 2024

Hello to All, here is an inquiry below that I am passing on to your group. This is the first time I have interacted with this person. I replied to Dick by saying I would be best to pass on his queries directly to your Team. Please address as you see fit. Perhaps he would like to be a Stakeholder but I did not ask him that.
Thank you

Anita Schoenleber
Manager of Water Operations
Township of Hamilton
8285 Majestic Hills Drive
PO Box 1060
Cobourg, ON
K9A 4W5

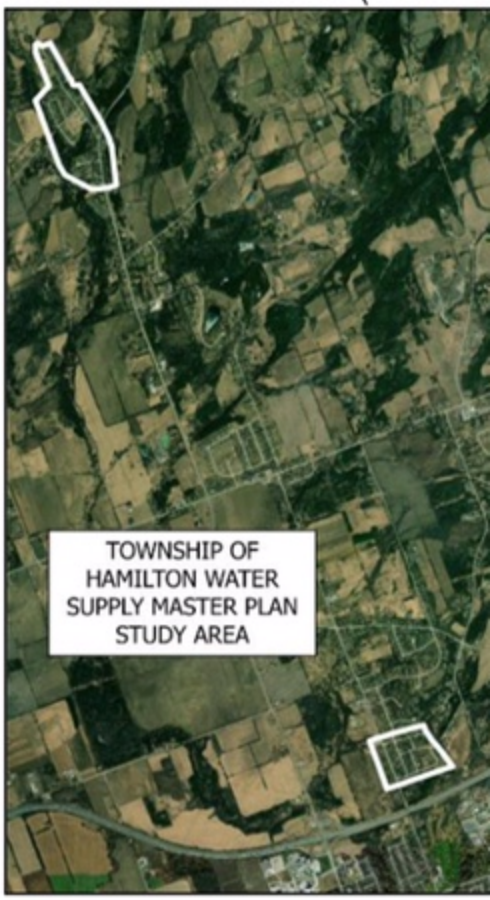
From: Dick Kauling <dick8404@icloud.com>
Sent: Thursday, August 8, 2024 7:55 AM
To: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: Township of Hamilton Water Supply Master Plan - March 25, 2024

Good morning Anita

Notice of Study Commence

Township of Hamilton
Water Supply Master Plan

The Township of Hamilton has initiated a Master Planning process in accordance v
Municipal Engineers Association (MEA) Class Environmental Assessment (Class E
Supply Master Plan for the Township of Hamilton.



How Will This Affect Me?

The Master Plan study is assessing various options to improve the performance and reliability of the water supply infrastructure to ensure they can be relied upon to accommodate current and future flows required within the urban servicing areas of the Township, including Creighton Heights, Buttersfield and Camborne.

Public and agency consultation is a key part of the Master Planning process. Based on your input, the Master Plan study will identify preferred solution(s) that will benefit the community over the short, mid, and long terms.

How Do I Get More Information?

Two Public Information Centres will be held in 2024 and 2025 prior to confirming the preferred servicing solutions. The dates of the Public Information Centres have not been set at this time but will be found on the Township's website o
meantime, the study team will review background information and determine alterna
contact a member of the study team listed below with any questions or to provide in
study. Updates will also be provided throughout the Master Plan study on the Towns

Susan Jingmiao Shi, P.Eng., M.Eng.
Senior Environmental Engineer
J.L. Richards & Associates Limited
203-863 Princess Street
Kingston, ON K7L 5N4
sshi@jlrichards.ca
343-302-5406

Anita Schoenleber
Manager of Water Operations
Township of Hamilton
8285 Majestic Hills Drive
Cobourg, ON K9A 4W5
aschoenleber@hamiltontownsh
905-342-2810

Has a 2024 date been set for the public input sessions? Might there be some preliminary public information available to begin to assess and consider providing input.

Maybe information shared with Hamilton Township Council? Timeline?

Does the scope consider expansion of service(s)? Gaining access to additional sources of ground or surface water or potentially tying into other existing urban centre water sources?

I am most interested in knowing the assessment of the size of the water sources being studied, the forecasted amount of demand for water that will need to be provided, the impact of potentially becoming part of the supplied system and safeguards to private well owners continued access to existing water supplies.

Thank you in advance.

Dick Kauling
Sent from my iPad

Stakeholder #13:

Brent and Julie Morrill

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: September 25, 2024 1:58 PM
To: Michelle Mulvihill
Subject: FW: Township of Hamilton Water Supply Master Plan PIC 1 Comments

Please file.

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston, ON
Work: 343-302-5406

From: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Sent: Wednesday, September 25, 2024 1:11 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; Matthew Morkem <mmorkem@jlrichards.ca>
Subject: Re: Township of Hamilton Water Supply Master Plan PIC 1 Comments

Hi Susan, my Operator went to 16 McCarty and here are his findings.....
Hi Anita, talked to the people at 16 McCarty, pressure at hose faucet was 60 to 70 psi, pressure inside the house after meter was 90 plus psi pressure at laundry taps was 80 psi.

So, I don't think there is any problem with pressure there!
Have a good day Susan

Sent from my Bell Samsung device over Canada's largest network.

From: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Sent: Tuesday, September 24, 2024 4:12:25 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; Brent Morrill <brentamorrill@gmail.com>
Cc: Julie Morrill <juliemorrill8@gmail.com>
Subject: Re: Township of Hamilton Water Supply Master Plan PIC 1 Comments

Hello again Brent and Julie, as for the Deerfield pumps that failed....we have all steps in place to identify if any future pump is going to fail, with spares on the shelf. The wrong type of seal was spec'ed in the original build. Only pumps with Viton seals will be purchased in the future. Viton is resistant to constituents in the water. With the redundancy of 3 Deerfield pumps in the design, no one in Deerfield

experienced any change in supply/pressure during the event. Engineers build in that redundancy for just such times. Hope this helps relieve any concern. Take care

Sent from my Bell Samsung device over Canada's largest network.

From: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Sent: Tuesday, September 24, 2024 6:21:50 AM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; Brent Morrill <brentamorrill@gmail.com>
Cc: Julie Morrill <juliemorrill8@gmail.com>
Subject: Re: Township of Hamilton Water Supply Master Plan PIC 1 Comments

Good Morning Brent and Julie, we really appreciate your attendance at our 1st Public Meeting. Your input is important to the whole process.
In the short term, I am sending a Water Operator over to check pressure at your home. If you do not happen to be home at the time, he can check the pressure off an outside tap.
I will get back to you.
As for your other observations, they are definitely recognized and we are working towards finding ways of improving these aesthetic issues. Solutions will be costly and will require lengthy approvals. Any change to a drinking water system is complex with many regulatory parties having say. Our groundwater has aesthetic issues such as hardness and colour while surface water sources (ie Lake Ontario) have concerns about microplastics, residual amounts of prescribed drugs and PFAS/PFOS which are very difficult and costly to remove with concerning health impacts.
When I return from a few days off, I will drop off our most recent Annual/Summary Report. This report is prepared at the start of each year. It describes the 2 systems (yours which is Creighton Heights and our other system in Camborne) from raw to distribution, including test results from the accredited external lab.
In the meantime, you can always access this info on our Township website under Resident Services/Water Services/Additional Resources/2023 Annual and Summary Report for Camborne and Creighton Heights. Historical Annual Reports are there as well. Another tab you may want to check is ....Township of Hamilton Quality Management Operational Plan. It describes what we do and how we do it. It is audited internally and externally by NSF each year looking for any non conformities, non compliances and it always looks for ways to improve the QMS....which means that we apply these findings in our day-to-day care of the systems.
Hope this helps and I will connect with you soon on what our Operator sees for pressure at your house. Take care

Sent from my Bell Samsung device over Canada's largest network.

From: Susan Jingmiao Shi <sshi@jlrichards.ca>
Sent: Monday, September 23, 2024 7:51:29 AM
To: Brent Morrill <brentamorrill@gmail.com>; Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Cc: Julie Morrill <juliemorrill8@gmail.com>
Subject: RE: Township of Hamilton Water Supply Master Plan PIC 1 Comments

Thank you Brent! We have received your email and will be discussing the comments with the Township.

Regards,

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate; Senior Environmental Engineer;
Practice Lead, Regional Market

203 - 863 Princess Street
Kingston, ON, K7L 5N4

Work: 343-302-5406
sshi@jlrichards.ca

From: Brent Morrill <brentamorrill@gmail.com>
Sent: Saturday, September 21, 2024 3:56 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; aschoenleber@hamiltontownship.ca
Cc: Julie Morrill <juliemorrill8@gmail.com>
Subject: Township of Hamilton Water Supply Master Plan PIC 1 Comments

Susan /Anita:

It was nice to meet you at the above PIC on Thursday Sept 19th. As requested, we are providing some feedback on our concerns with the water supply to our house. We have lived at 16 McCarty Drive in Baltimore since 2018. Our house is equipped with a water softener with an inline 5 micron charcoal filter.

Water issues:
1. Supply pressure is less than desirable, although improved from 2018. We have had to remove the diffusers from our water taps in order to get acceptable pressures.
2. Ongoing restrictions and bans on lawn watering in summer months are a concern.
3. There is a slight green tint to the water when drawing a bath.
4. Most significantly, there is a pinky/orange residue left by the water in our sinks and showers and toilets.
5. We are also concerned with the security of supply. It is our understanding that two of the three pumps used to supply our water recently failed from a common failure mode and we were very fortunate not to have lost the third pump which had the same design flaw.

We have no issues with iron or odours with the water.

Please keep us informed of developments as they occur with the master plan.

Responses to Phase 1 Report Posted on Municipality Website February 28, 2024

Stakeholder #14:

John McDermott

Response

McDERMOTT & ASSOCIATES LIMITED
LAND USE & ENVIRONMENTAL PLANNING CONSULTANTS

1550 KINGSTON ROAD, BOX 1408
PICKERING, ONTARIO L1V 6W9
TELEPHONE: (905) 509-5150
e-mail: mcdplan@bell.net

March 10, 2025

J. L. Richards & Associates Limited
203-863 Princess Street
Kingston, Ontario
K7L 5N4

Attention: Ms. Susan Jingmiao Shi, P. Eng.
Senior Environmental Engineer

Re: Phase One Report - Township of Hamilton Water Supply Master Plan
Our File: PN 5234

Dear Ms. Shi,

We act as land use and environmental planning consultants on behalf of 2353240 Ontario Limited, the owner of those lands generally described as forming Parts 1 and 2 of Plan 39R-13682 located in Part of Lot 7, Concession 2, municipal address of 47 Community Centre Road, in the Township of Hamilton. The Phase One report concerning the Township of Hamilton Water Supply Master Plan generally identifies the subject lands as Area G on Table 3 and Figure 8. A copy of a legal survey of the property in question, having an area of approximately 5.56 hectares, is attached hereto.

By way of background, on May 16, 2024, the writer, together with our Client, attended a meeting with Ms. Jennifer Current, Senior Planner, at the Township of Hamilton. The purpose of the meeting was to provide for a preliminary discussion concerning the development of the subject property by means of a registered plan of subdivision for residential purposes, specifically single detached dwellings. Since that time, work has been proceeding in relation to the preparation of the necessary materials and information to provide for the filing of a request for a pre-submission consultation meeting with the Municipality and the County of Northumberland to define the reporting requirements related to the requisite Planning Act approvals.

During the course of the meeting of May 16, 2024, Ms. Current advised that J. L. Richards & Associates Limited had been retained to undertake a Municipal Class Environmental Assessment of the water supply and distribution system serving the Hamlet of Baltimore, referred to as Creighton Heights in the Phase One report, as well as other areas within the Municipality. Subsequently, on September 19, 2024, the writer attended the Public Information Centre held in the Baltimore Community Centre.

During the writer's attendance at the Public Information Centre on September 19, 2024, the writer spoke with a representative of J. L. Richards & Associates Limited. At that time, the writer indicated that, subject to a determination of the reporting requirements through the Pre-Submission Consultation process with the County of Northumberland and the Township of Hamilton, an application for draft plan approval would follow with a view to providing for development of the lands within the next three to five years.

Based upon our review of the Phase One Report dated February 28, 2025, the subject lands, municipal address of 47 Community Centre Road, have been on identified on Table 3 for future development within 5 to 10 years. By way of this submission, we confirm, as noted by way of our comments during the course of the September 19, 2024 meeting, that our Client proposes to proceed with development of the lands within the next five years subject to the ability to connect to municipal water supply and distribution system.

By way of this submission, we respectfully request that the Phase One report be revised to reflect that the lands located at 47 Community Centre Road are proposed for development by registered plan of subdivision for single detached dwellings within the next five years and that the Low Growth and High Growth Scenarios set out on Table 3 be revised accordingly. As you will no doubt appreciate, the proposed development of the lands in question within the next five years will result in an increase in the service population, most notably in the short term and require that the future water demands under both the low growth and high growth scenarios be revised accordingly.

On behalf of our Client, we appreciate the opportunity to review and provide comments in relation to the Phase One report and trust that the report will be modified as necessary to reflect the proposed development of the property in question within the short term period of 0 to 5 years. Should you have any questions or require any additional information concerning the development of the lands, municipal address of 47 Community Centre Road, please do not hesitate to contact the undersigned.

Sincerely yours,
McDermott & Associates Limited

John McDermott

John McDermott, M.C.I.P., R.P.P., PLE
Principal Planner

copy to: 2353240 Ontario Limited
Attn. Mr. Josh Malcolm

Ms. Jennifer Current
Senior Planner
Township of Hamilton

Stakeholder #15:

Engage Engineering
Jason Armstrong

Response

From: Jason Armstrong <jason@engageeng.ca>
Sent: Wednesday, March 12, 2025 1:11 PM
To: Anthony Dew <anthony@stalwoodhomes.ca>; Kent Randall <krandall@ecovueconsulting.com>; Adam Bonner <Adam.Bonner@ghd.com>
Cc: Al Rose <al@stalwoodhomes.ca>; Tom Behan (InTouch) <tom@behan.ca>; James Behan <james@behan.ca>; Aidan Rose <aidan@stalwoodhomes.ca>
Subject: RE: [EXTERNAL] masterplan report

Hi Anthony,

We have reviewed the initial report and have summarized our comments below:

1. More alternative solutions should be considered in Section 11.0. Option 3 only addresses the limited well capacity. The suggested alternatives should address ALL of the capacity constraints that are present in the existing system in order accommodate the Creighton Heights growth projections. These constraints include wells approaching capacity, treated water storage approaching capacity, water treatment plant approaching capacity, and the physical constraints in the water system that limit pressure. Refer to the Capital Needs Assessment prepared by GM BluePlan in August 2020 for more alternatives to address all of the system needs (i.e. new treatment facility and wells, construction of elevated storage, etc.).
[JLR] This falls under JLR's scope of work for Phase 2 Master Plan Report.
2. More investigation should be done into what is causing the fire flow and pressure limitations throughout the distribution system in order to provide alternative solutions to address the problem. For example, the lack of pressure could be caused by:
    a. High friction losses (addressed by upsizing pipes and/or looping the system to eliminate dead ends and reduce frictions losses)
    b. Too much elevation change (addressed with additional pressure zones, increased pumping capacity, or elevated storage)
    c. Lack of initial pressure provided by pumping station (addressed with additional pressure zones, increased pumping capacity, or elevated storage).

[JLR] Township has advised JLR that fire protection is achieved throughout the Township with the Tanker Shuttle Accredited Fire Trucks. Since Creighton Heights has limitations as to what it can deliver for a fire flow, the Fire Department has accommodated the shortfall by having trucks and pumping systems to meet requirements. Phase 1 Report addressed the concerns with respect to over pressure (but no under pressure) and lack of fire flows, as per Table 25 and 26. The physical configuration of the distribution system is the limitation on pressure and flow. Recommendations for future improvements will be discussed with Township during Master Plan Phase 2 work.

3. The study boundary shown on Figure 3 appears to be different from the other figures. For example, it doesn't include the areas identified on Figure 8 as Growth Areas O, I, N, F, D, U, H, and J. This limited study area is also shown on Figure 14.

[JLR] Noted. The figures will be updated with the correct study area boundary for Creighton Heights.

Hope these help.

Thanks,

Jason Armstrong
Municipal Group Manager
Engage Engineering Ltd.

171 King St, Suite 120, Peterborough, ON, K9J 2R8
Phone 705.755.0427 Mobile 705.760.1006
Web www.engageeng.ca Email jason@engageeng.ca

From: Anthony Dew <anthony@stalwoodhomes.ca>
Sent: March 5, 2025 7:26 AM
To: Kent Randall <krandall@ecovueconsulting.com>; Jason Armstrong <jason@engageeng.ca>; Adam Bonner <Adam.Bonner@ghd.com>
Cc: Al Rose <al@stalwoodhomes.ca>; tom@behan.ca; James Behan <james@behan.ca>; Aidan Rose <aidan@stalwoodhomes.ca>
Subject: [EXTERNAL] masterplan report

Good morning guys,
A follow up to yesterday, we heard from Anita at the township that we are in a 2 week comment period for the WMP. could we all have comments back to us on the development side for next wednesday please?
Cheers
Anthony

Anthony Dew

Chief Operations Officer-Partner

44 University Ave., W.

Cobourg, ON, K9A 2G5

T: 905-372-4179 ext.103

E: anthony@stalwoodhomes.ca

StalwoodHomes.ca

Stakeholder #16:

GHD Engineering
Adam MacKenzie Bonner

Response

Good day Anita and Arthur

Please see below comments from Adam Bonner at GHD and
Jason Armstrong from Engage Engineering whom have been retained as consultants for our property on Burwash Rd.
We would ask that you pass them onto Susan at JL Richards

Thankyou in advance
Best Regards

Al Rose

GHD have reviewed the reports and offer the following observations regarding the plan for a water standpipe.

First off, there is existing literature that supports water tanks in providing more volume of water to a system. It should be noted that these mention the usage of such tanks for emergency supply during peak operational periods, and perhaps this is why there was no mention of incorporating a water standpipe as a solution to the water issues for Creighton Heights in the J.L. Richards report. We could not find a reference in the new report to address/recommend that an increase in storage capacity by a water tower or standpipe will supply the town with more water. The BluePlan report, on the other hand, did suggest elevated storage as a viable plan combined with a new facility.
[JLR] The Phase 1 Report focuses on existing conditions and developing Problem/Opportunity Statement. The report has identified deficiency in storage which will be further reviewed in Phase 2 Report. Since the Master Plan is following an Approach 1 process, the Master Plan will recommend further studies (i.e., a Schedule 'B' Class EA) to be done for the preferred location and configuration of new storage facility. The treated water storage will not address water supply issues. It will only address the deficiency in the distribution system with respect to fire storage, equalization and emergency.

Both reports have noted that there were periods of time, albeit short term during dry months, where the maximum output was at or near capacity for the system. The average water supply, though, is well below the operational limit (337m3/day of 668m3/day, or 50.5% the operational limit). The fact that the PTTW was for 1,300m3 per day implies that the aquifer could produce that amount at the issuance of the permit. We question why the current wells are operating at close to 50% of that total? Is the aquifer itself at the capacity of its operational limits? The reports lean towards mechanical issues of the wells but does not directly link the data to the capacity of the aquifer itself. This is not a "deal breaker", but additional recommendations might need to be considered to enhance the total municipal supply.
[JLR] Master Plan Phase 2 Report will review recommendations to increase supply, treatment and production. To confirm aquifer capacity, additional field hydrogeological studies will need to be completed beyond the Master Plan. Our study is meant to be desktop in nature. Also, the water treatment plant is designed for maximum daily demand, not average day demand.

In the short term, we see no reason why a standpipe couldn't be installed to satisfy an increase in capacity and to provide the town with more water during peak operational periods – the exact design intent of a water tower or standpipe. Plus, all the other benefits of adding a gravity fed system into the municipal supply, ensuring safe supply of constant water during a power outage, for example. However, the standpipe does not address the concern of the reports in that the operating volume is currently well below the permit to take water threshold. The system is old and a further reduction in operational capacity will occur over time. This would also mean that during the off hours, when the standpipe is to be filled, that eventually the system will not be able to sufficiently recharge to supply both the town and the standpipe.

[JLR] Additional storage capacity in the distribution system (in the form of a standpipe, reservoir or elevated tower) does not negate the requirements of the WTP expansion and water supply well expansion. As mentioned above, storage is provided in the distribution system to accommodate fire storage, equalization and emergency. The water supply and treated water flow from WTP still needs to meet max day demand from all users. Filling and draining a standpipe is an operational aspect of the overall system – providing storage does not address supply issue. Agree that a standpipe has the benefit of providing treated water in an emergency power outage situation – but for how long? These are considerations for the future Schedule 'B' Class EA.

As Baltimore grows, more strain will be placed on the system. With an expectation that each unit may consume up to 1,000L per day (1m3), an additional 100 properties account for 15% towards the operational limit, pushing the average supply to 65.5% of the operational limit. Table 3 of the J.L. Richards report only lists the subdivision to have 55 units, so half of that figure was accounted for. I'm not sure about how much of the total growth projections over 0-5-10-20 years are completed, accurate, or not likely to occur, but the total projected growth of 393 units as the total would exceed the current operational limits. We see this as a significant concern for the township when they see these numbers.
[JLR] We share the concern that future growth will push the water system beyond current capacity. That's the intent of the Master Plan. With respect to growth, JLR has met with Township's Planning Department and Building Official to finalize growth numbers in Table 3.

In summary:

1. The proposed standpipe will CURRENTLY directly benefit the entire town and will supply the additional water required with addition of the Burwash subdivision. Regardless of what happens now or in the future, the standpipe is still a good recommendation in any plan to enhance the water supply concerns, as well as enhancing the water distribution system, in Baltimore.
   [JLR] Water storage will be addressed in a future Schedule 'B' Class EA.
2. The well field needs to be enhanced/repaired/rebuilt to increase water flow for other future developments. The BluePlan seems to be more helpful in offering suggestions as to how to accomplish that.
   [JLR] Acknowledged.
3. Related, was a study conducted to confirm the capabilities of the well field in providing the permitted water limit, or is the failure with the operational limit being half of the permitted limit confirmed to be mechanical? Depending on those answers, it may change the available recommendations. We would encourage new well studies be conducted at the current and proposed well locations, unless they have that data and we missed it in our review.
   [JLR] Agreed. JLR will work through the recommendations in the Master Plan Phase 2 Report.
4. The J.L. Richards report's Table 3 should be updated. The volume information is more recent than the future growth as a number of those units have already been constructed (like Deerfield) and already serviced in their calculations. This means that fewer units should be sitting on the future growth plan, and more volume would be available for the current growth projection at Creighton Heights. This might extend the time to which the replacement of the facilities would become a critical issue and promote land development now.
   [JLR] The remaining lots in Deerfield was confirmed with Township Planning Department and Building Official at end of 2024.

I hope these comments were helpful. We at GHD are not directly experienced in developing water systems, but if you need us to conduct further reviews or investigations to the get the data or reports required to move your project forward, we are here for you.

Regards,

Adam MacKenzie Bonner
C.E.T., HBSc.
Project Manager / Senior Engineering Technologist

GHD

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Stakeholder #17:

Resident
Ken Burgess

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: March 24, 2025 9:20 PM
To: Anita Schoenleber; Ken Burgess
Cc: Michelle Mulvihill
Subject: RE: Township of Hamilton master water plan

Hello Ken,

Thanks for reaching out. The next public engagement opportunity will be at the 2nd Public Information Centre which will be held later this year. We will keep you on the distribution list for this upcoming opportunity.

Regards,

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston ON
Work: 343-302-5406

From: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Sent: Wednesday, March 19, 2025 7:05 PM
To: Ken Burgess <kenburgess3@gmail.com>; Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: RE: Township of Hamilton master water plan

Hello Ken, I just wanted to acknowledge your email and thank you for your interest and concerns. We truly appreciate your engagement. Thank you for reaching out to Susan at JL Richards, being the point person for the project. We are looking forward to the continuation of this important project.
Thanks again and have a great evening.

Anita Schoenleber
Manager of Water Operations
Township of Hamilton
8285 Majestic Hills Drive
PO Box 1060
Cobourg, ON
K9A 4W5

-----Original Message-----
From: Ken Burgess <kenburgess3@gmail.com>
Sent: March 19, 2025 5:31 PM
To: sshi@jlrichards.ca
Cc: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: Township of Hamilton master water plan

[You don't often get email from kenburgess3@gmail.com. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

CAUTION: External E-Mail

As a resident ofBaltimore where our family has had a farm for over 150 years I am most interested in the water study the township initiated with you.Ever since the area has become solely supported by the wells near the foot of my property I have been concerned about the water table. The amount of water drawn from those wells drilled in the 70's has continually increased especially since the loss of Cobourg water to a point now that no more residences can be connected until your study is complete. Is that correct? Over the past few years I have noticed a greater drop in my pond water in the summer season to the extent I have been concerned that the well which has serviced us for a very long time may not have enough water to service our needs in the future.
I must admit I have not studied your master plan as thoroughly as I might. Has the thought of a reservoir be constructed to hold sufficient amounts of water so that the load during peak periods would not put such a demand on the system. Obviously, during non peak time the reservoir could slowly recover.
Regardless, I will be looking forward with great interest to the next stage of your study. Can you provide me as to when in March that might be.
Regards,
Ken burgess

Stakeholder #18:

Southern Region Ministry of Natural Resources and Forestry
Sarah Bale

Response

Ministry of Natural Resources and Forestry

Land Use Planning and Strategic Issues Section
Southern Region

Regional Operations Division
300 Water Street
Peterborough, ON K9J 3C7
Tel.: 705 761-4839

Ministère des Richesses naturelleset des Forêts

Section de l'aménagement du territoire et des questions stratégiques
Région du Sud

Division des opérations régionales
300, rue Water
Peterborough (ON) K9J 3C7
Tél. : 705 761-4839

March 24, 2024

Susan Jingmiao Shi, P. Eng., M. Eng.
Senior Environmental Engineer
J.L. Richards & Associates Limited
203-863 Princess Street
Kingston, ON K7L 5N4
sshi@jlrichards.ca
343-302-5406

SUBJECT: Township of Hamilton Water Supply Master Plan

The Ministry of Natural Resources and Forestry (MNRF) received the Notice of Study Commencement on March 26, 2024. Thank you for circulating this to our office. Please note that we have not competed a screening of natural heritage or other resource values for the project at this time. This response, however, does provide information to guide you in identifying and assessing natural features and resources as required by applicable policies and legislation, as well as engaging with the Ministry for advice as needed.

Please also note that it is the proponent's responsibility to be aware of, and comply with, all relevant federal or provincial legislation, municipal by-laws or other agency approvals.

Natural Heritage

MNRF's natural heritage and natural resources GIS data layers can be obtained through the Ministry's Land Information Ontario (LIO) website. You may also view natural heritage information online (e.g., Provincially Significant Wetlands, ANSI's, woodlands, etc.) using the Make a Map: Natural Heritage Areas tool.

We recommend that you use the above-noted sources of information during the review of your project proposal.

Natural Hazards

A series of natural hazard technical guides developed by MNRF are available to support municipalities and conservation authorities implement the natural hazard policies in the Provincial Policy Statement (PPS). For example, standards to address flood risks and the potential impacts and costs from riverine flooding are addressed in the *Technical Guide River and Stream Systems: Flooding Hazard Limit (2002)*. We recommend that you consider these technical guides as you assess specific improvement projects that can be undertaken to reduce the risk of flooding.

Petroleum Wells & Oil, Gas and Salt Resources Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best-known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the library website to better understand the well information available. Any oil and gas wells in your project area are regulated by the *Oil, Gas and Salt Resource Act*, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at POSRecords@ontario.ca or 519-873-4634.

Fish and Wildlife Conservation Act

Please note, that should the project require:

- The relocation of fish outside of the work area, a Licence to Collect Fish for Scientific Purposes under the *Fish and Wildlife Conservation Act* will be required.
- The relocation of wildlife outside of the work area (including amphibians, reptiles, and small mammals), a Wildlife Collector's Authorization under the *Fish and Wildlife Conservation Act* will be required.

Public Lands Act & Lakes and Rivers Improvement Act

Some Project may be subject to the provisions of the *Public Lands Act* or *Lakes and River Improvement Act*. Please review the information on MNRF's web pages provided below regarding when an approval is, or is not, required. Please note that many of the authorizations under the *Lakes and Rivers Improvement Act* are administered by the local Conservation Authority.

- For more information about the *Public Lands Act*: https://www.ontario.ca/page/crown-land-work-permits
- For more information about the *Lakes and Rivers Improvement Act*: https://www.ontario.ca/page/lakes-and-rivers-improvement-act-administrative-guide

After reviewing the information provided, if you have not identified any of MNRF's interests stated above, there is no need to circulate any subsequent notices to our office. If you have identified any of MNRF's interests and/or may require permit(s) or further technical advice, please direct your specific questions to the undersigned.

If you have any questions or concerns, please feel free to contact me.

Best Regards,

Sarah Bale
Regional Planner | Land Use Planning and Strategic Issues Section Southern Region
Ministry of Natural Resources and Forestry | Ontario Public Service
613-504-2254 | sarah.bale@ontario.ca

Stakeholder #19:

GEI Consultants
Grant Parkinson

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: March 25, 2025 11:15 AM
To: Parkinson, Grant; Michelle Mulvihill
Cc: Anita Schoenleber
Subject: RE: Township of Hamilton Water Supply Master Plan - Phase 1 Report Updated for Public Review

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Grant,

Thanks for the comments. See our responses below.

Regards,

Susan Jingmiao Shi, P.Eng., M.Eng.
Associate
Senior Environmental Engineer
Practice Lead, Regional Market
Kingston ON
Work: 343-302-5406

From: Parkinson, Grant <GParkinson@geiconsultants.com>
Sent: Wednesday, March 19, 2025 1:52 PM
To: Susan Jingmiao Shi <sshi@jlrichards.ca>; Michelle Mulvihill <mmulvihill@jlrichards.ca>
Cc: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: Township of Hamilton Water Supply Master Plan - Phase 1 Report Updated for Public Review

Hi Susan and Michelle

Thanks for providing the Phase 1 Master Water Supply Plan report for review. It generally looks good and thorough. My comments :

Section 4.1.1

- Title “Pump Houses” [JLR] Acknowledged. Will update report.
- Note that there is no elevated storage in this system and therefore at least one high-lift pump for the main system and at least one high-lift pump for Deerfield Estates Phase 2 must be running continuously. Both high lift pumping systems have PRV’s on their respective discharge headers

for recirculating flow back to the clear well in order to keep a minimum flow rate for safe pump operation. [JLR] Acknowledged.

Section 4.2.1

- Title "Pump Houses" [JLR] Acknowledged. Will update report.
- Note that there is no elevated storage in this system. There is a series of 5 pressure tanks on the plant discharge header to maintain pressurized flow throughout the distribution system when there are no high-lift pumps operating. This typically occurs during periods of low water demand. [JLR] Acknowledged.

Section 7.1

It would be useful to compare your modeling results with results from LHS for fire flow testing conducted in May 2024 (see attached). It would be interesting to compare and explain any similarities/differences in test results. [JLR] It is not currently within JLR's scope to validate and calibrate the water model.

Thanks.

GEI
GRANT PARKINSON, P. Eng.
Senior Project Manager
519.824.8150...1231 cell: 519.831.1520
650 Woodlawn Road West Block C | Unit 2 | Guelph, Ontario N1K 1B8 | Canada

---

From: Michelle Mulvihill <mmulvihill@jlrichards.ca>
Sent: Monday, March 3, 2025 1:41 PM
To: aschoenleber@hamiltontownship.ca
Cc: Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: [EXT] Township of Hamilton Water Supply Master Plan - Phase 1 Report Updated for Public Review

EXTERNAL EMAIL

Greetings,

The Township of Hamilton has retained J.L. Richards & Associates to complete a Water Supply Master Plan. This initiative aims to assess the existing conditions, identify residual capacity within the current system, and plan for future upgrades to ensure the water supply infrastructure can accommodate future growth in the Township. The Township is conducting this study in accordance with Approach 1 Master Plan of the Municipal Class Environmental Assessment Process.

The project team is excited to share an important update regarding the Township of Hamilton's Water Supply Master Plan.

We are pleased to inform you that a revised Phase 1 report is now complete, following comments received during Public Information Centre No. 1. The report is available on the Township's website for your review.

You can access it at the following link:

32814-000 Township of Hamilton Water Supply Master Plan Phase 1 Report_Rev2.pdf

We kindly ask that you take some time to review the document and share any feedback or comments by **March 17th, 2025**.

Thank you for your continued involvement and support in this important project. We look forward to hearing from you!

Michelle Mulvihill, B.Eng.
Environmental Engineering Graduate

1000-343 Preston Street
Ottawa ON K1S 1N4

Work: 343-804-9373
mmulvihill@jlrichards.ca

Stakeholder #20:

Ministry of Citizenship and Multiculturalism
Dan Minkin

Response

Ministry of Citizenship and Multiculturalism

Heritage Planning Unit
Heritage Branch
Citizenship, Inclusion and Heritage Division
5th Flr, 400 University Ave
Tel.: 416-786-7553

Ministère des Affaires civiques et du Multiculturalisme

Unité de la planification relative au patrimoine
Direction du patrimoine
Division des affaires civiques, de l'inclusion et du patrimoine
Tél.: 416-786-7553

March 20, 2025 EMAIL ONLY

Michelle Mulvihill, B.Eng.
Environmental Engineering Graduate
J. L. Richards
1000-343 Preston Street
Ottawa ON K1S 1N4
mmulvihill@jlrichards.ca

MCM File	**:**	**0021261**
Proponent	**:**	**Township of Hamilton**
Subject	**:**	**Municipal Class Environmental Assessment - Notice of Commencement – Master Plan Approach 2**
Project	**:**	**Water Supply Master Plan**
Location	**:**	**Hamilton Township, Ontario**

Dear Michelle Mulvihill:

Thank you for providing the Ministry of Citizenship and Multiculturalism (MCM) with the Phase 1 Report for the above-referenced project dated February 28, 2025, prepared by J.L. Richards.

MCM's interest in this master plan relates to its mandate of conserving Ontario's cultural heritage, which includes archaeological resources, built heritage resources, and cultural heritage landscapes.

We have reviewed the report and offer the following comments.

Master Plan Summary
The Master Plan study is assessing various options to improve the performance and reliability of the water supply infrastructure to ensure they can be relied upon to accommodate current and future flows required within the urban servicing areas of the Township, including Creighton Heights, Buttersfield and Camborne.

Comments
The report contains no assessment of potential impacts to cultural heritage resources. However, we understand that this is master plan is being carried out in accordance with Approach #1 under the Municipal Class EA, meaning that further documentation will be carried out for each Schedule B and C component before implementation in order to satisfy EA requirements. This being the case, we are comfortable with assessment of potential cultural heritage impacts being completed at that time, in accordance with the advice we provided in our letter of May 14, 2024.

Thank you for consulting MCM on this project. Please continue to do so through the master plan process and contact me for any questions or clarification.

Sincerely,

Dan Minkin
Heritage Planner
Dan.minkin@ontario.ca

Copied to: Anita Schoenleber, Township of Hamilton
Susan Jingmiao, J.L. Richards

STAKEHOLDER REVIEW AGENCY LIST
Township of Hamilton Water Supply Master Plan

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

32814-000

Agency	Category	Name	Title	Email	Address
Ministry of the Environment, Conservation, and Parks Environmental Assessment Branch	MECP Agency Review team			eanotification.eregion@ontario.ca	
Ministry of the Environment, Conservation, and Parks Environmental Assessment Branch	MECP Agency Review team	Rebecca Troan	MECP Inspector	rebecca.troan@ontario.ca	
Conservation Ontario	MECP Agency Review team	Nicholas Fischer	Policy and Planning Coordinator	nfischer@conservationontario.ca T: 905-895-0716 Ext. 229 F: 905-895-0751	120 Bayview Parkway Newmarket ON L3Y 3W3
Ganaraska Region Conservation Authority	MECP Agency Review team	Leslie Benson	Water Resources Engineer	LBenson@GRCA.ON.CA 905-885-8173 Ext. 240	
Hydro One Networks Inc.	MECP Agency Review team			SecondaryLandUse@HydroOne.com	
Township of Hamilton Fire Department	MECP Agency Review team	Mike Robinson	Fire Chief	mrobinson@hamiltontownship.ca	2598 Van Luven Road Baltimore, Ontario K0K 1C0
Ontario Provincial Police	MECP Agency Review team	Jennifer Davey	Administrative Assistant, Research and Program Evaluation Unit / Research Planning & Analysis Section	jennifer.davey@opp.ca	777 Memorial Avenue Orillia ON L3V 7V3
Ministry of Agriculture, Food, and Rural Affairs	MECP Agency Review team	Jocelyn Beatty	Land Use Policy & StewardshipFood Safety and Environmental Policy BranchMinistry of Agriculture, Food & Rural Affairs	omafra.eanotices@ontario.ca	Elora Resource Centre 6484 Wellington Rd 7 – Unit 10 Elora ON N0B 1S0
Ministry of Citizenship and Multiculturalism - Hertiage, Tourism and Culture Division	MECP Agency Review team	Karla Barboza	Team Lead (A), Heritage Planning Unit Programs and Services Branch	karla.barboza@ontario.ca	400 University Ave. 5th Floor Toronto ON M7A 2R9
Ministry of Education, Kawartha Pine Ridge District School Board (TOWNSHIP TO PROVIDE CONTACTS)	MECP Agency Review team	Jeanette Thompson	Manager, Planning Services	705-742-9773 x 2169, jeannette_thompson@kprdsb.ca	1994 Fisher Drive, Peterborough, Ontario, K9J 6X6
Ministry of Health and Ministry of Long-Term Care, Haliburton, Kawartha, Pine Ridge District Health Unit (HKPR Health Unit)	MECP Agency Review team	Dr. Natalie Bocking	Medical Officer of Health	Tel: (866) 888-4577	200 Rose Glen Road Port Hope, ON L1A 3V6
Ministry of Indigenous Affairs	MECP Agency Review team				
Ministry of Mines	MECP Agency Review team	Tracey Burton	Manager(A)Strategic Support UnitMines and Minerals DivisionMinistry of Mines	tracey.burton@ontario.ca	
Ministry of Mines	MECP Agency Review team	Melanie Johnson	Senior Strategic Initiatives LeadStrategic Support UnitMines and Minerals Division	melanie.johnson@ontario.ca	
Ministry of Municipal Affairs and Housing	MECP Agency Review team	Michael Elms	Manager, Community Planning and Development, Eastern Ontario Services Office	michael.elms@ontario.ca	8 Estate Lane (Rockwood House) Kingston ON K7M 9A8
Ministry of Natural Resources and Forestry	MECP Agency Review team		Environmental Planning Team Lead(A)Strategic and Indigenous Policy Branch, Policy Division	environmental.planning.team@ontario.ca	
Ministry of Natural Resources and Forestry, Southern Region	MECP Agency Review team	Amanda McCloskey, Gillian Hartman	Amanda McCloskey, Land Use Planning Supervisor, Gillian Hartman, Regional Planning Coordinator	[redacted] Amanda: [redacted]	300 Water Street, Box 7000 4th Floor, South Tower Peterborough ON K9J 8M5
Ministry of Solicitor General	MECP Agency Review team	Fuad Abdi	Director(A)Facilities and Capital Planning BranchMinistry of the Solicitor	T: 416-884-5632 fuad.abdi@ontario.ca	25 Grosvenor Street, 13th Flr Toronto ON M7A 1Y6
Ministry of Tourism, Culture and Sport Tourism Policy and Research Branch	MECP Agency Review team	James (Jim) Antler	Policy AdvisorTourism Policy Unit	T: 705-493-0880 james.antler@ontario.ca	447 McKeown Avenue, Suite 203 North Bay ON P1B 9S9
Ministry of Transportation	MECP Agency Review team	Jenn Meleschuk	ManagerEngineering Program Delivery East	T: 613-539-6231 jenn.meleschuk@ontario.ca	1355 John Counter Blvd, Postal Bag 4000 Kingston ON K7L 5A3
Ministry of Citizenship and Multiculturalism- Tourism Policy and Research Branch	MECP Agency Review team	Katie Crowley	Regional Development Advisor - Tourism | Regional Services Branch	katie.crowley@ontario.ca	Ministry of Tourism, Culture and Sport 300 Water Street, 2nd Floor, South Tower Peterborough, ON K9H 8M5
Chippewas of Rama First Nation	Aboriginal Group	Rodney Noganosh	Chief	T: 705-325-3612 chief@ramafirstnation.ca	5885 Rama Road, Suite 200, Rama, ON L3V 6H6
Chippewas of Rama First Nation	Aboriginal Group	James Sharday	Community Consultation Worker	75-325-3611 ext.1633 shardayj@ramafirstnation.ca	5886 Rama Road, Suite 200, Rama, ON L3V 6H6
Chippewas of Georgina Island	Aboriginal Group	Donna Big Canoe	Chief	T: 705-437-1337 sylvia.mccue@georginaisland.com	R.R. #2, Box N-13, Sutton West, ON L0E 1R0
Beausoleil First Nation	Aboriginal Group	Joane P. Sandy	Chief	T: 705-247-2251 council@chimnissing.ca	11 O'Gemaa Miikaans, Christian Island, ON L9M 0A9
Alderville First Nation	Aboriginal Group	James Marsden	Chief	jmarsden@alderville.ca	11696 Second Line P.O. Box 46 Roseneath ON K0K 2X0
Hiawatha First Nation	Aboriginal Group	Laurie Carr	Chief	chiefcarr@hiawathafn.ca	123 Paudash Street R.R. #2 KEENE ON K0L 2G0
Mississaugas of Scugog Island	Aboriginal Group	Kelly LaRocca	Chief	klarocca@scugogfirstnation.com	22521 Island Road Port Perry ON L9L 1B6
Mohawks of the Bay of Quinte	Aboriginal Group	RODRICK DONALD MARACLE	Chief	rdonm@mbq-tmt.org cc: inquiries@williamstreatiesfirstnations.ca 613-396-3424	24 MEADOW DRIVE TYENDINAGA MOHAWK TERRITORY, Ontario K0K1X0
Curve Lake First Nation	Aboriginal Group	Keith Knott	Chief	keithk@curvelake.ca	22 Winookeeda Road Curve Lake ON K0L 1R0
Metis	Aboriginal Group			mno@metisnation.org	Suite 1100 – 66 Slater Street Ottawa, Ontario K1P 5H1
Kawartha Nishnawbe First Nation	Aboriginal Group	Kris Nahrgang	Chief	Rknahrgang@gmail.com cc: inquiries@williamstreatiesfirstnations.ca	257 Big Cedar Lake Road Big Cedar ON K0L 2H0
Town of Cobourg	Neighbouring Municipality	Tracy Vaughan	CAO	tvaughan@cobourg.ca, (905) 372-4301	
Watson and Associates	Local Interest Groups and Developers	Byron Tan	Manager	tan@watsonecon.ca	
Township of Hamilton	Water Supply Master Plan Steering Group	Tim Jeronimus	Chief Building Officer	tjeronimus@hamiltontownship.ca	
Township of Hamilton	Water Supply Master Plan Steering Group	Nusrat Ahmed	Treasurer and Director of Financial Services	nahmed@hamiltontownship.ca	
Township of Hamilton	Water Supply Master Plan Steering Group	Trevor Clapperton	Manager of Parks and Facilities	tclapperton@hamiltontownship.ca	

STAKEHOLDER REVIEW AGENCY LIST
Township of Hamilton Water Supply Master Plan

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Agency	Category	Name	Title	Email	Address
Township of Hamilton	Water Supply Master Plan Steering Group	Lucas Kelly	Manager of Roads Operations	lkelly@hamiltontownship.ca	
Stalwood Homes	Local Interest Groups and Developers	Al Rose	President	al@stalwoodhomes.ca Office: (905) 372-4179	
Stalwood Homes	Local Interest Groups and Developers	Anthony Dew	Chief Operations Officer, Partner	Cell: (905) 377-5389	
Behan Construction	Local Interest Groups and Developers	Tom Behan	Owner	tom@behan.ca Cell: (905) 377-5446	
Cobourg Development Services	Local Interest Groups and Developers	John Ryens	President	inquiries@cds-ltd.ca (905) 377-5471	
Property Owners	Local Interest Groups and Developers	The Metherals			9229 Dale Rd, Cobourg, ON K9A 4J9
2073191 Ontario Inc	Local Interest Groups and Developers		Developer of Archibald Court	blair@roseandrose.ca	
Mor-cap	Local Interest Groups and Developers	Marvin Pernica	Owner of Tredree Lands	m.pernica@morcap.ca (416) 224-2266	Toronto, ON
Williamson & Associates	Local Interest Groups and Developers	Ross Williamson		(705) 750-1125	846 Haggart St, Peterborough, ON, K9J 2X8
401&45 Developments	Local Interest Groups and Developers	Sandy Lauesen		vpl.realtysolutions@gmail.com	
Consultant for owner of property at 2505 Hircock Rd	Local Interest Groups and Developers	Lynda Gowling		lyndagowling@gmail.com, (905) 372-2505	
Knights Inn	Local Interest Groups and Developers	Ramesh Patel		kal8000@live.com, 416-902-3735	2215 Division St N, Cobourg, ON K9A 4J9
Municipal Property Assesment Corporation	Local Interest Groups and Developers				1340 Pickering Parkway, Suite 101, Pickering ON L1V 0C4
Property Owner	Local Interest Groups and Developers	Matt Leblanc			LeBlanc Enterprises at 204 Division St, Unit C, Cobourg, ON, K9A 3P7
Sabic Plastics	Local Interest Groups and Developers				Site: 44 Normar Road - K9A 4K2 / Mailing: P.O. Box 2004 - K9A 4L7, Cobourg - Ontario, Canada
Baltimore Industrial Park, Baltimore Storage	Local Interest Groups and Developers				4741 45, Baltimore, ON K0K 1C0
Baltimore Industrial Park, Rice Lake Hard Cider	Local Interest Groups and Developers				4741 45 Bldg #3, Baltimore, ON K9A 4J9
Baltimore Industrial Park, Structural Panels Inc.	Local Interest Groups and Developers				4741 45, Baltimore, ON K0K 1C0
Baltimore Industrial Park, Northumberland Proelectric	Local Interest Groups and Developers				4741 Building 6, 45, Baltimore, ON K9A 4J9
Habitat for Humanity Northumberland	Local Interest Groups and Developers	Cathy Borowec		cborowec@habitatnorthumberland.ca	764 Division Street, Cobourg ON K9A 5V2
Lakefront Utilities Services Inc	Local Interest Groups and Developers	Dereck C. Paul, Larry Spryka	Manager	dpaul@lusi.on.ca lspyrka@lusi.on.ca	
Community Members	Local Interest Groups and Developers	Larry Bowman			8160 Jibb Rd, Cobourg, ON, K9A 4J7
Community Members	Local Interest Groups and Developers	The Irwins			11 Charles St, Cobourg, K9A 2T4
Community Members	Local Interest Groups and Developers	Jordan Hoogendam			3507 Albert's Alley, K9A JJ7
Property Owners	Local Interest Groups and Developers	High Macklin, Drew Macklin		drew@linmac.ca	
Property Owner, 782058 Ontario Inc	Local Interest Groups and Developers	Peter Harrison			c/o Peter Harrison, PO Box 453, Cobourg, ON K9A 4L1
GM Blue Plan/Township Water Engineer	Local Interest Groups and Developers	Grant Parkinson	Township Water Engineer	grant.parkinson@gmblueplan.ca	
Property Owner	Local Interest Groups and Developers				9213 Dale Rd, Cobourg, ON K9A 4J9
Property Owner	Local Interest Groups and Developers				9215 Dale Rd, Cobourg, ON K9A 4J9
Property Owner	Local Interest Groups and Developers				9198 Dale Rd, Cobourg, ON K9A 4J9
Property Owner	Local Interest Groups and Developers				9258 Dale Rd, Cobourg, ON K9A 4J9
Property Owner	Local Interest Groups and Developers				9262 Regional Rd 74, Cobourg, ON K9A 4J9
Property Owner	Local Interest Groups and Developers				4863 45, Cobourg, ON K9A 4J9
Property Owner	Local Interest Groups and Developers	Josh Malcolm		joshmalcolm@hotmail.com	
McDermott & Associates Limited	Local Interest Groups and Developers	John McDermott	Principal Planner	mcdplan@bell.net	1550 Kingston Rd, Box 1408, Pickering, ON L1V 6W9
Knights Inn Cobourg	Local Interest Groups and Developers	Ramesh Patel	Owner	kal8000@live.com	2215 Division St N, Cobourg, ON K9A 4J9
Property Owner	Local Interest Groups and Developers	Jill Ivatt		jillivatt@hotmail.ca	37 Community Ctr Rd. Baltimore

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Agency	Category	Name	Title	Email	Address
Ganaraska Region of Conservation Authority	Local Interest Groups and Developers	Jessica Mueller, PhD, P.Geo.	Watershed Hydrogeoloist	jmueller@grca.on.ca	2216 County Road 28, Port Hope, ON, L1A 3V8
R.W. Bruynson Inc.	Local Interest Groups and Developers	Richard Bruynson	OAA (Retired), P.Eng. (Retired)	T: 613-399-2810 bruynsonrick@gmail.com	17315 Loyalist Parkway Wellington Ontario K0K 3L0
Manager of Parks and Facilities	Township of Hamilton	Trevor Clapperton		T: 905-372-5662 X2 tclapperton@hamiltontownship.ca	
Property Owner	Local Interest Groups and Developers	Dick Kauling		dick8404@icloud.com	
Ministry of Natural Rsources	MECP Agency Review team	Sarah Bale	Land Use Planning and Strategic Issues Section Southern Region	sarah.bale@ontario.ca	300 Water Street, Peterborough, ON K9J 3C7
Municipality of Port Hope	Neighbouring Municipality	Kate Shuker	CAO	kshuker@porthope.ca	

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