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Phase 2 Report (Final)

Township of Hamilton Water Supply Master Plan

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

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1.0 Introduction

1.1 Background

J.L. Richards & Associates Limited (JLR) was retained by the Township of Hamilton (the Township) to prepare 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 Water Supply Master Plan (WSMP) is being completed in accordance with the Municipal Engineers Association (MEA) Class EA Approach 1 master planning process. The objective of this WSMP 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 order to improve the overall performance and reliability of the water systems.

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.

1.2 Phase 2 Report Objectives

The objective of this Phase 2 report is to identify and evaluate alternative solutions to determine a preferred solution to the Problem and Opportunity Statement identified in Phase 1 (and presented in Section 9.0 of the Phase 1 WSMP Report) while taking into consideration the existing public, municipal stakeholders, indigenous communities and review agency input. This Report also outlines the methodology used to evaluate the alternatives and identifies their potential impacts and mitigation measures. Options considered include new construction, potential retrofits, and/or upgrades to optimize existing water infrastructure to accommodate 20-year growth within the Township.

The objectives of the Phase 2 Report are:

- To summarize findings from the groundwater resource assessment and source water protection review
- To identify and describe water supply and treatment alternatives
- To present an evaluation matrix with criteria by which servicing alternatives are evaluated against the natural, social/cultural, technical and financial considerations
- To identify and evaluate alternative solutions to address water servicing capacity issues associated with the supply and treatment within the three servicing systems in the Township, with a focus on the Creighton Heights system
- To recommend an overall implementation plan with proposed timelines and associated costs for each of the planning timeframes

- To provide mitigation measures and identify potential impacts associated with preferred alternatives, as well as any required permits or approvals

- To summarize the consultation activities

1.3 Phase 1 Problem and Opportunity Statement

The Water Supply Master Plan Phase 1 report was finalized on February 28th, 2025, and posted on the Township's website (Water Supply Master Plan - Township of Hamilton (hamiltontownship.ca). Based on the work completed in Phase 1 of the Master Plan process, the following Problem and Opportunity Statement was 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 which 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 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".

2.0 Groundwater Resource Assessment

Following completion of Phase 1 WSMP report, JLR continued to work with BluMetric Environmental Inc. to complete a Source Water Protection Review of the Creighton Heights and Camborne water supply systems. The purpose of developing this report was to review local source protection policies and wellhead protection areas, summarize existing background information with the Township as it relates to source water protection, and conduct a desktop review of potential drinking water threats, land use restrictions, and potential impacts to landowners and businesses at the screening level. Refer to Appendix A for Source Water Protection report.

In addition, in May 2025, Stalwood Homes retained GHD to complete a preliminary aquifer performance testing of an existing water well (TW4) in Creighton Heights, including a step test and pumping test. Refer to Appendix B for the report. This report was provided to JLR by Stalwood Homes to support the completion of the WSMP.

2.1 Summary of Source Water Protection Considerations for the Creighton Heights and Camborne Municipal Drinking Water Systems (BluMetric, 2024)

The 2024 BluMetric report on Source Water protection was completed as required under the Clean Water Act and its purpose is to outline policies for managing significant drinking water threats including policies to eliminate or reduce significant threats to water quality or stresses to drinking water quality. The following section presents the main findings of the study.

2.1.1 Existing Wellhead Protection Areas

The WHPAs consist of the areas around a wellhead where land-based activities have the potential to impact the quality of groundwater flowing to the well. The four WHPA zones are defined as follows:

- WHPA-A: A distance of 100m or less from the wellhead.
- WHPA-B: A travel time in the aquifer of 2 years or less, excluding the WHPA-A.
- WHPA-C: A travel time in the aquifer of 2 to 5 years.
- WHPA-D: A travel time in the aquifer of 5 to 25 years.

Vulnerability scores were assigned to each WHPA zone based on the time of travel and the vulnerability of the aquifer. Buttersfield is supplied with surface water from the Town of Cobourg and therefore evaluation of its WHPAs were not conducted in this study. The WHPAs for the Camborne and Creighton Heights municipal drinking water systems are illustrated in Figures 1 and 2, respectively. For both systems, the vulnerability scores of each WHPA zone are:

- 10 (for WHPA-A)
- 8 (only for a 0.28-hectare portion of Creighton Heights' WHPA-B near this WHPA's northeastern boundary)
- 6 (for WHPA-B)
- 2 (for WHPA-C and WHPA-D)

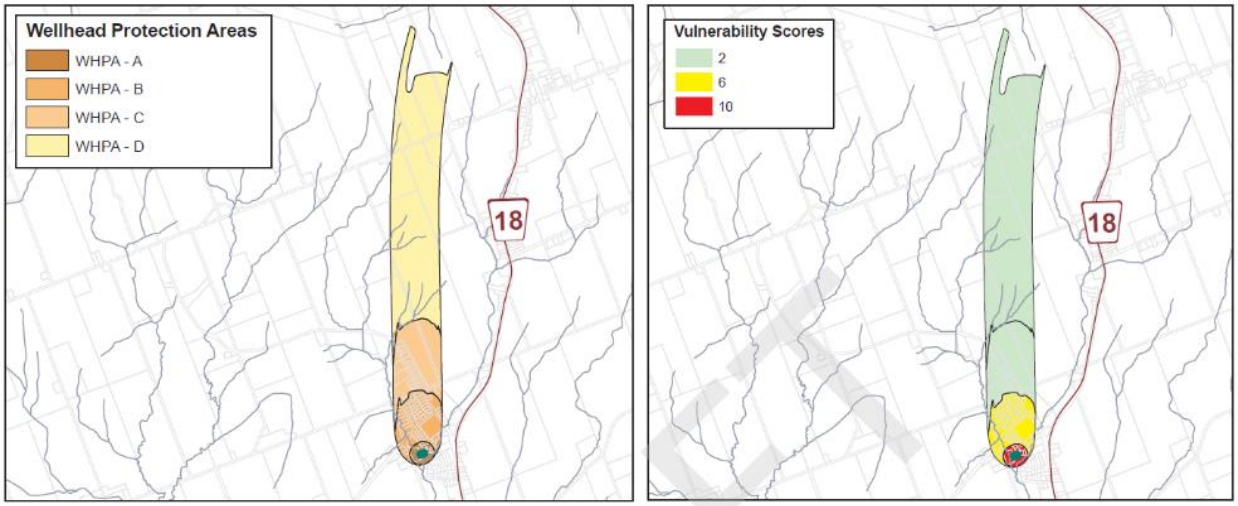


Figure 1: Camborne Well Supply: WHPAs and Their Associated Vulnerability Scores (Ganaraska Assessment Report, 2018)

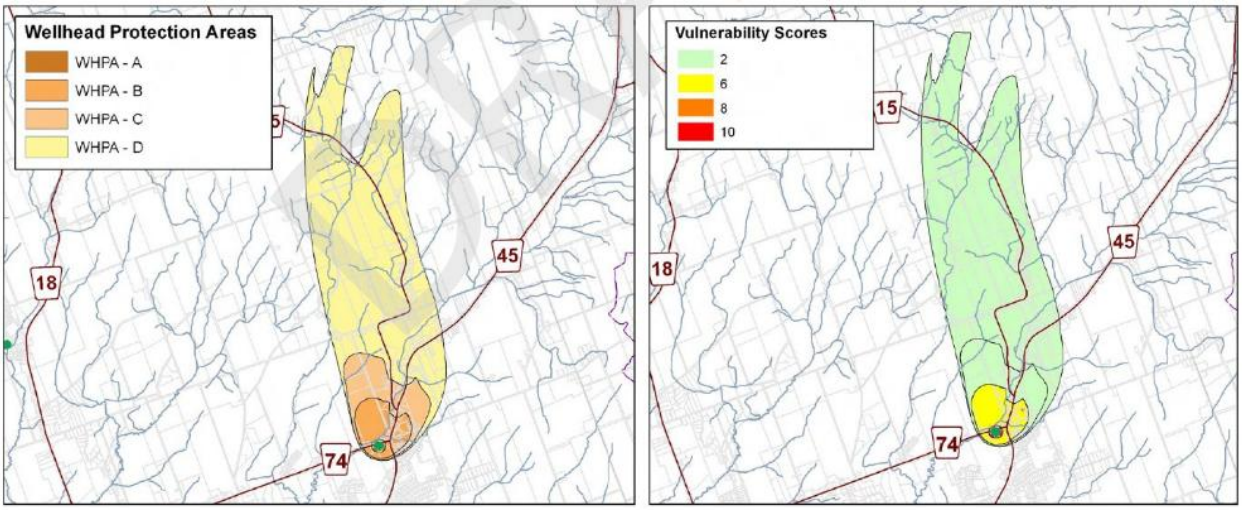


Figure 2: Creighton Heights Well Supply: WHPAs and Their Associated Vulnerability Scores (Ganaraska Assessment Report, 2018)

2.1.2 Source Water Protection Implications

The addition and/or replacement of one or more wells to the Creighton Heights municipal drinking water system will require revisions to the existing WHPA delineations. This would require further analysis using a numerical groundwater flow model which is typically undertaken in a future Schedule 'B' Class EA study and design stages. However, the following assumptions can be made and should be considered.

- For each new well, the WHPA-A will consist of a circular area with a radius of 100 m, centered over the new well.

- If a new water supply well is established at TW9 and/or the Winter artesian well, its WHPA-A will overlap with the existing WHPA-A. The total area of 'new' WHPA-A will be lower than if a new water supply well is established at the Perron artesian well and/or the

Township of Hamilton Well #1 and #2. The locations of the wells referenced are shown in the figure below.

- The establishment of one or more new wells will likely result in the total surface areas of WHPA-B, WHPA-C and WHPA-D increasing. Some zones will be 'bumped up' in categorization (e.g., going from WHPA-D to WHPA-C, or from WHPA-C to WHPA-A, etc.), and some areas currently outside of all WHPAs will fall within the new WHPA delineation.

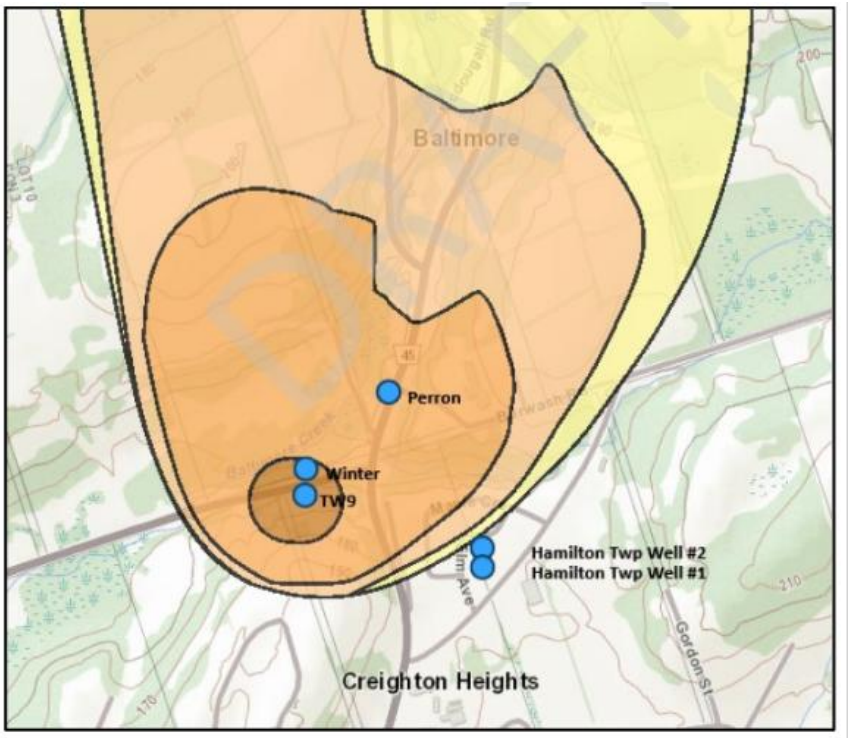


Figure 3: Potential Additional Water Supply Wells for Creighton Heights Municipal Drinking Water System (BluMetric, 2024)

2.1.3 Prescribed Activities That Could Pose Significant Drinking Water Threats

The policies within the Ganaraska Source Protection Plan (SPP) aim to address significant drinking water threats in each WHPA zone. In WHPA-A, activities such as sewage systems, agriculture activities, handing and storage of fuel, storage of road salts, waste disposal sites, handling and storage of dense non-aqueous phase liquids (DNAPL) and snow storage could pose a threat if they meet specific conditions under the 2021 Technical Rules of the Clean Water Act. In WHPA-B with a vulnerability score of 6, the only activity that could pose a threat is the handling and storage of DNAPL. However, in the small portion of WHPA-B with a vulnerability score of 8, additional activities such as organic solvents, sewage storage, and waste disposal sites may also pose a threat. In WHPA-C, the handling and storage of DNAPL is the only potential threat, while no activities in WHPA-D could pose a significant threat.

As described in Section 3.3 Hydrogeological Review in the Phase 1 WSMP Report, BluMetric had identified alternatives in Creighton Heights to meet increased water demands. The following table qualitatively describes the level of impact that the Ganaraska SPP policies will have on each alternative.

Table 1: Implications of Installing New Wells

Location of New Well	Ranking – Level of Impact Due to New Land Use Restrictions and Prohibitions	Rationale
Near TW9	5 (lowest impact)	The WHPA-A of the new well will mostly overlap with the existing WHPA-A. Relatively minimal increase in the total area of WHPA-A.
Winter Artesian Well	4	The WHPA-A of the new well will partially overlap the existing WHPA-A, resulting in an increase in the total surface area of WHPA-A.
Perron Artesian Well	3	The WHPA-A of the new well will not overlap with the existing WHPA-A. Total surface area of WHPA-A will increase by approximately 3.14 hectares. Surface area of WHPA-B, WHPA-C and WHPA-D will likely increase by extending further northeast.
Winter and Perron Wells	2	Total surface area of WHPA-A will increase by more than 3.14 hectares. Surface area of WHPA-B, WHPA-C and WHPA-D will likely increase by extending further northeast.
Township of Hamilton Wells #1 and #2	1 (highest impact)	New WHPA-A will be delineated in an area currently outside of all existing WHPAs. Surface area of WHPA-B, WHPA-C and WHPA-D will increase, likely extending further southeast.

2.1.4 Water Quality and Stress

The BluMetric SWP report confirmed that the Township's municipal drinking water systems are located within the Ganaraska Region Source Protection Area (GRSPA), which forms part of the larger Trent Conservation Coalition Source Protection Region (TCC SPR). Within the Camborne and Creighton Heights service areas that are situated in the Cobourg Creek and Midtown Creek watersheds. The Tier 1 Water Budget and Stress Assessment (GRCA, 2010) concluded that both surface water and groundwater are subject to low stress levels. The report also reviewed historical evaluations of raw water quality data from both wellfields and found no indicators of drinking water quality issues that would pose a threat to human health.

Furthermore, the intrinsic vulnerability of the aquifers supplying both systems was determined to be low across all WHPA zones (Jagger Hims Ltd., 2007), indicating a strong level of natural protection. However, historical water quality testing revealed some exceedances of Ontario Drinking Water Standards (ODWS) including lead and hardness at the Camborne municipal wellfield, and iron, manganese, and hardness at the Creighton Heights municipal wellfields

(Morrison Environmental Ltd., 2004). These exceedances were considered characteristic of the natural groundwater quality in the region.

2.2 Summary of Preliminary Aquifer Performance Testing of an Existing Water Well (GHD, 2025, BluMetric Review, 2025)

Figure 4 below shows the location of the test well, referenced as “TW4,” situated approximately 500 metres southwest of the existing Creighton Heights municipal wellfield. This well was originally drilled as part of a 1993 investigation into expanding the community’s water supply and was retained for possible future use at the request of the property owner. The well is identified in both the GHD 2025 Aquifer Testing Summary and BluMetric’s Hydrogeological Review.

The well was constructed to a depth of 44.5 m, with bedrock encountered at 39.6 m and groundwater first observed at 28.7 m in a sand unit within a hard, grey clay layer. Following drilling, the well was backfilled with pea stone from 44.5 m to 28.7 m, fitted with a 3.05 m screen, and sealed to surface.

Initial testing in the 1990s concluded that TW4 did not have sufficient yield for primary municipal supply, especially when compared to higher yielding wells in the same area, such as TW6 and TW7, which yielded 680 L/min and 965 L/min, respectively. Nonetheless, an earlier eight-hour pump test recommended a pumping rate between 37.8 L/min and 56.7 L/min.

In April 2025, GHD conducted new testing, pumping TW4 at approximately 75.6 L/min. The results indicated the well may be capable of supporting a limited supply role. Water quality testing showed no exceedances of health-related parameters under the Ontario Drinking Water Standards (ODWS). However, several aesthetic objectives were exceeded, including hardness, colour, iron, turbidity, and methane. Elevated methane and likely ammonia concentrations were consistent with regional groundwater characteristics.

BluMetric’s review of the GHD report confirmed that while TW4 may be suitable as a supplementary or backup municipal supply source, its limited yield is insufficient to meet the projected maximum daily demand for Creighton Heights. BluMetric recommends focusing on the installation of new municipal supply wells, with TW4 considered for future supplemental use if required.

Figure 4: Test Well Location (GHD, 2025)

3.0 Ganaraska Region Conservation Authority Consultation

The Township of Hamilton's municipal drinking water systems are located within the Ganaraska Region SPA (GRSPA). The GRSPA is in turn located within the Trent Conservation Coalition Source Protection Region (TCC SPR), alongside four other Source Protection Areas: Crowe Valley, Kawartha-Haliburton, Lower Trent and Otonabee-Peterborough. These SPAs, located adjacent to one another, are consolidated into the TCC SPR in order to centralize the source protection planning process.

In May of 2025, JLR consulted with GRCA in the presence of the Township representatives. See Appendix C for consultation summary.

4.0 Future Servicing Requirements and Design Basis

A summary of the 20-year design basis developed in Phase 1 WSMP report is provided in the following system specific sections. This section outlines the anticipated servicing challenges based on growth projections, infrastructure limitations, and current operating conditions.

4.1 Creighton Heights

The Creighton Heights water system is already showing signs of strain under existing conditions, and future population growth is expected to exacerbate these limitations. The WTP's maximum operational limit, identified in previous studies (GM BluePlan, 2020), is approximately 700 m^3/day. Water supply in Creighton Heights is also constrained by limited well productions, with wells underperforming compared to their rated capacities.

Under the low growth scenario, short-term projections (2024 - 2029) indicate that the maximum day demands will already exceed the system's operational limit. By the mid-term (2029 - 2032), demand is forecasted to exceed both the operational limit and the 100% rated capacity of the treatment plant as shown in Figure 5. Long-term projections (2034 - 2044) show that the average day demand alone will surpass the operational limit, while maximum day demand is expected to exceed all key capacity metrics including the operational limit, plant capacity (979 m^3/day), and Permit to Take Water (PTTW) limit (1,303 m^3/day). In the high growth scenario, these constraints are reached even sooner. Max day demand is forecasted to exceed the operational limit as early as 2025, with 80% of the WTP rated capacity reached by 2027 and full capacity reached by 2036 also shown in Figure 5.

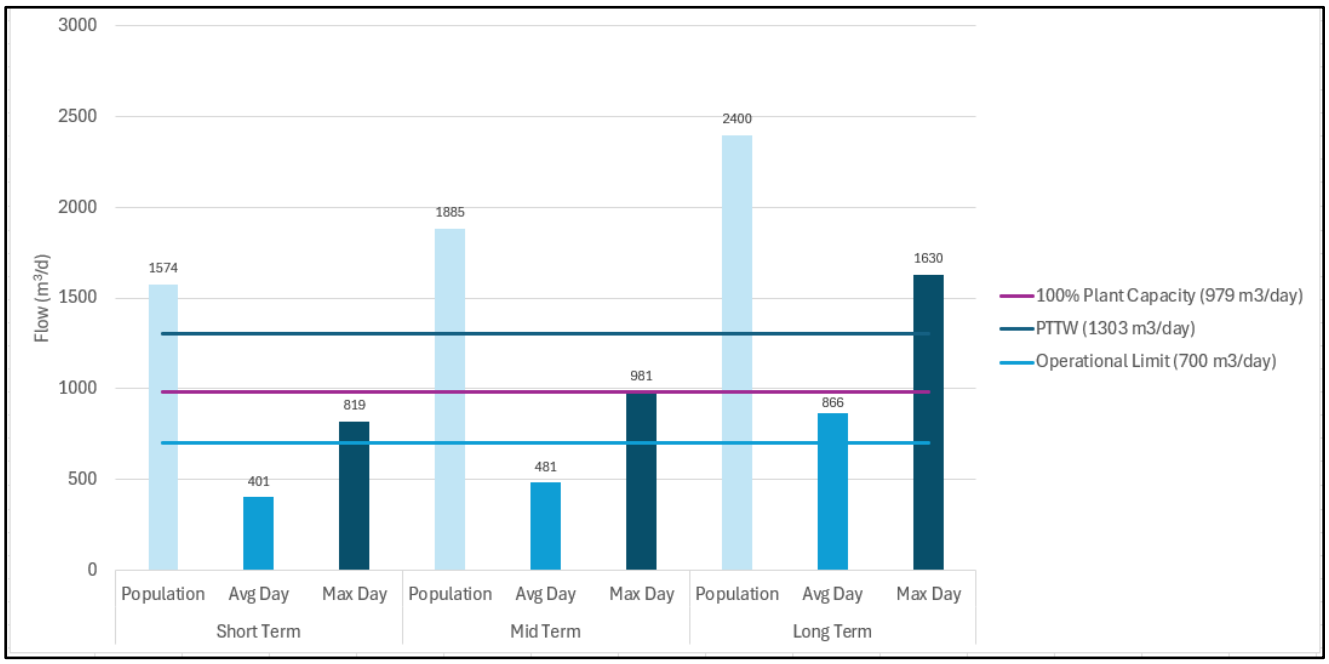


Figure 5: Creighton Heights Low Growth Scenario Projected Average Day & Max Day Demand with Associated Population in Comparison to Plant Capacity, PTTW and Operational Limit

Table 2 below summarizes the additional water supply and treatment capacity that is required to support the low growth scenario for Creighton Heights.

Table 2: Creighton Heights Water Supply and Treatment Design Basis (Low Growth)

	Short-Term (2024-2029)	Mid-Term (2029-2034)	Long-Term (2034-2044)
Additional PTTW Flow Required (m^3/d)	n/a	n/a	327
Additional WTP Capacity (m^3/d)	n/a	n/a	651
Additional WTP Capacity Considering Operational Limit (m^3/d)	119	281	930

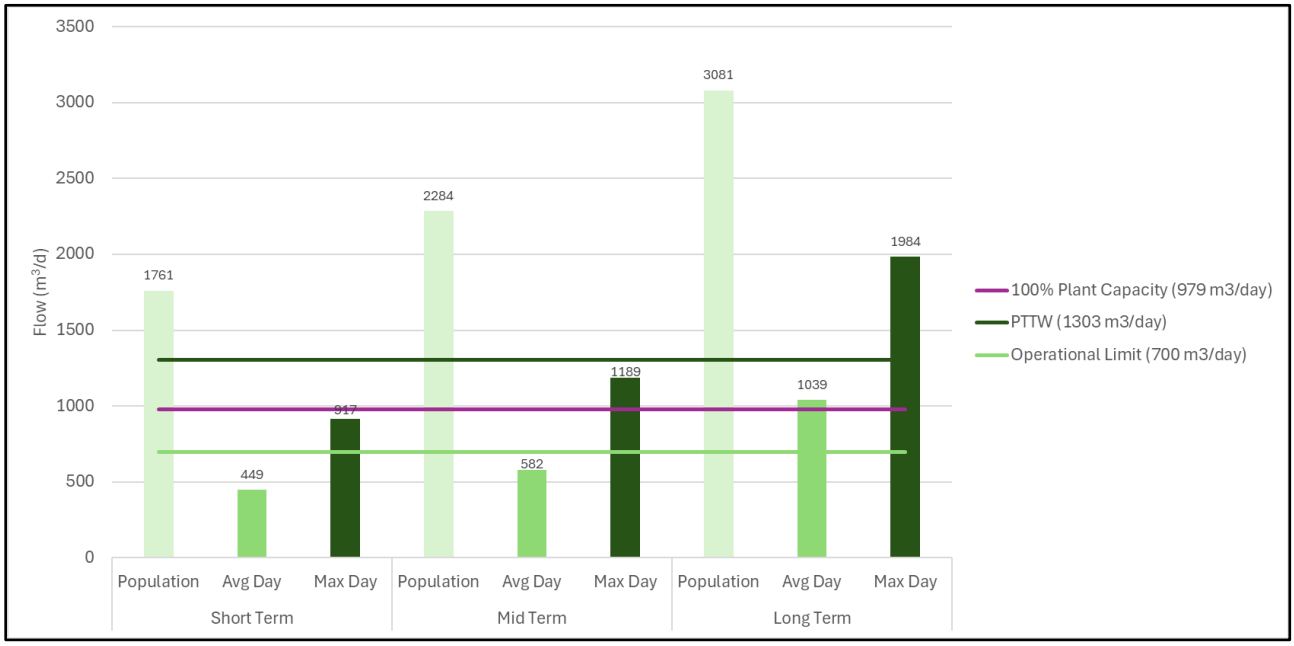


Figure 6: Creighton Heights High Growth Scenario Projected Average Day & Max Day Demand with Associated Population in Comparison to Plant Capacity, PTTW and Operational Limit

Tables 3 below summarizes the additional water supply and treatment capacity that is required to support the high growth scenario for Creighton Heights.

Table 3: Creighton Heights Water Supply and Treatment Design Basis (High Growth)

	Short-Term (2024-2029)	Mid-Term (2029-2034)	Long-Term (2034-2044)
Additional PTTW Flow Required (m^3/d)	n/a	n/a	681
Additional WTP Capacity (m^3/d)	n/a	210	1,005
Additional WTP Capacity Considering Operational Limit (m^3/d)	217	489	1,284

The main constraints guiding the future servicing strategy for Creighton Heights are its limited well production capacity, with actual output below permitted levels, the existing operational limits being approached or exceeded in the short-term and the high growth projections that magnify these limitations significantly earlier compared to under the low growth scenario which stresses the need for supply upgrades and additional infrastructure.

4.2 Camborne

The Camborne water system has demonstrated consistent and reliable performance under existing conditions, with no immediate constraints identified in terms of water supply or treatment capacity. Over the four-year period from 2020 to 2023, the system's average day demand has remained stable, ranging between 43 and 50 m³/day and maximum day demands during this time have varied from 83 and 177 m³/day.

These demands are significantly below the PTTW limits of Well 1A (288 m³/day) and Well 2A (412 m³/day). Figure 7 demonstrates that Camborne's current water supply infrastructure can accommodate increased demand, even under future growth scenarios.

Given the relatively low existing usage and the considerable buffer below PTTW limits and WTP capacity, the Camborne water system is well positioned to meet projected future water demands. No immediate upgrades or expansions are anticipated within the 20-year timeframe.

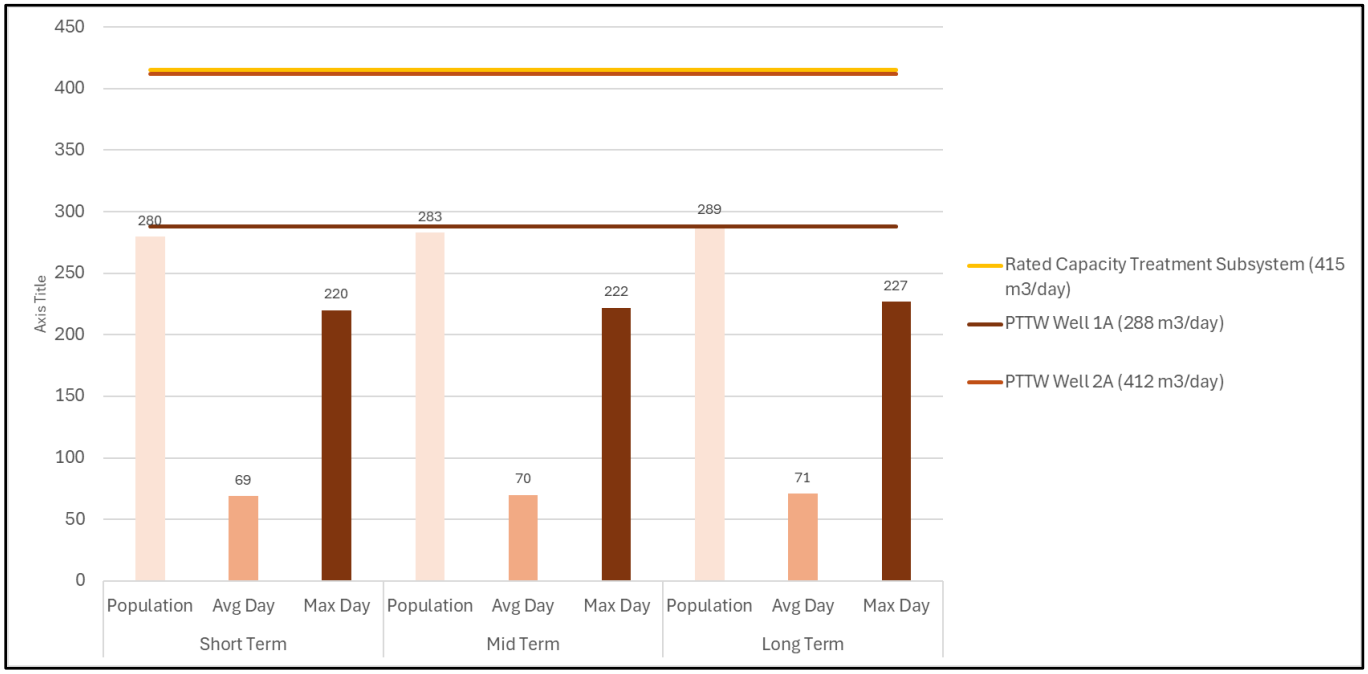


Figure 7: Camborne Growth Scenario Projected Average Day & Max Day Demand with Associated Population in Comparison to Plant Capacity and PTTW

Tables 4 below summarizes the additional water supply and treatment capacity that is required for Camborne.

Table 4: Camborne Water Supply and Treatment Design Basis

	Short-Term (2024-2029)	Mid-Term (2029-2034)	Long-Term (2034-2044)
Additional PTTW Flow Required (m^3/d)	n/a	n/a	n/a
Additional WTP Capacity (m^3/d)	n/a	n/a	n/a
Excess PTTW and WTP Capacity (m^3/d)	193	191	186

4.3 Buttersfield

As described in the Phase 1 WSMP report, the Buttersfield water system is supplied via the Cobourg Drinking Water System, which draws from Lake Ontario. Water is conveyed to Buttersfield via a single transmission main under Highway 401. The Township anticipates that this arrangement will continue over the next 20 years.

Although Buttersfield itself does not face supply limitations under the current servicing model, ongoing coordination with the Town of Cobourg/Lakefront Utility Services Inc. will be required. The Township has noted that existing agreements include provisions for modest growth however proactive collaboration is recommended to confirm that Cobourg's system can accommodate future demands from Buttersfield.

5.0 Identification of Water Supply Alternatives in Creighton Heights

5.1 Alternative 1: Do Nothing/Status Quo

The Status Quo alternative represents a scenario in which the existing well intake volumes remain unchanged, with no additional water supply or treatment capacity introduced. This option is included as a baseline for comparison against other potential alternatives.

Water supply for Creighton Heights is currently provided by three wells: TW1, TW6, and TW7. Under Permit to Take Water (PTTW) No. 2320CGPMQ5 and existing operational constraints, the maximum combined daily pumping limit from these wells is 1,303 m^3/day. 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 (Lotowater, 2022). 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.

According to the low growth scenario presented in the Phase 1 Report, maximum day demand is projected to increase to approximately 819 m^3/day by 2029, 981 m^3/day by 2034, and 1,630 m^3/day by 2044. Based on these projections, the current system will no longer be able to meet demand in the next few years without an addition to the water supply or prevention of expansion.

Operational data obtained from Annual Drinking Water System Reports over four (4) years, from 2020 to 2023 reinforces these concerns. The maximum day of the four years occurred in 2021 where the raw water production reached 696 m^3/day. This indicates that the system is already operating near its operational capacity during periods of high demand.

Under these conditions, the Do Nothing alternative does not address the Problem and Opportunity Statement due to water supply limitations and reduced reliability for Creighton Heights residents. These risks are further amplified under the two growth scenarios outlined in the Phase 1 Report.

5.2 Alternative 2: Rehabilitate Existing Wells; Limit Community Growth; Practice Water Conservation

The Township has recently undertaken inspection, repair and rehabilitation efforts for wells in Creighton Heights, which are described in the Creighton Heights Well 7 Inspection and Rehabilitation Report (Lotowater, 2022) and Well Video and Sonic Log – Creighton Heights TW1 (Lotowater, 2021) included mechanical rehabilitation through scrubbing the interior casing and screen, amongst other services. There has been no measurable increase in groundwater supply capacity. The service program identified concerns with the existing wellhead and recommended wellhead upgrades. Further rehabilitation is unlikely to significantly improve water supply capacity, as the primary limitation stems from the characteristics of the aquifer itself rather than the condition of the wells.

Supported by (RDCL, 1996) report, there is significant interference between TW1, TW6 and TW7. In the report, pumping tests revealed a significant drawdown of approximately 13 m at TW6 and 7 m at TW1 which supports the statement that there is substantial hydraulic interference between the wells. TW7 also showed a recovery shortfall of about 5 percent after testing. Similar recovery shortfalls were observed at other test well locations and were attributed to interference from nearby test wells and possibly other groundwater extractions in the region. The interference is largely due to their proximity and the fact that all three wells draw water from the same overburden upper bedrock aquifer system. The shared source and resulting drawdown effects reduce the efficiency and long-term sustainability of extracting greater volumes from these wells.

Given these hydrogeological constraints, this alternative focuses on managing demand rather than expanding supply. Growth would be controlled by limiting new development. This approach aims to prevent water distribution failures caused by exceeding the system's available capacity.

In parallel, new growth within the settlement area boundary may choose to develop private/communal wells, especially since the Hydrogeological Review of Creighton Heights (BluMetric, 2024) confirmed the presence of localized groundwater resources. These resources are found primarily in fine to medium grained sand deposits overlain by potentially thick confining clay layers. However, available well records suggest that wells in the region typically do not access a regionally extensive aquifer.

Although growth restrictions are emphasized under this alternative, some new municipal connections are anticipated to occur over time. To address this, the Township could promote community wide water conservation measures, such as seasonal watering restrictions, use of water efficient fixtures, rainwater harvesting systems, and public education initiatives to encourage water-saving behaviours. The combination of aquifer limitations, well interference, and operational constraints underscores the need for proactive demand management to maintain a reliable water supply in Creighton Heights.

5.3 Alternative 3: Expand Well Field and Install New Drinking Water Wells

5.3.1 Alternative 3a: Install large production well on existing site

To meet the projected increase in water demand for the Creighton Heights community, one potential solution is the construction of a new large diameter production well at the existing municipal well site, near production well TW9. This approach aligns with recommendations from the Well Construction Program for the Community of Creighton Heights (RDCL, 1996), which identified TW8 and TW9 as pilot holes for a larger production well.

Although construction of the production well was considered at the time, it was ultimately deferred. Since 1994, the Township has relied on TW1, TW6, and TW7 as production wells. The RDCL report concluded that the most favourable design for the proposed well would involve a gravel-packed, large-diameter well screened across both the overburden and upper bedrock aquifer, with an ideal screen interval between 53.5 and 61.5 metres below ground surface near TW9.

The new production well would be outfitted with a pump capable of delivering flows exceeding 965 L/min (1,390 m³/day). Aquifer testing at TW7 previously demonstrated the aquifer's ability to sustain this pumping rate for up to 8 hours while retaining 68% of the available drawdown, supporting the feasibility of this extraction rate. At full capacity, the well could supply approximately 78% of the 20-year projected maximum day demand for Creighton Heights, representing a substantial improvement in available water supply.

An important advantage of this option is its minimal impact on surrounding land use from a source water protection perspective. Based on the SWP Implications report (BluMetric, 2024), the new well's WHPA-A would largely overlap with the existing WHPA-A. As a result, the increase in the protected area and the associated land use restrictions is expected to be minimal.

However, some limitations remain. Since the proposed well would draw from the same overburden upper bedrock aquifer system as the existing wells, there is a potential for hydraulic interference. Significant drawdown and incomplete recovery were previously observed during aquifer testing in the area, particularly among TW1, TW6, and TW7. The actual net gain in supply from the new well may therefore be reduced by interference, and additional testing would be required to confirm sustainable yield under operational conditions.

While this alternative offers a technically feasible and centrally located option to meet mid-term demand, its capacity to support long-term growth is limited by the physical constraints of the aquifer. Additional supply planning would likely be required beyond the 20-year period.

5.3.2 Alternative 3b: Install a new well off-site

To support the long-term water supply needs of the Creighton Heights community, this alternative involves the development of new municipal drinking water wells outside the current wellfield. Historical records and previous hydrogeological assessments indicate that several locations may offer viable sources, particularly within the same overburden upper bedrock aquifer system currently used by the existing wells.

One promising area lies near the former Winter and Perron artesian flowing wells. As documented in the Well Construction Program for the Community of Creighton Heights (RDCL, 1996), these wells were historically observed to be flowing at approximately 160 L/min, or roughly 230.4

m^3/day. If both wells were developed at similar yields, they could contribute over 460 m^3/day to the municipal supply. This would be enough to nearly eliminate the projected 2034 supply shortfall and address up to 70 percent of the anticipated 2044 supply deficit, assuming sustainable performance and sufficient treatment capacity. These wells were screened in the same aquifer system as the current municipal sources and may still represent viable production locations, subject to updated aquifer testing and water quality analysis.

Development of a new municipal well at the Winter site would result in only a partial overlap with the existing WHPA-A and a moderate increase in restricted land area. As such, it is considered to have relatively low regulatory impact. The Perron site, on the other hand, lies outside of the current WHPA-A and would result in the creation of new protection zones, with expected extensions of WHPA-B, -C, and -D to the northeast. If both the Winter and Perron sites were developed concurrently, the cumulative land use impact could be higher, with the total WHPA-A area increasing by more than 3.14 hectares and larger portions of land subject to restrictions and prohibitions under source water protection policies.

Upon further review of the physical location of the original Township of Hamilton Wells #1 and #2, these have been determined to be less feasible due to its location within a residential neighborhood.

Another potential new well location has emerged from recent testing conducted by GHD in April 2025, as summarized in the Preliminary Aquifer Performance Testing of an Existing Water Well undertaken at the request of Stalwood Homes and shared with JLR. The well, identified in the provincial well record under identification number 4509992 (TW#4) and drilled in 1993, was originally intended for municipal water supply. On April 23, 2025, a submersible pump was installed in the well, and step testing was completed the same day. Following the tests, the water level in the well recovered to 99% of its pre-pumping level within 60 minutes, indicating a relatively responsive and productive aquifer. Based on the step test results, a six-hour constant-rate pumping test was carried out at a sustained flow rate of 75.6 L/min (equivalent to approximately 109 m^3/day). While this flow rate is more modest compared to other sources, it may still represent a useful supplemental supply for the community if further testing confirms long-term sustainability and water quality compliance.

Overall, this alternative presents an opportunity to diversify, supplement and provide backup to the existing water supply network while potentially alleviating stress on the current wells. Further hydrogeological investigation and consultation with source water protection authorities would be required to confirm the feasibility and preferred location for any new supply wells.

5.4 Alternative 4: Supplement Water Supply and Connect to Town of Cobourg Drinking Water System

This alternative explores the option of supplementing or fully replacing the Creighton Heights municipal water supply by connecting to the Town of Cobourg's drinking water system. While technically feasible, this option presents several political, financial and scheduling complexities that must be carefully considered.

To implement this alternative, a formal municipal servicing type agreement would be required between the Township of Hamilton and the Town of Cobourg, involving agreement around water allocation, rate structures, long-term servicing commitments, and cost-sharing. The political

landscape and commitment from both municipalities could present delays or uncertainties in securing an updated intermunicipal servicing agreement.

From an infrastructure standpoint, the connection would require substantial capital investment. This includes the installation of new watermains likely along Nagle Road and cross under Highway 401, necessitating coordination with the Ministry of Transportation (MTO), especially if alignment is tied to future interchange upgrades. Additional infrastructure such as booster pumping stations and reservoir storage would also be needed to ensure adequate pressure requirements for Creighton Heights.

In discussion with Lakefront Utilities Services Inc. (LUSI), it is understood that the Cobourg Water Master Plan is due for an update in 2027. There may be an opportunity to incorporate the Township's water demand at that time. However, the municipal councils will have to reach an agreement of supplying treated water from Cobourg to the Township. LUSI indicated that all proposed infrastructure to service Creighton Heights will be funded by the Township, including watermain construction, capacity increase triggered at the Cobourg WTP, highway crossing, booster station and reservoir.

Despite these challenges, this alternative remains technically viable and could provide a long-term, treated water source with greater consistency and reliability compared to local groundwater wells. However, transitioning to an external water provider reduces local control over supply, water rates, and service continuity which are factors that may have long-term implications for the Township's independence in water management and water security.

Overall, while connection to Cobourg offers a technically feasible solution, it involves substantial upfront costs, inter-jurisdictional coordination and potential schedule delays to meet the future demands in Creighton Heights.

5.5 Alternative 5: Supplement Water from Camborne Drinking Water System

This alternative considers supplementing the Creighton Heights water supply by utilizing excess capacity from the artesian well in Camborne. The Camborne well is known to have consistent overflow and produces water of better-quality relative to the existing groundwater sources in Creighton Heights.

Water could be conveyed from Camborne to the Creighton Heights distribution system via the construction of a dedicated watermain, booster pump station and reservoir. The distance between the two communities is approximately 8.5 km.

This option would require careful coordination between the Camborne and Creighton Heights distribution system to ensure compatibility in pressure zones, treatment compliance, and system redundancy. Permitting and environmental assessment would also be required. This alternative would address Creighton Height's short-term water demand deficiency. However, this option on its own will not address the long-term water demand requirements and presents a significant capital investment in the range of more than $15 million.

5.6 Alternative 6: Supplement Water from Cobourg Creek

Alternative 6 involves establishing Cobourg Creek as an additional water source for the Township of Hamilton. The Cobourg Creek watershed is located within the Township of Alnwick/Haldimand, the Township of Hamilton and the Town of Cobourg.

Surface water quality in Cobourg Creek is generally good, with only localized problems. The physical Parameters of Cobourg Creek (dissolved oxygen, pH, conductivity and alkalinity) indicate that surface water quality can be resilient to acidification, eutrophication and chemical additions. Potential issues that may arise from this alternative is the disturbance of the diverse biological community within the creek. Further details can be found in the Cobourg Creek Background Report: Abiotic, Biotic and Cultural Features (GRCA, 2008).

In consultation with the GRCA (May 2025) it was confirmed that surface water intake from Cobourg Creek should be considered as a last resort due to sensitive cold water species, source water protection implications (new Intake Protection Zone) and potential increased regulatory burden for local property owners.

6.0 Identification of Water Treatment Alternatives in Creighton Heights

6.1 Alternative 1: Do Nothing/ Status Quo

The Status Quo alternative represents a scenario in which the Creighton Heights water treatment plant at 9235 Dale Road remains operational and continues treatment as is. Currently and in accordance with the Creighton Heights Municipal Drinking Water License, the maximum daily volume of treated water that flows from the treatment subsystem into the distribution system shall not exceed the rated capacity of 979.2 m^3/day.

6.2 Alternative 2: Expand Water Treatment Plant on Existing Site

Alternative 2 is to expand the plant on the existing site to meet future water treatment requirements. This alternative involves expansion to all unit treatment processes, including the chemical feed systems, filters, UV disinfection, methane stripper, high lift pumps and clear wells. The existing WTP building would also be expanded to accommodate the additional equipment.

This alternative would provide the Township with a centralized water treatment location, where all new sources of water supply, regardless of location, would be treated and distributed from. However, maintaining operation during construction would be carefully considered when designing for the new and expanded process and building space. Hydraulic and headloss limitations within the current facility should also be carefully reviewed.

6.3 Alternative 3: Construct New Water Treatment Plant with New Off-Site Wells

Alternative 3 depends on the selection of the location for the new water supply. This option would retain the existing water treatment plant in operation for current municipal wells, maintaining their existing capacities. Water treatment will be provided at the location of the new municipal supply well locations resulting in a decentralized treatment approach.

This scenario offers the advantage of not interrupting operations of the existing WTP facility while the new facility is being constructed. Depending on the location and raw water quality of the new water supply, the level and type of treatment may differ from the existing WTP and the new facility would benefit from having a dedicated treatment train tailored to the specific water quality at the source. Additional advantages of a new WTP at a different location include increased flexibility in plant design, the ability to meet current demands, and opportunities for future expansion. Pre-engineered modular solutions would be considered to improve capital and operational costs.

It should be noted that the Creighton Heights system is currently supplied from wells with elevated naturally occurring ammonia in the aquifer. As a result, the system operates using a combined chlorine residual (monochloramine) for secondary disinfection in the distribution network. To manage the potential for nitrification, the Township briefly switches to a free chlorine residual for approximately 3-4 weeks each fall, before reverting to monochloramine for the remainder of the year. This disinfection strategy is a key consideration when evaluating new production wells such as the Winter Well, Perron Well or TW#4.

When additional wells are brought online the treatment processes at all facilities must produce a consistent secondary disinfectant residual. This compatibility concern will be carefully addressed in the planning and design of Alternative 3.

7.0 Evaluation of Water Servicing Solutions in Creighton Heights

7.1 Evaluation Methodology

To facilitate the evaluation and selection of the preferred solutions during Master Plan Phase 2, a transparent and logical four-part assessment process was established. This process included:

- Initial screening of alternative options
- Identification of water servicing solutions
- Detailed evaluation of screened alternative solutions
- Selection of a preferred alternative solution

7.2 Initial Screening of Alternative Solutions

The initial screening process considers the overall feasibility of the potential alternative solutions and identifies which alternative fully addresses the Problem and Opportunity Statement as identified in Phase 1 Report. This step ensures that unsuitable alternatives are not carried forward to a more detailed evaluation stage.

Table 5: Initial Screening of Alternative Options – Water Supply

	Option	Screening Result
1	Do Nothing / Status Quo	× Does not meet future servicing requirements. Not carried forward.
2	Rehabilitate existing wells; limit community growth; practice water conservation	✓ Feasible option. Carried forward.
3	Install new drinking water wells I. Install large production well on existing site. II. Install a new well off-site	✓ Feasible option. Carried forward.
4	Supplement water supply and connect to the Town of Cobourg Drinking Water System	✓ Feasible option. This would involve negotiations between the two municipalities to formalize the agreement. This option will also involve substantial investment to build transmission mains and associated

	Option	Screening Result
		infrastructure to be able to connect. However, this is a technically feasible solution for long-term water supply.
5	Supplement Water from Camborne Drinking Water System	× This option alone would provide short-term and temporary relief for the water supply needs of Creighton Heights. However, the financial impact of implementation of this alternative would largely outweigh the mid and long-term water servicing needs of Creighton Heights as there is a limit on additional volume of water that could be provided. Not carried forward.
6	Supplement Water from Cobourg Creek	× This option would negatively impact the native cold-water species and would require a lengthy and expensive regulatory process and consultation with property owner and the GRSA to get approval. Not carried forward.

Table 6: Initial Screening of Alternative Options – Water Treatment

	Option	Screening Result
1	Do Nothing / Status Quo	× Does not meet future servicing requirements. Not carried forward.
2	Expand Water Treatment Plant on Existing Site	✓ Feasible option. Carried forward.
3	Construct New Water Treatment Plant with New Off-site Wells	✓ Feasible option. Carried forward.

7.3 Identification of Water Servicing Solutions

The main objective of Phase 2 of a Master Plan is to identify and evaluate viable alternative solutions to the Problem/Opportunity Statement identified in Phase 1. All reasonable potential solutions to the problem(s) are considered. Master Plans for water servicing projects generally identify and review a broad range of solutions. The objective of Phase 2 is to focus on determining an overall solution to the problem and not necessarily confirming all the details, which are typically explored further in the Schedule 'B' or 'C' Class Environmental Assessment, preliminary and detailed design stages.

According to the initial screening results, the short-listed water supply and treatment options have been combined to establish feasible water supply servicing solutions for Creighton Heights. The proposed water servicing solutions are summarized below and will be evaluated against the list of criteria in the following section.

- Option A: Rehabilitate Existing Wells; Limit Growth and Practice Water Conservation; Optimize Existing Infrastructure
- Option B: Install Larger Diameter New Drinking Water Well On Existing Site, Expand Existing Creighton Heights Water Treatment Plant
- Option C: Install New Drinking Water Well Off-Site, Expand Existing Creighton Heights Water Treatment Plant
- Option D: Install New Drinking Water Well Off-Site, Build a New Water Treatment Plant with New Wells
- Option E: Supplement Water Supply and Connect to the Town of Cobourg Drinking Water System

Existing Wells

Water Treament Plant Property

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

OPTION 'A' - REHABILITATE EXISTING WELLS AND LIMIT GROWTH

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

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

DRAWING #:

FIGURE 8

File Location: P:\32000\32814-000 - Hamilton Water MP\05-Production\01-Civil\GIS\32814_Phase2.aprx

Plot Date: Friday, June 27, 2025 9:38 AM

Existing Wells

Water Treament Plant Property

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

OPTION 'B' - NEW ON-SITE WELL AND EXPAND EXISTING WATER TREATMENT PLANT

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

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

DRAWING #:

FIGURE 9

File Location: P:\32000\32814-000 - Hamilton Water MP\05-Production\01-Civil\GIS\32814_Phase2.aprx

Plot Date: Friday, June 27, 2025 9:38 AM

Existing Wells

Water Treament Plant Property

Potential Well Location #1

Potential Well Location #2

Potential Well Location #3

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

OPTION 'C' - NEW OFF-SITE WELL AND EXPAND EXISTING WATER TREATMENT PLANT

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

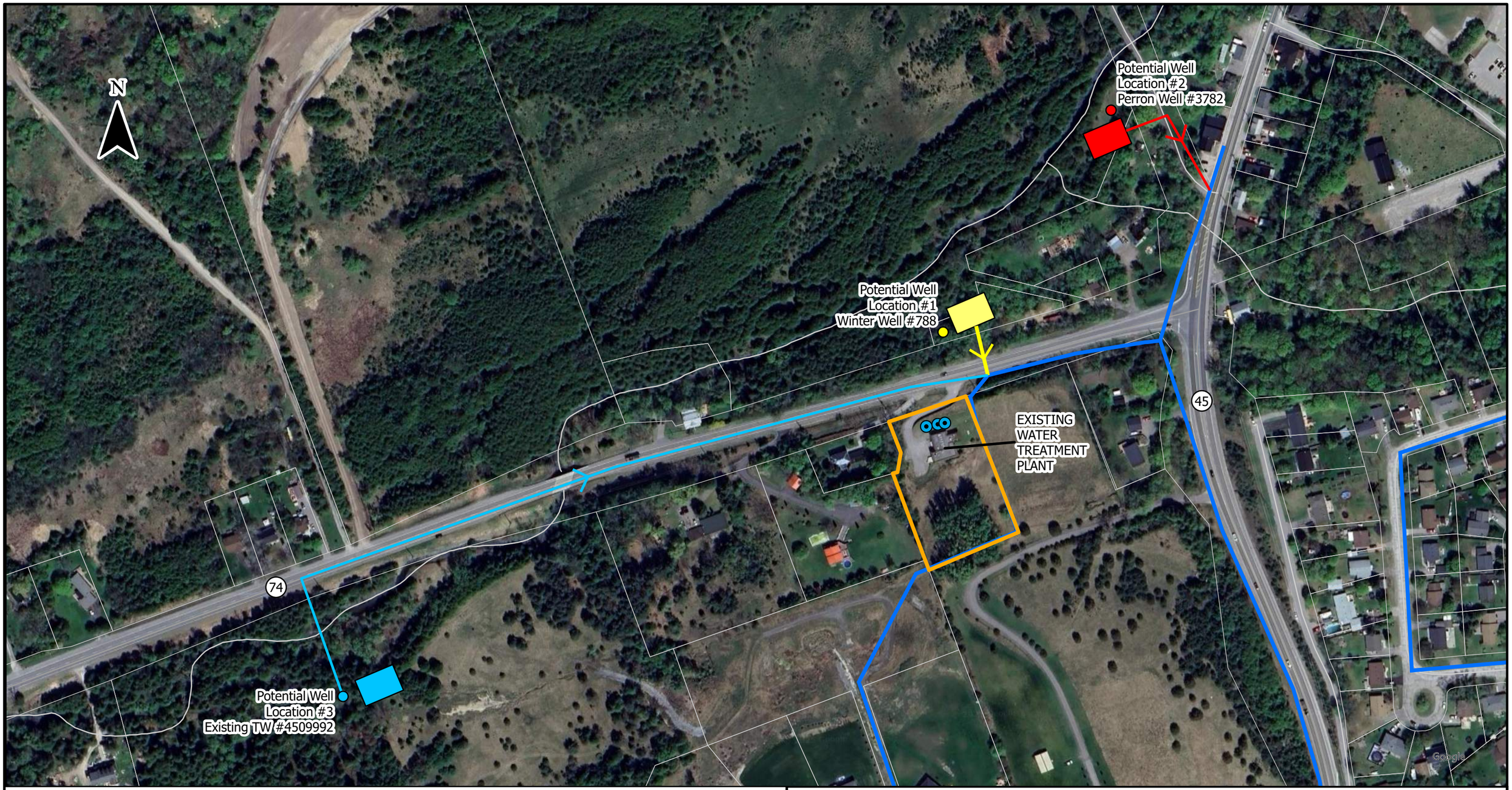
DESIGN:	MM/TB
DRAWN:	TB
CHECKED:	MM
JLR #:	32814-000

DRAWING #:

FIGURE 10

File Location: P:\32000\32814-000 - Hamilton Water MP\05-Production\01-Civil\GIS\32814_Phase2.aprx

Plot Date: Friday, June 27, 2025 9:39 AM



Existing Wells

Existing Watermain

Water Treament Plant Property

Potential Well Location #1

Potential Well Location #2

Potential Well Location #3

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

OPTION 'D' - NEW OFF-SITE WELL AND NEW WATER TREATMENT PLANT

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

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

DRAWING #:

FIGURE 11

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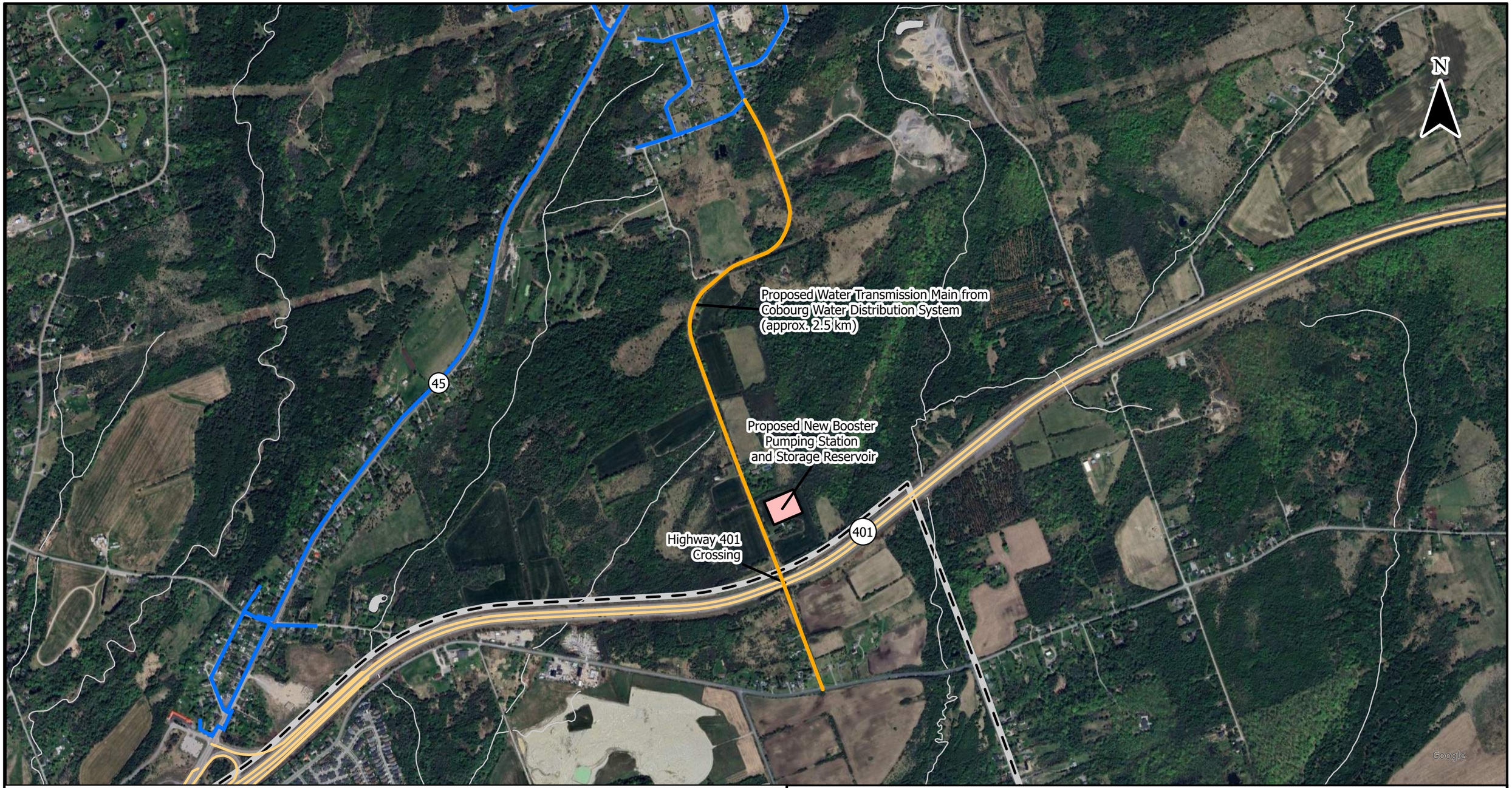

Municipal Boundary

Potential Water Transmission Main

PROJECT:

TOWNSHIP OF HAMILTON MASTER PLAN

TOWNSHIP OF HAMILTON, ON

DRAWING:

OPTION 'E' - SUPPLEMENT WATER SUPPLY AND CONNECT TO TOWN OF COBOURG DRINKING WATER SYSTEM

J.L.Richards ENGINEERS · ARCHITECTS · PLANNERS

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

DRAWING #:

FIGURE 12

File Location: P:\32000\32814-000 - Hamilton Water MP\05-Production\01-Civil\GIS\32814_Phase2.aprx

Plot Date: Friday, June 27, 2025 9:40 AM

7.4 Detailed Evaluation Criteria of Preferred Alternative Solution

Based on the initial screening process, a detailed assessment of the short-listed alternatives was conducted. Evaluation criteria were developed based on a review of the background information, experience of similar assessments and stakeholder comments. The evaluation criteria are described in Table 7.

Table 7: Summary of Evaluation Criteria

Criteria	Description
Natural Environment Considerations	• Impact on natural features, heritage areas, watercourses, and aquatic habitats • Proximity to and effects on WHPAs, natural areas, ecosystems, and wetlands • Construction and operational effects on terrestrial and aquatic species, including at-risk species • Effects on ground and surface water quality and quantity
Social and Cultural Environment Considerations	• Proximity and impact of facilities to residential, commercial, and institutional areas • Impact on archaeological resources, heritage sites, and cultural landscapes • Public acceptance, First Nations impact, and construction-related impacts • Operational, cultural, heritage, and aesthetic considerations
Planning and Land Use	• Property needs and ownership • Compliance with Official Plan and zoning regulations • Required approvals and permits • Compatibility with adjacent properties
Reliability and Security	• Water source and operational stability • Ability to accommodate future growth • Redundancy and back-up
Technical Feasibility	• Water source and treatment requirements • Facilities needed, including constructability and site services • Transmission requirements • Water quality, aging infrastructure, and expandability • Reliability and security of the distribution/conveyance system • Ease of connection to existing infrastructure • Maintenance requirements and the potential for system improvements
Financial Considerations	• Capital costs and operation/maintenance expenses • Life-cycle costs

Each criterion was assigned a colour to reflect its level of impact relative to other criteria. The relative level of impact for each criterion for each potential solution was then assessed based on the colour weighting system summarized in Table 8. The option that has the least negative impact (or has the strongest positive impact) was recommended as the preferred solution. The six (6) major criteria were assigned equal weights as they were considered to have equal importance in this evaluation at the Master Plan stage.

Table 8: Detailed Evaluation Impact Level and Colouring System

Impact Level	Color	Relative Impact
Strong Positive Impact	Green	Preferred
Minor Impact	Yellow	Less Preferred
Strong Negative Impact	Red	Least Preferred

7.5 Recommendation of the Preferred Alternative Solution

The completed evaluation in Table 9 is qualitative in nature, rather than a numerical ranking system, and assesses the suitability of each alternative based on their key advantages and disadvantages. The comparison of alternatives, including the consideration of trade-offs, limitations, overall performance against the evaluation criteria and professional judgement provides the basis for determining the most appropriate water servicing solution and supports the identification of the preferred strategy.

The alternative solutions were presented in draft form at the Public Information Centre (PIC) workshop in September 2025. Feedback received from the public, agencies, and stakeholders was reviewed and incorporated into the assessment. Key themes raised through the consultation process included:

- Property ownership considerations associated with future sites not owned by the Township
- The need to address capacity limitations at the existing water treatment plant
- Concerns regarding limiting growth within the Township
- Questions regarding Aquifer Storage and Recovery, including aquifer capacity and compatibility with existing water treatment processes
- The importance of water conservation
- The feasibility of private well users connecting to the municipal system
- Potential impacts on surrounding land uses and property owners arising from Source Water Protection requirements for new wells

Concerns regarding water treatment compatibility are further addressed in Section 6.3. Property acquisition requirements will be addressed in a subsequent study phase. Additionally, this report does not consider limiting growth as a viable standalone solution. A detailed analysis of both high and low growth scenarios was completed for the short, mid, and long-term planning horizons to ensure a robust and adaptable assessment.

Further considerations related to the comments received, including implementation recommendations, phasing, and the opinion of probable costs, are provided in Section 8.0.

Table 9: Detailed Evaluation Matrix

Evaluation Criteria	Option A: Rehabilitate and Optimize Existing System; Limit Growth and Practice Water Conservation (Status Quo)	Option B: Install a Larger Diameter New Well On Existing Site; Expand Existing Water Treatment Plant	Option C: Install New Drinking Water Well(s) Off-Site; Expand Existing Water Treatment Plant	Option D: Install New Drinking Water Well(s) Off-Site; Build a New Water Treatment Plant with New Wells	Option E: Supplement Water from Cobourg Drinking Water System
Natural Environment Considerations	• No anticipated impacts on natural features; no impacts on watercourse and natural habitat • No anticipated impacts on WHPA, wetlands and ecosystems • No construction anticipated • No effects on groundwater quality and surface water quality	• No anticipated impacts on natural features; no impacts on watercourse and natural habitat • Minimal impacts on WHPA due to the new well being on the existing wellfield site; no impact to wetlands and ecosystems • Construction limited to the existing WTP site; minimal impact anticipated • No effects on groundwater quality and surface water quality	• Some impacts anticipated on natural features and watercourse for the new drinking water well and raw water transmission main construction • Moderate impacts on WHPA due to new well being constructed off-site at a new location; some impact anticipated to wetlands and ecosystems • Construction may impact terrestrial and aquatic species • Minor impact anticipated during construction to surface water quality	• Some impacts anticipated on natural features and watercourse for the new drinking water well, raw transmission main and new WTP construction • Moderate impacts on WHPA due to new well and WTP being constructed off-site at a new location; some impact anticipated to wetlands and ecosystems • Construction may impact terrestrial and aquatic species • Minor impact to surface water quality during construction	• Some impacts anticipated on natural features for the construction of a new transmission main and booster pumping/reservoir facility • No impact on WHPA; Some impacts anticipated for wetland, ecosystem features • Construction of long water transmission main and new facility will impact terrestrial and/or aquatic species • Moderate impact on surface water quality during construction due to extended distance
Social and Cultural Environment Considerations	• Strong negative impact to social environment due to no growth • Strong negative public acceptance • No impact on archaeological and cultural heritage • No impact on construction-related concerns	• Existing WTP site is remote to the core area • Positive public acceptance of keeping the water infrastructure on existing site • No impact on archaeological and cultural heritage • Minimal impact on construction-related concerns	• Existing WTP site is remote to the core area • Positive public acceptance of keeping the water infrastructure on existing site • No impact on archaeological and cultural heritage • Minimal impact on construction-related concerns	• New well and WTP site may be approaching core settlement area • Some public concern with a new WTP site • New well/WTP site will need to be screened for archaeological potential; no impact to cultural heritage • Moderate impact on construction related concerns	• Receiving water from Cobourg will ensure adequate quantity to sustain long-term growth • Transmission main, booster pumping station and reservoir will be constructed within municipal right-of-way/ municipally owned-land. Archaeological and cultural heritage potentials will need to be reviewed. • New watermain will impact residents travelling along Nagel Road and that area
Planning and Land Use	• No impact to property requirements • In compliance with OP and zoning regulations • No permits/approvals required • No compatibility issue with adjacent properties • Does not support growth	• No impact to property requirements • In compliance with OP and zoning regulations • Requires building permit, site plan approval, PTTW and source water plan amendment • No compatibility issue with adjacent properties • Supports community growth	• No impact to property requirements • In compliance with OP and zoning regulations • Requires building permit, site plan approval, PTTW and source water plan amendment • No compatibility issue with adjacent properties • Supports community growth	• New well/WTP may require land acquisition • May trigger zoning amendment • Requires building permit, site plan approval, PTTW and source water plan amendment • Minimal compatibility issue with adjacent properties • Supports community growth	• New booster station and reservoir may require land acquisition • Requires OP and zoning amendments • Requires approval and agreement with Cobourg council; Highway crossing permit • Some compatibility issue with adjacent properties • Supports community growth
Reliability and Security	• Existing water system is at capacity • Does not address reliability and security • No redundancy and back-up	• Existing well field exhibits interference; reduced stability of water supply • Limited ability community growth with existing well field • Limited redundancy and back-up for wells and WTP	• Existing well field exhibits interference; reduced stability of water supply • Limited ability community growth with existing well field • Limited redundancy and back-up for wells and WTP	• Increased stability of water supply • Ability to accommodate future growth • New well provides redundancy and back-up in well field/ supply • New WTP provides redundancy and back-up in treatment	• Rely on another municipality to supply water • Ability to accommodate future growth • Redundancy can be provided via twin-watermain • No back-up in water supply if disconnected

Evaluation Criteria	Option A: Rehabilitate and Optimize Existing System; Limit Growth and Practice Water Conservation (Status Quo)	Option B: Install a Larger Diameter New Well On Existing Site; Expand Existing Water Treatment Plant	Option C: Install New Drinking Water Well(s) Off-Site; Expand Existing Water Treatment Plant	Option D: Install New Drinking Water Well(s) Off-Site; Build a New Water Treatment Plant with New Wells	Option E: Supplement Water from Cobourg Drinking Water System
Technical Feasibility	• Does not address problem/opportunity statement	• Same water treatment requirement • Significant impact to existing well field and WTP operation during construction • No transmission main required • Does not address existing raw water quality issues • Does not affect existing distribution system • Operation and maintenance will be at the same site • Existing site has challenging spatial and topographical constraints.	• Similar raw water quality that may require different treatment requirements; there is a potential for different raw water quality leading to possible use of a different secondary disinfectant. • Significant impact to existing well field and WTP operation during construction • No transmission main required • Does not address existing raw water quality issues • Does not affect existing distribution system • Operation and maintenance will be at the same site • Existing site has challenging spatial and topographical constraints.	• Similar raw water quality that may require different treatment requirements; there is a potential for different raw water quality leading to possible use of a different secondary disinfectant. • No impact to wellfield and WTP operation during construction • Treated water transmission main required • Minimal impact to existing distribution system due to tie-in (would require compatible secondary disinfection residual) • Operation and maintenance will not be at the same site • Onsite treatment can be provided by pre-engineered suppliers to guarantee treatment level	• Improved water quality from treated water from Lake Ontario • Transmission main will require hydraulic modelling and design to ensure it meets the pressure and flow requirements at boundary locations • Constructing storage as part of this alternative can also address treated water storage deficiency in Creighton Heights • Blended water quality (groundwater and Lake Ontario) needs to be carefully considered and operated • Creighton Heights pressure zones will need to be reviewed and updated.
Financial Considerations	• Lowest capital cost • Lowest O&M cost	• Higher capital costs than Option B & D • O&M costs are comparable amongst Options B, C & D	• Higher capital costs than Option B & D • O&M costs are comparable amongst Options B, C & D	• Lower capital costs compared to Option B & C • O&M costs are comparable amongst Options B, C & D	• Highest capital cost (May involve land acquisition) • Lowest O&M cost
Final Evaluation	**Least Preferred**	**Less Preferred**	**Less Preferred**	**Preferred**	**Less preferred**

8.0 Recommended Implementation, Timing and Opinion of Probable Costs

8.1 Immediate Next Steps

8.1.1 Municipal Class Environmental Assessments

Following completion of the Master Plan, a Schedule 'C' Municipal Class Environmental Assessment (MCEA) will be required to further refine the details of the proposed groundwater water supply location, and water treatment. The anticipated duration for the Schedule 'C' Class EA is 18 months, including the hydrogeological field work.

It has also been recommended in the Phase 1 Report that the treated water storage for Creighton Heights is insufficient to support future growth and that a Schedule 'B' Municipal Class Environmental Assessment should be completed to confirm storage capacity, location and configuration.

8.1.2 Hydrogeological Study and Source Water Protection Amendment

The Schedule 'C' MCEA on groundwater supply and treatment will require field hydrogeological studies to confirm the groundwater supply quantity, through an extended duration pump test and quality sampling. It should also be determined whether the proposed well is under the direct influence of surface water (GUDI). Quality sampling undertaken through the hydrogeological study should confirm such classification. Additionally, the hydrogeological study should support the delineation of the WHPA zones and source water protection plan amendment.

8.1.3 Archaeological Assessment

It is recommended to retain a licensed archaeologist to undertake the required archaeological assessment for the new well site to satisfy the requirements from Ministry of Citizenship and Multiculturalism (MCM). Archaeological assessment reports must be submitted for MCM review prior to any ground disturbance including hydrogeological assessment, and prior to the completion of the Class EA.

8.1.4 Natural Heritage Recommendations

It is recommended to retain a natural heritage specialist to undertake the required species at risk assessment and wetland assessment for the new well site to fulfill requirements from the Ministry of the Environment, Conservation and Parks, as well as the Ganaraska Conservation Authority.

8.1.5 Geotechnical Study

Site-specific geotechnical study shall be undertaken during the MCEAs to identify geotechnical conditions for the proposed undertaking, including the new treatment facility buildings and watermain installations.

8.2 Opinion of Probable Costs

The following table provides the Opinion of Probable Costs (OPC) for the proposed upgrades as outlined previously. It shall be noted that the OPC was completed using **2025** dollars value. An OPC with a Class 'D' (Indicative Estimate) level of accuracy was developed and includes allowances for design elements that have not fully been developed. Class 'D' OPCs developed for this assignment are expected to be within +/- 30%. The OPCs were developed based on experience on similar projects, professional judgment, and equipment costs provided by suppliers. Design completed as part of this Master Plan is conceptual in nature for the purpose of obtaining Class 'D' cost estimates. All design parameters should be confirmed during the upcoming Class EA and detailed design. Any provided estimate of costs or budget is an OPC that is based on historic construction data and does not include labour, material, equipment, manufacturing, supply, transportation or any other cost impacts in relation to outstanding market conditions. JLR shall not be responsible for any variation in the estimate caused by the foregoing factors but will notify the Township of any conditions which JLR believes may cause such variation upon delivery of the estimate.

Table 10: Opinion of Probable Costs for Preferred Solution

Preferred Solution: Option D Install New Drinking Water Well(s) Off-Site; Build a New Water Treatment Plant with New Wells	**Opinion of Probable Costs**
Hydrogeological and Geotech Study (Field Work to Support Schedule 'C' Class EA, Incl. Test Well)	$250,000
Schedule 'C' Class EA for Water Supply and WTP	$500,000
Installation of Permanent Well	$250,000
New Water Treatment Plant - Building (prefabricated building)	$500,000
New Water Treatment Plant - Process Equipment (prefabricated process equipment)	$500,000
New Water Treatment Plant - Electrical, I&C	$200,000
Watermain Connection to Existing System	$1,250,000
Hydro Service to Site	$500,000
Land Acquisition (Not included in the cost)	
SUB-TOTAL	**$3,950,000**
Engineering 12.5%	$493,750
Permits and Approvals 7.5%	$296,250
SUB-TOTAL	**$4,740,000**
Contingency 30%	$1,422,000
PROJECT TOTAL (ROUNDED)	**$6,200,000** (+/- 30%)

8.3 Schedule

The anticipated projects schedule is as follows. Note that some of the tasks may overlap to gain project schedule efficiencies. However, overall timeline for constructing a new well and WTP is approximately four (4) years from completion of the Master Plan.

- Hydrogeological Studies (Field Work): 6-9 months
- Schedule 'C' Class EA for Water Supply and Water Treatment: 12 months
- Design of New Well and Water Treatment Plant: 9-12 months
- PTTW and Source Water Protection Plan Amendment: 6-9 months (potential overlap with design schedule)
- Tendering: 2 months
- Construction of New Well and Water Treatment Plant: 12-18 months

9.0 Environmental Impacts and Mitigation Measures

The proposed works in Option D will lead to potential impacts to the environment, construction strategy and site management, and/or cultural heritage resources. Table 11 presented below summarizes potential environmental impacts, along with mitigation measures. It is recommended that impacts and mitigation measures be further reviewed and updated during the Class EA project specific planning and design stages.

Table 11: Summary of Environmental Impacts and Mitigation Measures

Impact	Mitigation Measure
The Environment	
Source Water Protection	Existing groundwater wells supply the community, with historical data indicating viable additional sources. Two potential new municipal well locations have been identified near the former Winter and Perron artesian wells, which historically produced flows of approximately 160 L/min (230.4 m³/day) each. If developed, these wells could contribute over 460 m³/day, helping to offset projected supply shortfalls through 2044. The Winter site partially overlaps the existing WHPA-A, resulting in a relatively low regulatory impact, while the Perron site lies outside current WHPA boundaries and would require new protection zones, increasing the WHPA-A area by approximately 3.14 hectares. Additionally, a well identified as TW#4 (Provincial well record #4509992), tested in April 2025, demonstrated a sustained yield of 75.6 L/min (109 m³/day) with rapid water level recovery, indicating a productive aquifer that could serve as a supplemental source pending further investigation. The original Township of Hamilton Wells #1 and #2 are considered less feasible due to their location within a residential area. Recommended projects arising from this WSMP include additional hydrogeological studies and consultation with the Ganaraska Region Conservation Authority and the Ministry of the Environment, Conservation and Parks (MECP) to delineate new and updated Wellhead Protection Areas (WHPAs) in support of sustainable water supply development and source water protection plan amendments.
Climate Change	Climate change considerations have been integrated into the Township of Hamilton's water supply planning to address both mitigation and adaptation measures. Growth projections for the Creighton Heights community anticipate increased water demand and infrastructure needs through 2044, which will influence energy use and greenhouse gas (GHG) emissions associated with water treatment and distribution. Mitigation efforts will focus on reducing operating carbon emissions through energy efficiency improvements in pumping and treatment facilities, potential fuel switching to low-carbon options, and exploring opportunities for on-site renewable energy generation. Material

Impact	Mitigation Measure
The Environment	
	specifications for infrastructure upgrades will also consider embodied carbon reductions. Climate change adaptation measures are critical given the Township's exposure to variable precipitation and temperature patterns that may affect water availability and infrastructure resilience. Future water supply projects, including new well developments and treatment capacity enhancements, will evaluate local climate impacts such as increased flooding risk and changing water demand patterns. The chosen long-term water supply strategy aims to ensure a reliable and resilient system by diversifying supply sources and incorporating climate-informed design criteria. Ongoing monitoring and flexible management approaches will be employed to respond to evolving climate conditions.
Contaminated Sites	Prior to site disturbance for new wells or treatment plant, site investigations should be conducted to screen for underground storage tanks, waste disposal sites or contaminated soils in the proposed locations. Any impacted soils or materials must be remediated or managed under Ontario regulations. During well drilling, cuttings and excess should be handled per MECP's guidance for excess soil.
Ecosystem Protection and Restoration	In general, any construction activities that may impact ecosystem form and function must be avoided where possible. Existing natural environmental features within the Township of Hamilton WSMP study area are detailed in Figure 14 of the Phase 1 Report, which outlines natural environmental constraints in the Creighton Heights community. Other than the Wellhead Protection Areas (WHPAs) associated with the municipal water supply, there appear to be no significant natural environment constraints identified within the study area. However, as part of the recommended long-term strategy, the construction of new municipal drinking water wells, a new water treatment plant (WTP), and associated watermains off-site may result in localized impacts to natural features, including nearby watercourses, terrestrial habitat, and wetlands. In addition, minor impacts to surface water quality may occur during the construction phase. Consultation with the Ganaraska Region Conservation Authority (GRCA) and the Ministry of Natural Resources and Forestry (MNRF) should be undertaken during the future Schedule 'C' Class EA to confirm the presence of sensitive features and determine if further environmental field studies, such as ecological land classification or wetland evaluations, are required. Where natural features are encountered, avoidance and protective measures should be integrated into project planning and detailed design.

Impact	Mitigation Measure
The Environment	
Species at Risk	In general, investigation of species at risk (SAR) should be completed as part of the future Class EA and design phases. Where species or habitat with the potential to support SAR is identified, appropriate mitigation measures should be embedded in the design and implemented during construction. The proposed water supply infrastructure may result in disruption to terrestrial or aquatic species, including potential habitat disturbance. As such, targeted field surveys and review of known occurrences through the Natural Heritage Information Centre (NHIC) and other applicable data sources should be completed during the environmental assessment process. To minimize potential impacts on SAR and other sensitive wildlife, construction activities should be timed to avoid breeding and spawning periods, particularly in or near wetland or aquatic environments. Erosion and sediment control measures should be implemented to protect nearby watercourses and habitats from degradation. Where SAR are confirmed, consultation with MNRF and permitting under the Endangered Species Act may be required prior to construction.
Surface Water	Known surface water features within the Township of Hamilton WSMP study area are identified as waterbodies in Figure 14 of the Phase 1 Report, which outlines natural environmental constraints in the Creighton Heights community. While there are no major surface water features adjacent to the existing municipal wells, smaller waterbodies may be present near proposed locations for new municipal drinking water wells and new water treatment plant (WTP). Construction activities related to these proposed facilities may result in minor impacts to surface water quality, particularly during the construction phase. Potential effects include erosion, sedimentation, and pollutant runoff that could temporarily affect nearby waterbodies. To mitigate these potential impacts, appropriate measures should be incorporated into the planning and design phases. These include the preparation of a stormwater management plan, implementation of erosion and sediment control measures, and adoption of best practices during construction to avoid contamination of nearby surface features. It is recommended that the project team consult with the Ganaraska Region Conservation Authority (GRCA) and adhere to applicable MECP guidelines during the Class EA and design phases to ensure that surface water features are adequately protected.

Impact	Mitigation Measure
Construction Strategy and Site Management	
Excess Material Management	Projects 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.
Air Quality, Dust and Noise	Increased dust and noise can be anticipated from the various construction works of the proposed projects; impacts to air quality may occur during proposed treatment plant and well drilling. The potential for impacts related to air quality, dust, and noise will be assessed during the Class EA and/or design phase for the proposed works. Dust and noise control mitigation measures (ex. the MECP recommends non-chloride dust-suppressants) should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the projects area are not adversely affected during construction activities.
Servicing, Utilities and Facilities	There are existing distribution assets within the study area, however, these services will need to be upsized to accommodate the new well and treatment facility. Hydro One should be consulted on individual projects during the Class EA and during design. Moreover, all underground and overhead infrastructure (transmission lines, telephone/internet, oil/gas, etc.) and/or potential disturbances to crossings should be identified as part of the Class EA projects and during design.
Mitigation and Monitoring	As part of the future Class Environmental Assessment (Class EA) and/or detailed design process, the project area should be surveyed to identify existing utilities, including power lines, telecommunications infrastructure, and watermains. Coordination with utility providers such as Hydro One and local telecommunications companies will be necessary to avoid service disruptions and conflicts during construction. The alignment of the proposed new watermains and transmission infrastructure should be designed to minimize interference with existing underground and overhead services. Additionally, consideration must be given to pressure compatibility and redundancy planning to ensure that the new infrastructure integrates effectively with the existing system and meets the long-term operational requirements of the Township's water supply network. Any crossings or encroachments on existing utility corridors must be identified early in the design phase, and appropriate protective measures and approvals should be secured as needed.

Impact	Mitigation Measure
Construction Strategy and Site Management	
Permits and Approvals	The projects identified in this Master Plan (WSMP) may require a variety of permits and approvals, depending on final project scope, location, and detailed design. These will be identified and obtained during the project-specific Class Environmental Assessments (EAs) and/or design stages. Permits and approvals may include: • Environmental Compliance Approval (ECA) Sewage and Air/Noise • Drinking Water Works Permit Amendment • Municipal Drinking Water License Amendment • Permit to Take Water (PTTW) • Environmental Activity and Sector Registry (EASR) • Conservation authority permits (e.g., under Ontario Regulation 167/06 by GRCA) • Species at Risk permits • Building Permits • Official Plan Amendment and Approvals • Approvals under the Impact Assessment Act, 2019 (if triggered). If any of the proposed infrastructure crosses regulated waterbodies or is located within proximity to wetlands or floodplains, permits under Ontario Regulation 167/06 will be required from the Ganaraska Region Conservation Authority (GRCA). The proponent or consultant retained to carry out the proposed Class EA projects will be responsible for identifying the full scope of required permits and coordinating with the appropriate regulatory agencies throughout the design and implementation phases.
Cultural Heritage Resources	
Disturbance or destruction of archaeological resources and displacement of known and/or potential built heritage resources and/or cultural heritage landscapes by removal and/or demolition and/or disruption.	Because new sites are being developed, Stage 1 and/or 2 archaeological assessments must be conducted by licensed archaeologists before any ground disturbance. Any discovered cultural heritage or archaeological resources should be documented or preserved in situ if feasible. Built heritage or recognized landscapes near the new facility should be considered in siting to minimize disturbance, and demolition should be avoided unless unavoidable.

10.0 Public Consultation

10.1 Stakeholder and Review Agency Consultation Activities

Consultation includes project initiation notification to the public and potential stakeholders, notification, and completion of two (2) public information center (PIC) presentations, notice of Master Plan completion and 30-day review period at the end of the study.

10.2 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 F for the Notice.

10.3 Public Information Consultation

A public information centre was held on September 19th, 2024. A second public information center was held on September 11th, 2025. Refer to Section 7.5 and Table 12 for comments resulting from presentation.

10.4 Agency/Stakeholder Comments

Table 12 is a summary of stakeholder comments received to date. Refer to Appendix G for the consultation records and stakeholder distribution list.

Table 12: 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: • 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 history and possible future directions for the Township water supply. 2. Mr. Beham requested an update on the project. 3. Mr. Beham provided well testing results from GHD

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
Response: 1. JLR will continue to provide updates as the project progresses. 2. JLR to respond after Phase 1 Report is complete. 3. JLR included results in report.
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: 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**

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
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 **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.

STAKEHOLDER AND AGENCY COMMENTS / RESPONSES
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: 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 G 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 G for remaining responses.
Stakeholder: GHD Engineering **Representative: Adam Bonner**
Comment: 1. GHD shared comments and concerns regarding water supply enhancement, well field capacity, lack of well field capability study and inaccurate future growth estimations. See Appendix G 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.
Post PIC #2 Comments and Additional Consultation Occurrences
Stakeholder: GEI Consultants (formerly GM BluePlan Engineering) **Representative: Grant Parkinson**
Comment: 1. GEI Consultants provided comments pertaining to minor edits/formatting issues. As well as concerns with raw water treatment compatibility and costs.
Response: 1. JLR incorporated minor edits, addressed raw water treatment compatibility in Section 6.3 and costs in Table 10.
Stakeholder: Stalwood Homes **Representative: Anthony Drew**
Comment: 1. In agreement of recommendation. Potential well site located south of Dalewood.
Response: 1. JLR acknowledges feedback in letter. JLR will not be further exploring additional potential well sites in this study.
Stakeholder: Creighton Heights/Baltimore Residents **Representative: Brent Morrill**
Comment: 1. Concerns of the impact that immediate growth will have on current water supply
Response 1. JLR acknowledges.

11.0 Notice of Master Plan and Filing on Public Record

This Master Plan is being placed on public record for 30 calendar days for review by the public, stakeholder agencies, Indigenous communities, and other interested parties.

A notice indicating the completion of the Master Plan and its filing on public record has been issued to the public, and all interested parties that have previously been contacted and that have indicated interest to stay involved in the planning process.

The review period is intended to resolve any outstanding concerns regarding the project between the Township and the party expressing concerns. The Master Plan will be reviewed and revised, taking into consideration any comments received from the public.

Any information collected during the planning process is managed in accordance with the Freedom of Information and Protection Act. Apart from personal information, all comments become part of the public record. Proprietary information (i.e., equipment manufacturers) and pricing could provide competitors with some advantages and is not released in detail as part of the Freedom of Information and Protection Act.

Subject to comments received, the Township can choose to proceed with the recommended projects in the Master Plan after the 30-day review period. Projects that have been identified as Class EA Schedule ‘B’ or ‘C’ will proceed into project-specific Class EA studies during which the public will be consulted for their input.

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

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Associate, Senior Environmental Engineer

Appendix A

Source Water Protection
Implications Report and
Hydrogeological Review
(BluMetric, 2024/2025)

December 10, 2024
Project Number: 240363

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

Re: Source Water Protection Considerations for the Creighton Heights and Camborne Municipal Drinking Water Systems, Township of Hamilton, Ontario

Dear Mr. Marcuccio:

BluMetric Environmental Inc. (BluMetric®) was retained by J.L. Richards and Associates Ltd. to review the source water protection requirements associated with the Creighton Heights and Camborne municipal drinking water systems and to assess the associated implications of modifying the Creighton Heights system. The scope of the review includes the following:

- Review local source protection plan policies and wellhead protection areas (quality and quantity);
- Summarize existing background studies within the Township, as they relate to source water protection; and
- Conduct a desk-top review of potential drinking water threats, land use restrictions, and potential impacts to landowners and businesses at the screening level as part of the evaluation of alternatives.

1 OVERVIEW

The Township of Hamilton is serviced by three municipal drinking water systems: the Buttersfield Subdivision (supplied with surface water from the Town of Cobourg), Creighton Heights and Camborne, with the latter two being supplied with groundwater. The present review focuses on the two groundwater systems located within township boundaries.

Municipal drinking water systems located within a drinking water source protection area (SPA) are subject to the requirements of the *Clean Water Act, 2006*. The Township of Hamilton's municipal drinking water systems are located within the Ganaraska Region SPA (GRSPA). The GRSPA is in turn located within the Trent Conservation Coalition Source Protection Region (TCC SPR), alongside four other Source Protection Areas: Crowe Valley, Kawartha-Haliburton, Lower Trent and Otonabee-Peterborough. These SPAs, located adjacent to one another, are consolidated into the TCC SPR in order to centralize the source protection planning process.

As required under the *Clean Water Act*, assessment reports were prepared for the SPAs within the TCC SPR. Assessment reports outline how drinking water protection zones were delineated for municipal drinking water sources within the SPA(s) and identify vulnerable areas where some land use activities can, in certain circumstances, pose significant drinking water threats. Within the TCC SPR, a single assessment report was prepared for the Crowe Valley, Kawartha-Haliburton, Lower Trent and Otonabee-Peterborough SPAs in order to maintain a focus on the Trent River watershed and to preserve linkages to the Trent-Severn Waterway. As such, a separate assessment report (the "Ganaraska Assessment Report") was developed for the GRSPA (updated March 7, 2018).

Policies for managing significant drinking water threats within a SPA are outlined in its Source Protection Plan. The Source Protection Plan builds on the findings of the assessment report by establishing policies to reduce or eliminate significant threats to water quality or stresses to drinking water quantity. The Plan identifies the responsible parties who must implement the policies, timelines for implementation, and performance measures for plan implementation. As is the case with the assessment report, the GRSPA is subject to the policies of the Ganaraska Source Protection Plan ("Ganaraska SPP", updated December 21, 2021), while the remainder of the TCC SPR is subject to the Trent Source Protection Plan.

1.1 Types of Drinking Water Threats

Ontario Regulation (O. Reg.) 287/07 identifies 22 prescribed drinking water threats under the *Clean Water Act*:

1. The establishment, operation or maintenance of a waste disposal site within the meaning of Part V of the *Environmental Protection Act*.
2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.
3. The application of agricultural source material to land.
4. The storage of agricultural source material.
5. The management of agricultural source material.
6. The application of non-agricultural source material to land.
7. The handling and storage of non-agricultural source material.

8. The application of commercial fertilizer to land.
9. The handling and storage of commercial fertilizer.
10. The application of pesticide to land.
11. The handling and storage of pesticide.
12. The application of road salt.
13. The handling and storage of road salt.
14. The storage of snow.
15. The handling and storage of fuel.
16. The handling and storage of a dense non-aqueous phase liquid (DNAPL).
17. The handling and storage of an organic solvent.
18. The management of runoff that contains chemicals used in the de-icing of aircraft.
19. An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.
20. An activity that reduces the recharge of an aquifer.
21. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm-animal yard.
22. The establishment and operation of a liquid hydrocarbon pipeline.

Other ways of identifying drinking water threats include:

1. Through an activity identified by the Source Water Protection Committee as an activity that may be a threat and (in the opinion of the Director) a hazard assessment confirms that the activity is a threat.
2. Through a condition that has resulted from past activities that could affect the quality of drinking water.
3. Through an activity associated with a drinking water issue.
4. Through an activity identified through the events based approach (only applicable to select types of surface water intakes).

2 BACKGROUND STUDIES

The following is a list of some of the key background studies that supported the development of the Ganaraska Assessment Report and the Ganaraska Source Protection Plan:

- Morrison Environmental Ltd., 2004a. Trent Conservation Coalition (TCC), Municipal Groundwater Study, Ganaraska Region Conservation Authority Report.
- Morrison Environmental Ltd., 2004b. Trent Conservation Coalition Municipal Groundwater Study, Paleozoic Area, Volume 2 – Wellhead Protection Groundwater Study for Camborne, Hamilton Township.

- Ganaraska Region Conservation Authority, 2007. Conceptual Understanding - Water Budget Watersheds Draining to Lake Ontario, Final Draft Report.
- Ganaraska Region Conservation Authority, 2010. Tier 1 Water Budget and Stress Assessment. Version 1.4, Draft Report.
- Jagger Hims Limited, 2007. Groundwater Study Creighton Heights and Camborne Municipal Wellfields, Township of Hamilton.
- Jagger Hims Limited, 2009. Assessment of Drinking Water Threats, Creighton Heights and Camborne Municipal Wellfields, Township of Hamilton.

The objectives and key findings of the studies are summarized below. It should be noted that only the reports from Morrison Environmental Ltd. (2004a) and Jagger Hims Limited (2007) were available to BluMetric for review. Summaries for the remaining reports were prepared based on the information presented in the Ganaraska Assessment Report.

Morrison Environmental Ltd., 2004a. Trent Conservation Coalition (TCC), Municipal Groundwater Study, Ganaraska Region Conservation Authority Report.

In this study, groundwater quality in bedrock and overburden wells across most of the TCC SPR was assessed using records from the provincial Water Well Records Database. It was determined that wells screened in bedrock produced fresh water, while wells screened in overburden occasionally yielded poor groundwater quality. The study also concluded that the groundwater in the GRSPA is naturally low in chloride, nitrate, and most metals, with occasional exceedances of the Ontario Drinking Water Standards (ODWS) for iron and manganese.

Morrison Environmental Ltd., 2004b. Trent Conservation Coalition Municipal Groundwater Study, Paleozoic Area, Volume 2 – Wellhead Protection Groundwater Study for Camborne, Hamilton Township.

In this study, groundwater quality data at the two wellfields were compared against the ODWS. Exceedances of the ODWS for lead and hardness were identified at the Camborne municipal wellfield, while exceedances of the ODWS for iron, manganese and hardness were identified at the Creighton Heights municipal wellfields. The results were considered typical of the natural groundwater quality of the area.

Ganaraska Region Conservation Authority, 2007. Conceptual Understanding – Water Budget Watersheds Draining to Lake Ontario, Final Draft Report.

This report detailed the development and results of the conceptual water budget of the Ganaraska River watershed. The conceptual water budget consisted of a simple water budget performed at coarse spatial and temporal scales. The report also included a review of watershed features that may impact the water budget calculation, such as geology, physiography and land cover. The conceptual water budget provided a general understanding of water movement throughout the watershed, along with estimates of annual precipitation, evapotranspiration, infiltration and runoff. The Tier 1 water budget (described below) built upon the information collected at this stage.

Ganaraska Region Conservation Authority, 2010. Tier 1 Water Budget and Stress Assessment. Version 1.4, Draft Report.

The purpose of the Tier 1 Water Budget and Stress Assessment was to identify watersheds experiencing significant or medium water quantity stress levels. The ratio of the consumptive water demand to the water supplies, minus water reserves, was calculated for each watershed.

For the Cobourg Creek and Midtown Creek watershed (in which the Camborne and Creighton Heights municipal drinking water systems are located), the level of both surface water and groundwater stress was determined to be low.

Jagger Hims Limited, 2007. Groundwater Study Creighton Heights and Camborne Municipal Wellfields, Township of Hamilton.

The Jagger Hims Limited (2007) report details the delineation of the wellhead protection areas (WHPAs) and their subzones (WHPA-A, WHPA-B, WHPA-C and WHPA-D) for the Creighton Heights and Camborne municipal wellfields using a calibrated numerical groundwater flow model. (descriptions and mapping of the WHPAs are included in Section 3 of this report). The model was also used to evaluate the intrinsic vulnerability of the aquifer, which was determined to be low throughout the WHPAs for both systems.

An evaluation of raw water quality data from the two wellfields identified no drinking water issues that would be considered to pose a threat to human health. An evaluation of potential drinking water threats identified 23 potential threats within the WHPA-C of each system, associated with activities such as automotive shops, agriculture, pastureland and use of heating oil.

Jagger Hims Limited, 2009. Assessment of Drinking Water Threats, Creighton Heights and Camborne Municipal Wellfields, Township of Hamilton.

The Jagger Hims Limited (2009) study involved the identification of drinking water threats from activities and contaminated sites, the assessment of the level (significant, moderate or low) of the threats, and the enumeration of significant threats for the Creighton Heights and Camborne drinking water systems.

For the Creighton Heights system, a total of six activities on four land parcels were identified as significant drinking water threats. The activities in question were: the private sewage system at the water treatment plant (WHPA-A), private sewage systems at two residences with assumed below-grade storage of home heating fuel (WHPA-A), and the potential handling and storage of dense non-aqueous phase liquids at a property in WHPA-C. No conditions (contamination) resulting from past activities were identified as significant drinking water threats. Similarly, no drinking water quality issues were identified.

For the Camborne drinking water system, a total of 16 activities on 10 land parcels, all located in WHPA-A, were identified as significant drinking water threats. The activities in question consisted of: the private sewage system at the water treatment plant, private sewage systems at nine residences, and the assumed storage of home heating fuel below grade at six residences. As with the Creighton Heights system, no conditions or drinking water quality issues were identified.

3 EXISTING WELLHEAD PROTECTION AREAS

In accordance with the Technical Rules under the *Clean Water Act*, WHPAs have been delineated for the Camborne and Creighton Heights municipal drinking water systems by Jagger Lims Limited (2007). The WHPAs consist of the areas around a wellhead where land-based activities have the potential to impact the quality of groundwater flowing to the well. The four WHPA zones are defined as follows:

WHPA-A:	A distance of 100 m or less from the wellhead.
WHPA-B:	A travel time in the aquifer of 2 years or less, excluding the WHPA-A.
WHPA-C:	A travel time in the aquifer of 2 to 5 years.
WHPA-D:	A travel time in the aquifer of 5 to 25 years.

Vulnerability scores are assigned to each WHPA zone based on the time of travel and the vulnerability of the aquifer.

The WHPAs for the Camborne and Creighton Heights municipal drinking water systems are illustrated in Figures 1 and 2, respectively. For both systems, the vulnerability scores of each WHPA zone are:

- 10 (for WHPA-A)

- 8 (only for a 0.28-hectare portion of Creighton Heights' WHPA-B near this WHPA's northeastern boundary)
- 6 (for WHPA-B)
- 2 (for WHPA-C and WHPA-D)

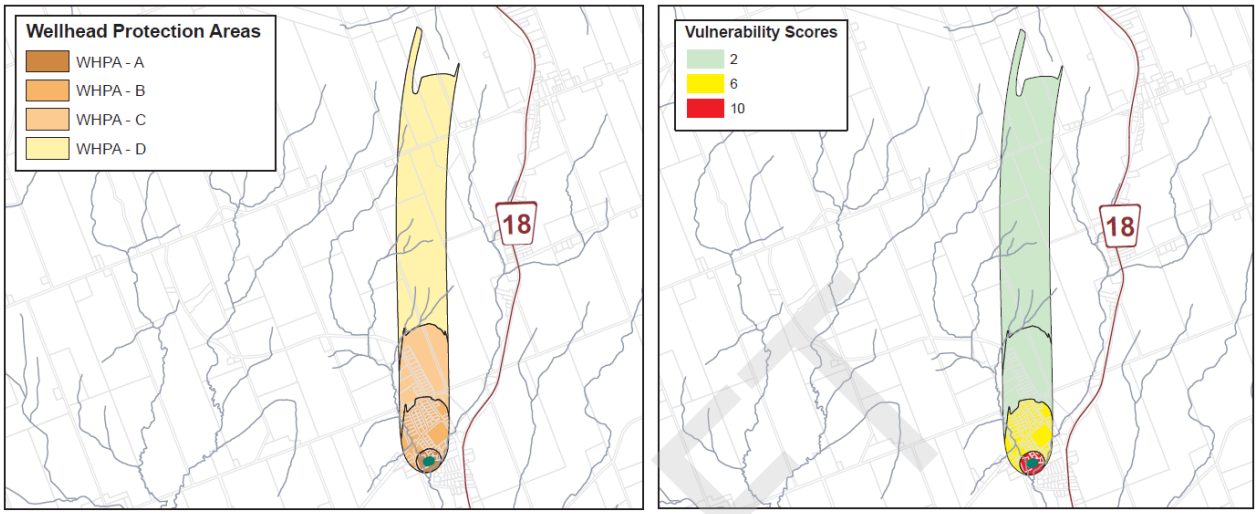

Figure 1 Camborne Well Supply: WHPAs and their associated vulnerability scores (from the Ganaraska Assessment Report, updated March 7, 2018).

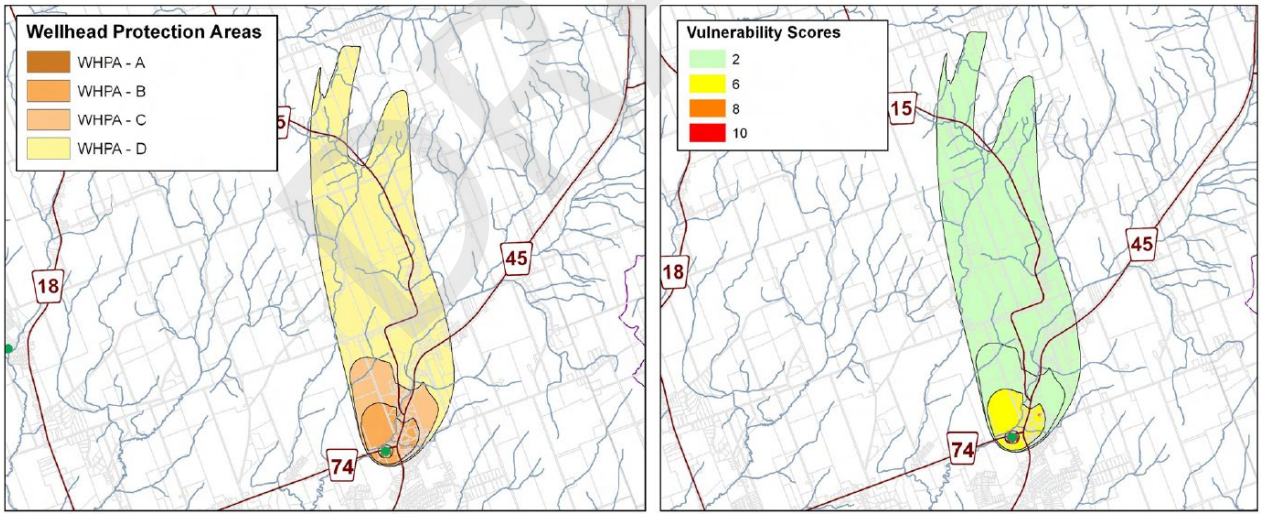

Figure 2 Creighton Heights Well Supply: WHPAs and their associated vulnerability scores (from the Ganaraska Assessment Report, updated March 7, 2018).

4 CREIGHTON HEIGHTS DRINKING WATER SYSTEM – ALTERNATIVES FOR MEETING INCREASED WATER DEMANDS

BluMetric's letter report, *Hydrogeological Review of the Creighton Heights and Camborne Water Supply Systems, Township of Hamilton, Ontario*, provided several recommendations for meeting the projected increased water demands in the community of Baltimore, which is currently serviced by the Creighton Heights municipal drinking water system. The recommendations included:

- Install a large diameter production well near test well TW9;
- Assess Township of Hamilton Well #1 and #2 to determine whether they could be upgraded and brought back into service; and
- Install new water supply wells near the former Winter and Perron artesian wells.

The locations of the wells referenced above are illustrated on Figure 3.

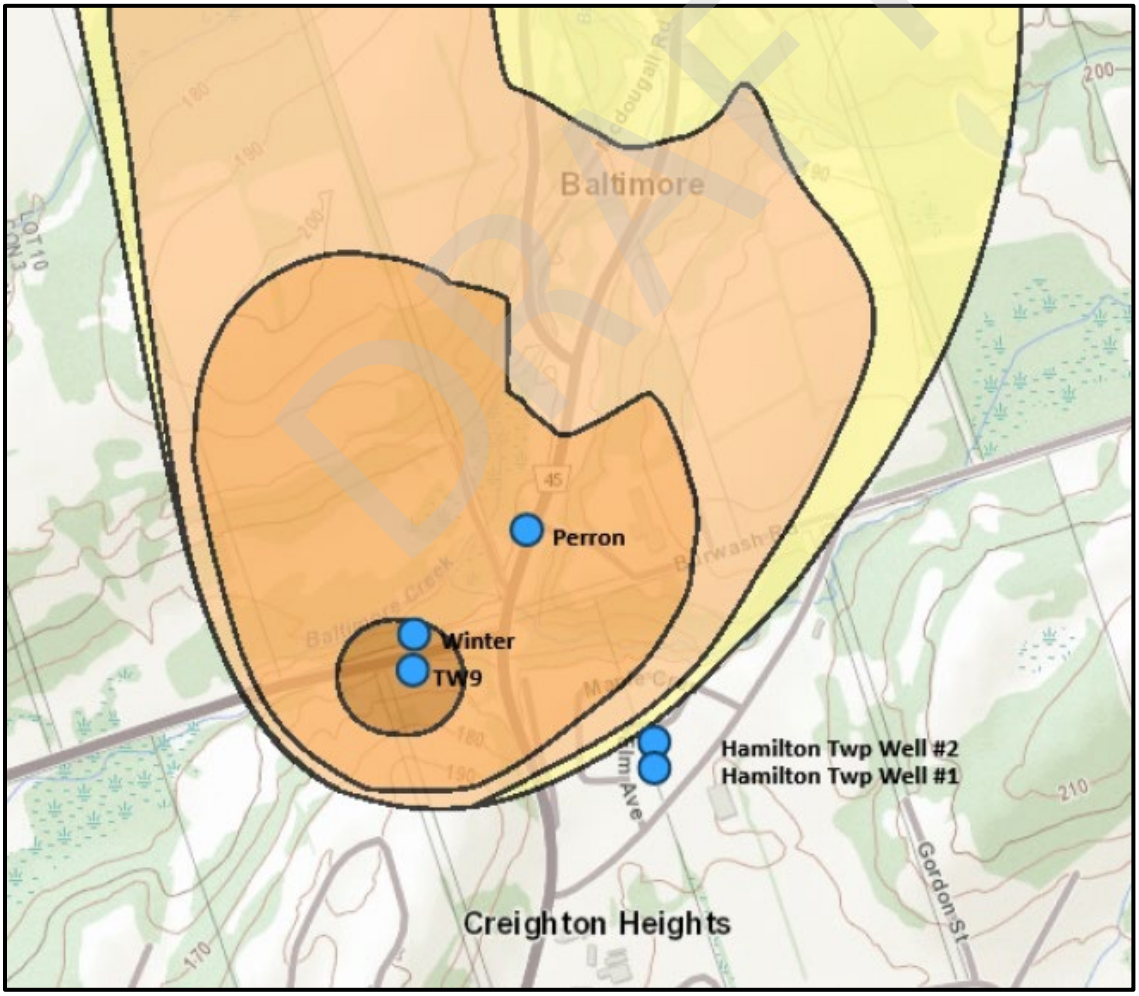

Figure 3 Potential additional water supply wells for the Creighton Heights municipal drinking water system.

4.1 Source Water Protection Implications

The addition and/or replacement of one or more wells to the Creighton Heights municipal drinking water system will require revisions to the existing WHPA delineations. Such delineations require the use of a numerical groundwater flow model and are therefore beyond the scope of the present report. However, some general assumptions can be made at this early stage of planning:

- For each new well, the WHPA-A will consist of a circular area with a radius of 100 m, centered over the new well.
- If a new water supply well is established at TW9 and/or the Winter artesian well, its WHPA-A will overlap with the existing WHPA-A. The total area of 'new' WHPA-A will be lower than if a new water supply well is established at the Perron artesian well and/or the Township of Hamilton Well #1 and #2.
- The establishment of one or more new wells will likely result in the total surface areas of WHPA-B, WHPA-C and WHPA-D to increase. Some zones will be 'bumped up' in categorization (e.g., going from WHPA-D to WHPA-C, or from WHPA-C to WHPA-A, etc.), and some areas currently outside of all WHPAs will fall within the new WHPA delineation.

4.2 Prescribed Activities That Could Pose Significant Drinking Water Threats

The policies within the Ganaraska SPP were developed with the aim of addressing significant drinking water threats wherever and whenever they may occur. The following section identifies the prescribed activities that could potentially pose a significant drinking water threat in each WHPA zone.

Within a WHPA-A, all 22 prescribed activities could in theory pose a significant drinking water threat, provided they meet the specific circumstances listed in the 2021 Technical Rules under the *Clean Water Act*. As such, the Ganaraska SPP contains policies for addressing all prescribed activities that currently (or may in the future) occur within a WHPA-A.

Within a WHPA-B with a vulnerability score of 6 (i.e., the majority of Creighton Heights' WHPA-B), the only prescribed activity that could in theory pose a significant drinking water threat is the handling and storage of DNAPL. For the small portion of WHPA-B with a vulnerability score of 8 (near its northeastern boundary), activities that could theoretically pose a significant drinking water threat are the handling and storage of DNAPL and organic solvents, storage of sewage, and waste disposal sites.

Within a WHPA-C with a vulnerability score of 2 (i.e., all of WHPA-C for Creighton Heights), the only prescribed activity that could in theory pose a significant drinking water threat is the handling and storage of DNAPL.

There are no circumstances where a prescribed activity could pose a significant drinking water threat in a WHPA-D.

4.3 Potential Land Use Restrictions and Impacts to Landowners and Businesses

With the introduction of one or more new water supply wells to the Creighton Heights municipal drinking water system, new land use restrictions and prohibitions will occur especially within the new WHPA-A, and also potentially within the new areas of WHPA-B and WHPA-C. Given that there are no circumstances where a prescribed activity could pose a significant drinking water threat in WHPA-D, no land use restrictions or prohibitions are expected in new areas of WHPA-D.

WHPA-A

Within the WHPA-A (consisting of land within a 100 m radius around each water supply well), *future* occurrences of the following prescribed activities may be prohibited under the Ganaraska SPP:

- Sewage systems.
- Agricultural activities that involve:
    - The application of agricultural source material, non-agricultural source material, commercial fertilizer or pesticide to land;
    - The handling and storage of agricultural source material, non-agricultural source material, commercial fertilizer or pesticide; and
    - The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm animal yard.
- Handling and storage of fuel, unless the fuel is stored for use in a back-up generator intended for use during a municipal emergency.
- Storage of road salt.
- Waste disposal sites.
- Handling and storage of DNAPL and/or organic solvent.
- Snow storage.

Whether or not an activity listed above will be prohibited depends on the specific circumstances listed in the 2021 Technical Rules under the *Clean Water Act*. For example, the future application of pesticide to land is prohibited if the application area is at least 1 hectare but is permitted if the disposal area is less than 1 hectare. For activities whose circumstances do not meet the threshold for prohibition, the Ganaraska SPP typically has policies for ensuring that the activity does not become a significant drinking water threat. The policies may include measures such as a requirement to meet specific design criteria, the imposition of conditions on a permit or approval, and a requirement to negotiate a Risk Management Plan with the municipality's Risk Management Official.

If a prescribed activity is a significant drinking water threat but was present on a property before a new WHPA was incorporated into the Source Protection Plan, it is referred to as an "existing" significant drinking water threat. For a WHPA-A within the GRSPA, no policies prohibit existing threats. Rather, existing significant drinking water threats are managed using other tools, including, but not limited to:

- Existing permits and approvals may be reviewed by the approval authority and amended as needed to ensure the protection of drinking water sources.
- Property owners may be required to negotiate a Risk Management Plan with the Risk Management Official.

WHPA-B

The intrinsic vulnerability of the aquifer in the vicinity of the Creighton Heights municipal drinking water system is low, resulting in the vulnerability score of the existing WHPA-B to be 6 throughout the majority of the zone. Assuming any new areas of WHPA-B will also have a vulnerability score of 6, then the only potentially applicable policies of the Ganaraska SPP are those dealing with the handling and storage of DNAPLs and organic solvents. Any existing commercial or industrial handling and storage of DNAPLs and organic solvents will require the negotiation of a Risk Management Plan with the Risk Management Official. Future commercial or industrial handling and storage of DNAPLs and organic solvents will be prohibited.

Should there be any areas of WHPA-B with a vulnerability score of 8, the potentially applicable policies of the Ganaraska SPP are those dealing with the handling and storage of DNAPLs and organic solvents, the storage of sewage and waste disposal sites. Future occurrences of these prescribed activities may be prohibited depending on the specific circumstances listed in the Technical Rules under the *Clean Water Act*. Where future occurrences of these activities do not meet the threshold for prohibition, and for existing occurrences of these activities, the significant drinking water threats are managed using other tools, including, but not limited to:

- Existing permits and approvals may be reviewed by the approval authority and amended as needed to ensure the protection of drinking water sources.
- Property owners may be required to negotiate a Risk Management Plan with the Risk Management Official.

Should there be any areas of WHPA-B with a vulnerability score of 10, the potential land use restrictions and impacts to landowners and businesses will be the same as those in WHPA-A, described previously.

WHPA-C

For any new areas of WHPA-C, the only potentially applicable policies of the Ganaraska SPP are those dealing with the handling and storage of DNAPLs and organic solvents. Any existing commercial or industrial handling and storage of DNAPLs and organic solvents will require the negotiation of a Risk Management Plan with the Risk Management Official. Future commercial or industrial handling and storage of DNAPLs and organic solvents will be prohibited.

Other Considerations

Contaminated sites within a WHPA can potentially be listed as significant drinking water threats. This can occur is there is known soil, groundwater or sediment contamination resulting from past activities, and there is evidence the contamination is migrating towards a water supply well and has the potential to deteriorate the water quality.

5 CONCLUSIONS

The addition and/or replacement of one or more wells to the Creighton Heights municipal drinking water system will require revisions to the existing WHPA delineations. Land use restrictions and impacts to landowners and businesses would be greatest in newly delineated WHPA-A's.

The following table qualitatively describes the level of impact that the Ganaraska SPP policies will have on each alternative.

Location of new well	Ranking – level of impact due to new land use restrictions and prohibitions	Rationale
Near TW9	5 (lowest impact)	The WHPA-A of the new well will mostly overlap with the existing WHPA-A. Relatively minimal increase in the total area of WHPA-A.
Winter artesian well	4	The WHPA-A of the new well will partially overlap the existing WHPA-A, resulting in an increase in the total surface area of WHPA-A.
Perron artesian well	3	The WHPA-A of the new well will not overlap with the existing WHPA-A. Total surface area of WHPA-A will increase by approximately 3.14 hectares. Surface area of WHPA-B, WHPA-C and WHPA-D will likely increase by extending further northeast.
Winter and Perron artesian wells	2	Total surface area of WHPA-A will increase by more than 3.14 hectares. Surface area of WHPA-B, WHPA-C and WHPA-D will likely increase by extending further northeast.
Township of Hamilton Wells #1 and #2	1 (highest impact)	New WHPA-A will be delineated in an area currently outside of all existing WHPAs. Surface area of WHPA-B, WHPA-C and WHPA-D will increase, likely extending further southeast.

We trust that the information provided herein is complete and contains sufficient detail. Please contact the undersigned should you have any questions or concerns.

Respectfully submitted,
BluMetric Environmental Inc.

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May 15, 2025
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 Matthew:

1 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.

2 Description of Drinking Water Systems

2.1 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.

2.2 Creighton Heights

The Creighton Heights Drinking Water System is located in the community of Baltimore, 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 water system services homes south of County Road 45 to as far as Division Street East. 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.

3 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.

3.1 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 65.8 m (Well 1A) and 67.2 m (Well 2A), both of which are screened within a medium-coarse grained sand and gravel aquifer from approximately 63 mbgs to 67 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 65.5 m to 67.2 m. The well is under approximately 13 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.

Based on the original water well record appended to its maintenance records, well 1A was constructed in 1998 using a 150 mm steel casing to approximately 64.9 m which was underlain by a slot 35 stainless-steel wire wrap screen from 64.9 m to 67.9 m. In May 2021, the well was fitted with a new stainless-steel liner and screen to repair the original well casing and well screen, which were found to be extensively corroded during an inspection by Lotowater Technical Services Inc. in response to well 1A experiencing higher groundwater drawdowns than what has historically been observed. Well 1A is under approximately 15 m of artesian pressure.

3.2 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. According to the Township of Hamilton, test well TW1 did not feature a well pump until one was installed in 2005.

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.

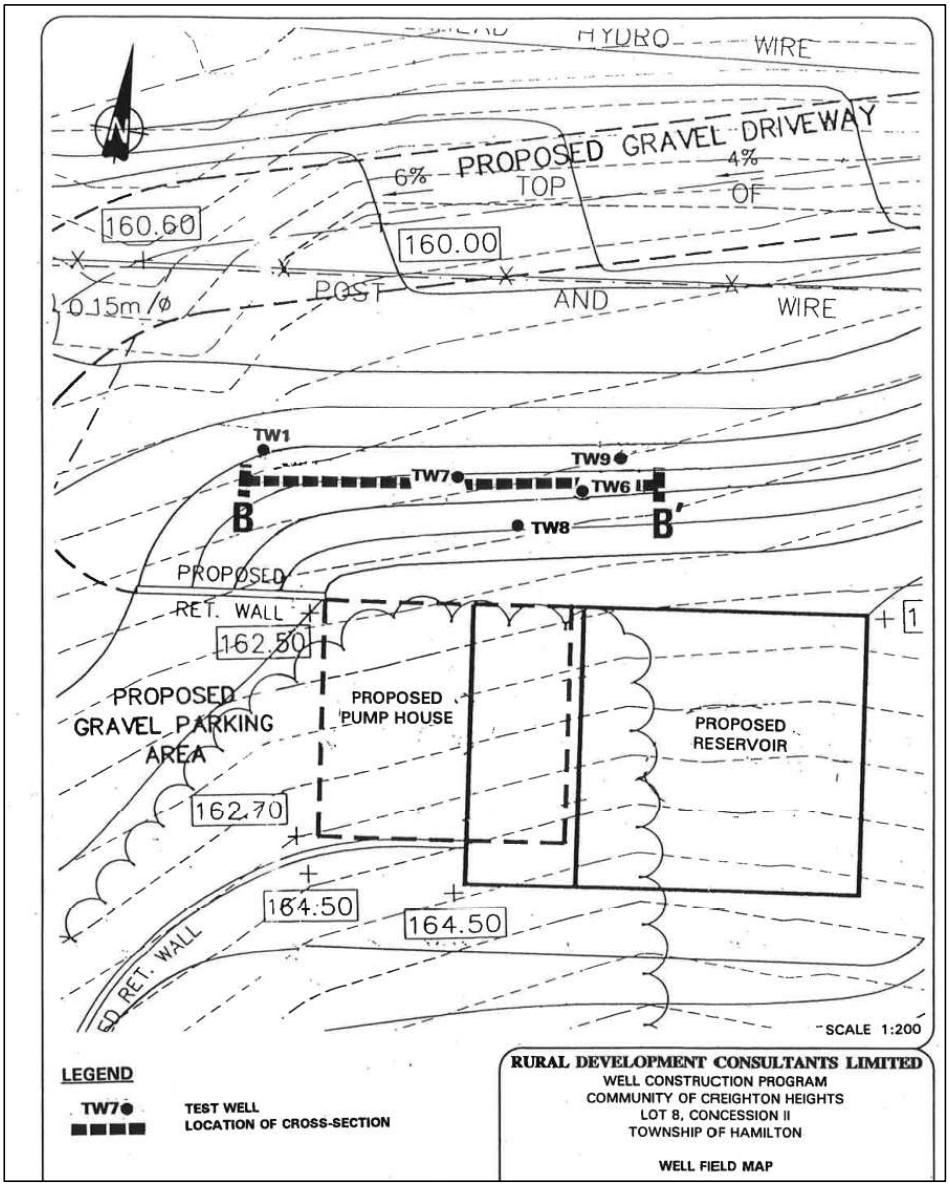


Figure 3: Location of Supply Wells at the Creighton Heights Municipal Pump House (RDCL, 1996)

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).

4 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 Township of Hamilton municipal supply wells (Township of Hamilton Well #1 and Township of Hamilton Well #2,) were also monitored and used as observation wells during the aquifer tests completed as part of the study. Township of Hamilton Well #1 and Township of Hamilton 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.

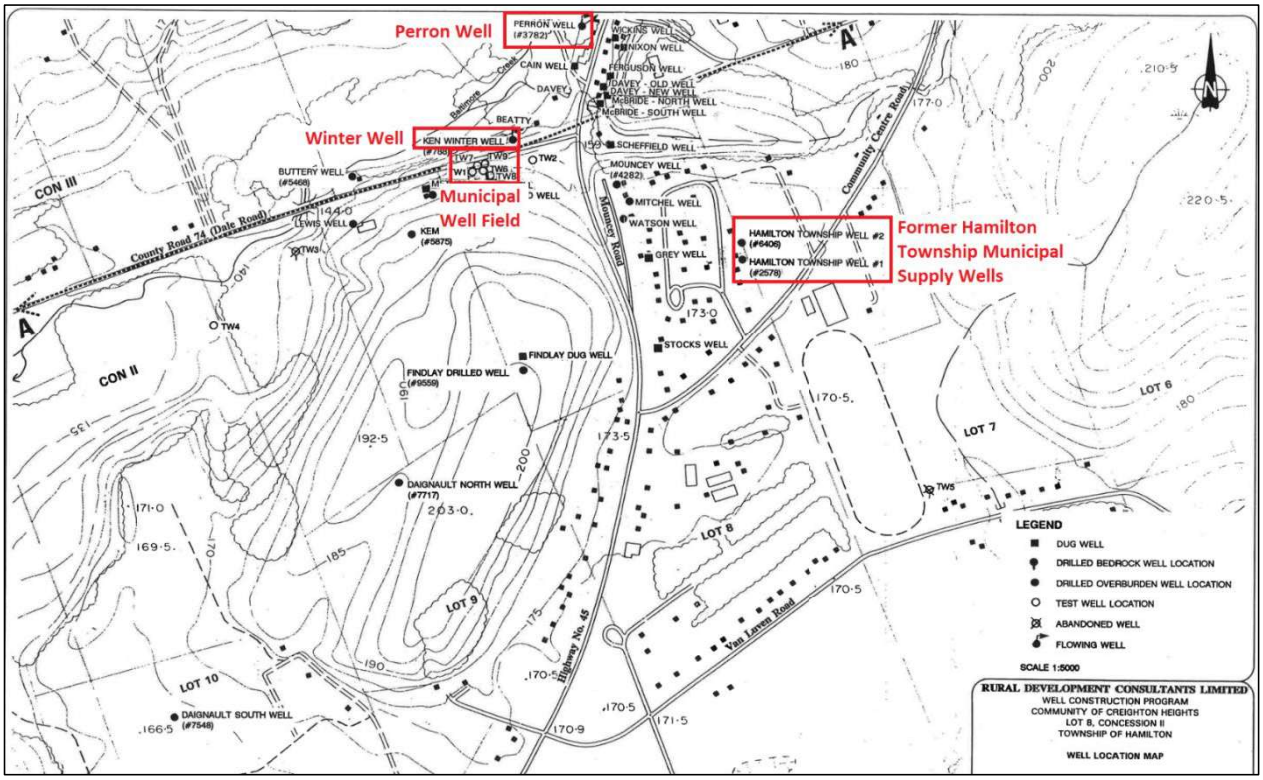


Figure 4: Location of the Perron well, Winter well and former Township of Hamilton Municipal Supply Wells (RDCL, 1996)

5 Analysis Of Water Taking Data

5.1 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	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.

5.2 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. The rated capacity of the water treatment facility is 979.2 m^3/day which is the maximum amount of water that may enter the distribution system daily.

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 Township of Hamilton 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.

6 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 Township of Hamilton wells (Township of Hamilton 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.

7 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.

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

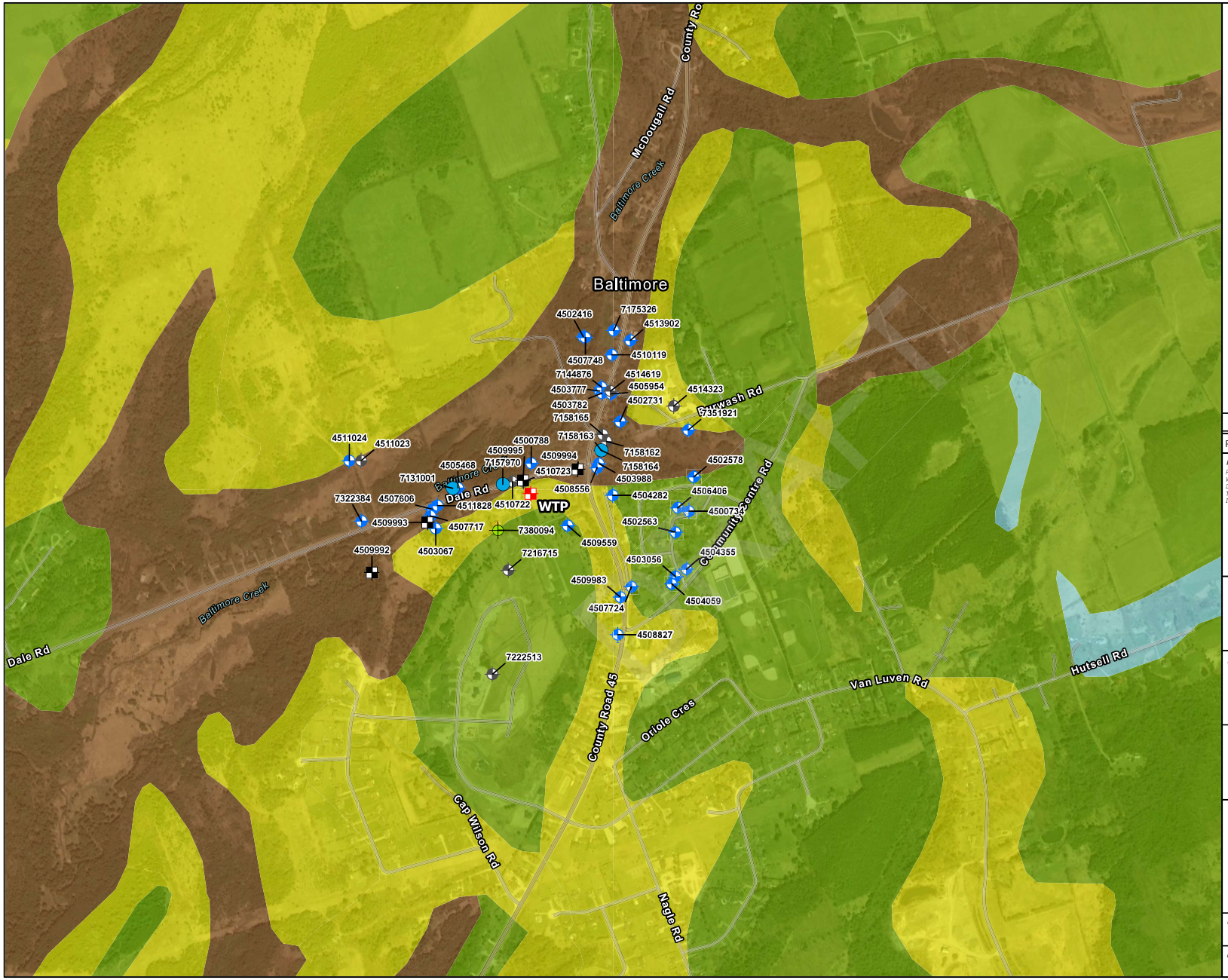
Jackie Harman, M.Sc, P.Eng.
Senior Hydrogeologist

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

Encl.

Ref: 240363 Letter JLR_FINAL May 2025.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

C:\SP\BluMetric Environmental\Geomatics - GIS\GIS_PROJECTS\240000\240363 - PR02169 - Hamilton Twp WSMP with JLR\APRX\2024-06-17\240363 - PR02169 - Hamilton Twp WSMP with JLR.aprx

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

Hydrogeological Review of the Creighton Heights and Camborne Water Supply Systems

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1682 Woodward Drive
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PROJECT #	DATE
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DRAWN	CHECKED	FIG NO.	REV
PB	EK	02	0

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Appendix B

Aquifer Testing Existing Well
(GHD, 2025)

347 Pido Road, Unit 29
Peterborough, Ontario K9J 6X7
Canada
ghd.com

Your ref: Aquifer Testing Summary
Our ref: 12639057

12 May 2025

Al Rose
Stalwood Homes
44 University Avenue West
Cobourg, Ontario K9A 2G5

Summary of Preliminary Aquifer Performance Testing of an Existing Water Well – Baltimore, Ontario

Dear Mr. Rose:

Introduction

At the request of Stalwood Homes, GHD Limited (GHD) conducted preliminary aquifer performance testing of a drilled well located on a property west of Baltimore, Ontario (the Site or the Test Well Location). The Test Well Location is situated north of Deerfield Drive and south of Dale Road as depicted on the **Site Location Plan, Figure** 1. The test well location is based upon GPS coordinates obtained by GHD during the pumping test.

The purpose of this work was to complete aquifer performance testing including a step test and pumping test of an existing water supply well and provide a factual letter documenting the work. This assessment was carried out under the authorization of Stalwood Homes.

Supply Well Details – Desktop Information

A Ministry of the Environment, Conservation and Parks (MECP) well record was provided to GHD. The well record identification number provided was 4509992 and appears to be in the Test Well Location. This well record indicated drilling was drilled in 1993 for the Township of Hamilton. The well was completed to 44.5 m (146 feet) encountering grey rock at 39.6 m (130 feet). The overburden consisted of alternating layers of clay and sand. Fresh water was reportedly encountered at 28.7 m (94 feet) within a hard, grey clay with stones layer. The well driller filled the well from 44.5 m up to 28.7 m with pea stone, where a 3.05 m length of stainless-steel wire wound screen was installed. The annular space between the casing and overburden was then sealed with bentonite to 6.7 m and cement grout from 6.7 m to the surface. An eight (8) hour pumping test was documented at 75.6 litres per minute (L/min) (20 US gallons per minute or GPM). It appears that the driller recommended 37.8 to 56.7 L/min (10 to 15 GPM). The well record indicated that the intended water use was for municipal supply.

The well record reviewed by GHD is provided in **Appendix A**.

Aquifer Performance Testing

A pumping test program was carried out on April 23rd and 24th, 2025 to assess aquifer response and confirm the groundwater quality. A submersible pump was installed in the well by a well contractor to conduct the testing. The depth of the Test Well was measured to be 28.7 m (94 feet). No well tag was observed on the Test Well. Water levels were monitored throughout the aquifer performance testing program manually and using a data logger. The discharge water was directed away from the pumped well and flowed overland away from the test well. This practice safeguards against artificial recharge of the well from occurring during the pumping test.

On April 23rd, step testing was completed at the well. The testing included four (4) step tests at rates of 30.2 L/min (8 GPM); 52.9 L/min (14 GPM); 75.6 L/min (20 GPM); and 113.4 L/min (30 GPM). Each test was conducted for a 30-minute duration.

On April 24th, a controlled constant rate pumping test was conducted for six (6) hours with recovery measurements completed after the pumping. Field measurements of methane, pH, temperature, free chlorine, turbidity, and conductivity were completed with a Hach Pocket Pro+ Multi 2. Calibration of the instruments was completed prior to the pumping test. The field measurements were collected at one (1) hour and six (6) hours.

Water samples were collected on April 24, 2025, for general chemistry parameters from the Test Well after one (1) hour and six (6) hours and a bacteriological sample was collected at six (6) hours only. The water samples were submitted to and tested at SGS Environmental Laboratory (SGS), an accredited laboratory in Lakefield, Ontario for the parameters tested. Chlorine levels were confirmed in the field prior to conducting bacteriological sampling the groundwater from the test well. The residual chlorine was non-detect prior to obtaining the bacteriological sample.

Discussion of Results

The results of the aquifer performance testing are graphically presented in **Appendix B**.

The step testing results are provided as **Appendix B.1** and show the drawdown associated with each of the selected discharge rates. The drawdown for each step test was as follows:

- Drawdown was ~5.2 m at 30.2 L/min
- Drawdown was ~11.2 m at 52.9 L/min
- Drawdown was ~16.5 m at 75.6 L/min
- Drawdown was ~22.2 m at 113.4 L/min

Based upon the testing, the water level was approaching the pump inlet at 113.4 L/min (30 GPM).

From the drawdown information and pumping rate, the specific capacities of each step test were computed using the following formula:

$$S_c = \frac{Q}{h_0 - h}$$

Where S_c is the specific capacity (litres per minute per metre); Q is the pumping rate (litres per minute); and $h_o - h$ is the drawdown (metres).

The geometric mean of the specific capacities from the step tests was 5.0 L/min/m. The range of specific capacities from the step tests was 4.6 to 5.8 L/min/m.

After the step tests were completed, the water level in the Test Well recovered 99% in 60 minutes. Based upon the step tests, a constant rate pumping test of six (6) hours was conducted at the Test Well Location at a pumping rate of 75.6 L/min (20 GPM).

The constant rate testing results from April 24, 2025, are graphically provided in **Appendix B.2**. The graph shows the water level quickly lowering for the initial 15 minutes before beginning to level off. By approximately 100 minutes, the water level has nearly levelled off, dropping approximately four (4) centimetres over the last 260 minutes (i.e. 4 hours 20 minutes). The total drawdown is approximately 16.25 m (available drawdown is 24.16 m above the pump) or about 67% of the available drawdown. Upon completion of the pumping test, the water level recovered 99% in 60 minutes.

Field measurements of the water quality at the well head indicated the following at one (1) hour and six (6) hours:

- pH ranged from 7.39 to 7.65
- temperature ranged from 8.69 to 8.73 degrees Celsius
- Conductivity ranged from 0.418 to 0.426 mS/cm
- Turbidity ranged from 48.3 Nephelometric Turbidity Unit (NTU) to 1.09 NTU
- Free chlorine residual was 0 mg/L during each test
- Methane was 0% during each test

The turbidity value indicates that the well likely had elevated turbidity due to inactivity and cleared up with throughout the pumping.

Certificates of chemical analyses are presented in **Appendix C**. The water quality data is summarized and compared with the Ontario Drinking Water Standards (ODWS) in **Table 1**:

Table 1 ***Test Well Water Quality Summary***

PARAMETER	Test Well		ODWS	
	1 hour	6 hours	MAC	AO/OG
Alkalinity (as $CaCO_3$)	224	230	--	30 to 500
Ammonia+Ammonium	0.76	0.70	--	--
Aluminium	0.023	0.006	--	0.1
Antimony	<0.0009	<0.0009	0.006	--
Arsenic	0.0006	0.0008	0.025*	--
Barium	0.125	0.123	1	--
Boron	0.05	0.039	5	--
Cadmium	<0.000003	<0.000003	0.005	--
Calcium	47.3	53.8	--	--
Chloride	11	8	--	250
Chromium	0.00011	<0.00008	0.05	--
Colour (T.C.U.)	6	8	--	5
Conductivity (mS/cm)	418	422	--	--
Copper	<0.001	<0.001	--	1.0
Fluoride	0.26	0.23	1.5	--
Hardness (as $CaCO_3$)	204	218	--	80 to 100
Iron	1.15	1.05	--	0.3
Lead	<0.00009	<0.00009	0.01	--

PARAMETER	Test Well		ODWS	
	1 hour	6 hours	MAC	AO/OG
Magnesium	20.9	20.2	--	--
Manganese	0.0283	0.0290	--	0.05
Mercury	<0.00001	<0.00001	0.001	--
Methane (L/m^3)	--	4.0	--	3.0
Nitrogen-Kjeldahl (N)	0.78	0.74	--	--
Nitrite (N)	<0.03	<0.03	1.0	--
Nitrate (N)	<0.06	<0.06	10	--
Organic Nitrogen	<0.05	<0.05	--	0.15
pH (units)	8.07	8.01	--	6.5 to 8.5
Phosphorus – Total	0.07	0.06	--	--
Potassium	2.06	1.94	--	--
Selenium	0.00013	0.00018	0.05	--
Sodium	17.7	13.8	--	(20**) 200
Sulphate	7.9	10	--	500
Total Dissolved Solids	220	214	--	500
Total Organic Carbon	1	1	--	5
Total Suspended Solids	8	6	--	--
Turbidity (N.T.U.)	9.2	9.9	--	5
Uranium	0.000083	0.000272	0.02	--
Zinc	<0.002	<0.002	--	5.0
E. coli	---	0	Not detectable	--
Total Coliform	---	0		--
Fecal Coliform	---	0		--

Notes:

All units in mg/L (i.e. parts per million) unless otherwise noted. Time indicates when the sample was obtained during the pumping test.

MAC = maximum acceptable concentration (health related); AO/OG = aesthetic objective or operational guideline (not health related)

Bacteriological data is presented in Colony Forming Units per 100 mL (CFU/100 mL). Highlighted value exceeds ODWS

*Interim MAC (insufficient data to establish MAC or not feasible to establish MAC to desired level)

**The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L, so that this information may be passed on to local physicians.

There were no health-related exceedances of the water tested. The results indicate exceedances of the aesthetic objectives for hardness, colour, iron, turbidity and methane. No health-related maximum allowable concentrations were exceeded.

Elevated hardness and iron are common traits of groundwater supplies in Southern Ontario and can be treated using commercially available equipment such as a water softener. The elevated colour and turbidity (in the laboratory results) can be attributed to the elevated iron. The iron precipitates out of solution over time, resulting in elevated concentrations in the laboratory samples. At the well head, the field sampling indicated that turbidity was 1.09 NTU and meets the aesthetic objective of 5 NTU.

The bacteriological parameters of total coliform, fecal coliform and E. Coli were all reported to be zero (0) colony forming units.

The aesthetic objective for methane in drinking water is 3 litres per cubic metre (L/m^3). Methane occurs naturally in groundwater and can act as a stimulant for organic fouling conditions in a distribution system. Methane at levels up to the 3 L/m^3, can be controlled by chlorination, given a clean distribution system. Methane under pressure will come out of solution if the pressure is reduced, resulting in a cloudy appearance in freshly drawn water. During pumping, our well technician noted small bubbles in the discharge water suggesting the presence of methane and confirmed with the testing results. If methane is allowed to accumulate in confined areas, such as well pits or parts of distribution systems and plumbing, the potential for explosion exists. Systems can be designed to off-gas any potential methane accumulation.

Interference Assessment – Observation Well Monitoring

GHD was provided with access to a water supply well to be used as an observation well to monitor during the step and pumping tests and to assess if interference was occurring at this location. The observation well was located at 49 McCarty Drive, approximately 495 m from the Test Well Location. Our water level measurements at the observation well during the step and pumping tests is provided on **Appendix B-3**. There is no discernible interference at the observation well due to the aquifer performance testing.

Conclusions and Recommendations

Based on the results of this assessment, it appears likely that the Test Well is described by well record identification number 4509992; however, there was no well tag to positively confirm this is the correct well in the field. Our preliminary testing indicated that from a quantity perspective, the Test Well can adequately provide a rate on the order of 75 L/min (~20 GPM). The water quality was good with no health-related parameters exceeding the ODWS and only hardness, colour, iron, turbidity and methane exceeding their aesthetic objectives. Treatment can be provided for each of these parameters.

We recommend that a longer pumping test be considered should the Test Well be considered as a municipal water supply source. Monitoring was conducted for potential interference during our testing; however, the observation well was on the order of 495 m away and there are closer homes to the Test Well location that should be monitored should a longer test be considered. Potential impacts to the existing Creighton Heights municipal well field were not considered during this assessment.

We trust that this letter meets your immediate requirements. If you have any questions, please contact our office.

Regards

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

Robert Neck, P.Geo. (Limited)
Senior Geoscientist, Project Director

Scope and Limitations

This report has been prepared by GHD for Stalwood Homes and may only be used and relied on by Stalwood Homes for the purpose agreed between GHD and Stalwood Homes as set out in this report.

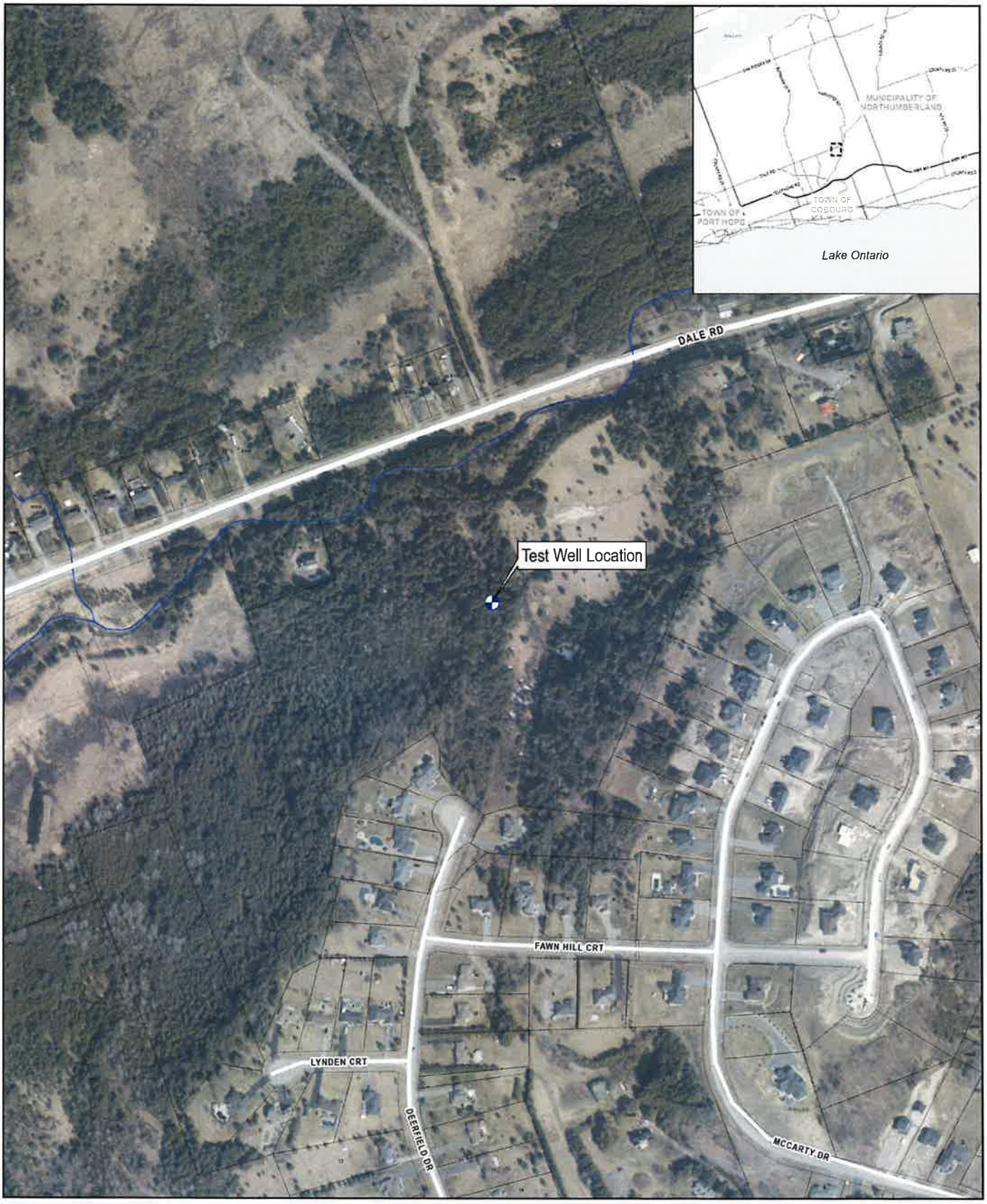
GHD otherwise disclaims responsibility to any person other than Stalwood Homes arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring after the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

Figure



1:5,000

0 50 100 150

Metres

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

Stalwood Homes
Cobourg, Ontario
Municipality of Northumberland

Project No. 12639057
Revision No.
Date May 2, 2025

Pumping Test Assessment

Site Location Plan

Figure 1

Appendices

Appendix A

MECP Well Record

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11 — 4509992 — MUNICIPALITY 45005 CON 2ON — Test Hole # 4 — C2

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON BLOCK TRACT SURVEY ETC	LOT
Northumberland	Twp. of Hamilton	CON. II	10

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Twp. of Hamilton	P.O. Box 1060	DAY 10 MO Feb YR 93

21 — ZONE — EASTING — NORTHING — ELEVATION — BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FEET FROM	DEPTH FEET TO
Brown	clay	sand streaks stones	layered	0	10
Brown	sand(fine)		loose	10	14
Grey	clay		dense	14	55
Brown	sand	gravel clay seams	layered	55	90
Grey	clay	stones	hard	90	113
Brown	sand(fine)	gravel clay streaks	layered	113	115
Grey	clay	stones	hard	115	130
Grey	rock		dense	130	148

31

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
94	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS
	1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 6 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM (INCHES)	MATERIAL	WALL THICKNESS (INCHES)	DEPTH FEET FROM	DEPTH FEET TO
6 ~~4188~~	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+3	84
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER (INCHES)	LENGTH FEET
18	5 3/4	10

MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN FEET
Sta.St.wire wd.	84

61 PLUGGING & SEALING RECORD

DEPTH SET AT FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
146	~~84~~ 94	peastone
84	25	Heavy Bentonite
25	0	cement grout.

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE (GPM)	DURATION OF PUMPING (HOURS / MINUTES)
1 ☒ PUMP 2 ☐ BAILER	20	8 / 0

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY
7.13 FEET	80 FEET	15 MINUTES: 80 FEET; 30 MINUTES: 80 FEET; 45 MINUTES: 80 FEET; 60 MINUTES: 80 FEET

IF FLOWING GIVE RATE (GPM)	PUMP INTAKE SET AT (FEET)	WATER AT END OF TEST
	80	1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING (FEET)	RECOMMENDED PUMPING RATE (GPM)
☐ SHALLOW ☒ DEEP	80	20 -15

FINAL STATUS OF WELL

1 ☐ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☒ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED INSUFFICIENT SUPPLY 6 ☐ ABANDONED POOR QUALITY 7 ☐ UNFINISHED ☐ DEWATERING

WATER USE

1 ☐ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 9 ☐ COMMERCIAL 10 ☒ MUNICIPAL 11 ☐ PUBLIC SUPPLY 12 ☐ COOLING OR AIR CONDITIONING 13 ☐ NOT USED

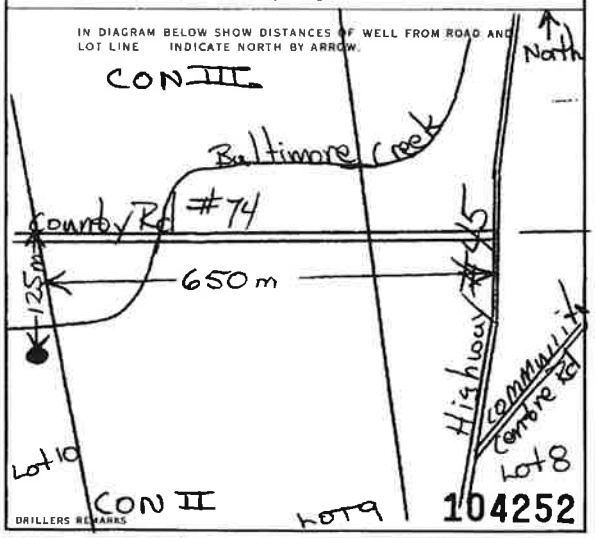
METHOD

CON ON

1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING ☐ DIGGING ☐ OTHER

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

104252

OR Drilling Ltd — WELL CONTRACTOR'S LICENCE NUMBER 3903

Rd; Unionville, Ont.

WELL TECHNICIAN'S LICENCE NUMBER T-0001

SUBMISSION DATE DAY 1 MO May YR 93

OFFICE USE ONLY

DATA SOURCE — CONTRACTOR 3903 — DATE RECEIVED JUN 09 1993

DATE OF INSPECTION — INSPECTOR

REMARKS

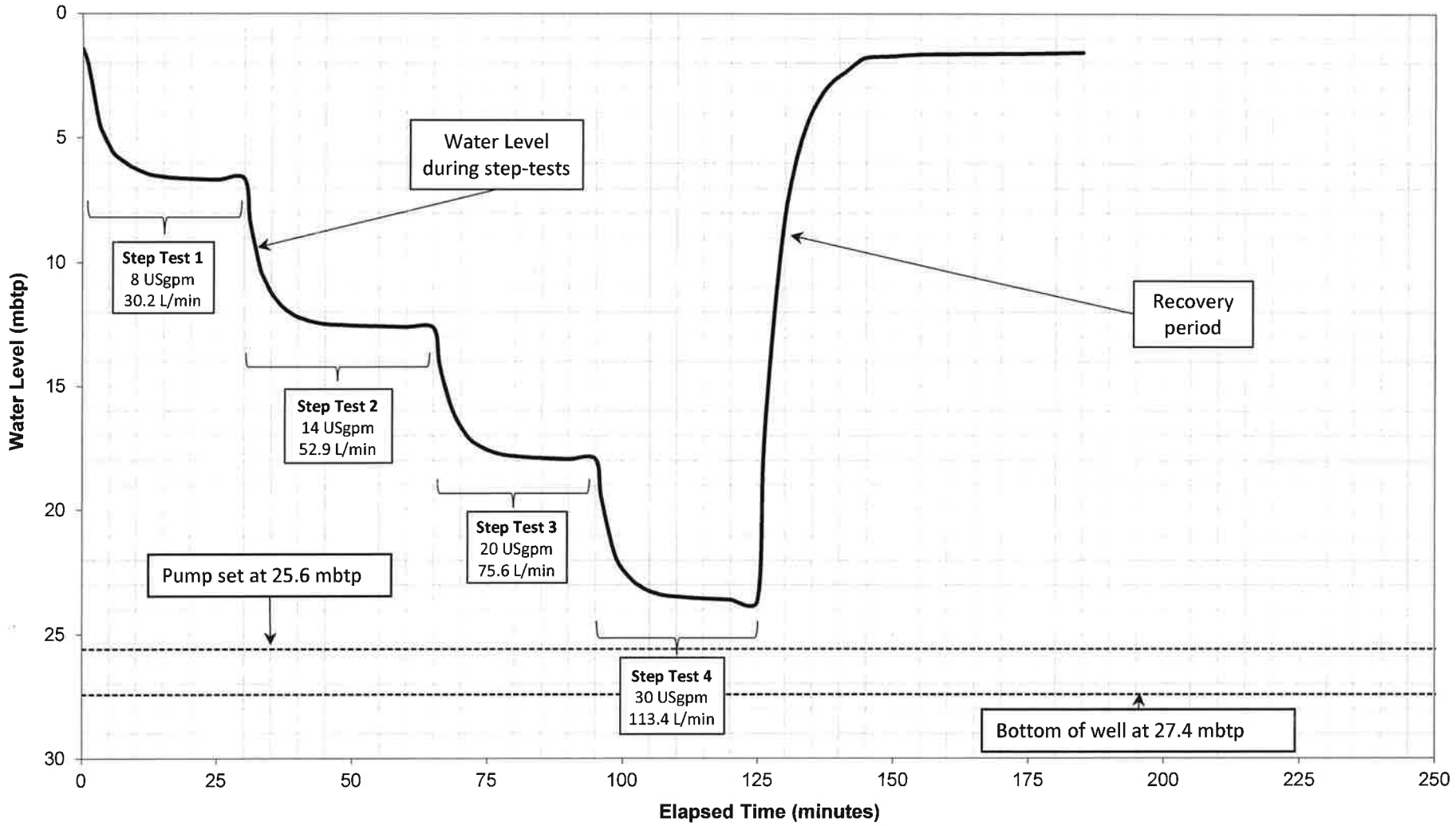
CSS.ES

FORM NO. 0506 (11/86) FORM 9

Appendix B

Aquifer Performance Testing Curves

STEP-TEST PUMP HISTORY CURVE
Test Well TW-1: Pumped on April 23, 2025



STEP-TEST PUMP HISTORY CURVE

Drilled Well - MECP ID # (assumed): 4509992

Static Water Level = 1.44 mbtp (0.75 mbgs)

Note: mbtp = metres below top of pipe; mbgs = metres below ground surface; Stick up = 0.69 m

USgpm refers to U.S. gallons per minute; L/min refers to litres per minute

DATE: MAY 2025

LOCATION: Baltimore, Ontario

JOB NUMBER: 12639057

DRAWING NUMBER: B-1

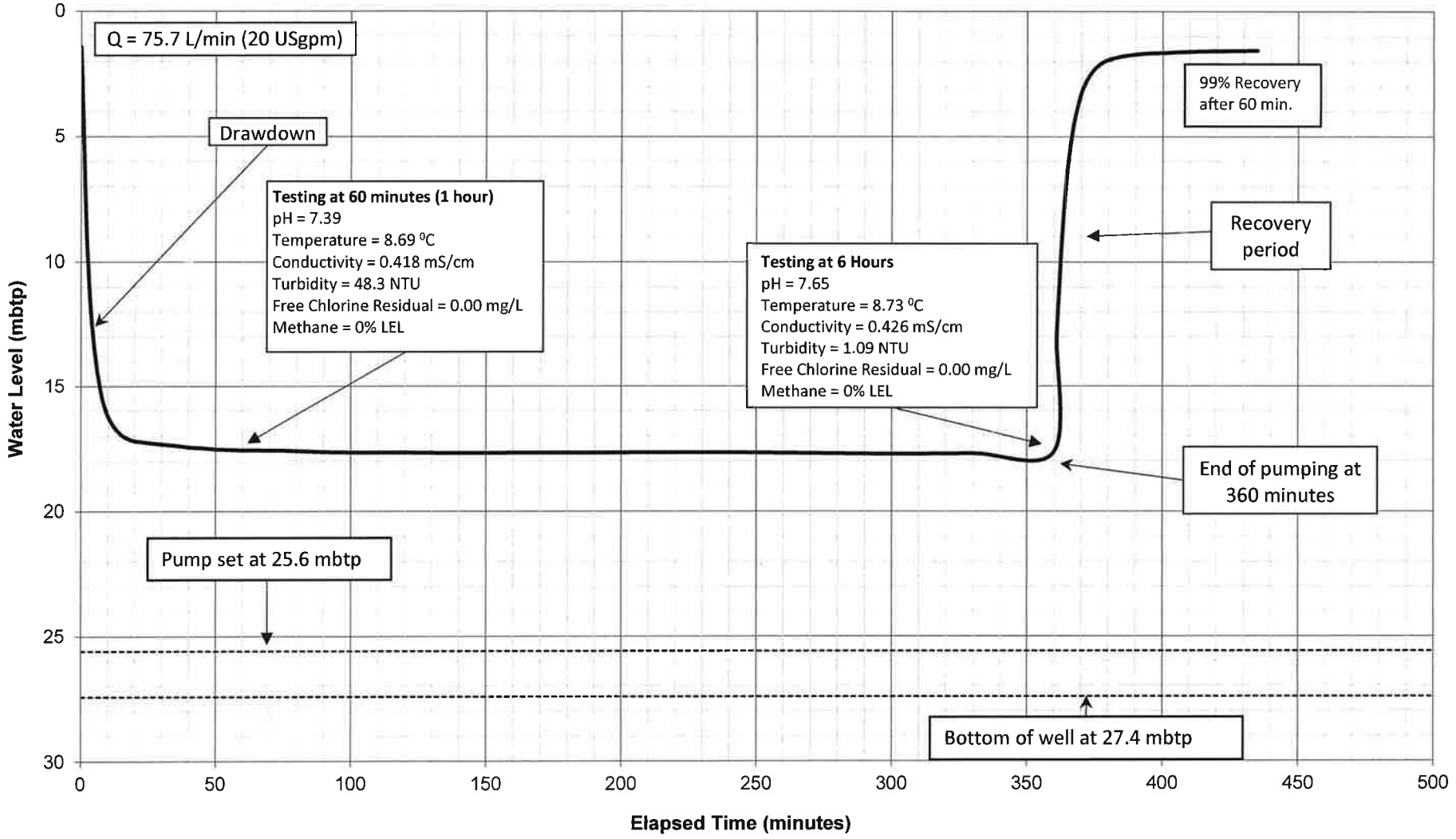
GHD

347 PIDO ROAD, UNIT 29

PETERBOROUGH, ON K9J 6X7

www.ghd.com

6-HOUR PUMP TEST HISTORY CURVE
Test Well TW-1: Tested on April 24, 2025



PUMP TEST HISTORY CURVE

Drilled Well - MECP ID # (assumed): 4509992

Static Water Level = 1.44 mbtp (0.75 mbgs)

Note: mbtp = metres below top of pipe; mbgs = metres below ground surface; Stick up = 0.69 m

USgpm refers to U.S. gallons per minute; L/min refers to litres per minute

DATE: MAY 2025

LOCATION: Baltimore, Ontario

JOB NUMBER: 12639057

DRAWING NUMBER: B-2

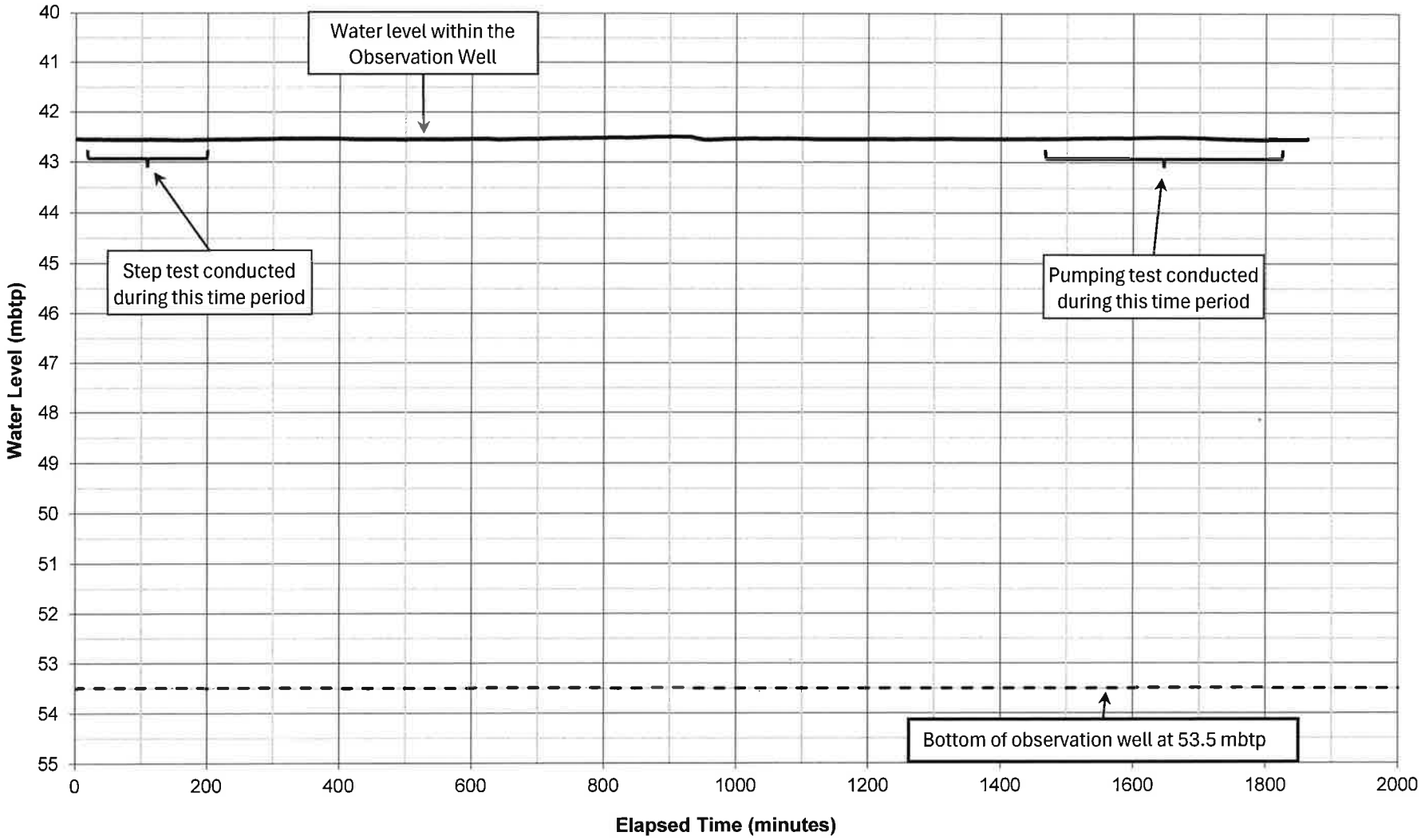
GHD

347 PIDO ROAD, UNIT 29

PETERBOROUGH, ON K9J 6X7

www.ghd.com

OBSERVATON WELL HYDROGRAPH - 49 McCarty Drive, Baltimore, ON
April 23 and 24, 2025



OBSERVATION WELL HDYROGRAPH	DATE: MAY 2025
	LOCATION: Baltimore, Ontario
Drilled Well Static Water Level = 42.55 mbtp Note: mbtp = metres below top of pipe	JOB NUMBER: 12639057
	DRAWING NUMBER: B-3

GHD
347 PIDO ROAD, UNIT 29
PETERBOROUGH, ON K9J 6X7
www.ghd.com

Appendix C

Certificate of Analysis

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : 735-013574, 12639057,Baltimore

05-May-2025

GHD Limited - 735
Attn : Gus Bolin

347 Pido Rd., Unit #29
Peterborough, ON
K9J 6Z8, Canada

Phone: 705-749-3317
Fax:

Date Rec. : 25 April 2025
LR Report: **CA15699-APR25**
Reference: 735-013574, 12639057,Gus Bolin

CERTIFICATE OF ANALYSIS

Analysis	1: Analysis Start Date	3: Analysis Completed Date	5: RL	8: Stalwood-1 hour	9: Stalwood-6 hour
Sample Date & Time				24-Apr-25 10:00	24-Apr-25 15:00
Temp Upon Receipt [°C]	***	***	***	***	***
Total Coliform [MPN/100mL]	26-Apr-25	28-Apr-25		---	0
Ecoli [mpn/100mL]	26-Apr-25	28-Apr-25		---	0
Fecal Coliform [mpn/100mL]	26-Apr-25	28-Apr-25		---	0
Methane [L/m3]	02-May-25	02-May-25		---	4.0
UV Transmittance [%T]	28-Apr-25	29-Apr-25	---	81.9	85.2
Alkalinity [mg/L as CaCO3]	26-Apr-25	28-Apr-25	2	224	230
Colour [TCU]	28-Apr-25	28-Apr-25	3	6	8
Conductivity [uS/cm]	26-Apr-25	28-Apr-25	2	418	422
pH [No unit]	26-Apr-25	28-Apr-25	0.05	8.07	8.01
TSS [mg/L]	29-Apr-25	29-Apr-25	2	8	6
TDS [mg/L]	25-Apr-25	29-Apr-25	30	220	214
Turbidity [NTU]	25-Apr-25	28-Apr-25	0.1	9.2	9.9
Organic N [mg/L]	28-Apr-25	01-May-25	0.05	< 0.05	< 0.05
TKN [as N mg/L]	28-Apr-25	29-Apr-25	0.05	0.78	0.74
NH3+NH4 [as N mg/L]	28-Apr-25	01-May-25	0.04	0.76	0.70
TOC [mg/L]	28-Apr-25	30-Apr-25	1	1	1
DOC [mg/L]	28-Apr-25	30-Apr-25	1	2	1
Cl [mg/L]	27-Apr-25	29-Apr-25	0.20	11	8.0
F [mg/L]	28-Apr-25	28-Apr-25	0.06	0.26	0.23
NO2 [as N mg/L]	27-Apr-25	28-Apr-25	0.030	< 0.03	< 0.03
NO3 [as N mg/L]	27-Apr-25	28-Apr-25	0.06	< 0.06	< 0.06
SO4 [mg/L]	27-Apr-25	29-Apr-25	0.20	7.9	10
Total P [mg/L]	30-Apr-25	01-May-25	0.03	0.07	0.06
Tot.Reactive P [mg/L]	28-Apr-25	29-Apr-25	0.03	< 0.03	< 0.03
Hg (diss) [mg/L]	30-Apr-25	30-Apr-25	1e-05	< 0.00001	< 0.00001
Hardness (dissolved) [mg/L as CaCO3]	28-Apr-25	29-Apr-25	0.05	204	218
Al (diss) [mg/L]	28-Apr-25	29-Apr-25	0.001	0.023	0.006
Sb (diss) [mg/L]	28-Apr-25	29-Apr-25	0.0009	< 0.0009	< 0.0009
As (diss) [mg/L]	28-Apr-25	29-Apr-25	0.0002	0.0006	0.0008
Ba (diss) [mg/L]	28-Apr-25	29-Apr-25	8e-05	0.125	0.123
B (diss) [mg/L]	28-Apr-25	29-Apr-25	0.002	0.050	0.039

OnLine LIMS

0004100446

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Project : 735-013574, 12639057 Baltimore
LR Report : CA15699-APR25

Analysis	1: Analysis Start Date	3: Analysis Completed Date	5: RL	8: Stalwood-1 hour	9: Stalwood-6 hour
Cd (diss) [mg/L]	28-Apr-25	29-Apr-25	3e-06	< 0.000003	< 0.000003
Ca (diss) [mg/L]	28-Apr-25	29-Apr-25	0.01	47.3	53.8
Cr (diss) [mg/L]	28-Apr-25	29-Apr-25	8e-05	0.00011	< 0.00008
Cu (diss) [mg/L]	28-Apr-25	29-Apr-25	0.0002	< 0.001	< 0.001
Fe (diss) [mg/L]	28-Apr-25	29-Apr-25	0.007	1.15	1.05
Pb (diss) [mg/L]	28-Apr-25	29-Apr-25	9e-05	< 0.00009	< 0.00009
Mg (diss) [mg/L]	28-Apr-25	29-Apr-25	0.001	20.9	20.2
Mn (diss) [mg/L]	28-Apr-25	29-Apr-25	1e-05	0.0283	0.0290
K (diss) [mg/L]	28-Apr-25	29-Apr-25	0.009	2.06	1.94
Na (diss) [mg/L]	28-Apr-25	29-Apr-25	0.01	17.7	13.8
Se (diss) [mg/L]	28-Apr-25	29-Apr-25	4e-05	0.00013	0.00018
U (diss) [mg/L]	28-Apr-25	29-Apr-25	2e-06	0.000083	0.000272
Zn (diss) [mg/L]	28-Apr-25	29-Apr-25	0.002	< 0.002	< 0.002
Cation Sum [meq/L]	---	---	---	4.97	5.10
Anion Sum [meq/L]	---	---	---	4.96	5.05
Anion-Cation Balance [% difference]	---	---	---	0.14	0.49
Ion Ratio	---	---	---	1.00	1.01
TDS (calculated) [mg/L]	---	---	---	220	246
Conductivity (calc) [uS/cm]	---	---	---	418	507
Langelier's Index [@ 4° C]	---	---	---	0.15	0.16
Saturation pH [pHs @ 4°C]	---	---	---	7.92	7.85

MAC - Maximum Acceptable Concentration
AO/OG - Aesthetic Objective / Operational Guideline
NR - Not reportable under applicable Provincial drinking water regulations as per client.

Total phospuorous includes all Ortho-phosphates as well as Organics and hydrolyzable Phosphorous.

Temperature of Sample upon Receipt: 8 degrees C
Cooling Agent Present:YES
Custody Seal Present:YES

Chain of Custody Number:042734

Jill Campbell

Jill Campbell, B.Sc.,GISAS
Project Specialist,
Environment, Health & Safety

OnLine LIMS

00041100446

Appendix C

GRCA Consultation

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Water Supply Master Plan Phase 2 Report
Township of Hamilton

Consultation Meeting
Minutes of Meeting No. 1

Attendance:	Cory Harris	Ganaraska Conservation	charris@grca.on.ca
	Jessica Mueller	Ganaraska Conservation	jmueller@grca.on.ca
	Anita Schoenleber	Township of Hamilton	aschoenleber@hamiltontownship.ca
	Susan Shi	J.L. Richards & Associates Ltd.	sshi@jlrichards.ca
	Michelle Mulvihill	J.L. Richards & Associates Ltd.	mmulvihill@jlrichards.ca

The meeting commenced at 2:00 p.m. on Tuesday, May 6, 2025 at Microsoft Teams.

The following summary of the discussions of this meeting has been prepared to record decisions reached and actions required for the project. Please advise the undersigned of any errors or omissions within the next three business days.

ITEM		ACTION BY	DUE BY
1.1	**Purpose of Meeting**		
	JLR discussed that the Master Plan, with respect to the consultation with Ganaraska Conservation Authority, will evaluate water resource availability in the Township of Hamilton. The Township is in the boundaries of the Ganaraska Conservation area and their input on the Source Water Protection (SWP) Implication Draft Report is valuable.	INFO	
1.2	**Technical Considerations**		
	Ganaraska Conservation emphasized the need to delineate wellhead protection zones again as part of the technical review. JLR clarified that the Master Plan is a desktop-level analysis. It will include recommendations for further studies.	INFO	
	Ganaraska Conservation disclosed they may be able to provide previously completed studies including previous models created by Jagger Hymes and an older groundwater program, but they require updating.	GAN.	TBD
1.3	**Water Resource Availability**		
	JLR discussed that the consensus from the SWP Implications Draft Report indicated that there is groundwater supply available within existing WHPAs however there will likely be interference as they draw form the same aquifer.	INFO	
	Ganaraska commented that the ideal option would be a new groundwater source.	INFO	
	Ganaraska discussed that surface water intake from Cobourg Creek should be considered as a last resort due to sensitive cold water species, source water protection implications (new Intake Protection Zone) and potential increased regulatory burden for local property owners.	INFO	

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Water Supply Master Plan Phase 2 Report
Township of Hamilton

Consultation Meeting
Minutes of Meeting No. 1

ITEM		ACTION BY	DUE BY
1.4	**Climate Change Considerations**		
	JLR discussed that climate change risks will be factored into the decision making process and will be included in the Phase 2 Master Plan Report. Ganaraska shared that there are updated climate change resiliency values from the Region of Durham that can inform this component of the report. Ganaraska to provide.	GAN.	TBD
1.5	**Further Consultation**		
	Ganaraska indicated that they would like to continue to be consulted and updated appropriately as there is potential to receive provincial funding for special studies if project qualifies.	INFO	

Meeting adjourned at 2:23 p.m.

Next meeting will be held on TBD

Prepared by: Issued on: June 16, 2025

Michelle Mulvihill

Michelle Mulvihill
Environmental Engineering Graduate

Distribution: All attendees
CC: Name

Appendix D

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.

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.

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J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

Cailey Moxam
Environmental Engineering Intern

Reviewed by:

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

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P4N 7C5
Tel: 705 360-1899

timmins@jlrichards.ca

North Bay

501-555 Oak Street E
North Bay ON Canada
P1B 8E3
Tel: 705 495-7597

northbay@jlrichards.ca

Hawkesbury

326 Bertha Street
Hawkesbury ON Canada
K6A 2A8
Tel: 613 632-0287

hawkesbury@jlrichards.ca

Guelph

107-450 Speedvale Ave. West
Guelph ON Canada
N1H 7Y6
Tel: 519 763-0713

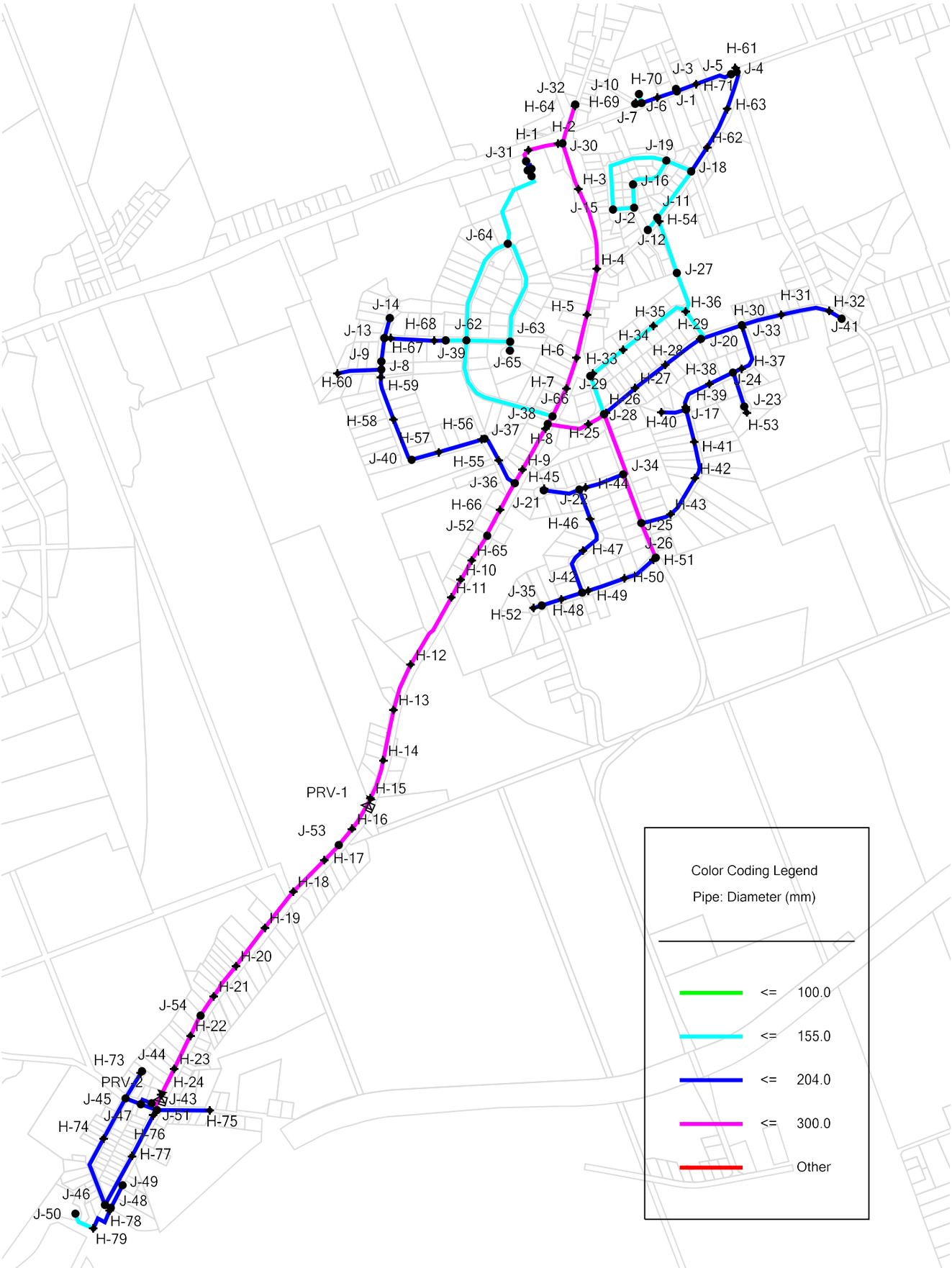
guelph@jlrichards.ca

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Appendix E

Water Model Results (JLR, 2025)

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
J-49	112.89
J-50	110.02
J-51	121.48
J-52	166.25
J-53	160.10
J-54	144.22
J-57	164.00
J-58	164.00
J-59	164.00
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
J-15	0.0598	0.1267	0.1830
J-16	0.0598	0.1267	0.1830
J-17	0.0598	0.1267	0.1830
J-18	0.0598	0.1267	0.1830
J-19	0.0598	0.1267	0.1830
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-33	0.0598	0.1267	0.1830
J-34	0.0598	0.1267	0.1830
J-35	0.0598	0.1267	0.1830
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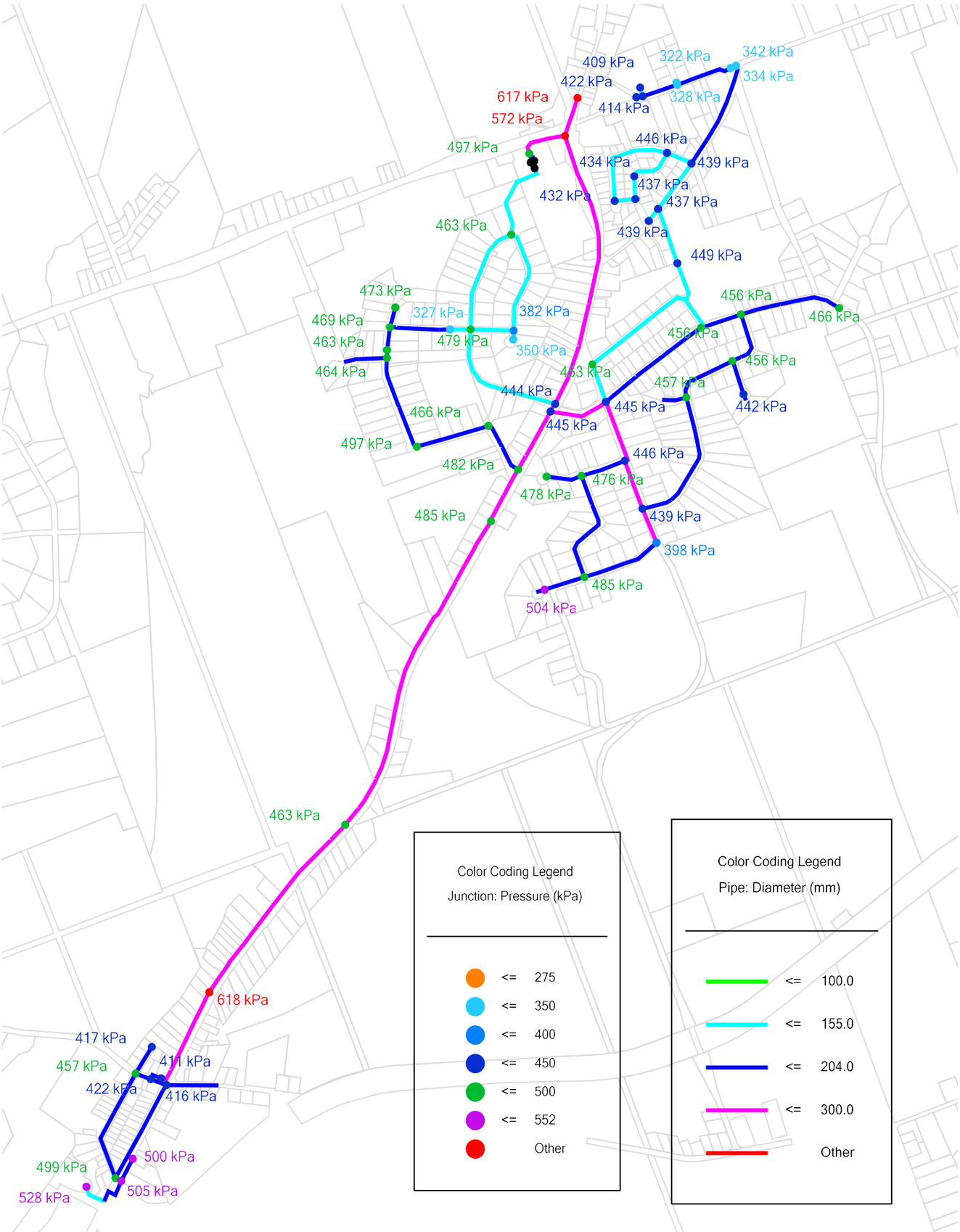
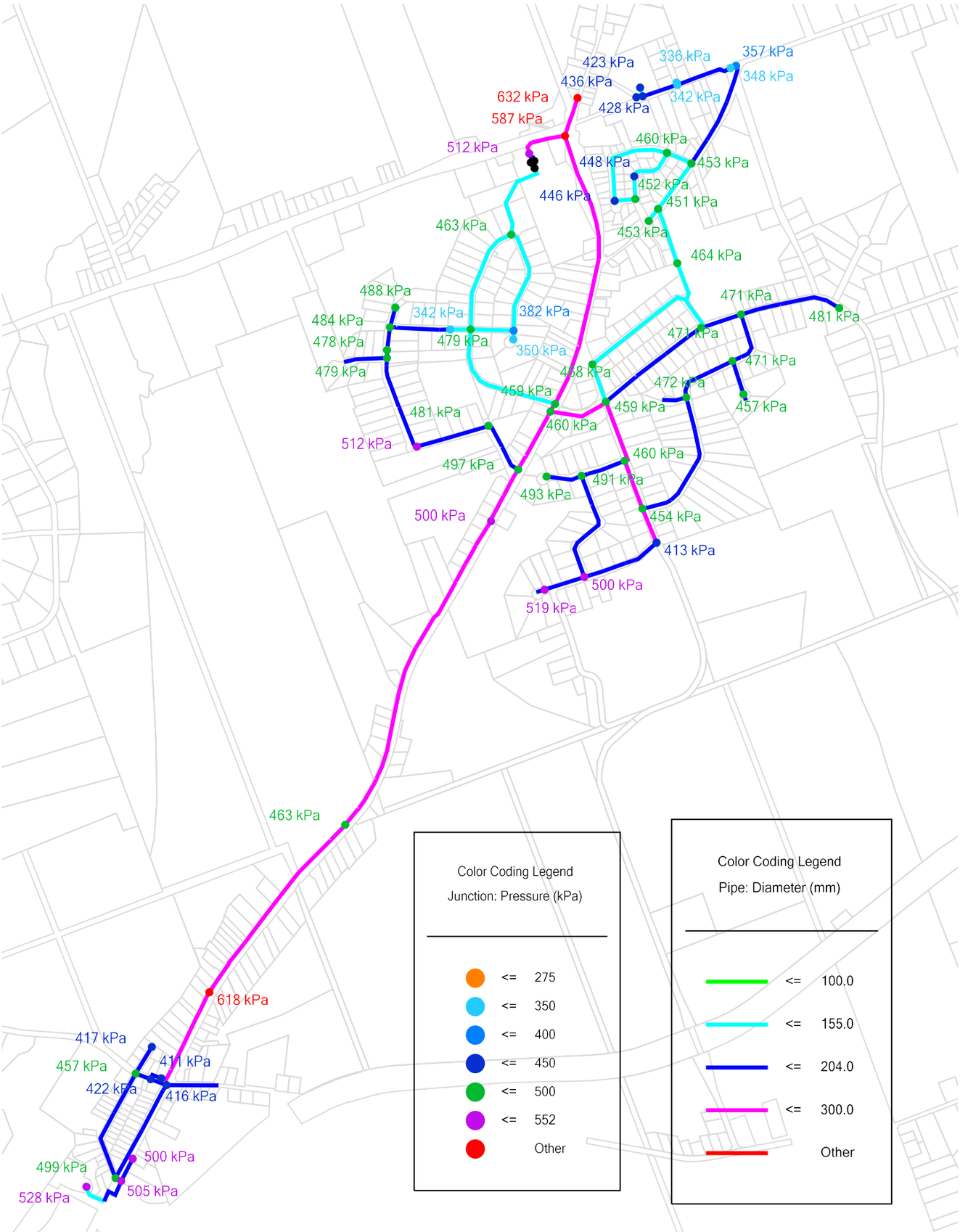
J-38	0.0598	0.1267	0.1830
J-39	0.0598	0.1267	0.1830
J-40	0.0598	0.1267	0.1830
J-41	0.0598	0.1267	0.1830
J-42	0.0598	0.1267	0.1830
J-43	0.0598	0.1267	0.1830
J-44	0.0598	0.1267	0.1830
J-45	0.0598	0.1267	0.1830
J-46	0.0598	0.1267	0.1830
J-47	0.0598	0.1267	0.1830
J-48	0.0598	0.1267	0.1830
J-49	0.0598	0.1267	0.1830
J-50	0.0598	0.1267	0.1830
J-51	0.0598	0.1267	0.1830
J-52	0.0598	0.1267	0.1830
J-53	0.0598	0.1267	0.1830
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

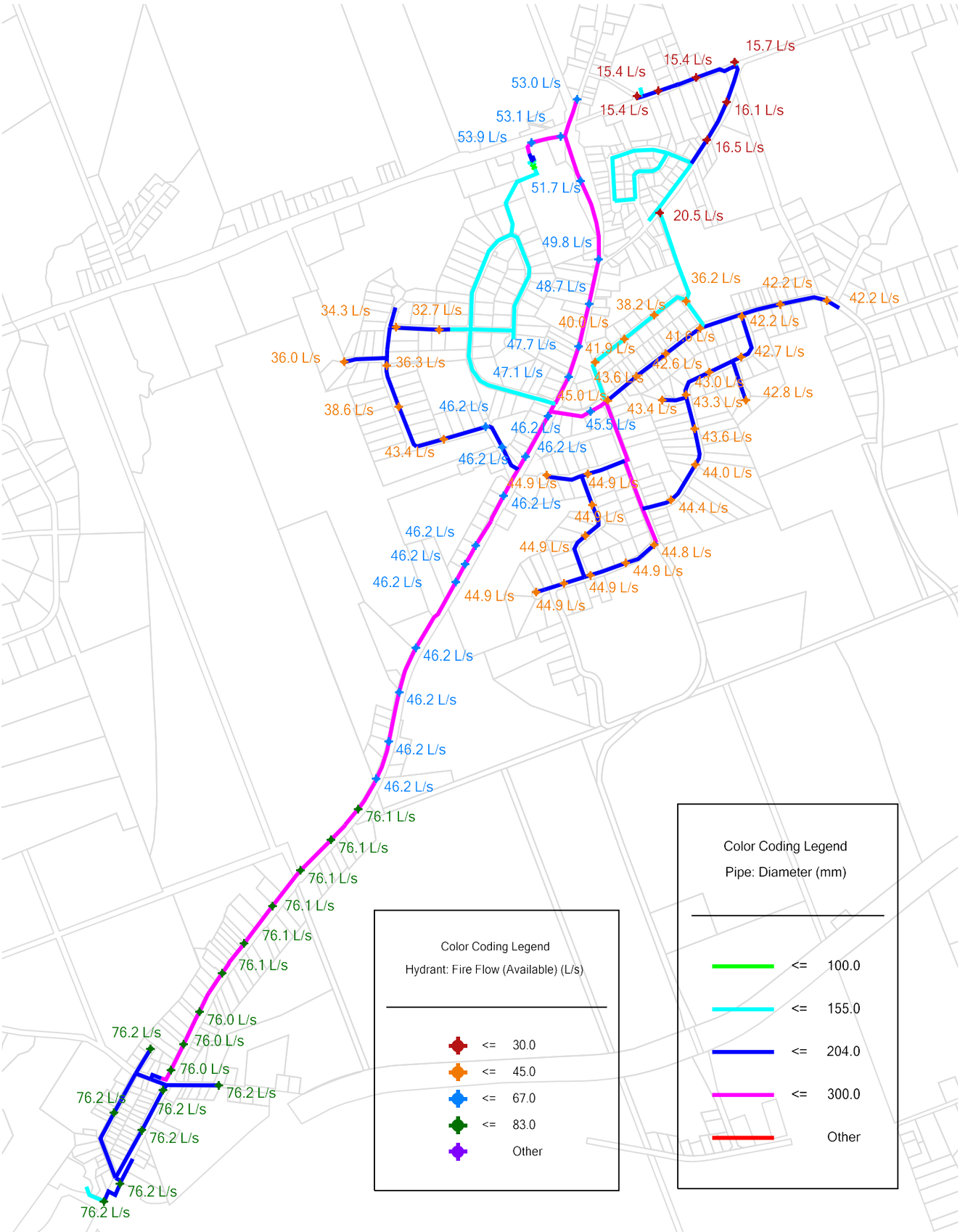


Bentley Systems, Inc. Haestad Methods Solution Center
76 Watertown Road, Suite 2D Thomaston, CT 06787
USA +1-203-755-1666

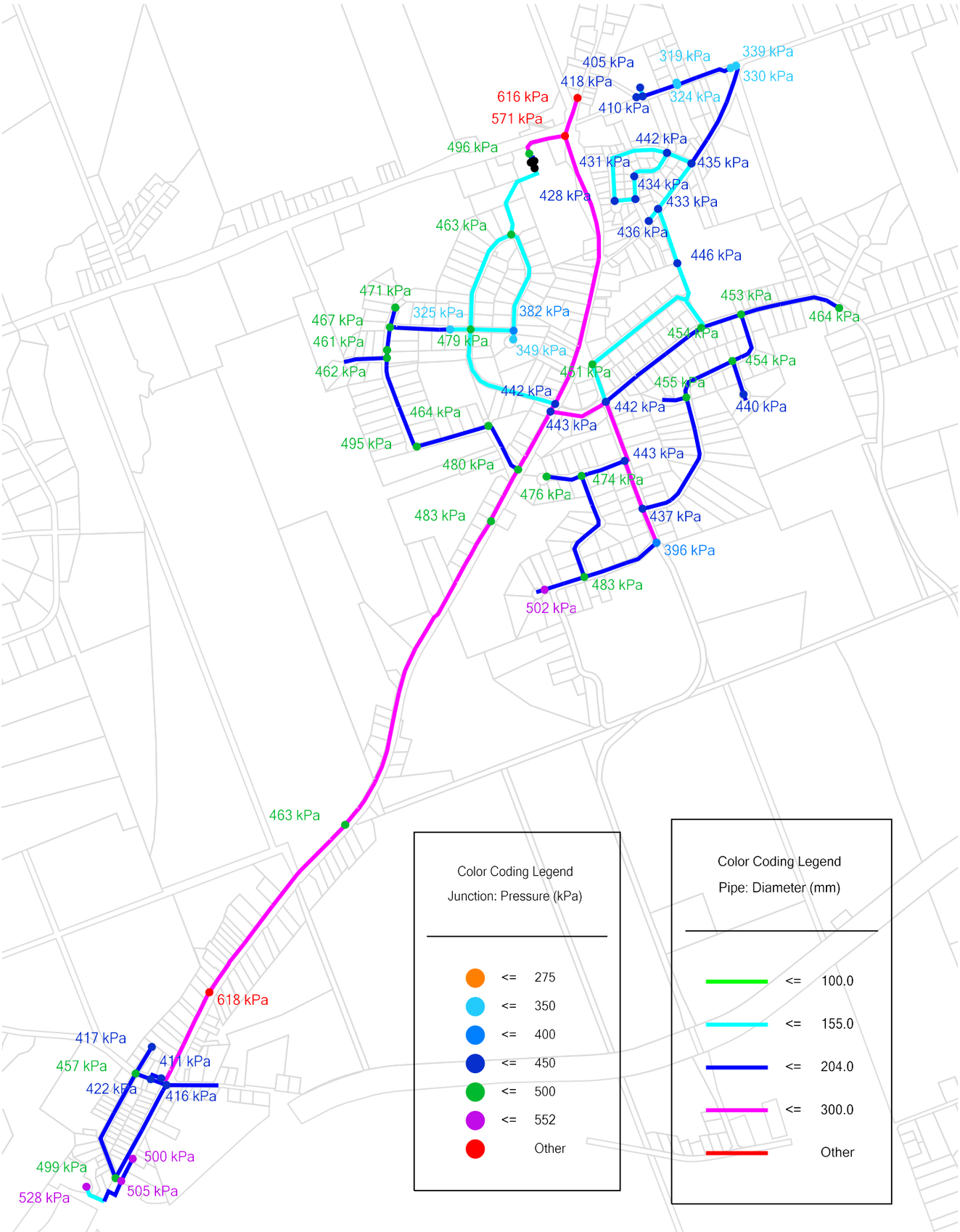
32814 Township of Hamilton Water Model
Existing Conditions
Maximum Day Demand



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



32814 Township of Hamilton Water Model
Existing Conditions
Peak Hour Demand



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

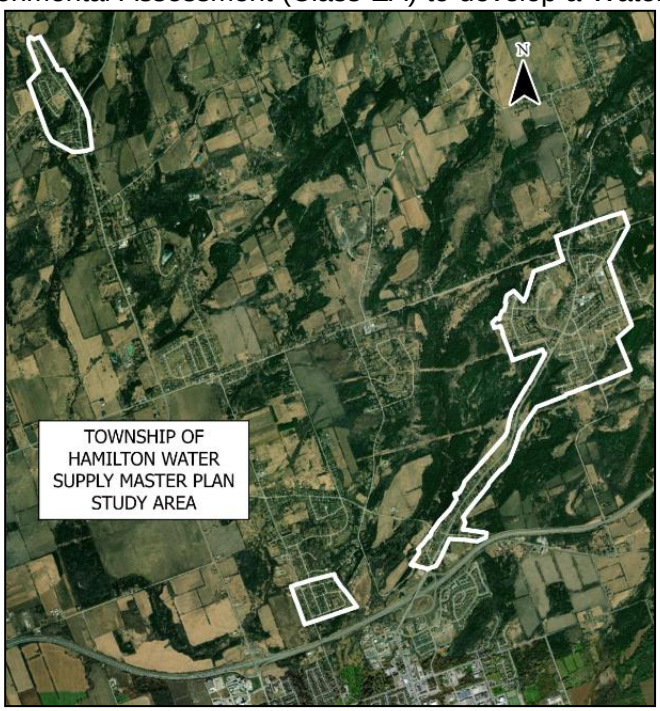
Appendix F

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 G

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

Ontario

Taking pride in strengthening Ontario, its places and its people

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

RR6

Property Owner
4863 45
Cobourg, ON K9A 4J9

not on RR6 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

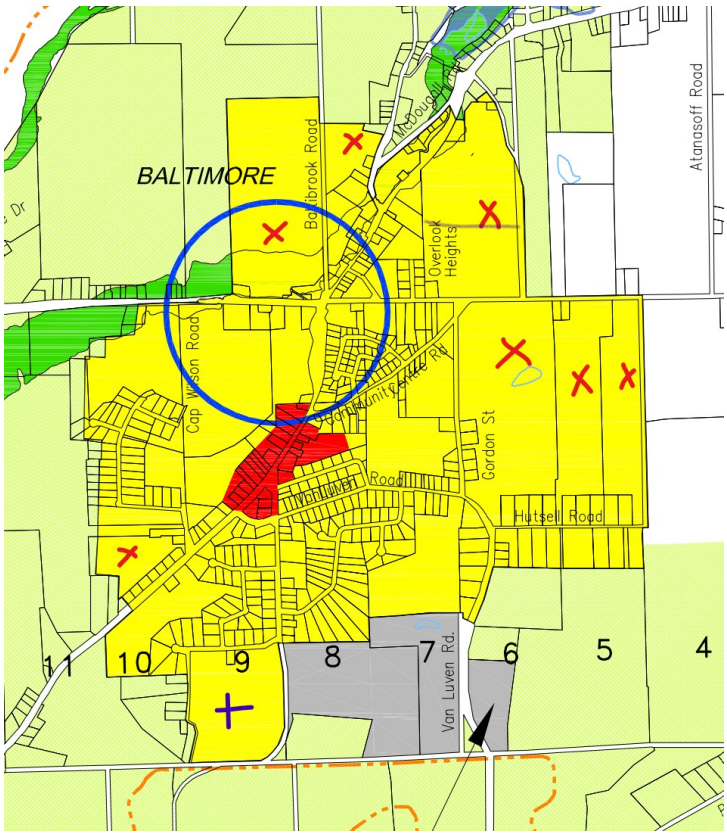
Susan:

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".

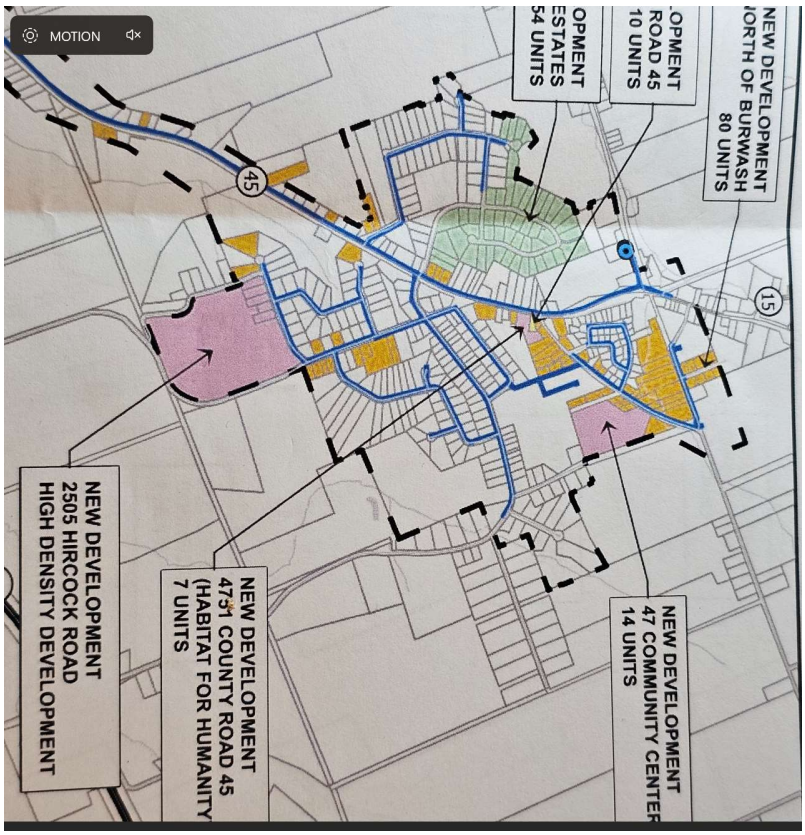


2. Planning for future Growth - I would like to know which planning staff (municipal and county staff) are providing the information as to future growth in Hamilton Township but specifically Baltimore. It seems to me growth projections should come from Planning staff and the Water department would extrapolate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

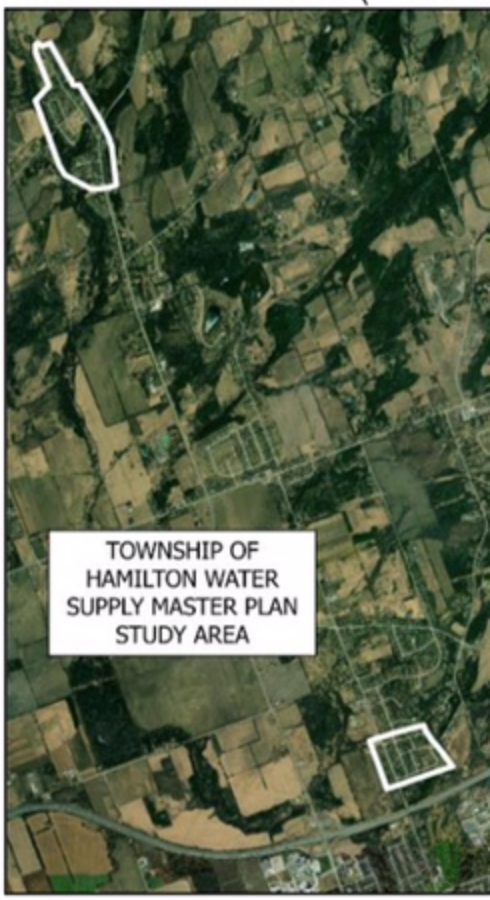
From: Dick Kauling <dick8404@icloud.com>
Sent: Thursday, August 8, 2024 7:55 AM
To: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: Township of Hamilton Water Supply Master Plan - March 25, 2024

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

Engage is Hiring, Explore Opportunities Here!

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

> **Caution:** This is an external email. Please take care when clicking links, opening attachments, or contacting the sender. When in doubt, contact the sender via other verified methods.

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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The Power of Commitment

Connect

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

Ontario

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

Responses to PIC #2

Stakeholder #21:

GEI Consultants
Grant Parkinson

Response

Michelle Mulvihill

From: Parkinson, Grant <GParkinson@geiconsultants.com>
Sent: September 22, 2025 8:14 AM
To: Susan Jingmiao Shi; Michelle Mulvihill
Cc: Arthur Anderson, CAO (aanderson@hamiltontownship.ca); John Corey
Subject: Township of Hamilton Water Supply Master Plan - Phase 1 Report Updated for Public Review

Follow Up Flag: Follow up
Flag Status: Completed

Hi Susan and Michelle

Good to meet you at PIC#2 earlier this month.
I reviewed your Draft Phase 2 Report and it looks very well done. I have the following comments.

Minor edits

- Section 3.0, page 13 should refer to Appendix C for GRCA consultation.
- Table 9 – repeat the header rows on page 2 of the table.

General Comments

- It should be noted in Section 4.1 (or other location in the Report?) that the Creighton Heights system is supplied from wells that have elevated naturally-occurring ammonia in the aquifer. Consequently, the Creighton Heights system operates with a combined chlorine residual as monochloramine for secondary disinfection in the distribution system. The Township briefly converts to operating with a free chlorine residual every fall for a period of 3-4 weeks to suppress potential nitrification (oxidization of ammonia to nitrate) in the distribution system. The Township then reverts to a combined chlorine residual for the remainder of the year. This is a key consideration that must be taken into consideration in Section 5.3.2 when evaluating other production wells such as the Winter Well, Perron Well, Well TW#4, or any other well. If future supplemental wells are brought on line, the treatment processes must be compatible to produce a common secondary residual. We cannot have one plant producing water with a combined chlorine residual and another plant producing water with a free chlorine residual. This may not apply for Treatment Alternative 2, but would apply for Treatment Alternative 3.
- Continuing from the previous bullet point – Table 9 should explicitly indicate the potential for different raw water quality leading to possible use of a different secondary disinfectant when comparing Option C and Option D.
- Table 10 – OPC looks light for some items. For Hydro-G and Geotech consider $200-$250K. Also, New Permanent Well cost looks light. We drilled a new municipal production well next door in Alnwick-Haldimand for Grafton in late 2023 at a cost of ~$250K. Process equipment could be closer to ~$500K. A new supply and treatment facility will need an entirely new Hydro service from the grid, including primary feed, transformer, secondary feed, metering, switch gear, and means of standby power (e.g. diesel generator). This is in addition to the on-site electrical, I&C. Consider ~$500K for this line item.

I am available if you wish to discuss.
Thanks very much.

GEI
Canada

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: Susan Jingmiao Shi <sshi@jlrichards.ca>
Sent: Tuesday, March 25, 2025 11:15 AM
To: Parkinson, Grant <GParkinson@geiconsultants.com>; Michelle Mulvihill <mmulvihill@jlrichards.ca>
Cc: Anita Schoenleber <aschoenleber@hamiltontownship.ca>
Subject: [EXT] RE: Township of Hamilton Water Supply Master Plan - Phase 1 Report Updated for Public Review

EXTERNAL EMAIL

Hello Grant,

Thanks for the comments. See our responses below.

Regards,

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

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

203 - 863 Princess Street
Kingston ON K7L 5N4

BEST MANAGED COMPANIES Platinum member

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

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>
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Senior Project Manager
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650 Woodlawn Road West Block C | Unit 2 | Guelph, Ontario N1K 1B8 | Canada

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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 #22:

Stalwood Homes
Anthony Drew

Response

Township of Hamilton
Water Supply Master Plan

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

COMMENT FORM

Name (please print): Anthony Dew Date: Sept 23 25

Do you wish to receive updates in regards to this project? ☐ Yes ☐ No

Contact Information (Optional)

Agency (if applicable): Stalwood Homes

Address (number, street and apt. no.): 9006 Rose Rd

City, Province, Postal Code: Cobourg K9A 4J9

Phone: 905 377 5389 Email: anthony@stalwoodhomes.ca

Please provide any comments or questions you have regarding this Master Plan.

Please see attached

Please place any additional comments on the reverse of the form. Completed forms can be returned to any of the presenters or can be mailed or emailed to the individuals below.

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

Arthur Anderson
Chief Administrative Officer
Township of Hamilton
8285 Majestic Hills Dr.
Cobourg, ON K9A 4J7
Phone: 905-342-2810 Ext. 11
aanderson@hamiltontownship.ca

Stalwood Homes

September 23, 2025

JL Richards & Associates Limited
Attention: Project Team – Township of Hamilton Water Supply Master Plan
863 Princess St.Suite 203

Kingston Ontario

K7L 5N4

Re: Comments on 2nd Draft – Township of Hamilton Water Supply Master Plan

Dear Project Team,

On behalf of Stalwood Homes and Robe Developments, we are pleased to provide our comments on the 2nd Draft of the Township of Hamilton Water Supply Master Plan. We wish to express our support for the Township's efforts to identify a long-term, sustainable solution to water supply and distribution, recognizing the critical role that infrastructure plays in supporting housing growth, economic development, and farmland preservation through focused development.

We are particularly encouraged by the preferred solution to expand supply through the development of off-site wells supported by localized treatment solutions. This approach is practical, scalable, and consistent with the Township's growth objectives.

As part of this discussion, we wish to highlight the Stalwood Homes–identified well site located south of Dale Road. This site not only demonstrates proven potential, but also presents an opportunity for the development of additional wells in close proximity. Collectively, these wells could be piped into a central storage tank and on site treatment facility, and from there pumped to the existing Creighton Heights facility, which is located approximately 350 metres away without the need to disturb the county road with a water main or establish a right-of-way.

This arrangement provides several advantages:

- Capacity for Growth: It offers a reliable and expandable water source to accommodate over hundreds of new homes in the Baltimore area.

- Efficiency: The short connection distance to the Creighton Heights facility minimizes infrastructure duplication and capital costs.

- Economic Benefits: Enabling residential growth not only generates jobs and investment, but also creates long-term assessment revenue for the Township, while leveraging development charges to offset municipal costs.

- Land Use Planning: Concentrating growth in serviced areas helps preserve prime agricultural lands by reducing the pressure for scattered, unserviced development.

We encourage JL Richards to ensure that the final Master Plan reflects these opportunities and acknowledges the economic and planning benefits associated with this well location and configuration.

We appreciate the opportunity to participate in this important process and look forward to continued collaboration as the Township advances to implementation.

Sincerely,

Anthony Dew
COO / Partner
Stalwood Homes
anthony@stalwoodhomes.ca
905-377-5389

On behalf of:
Stalwood Homes & Robe Developments

File Edit View Add Tools Help

4836 Baltimore Road, Cobourg, C

Standard
Upgrade now

PH

4 Wells into 1 pump House with treatment
1 High Lift of Creighton Heights facility
Length of WM 360 - 400 m

Stakeholder #23:

Resident
Brent Morrill

Response

Michelle Mulvihill

From: Susan Jingmiao Shi
Sent: September 25, 2025 11:31 AM
To: Brent Morrill; aanderson@hamiltontownship.ca
Cc: Michelle Mulvihill
Subject: RE: Water Supply Master Plan Comments

Follow Up Flag: Follow up
Flag Status: Flagged

Thank you Brent for your comments. We will look at incorporating your comments in the final report.

Regards,

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

Kingston ON
Work: 343-302-5406

From: Brent Morrill <brentamorrill@gmail.com>
Sent: Thursday, September 25, 2025 10:50 AM
To: aanderson@hamiltontownship.ca; Susan Jingmiao Shi <sshi@jlrichards.ca>
Subject: Water Supply Master Plan Comments

As the path forward is determined for this complicated issue, my main concern is that any plans that will result in increase in demand on the system are curtailed until such time that there is a plan in place that will ensure a shortage of water supply of sufficient quality does not occur.

Brent Morrill

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	ar.planning@ontario.ca Amanda: T: 705-324-9527	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

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

32814-000

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

STAKEHOLDER REVIEW AGENCY LIST
Township of Hamilton Water Supply Master Plan

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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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