

# FUNCTIONAL SERVICING

**REPORT** 

TOWN OF CALEDON PLANNING RECEIVED

October 17th, 2025

12506 & 12698 Heart Lake Road

Project #: 24-0825a

Prepared for: Tribal Partners Canada Inc., and Its Management Arm TDSI

Date: October 16, 2025

Report Version: 01

6415 Northwest Drive Units 37-40 Mississauga, ON L4V 1X1 envisionconsultants.ca



October 16, 2025

Tribal Partners Canada Inc., and Its Management Arm TDSI 201 – 2700 Steeles Avenue West Vaughan, Ontario Postal Code

Attention: Carleigh Oude-Reimerink, Vice President - Development

#### SUBJECT: FUNCTIONAL SERVICING REPORT, 12506 & 12698 HEART LAKE ROAD

EnVision Consultants Ltd. is pleased to present the enclosed Functional Servicing Report for the abovenoted property. This report provides the conceptual framework for water distribution, sanitary sewage and storm drainage for this development. A Stormwater Management Report outlining the proposed quality and quantity controls for stormwater on this Site has also been prepared by EnVision Consultants Ltd. under separate cover.

We thank you for utilizing EnVision for this assignment. If there are any questions regarding the enclosed report, please do not hesitate to contact us.

Yours sincerely,

Alex Williams, P.Eng.

Director – Land Development

awilliams@envisionconsultants.ca



## **QUALITY MANAGEMENT**

ISSUE	FIRST ISSUE	REVISION 1	REVISION 2
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PROJECT REFERENCE	Functional Servicing Report, 12506 & 12698 Heart Lake Road		
VERSION NO.	01		
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PREPARED BY	Dabi Abikoye, P.Eng.		
SIGNATURE			
REVIEWED BY	Alex Williams, P.Eng.		
SIGNATURE	AD x WOL		
DATE	October 16, 2025		

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#### 1. EXECUTIVE SUMMARY

EnVision Consultants Ltd. (EnVision) was retained to act on behalf of Tribal Partners Canada Inc., and Its Management Arm TDSI (the 'Client') for the properties municipally known as 12506 & 12698 Heart Lake Road (the 'Site') in the Town of Caledon and Region of Peel, to conduct a functional servicing assessment for the Site in support of an Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) application.

The Site is a 50.9 ha parcel of land bounded by Heart Lake Road to the east, Dougall Avenue, Larson Peak Road and existing single family residential dwellings fronting Bonnieglen Farm Boulevard (117 – 261 Bonnieglen Farm Boulevard, 135 & 135 Larson Peak Road) to the west, a proposed industrial development (12304 Heart Lake Road) to the south, and agricultural lands (12864 Heart Lake Road) to the north. Under existing conditions, the Site is primarily vacant natural heritage and agricultural lands with a few buildings used for agricultural purposes. Kilmanagh Creek traverses through the northeast corner of the Site. There is also an existing 1.3 ha woodlot which located in the northwest corner of the Site. Excluding the existing 1.3ha woodlot and Kilmanagh Creek which traverses through the northeast corner of the Site, the net developable area is 40.6 ha. The proposed development will consist of four (4) industrial warehouse buildings with loading dock areas, associated parking areas, landscaped areas and a stormwater management pond.

The scope of this review includes site water distribution, sanitary drainage and stormwater drainage for the proposed development. A Stormwater Management Report outlining the proposed quality and quantity controls for stormwater on this Site has been prepared by EnVision under separate cover. EnVision has reviewed the Site Plan provided by Powers Brown Architecture dated October 2, 2025, background information provided by the Client, Town of Caledon, Region of Peel, Conservation Authority and other publicly available materials.

Based on the functional servicing review, EnVision presents the following findings.

- The development will be serviced by an existing 400mm Zone 7 watermain on Heart Lake Road. The proposed water servicing for the Site will include an internal 150mm domestic watermain and an internal 300mm fire watermain extending from one (1) H-type connection to the existing watermain on Heart Lake Road;
- A hydrant flow test has been scheduled to be performed on the existing 400mm watermain on Heart Lake Road to verify the available municipal water supply. This report will be updated with the test results once available;
- The Site will be serviced by the proposed sanitary sewer on Heart Lake Road which is proposed by the adjacent 12304 Heart Lake Road development. There will be one (1) 200mm sanitary service connection to the Site which will service the proposed buildings.
- The proposed development will increase sanitary flow contributions to the Speir Giffen Avenue sanitary sewer and consequently the Dixie Road trunk sanitary trunk sewer by 42.36 L/s. The sanitary flows, sewer location and depth, and construction timing of the proposed Heart Lake Road sanitary sewer system will be coordinated with the Region and adjacent development to



- confirm the available receiving sewer capacity and ensure the completion of the proposed municipal works prior to occupancy of the buildings; and
- Infiltration chambers, Oil-Grit Separators, underground stormwater storage tanks and a stormwater management pond are proposed to capture, treat and attenuate storm runoff from the Site prior to discharging to Kilmanagh Creek and the existing 300mm storm sewers on Dougall Avenue and Larson Peak Road.



#### 2. INTRODUCTION

EnVision Consultants Ltd. (EnVision) was retained to act on behalf of Tribal Partners Canada Inc., and Its Management Arm TDSI (the 'Client') for the properties municipally known as 12506 & 12698 Heart Lake Road (the 'Site') in the Town of Caledon and Region of Peel, to conduct a functional servicing assessment for the Site. It is our understanding that this assessment has been requested in support of an Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) application.

#### 2.1. SITE DESCRIPTION

The Site is a 50.9 ha parcel of land bounded by Heart Lake Road to the east, Dougall Avenue, Larson Peak Road and existing single family residential dwellings fronting Bonnieglen Farm Boulevard (117 – 261 Bonnieglen Farm Boulevard, 135 & 135 Larson Peak Road) to the west, a proposed industrial development (12304 Heart Lake Road) to the south, and agricultural lands (12864 Heart Lake Road) to the north. Under existing conditions, the Site is primarily vacant natural heritage and agricultural lands with a few buildings used for agricultural purposes. Kilmanagh Creek traverses through the northeast corner of the Site. There is also an existing 1.3 ha woodlot which located in the northwest corner of the Site. Excluding the existing woodlot and Kilmanagh Creek from the development, the net developable area is 40.6 ha. Refer to Figure 1 for the Site Location Plan and Figure 2 for the Pre-Development Plan.

The proposed development consists of four (4) industrial warehouse buildings with loading dock areas, associated truck and car parking areas as well as landscaped areas. There are 179 truck parking spaces and 1421 at-grade car parking spaces proposed including 64 barrier free/accessible car parking spaces. There will be a total of 247 loading dock facilities provided. The development plan also includes a stormwater management pond in the northwest portion of the Site. The development statistics are summarized in Table 2-1. Refer to Figure 3 for an illustration of the Proposed Development Plan.

Table 2-1: Development Summary

LAND USE	AREA	BUILDING	<b>BUILDING AREA</b>
DEVELOPMENT AREA	40.6	А	32,846 m <sup>2</sup>
		В	25,517 m <sup>2</sup>
		С	47,684 m <sup>2</sup>
		D	52,120 m <sup>2</sup>
EXISTING WOODLOT	9.0	-	-
KILMANAGH CREEK	1.3	-	-

The Site will be serviced by existing and proposed local municipal sewers and watermains within the adjoining municipal rights-of-way. Any existing service connections to the Site within the municipal road allowance will be decommissioned by the municipality at the Owner's cost. The proposed service connections will be extended to the proposed buildings and coordinated with the building design team.



#### 2.2. OBJECTIVES, SCOPE AND BACKGROUND MATERIALS

#### 2.2.1. OBJECTIVES

The objectives of the Functional Servicing Report are to:

- Determine the site specific water, sanitary and stormwater servicing requirements to ensure that the development proposal is in conformance with Town of Caledon and Region of Peel guidelines;
- Establish the proposed water and sanitary demands from the development;
- Demonstrate the impact of the proposed development on the capacity of the existing infrastructure in the area and identify necessary improvements to municipal servicing infrastructure if required;
- · Develop a water, sanitary and stormwater servicing strategy for the development; and
- Determine the grading approach for the development and identify grading constraints.

#### 2.2.2. SCOPE

The scope of this Functional Servicing Report includes the following components:

- Water Distribution
- Sanitary Drainage
- Stormwater Drainage
- Site Grading

A Stormwater Management (SWM) Report outlining the proposed stormwater quality and quantity controls has been prepared under a separate cover by EnVision Consultants Ltd., dated October 16, 2025.

#### 2.2.3. BACKGROUND MATERIALS

In preparing this report, EnVision used the following information to evaluate the servicing and grading for the Site:

- · Topographic Survey prepared by J.D. Barnes Limited dated December 3, 2024;
- · Architectural Plan prepared by Powers Brown Architecture dated October 2, 2025;
- · Town of Caledon Development Standards Manual Version 5.0 dated 2019;
- · Region of Peel Linear Wastewater Standards dated March 2023;
- · Region of Peel Public Works Design, Specifications & Procedures Manual Watermain Design Criteria dated June 2010; and
- Toronto and Region Conservation Authority (TRCA) Stormwater Management Criteria Document dated August 2012.

TRIBAL PARTNERS CANADA INC. AND ITS MANAGEMENT ARM TDMSI

TITLE

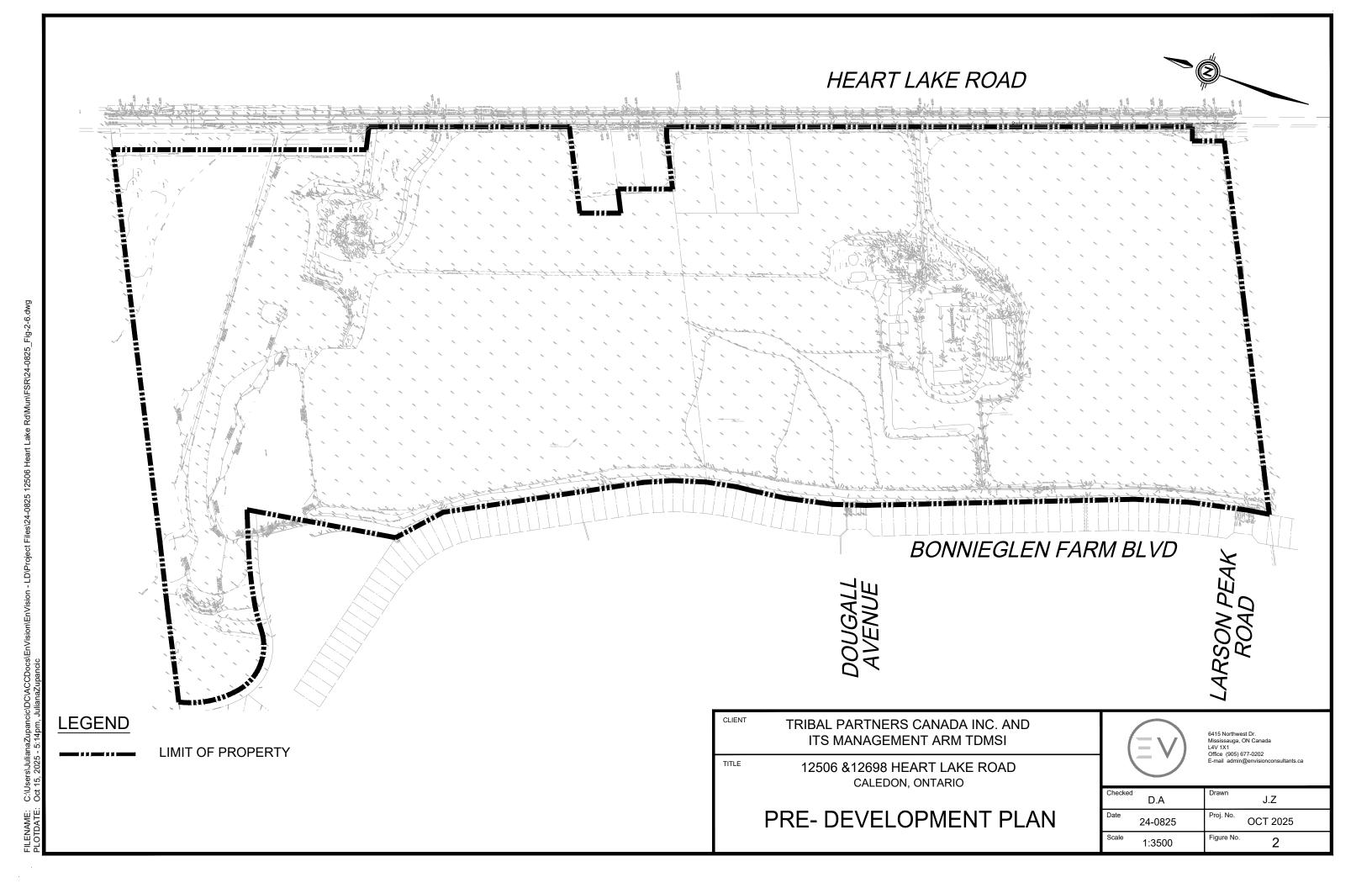
12506 &12698 HEART LAKE ROAD CALEDON, ONTARIO

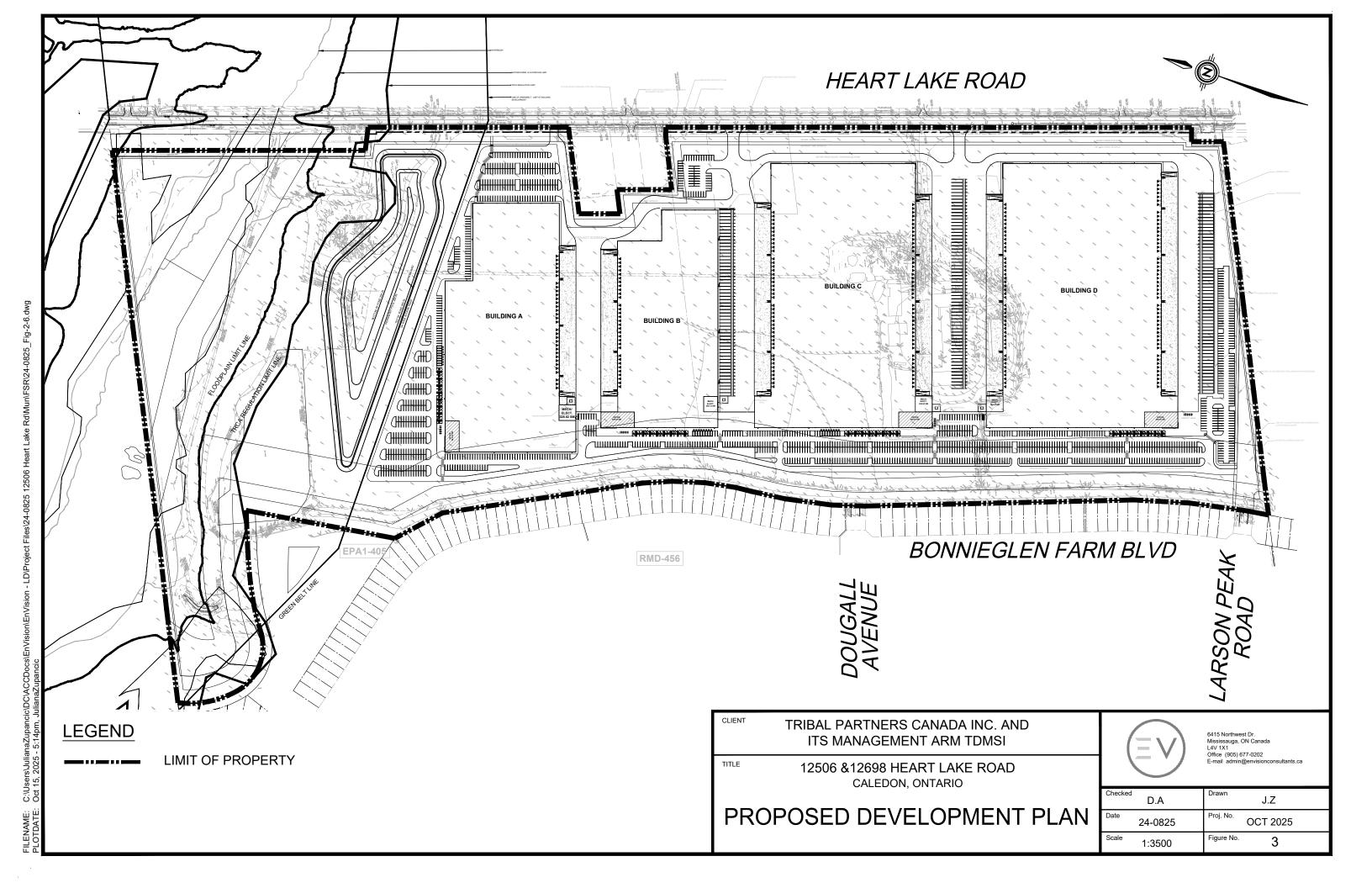
LOCATION PLAN



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Checked D.A.	Drawn M.R.
Date OCT 2025	Proj. No. 24-0825
Scale NTS	Figure No. 1







#### 3. WATER SERVICING

#### 3.1. EXISTING CONDITIONS

EnVision has obtained record engineering drawings from the Region of Peel for the area surrounding the Site. Under existing conditions, there is an existing 400mm Zone 7 CPP watermain on the east side of Heart Lake Road, an existing 900mm Zone 6 CPP watermain and 1200mm Zone 6 CPP watermain on the west side of Heart Lake Road, and existing 300mm Zone 7 PVC watermains on Dougall Avenue and Larson Peak Road at the western boundary of the Site.

#### 3.2. WATER DEMANDS

**CRITERION** 

SITE

#### 3.2.1. DOMESTIC WATER DEMAND

The peak domestic water demand for the development was calculated using the Region of Peel's design criteria for light industrial developments. The results of the calculation are summarized in Error! Reference source not found. below. Refer to Appendix B for detailed domestic water demand calculations.

**INFORMATION** 

Table 3-1: Estimated Domestic Water Demand

LAND USE	Light Industrial
SITE AREA	50.9 ha
NET DEVELOPABLE SITE AREA	40.6 ha
TOTAL INDUSTRIAL GFA	158,167 m <sup>2</sup>
POPULATION DENSITY	70 persons/ha
TOTAL EQUIVALENT INDUSTRIAL POPULATION	2,842 people
ICI AVERAGE CONSUMPTION RATE	300 L/employee/day
PEAKING FACTORS	Max. Day = 1.4, Peak Hour = 3.0
TOTAL AVERAGE WATER DEMAND FROM SITE	9.87 L/s
TOTAL PEAK WATER DEMAND FROM	Max. Day = 13.82 L/s, Peak Hour = 29.60 L/s

#### 3.2.2. FIRE FLOW DEMAND

The estimated fire flow has been calculated using the recommendations of the 2020 Fire Underwriters Survey. The fire flow calculation indicates that the recommended fire flow for Building 'A' is 316.67 L/s (5,013 USGPM), the recommended fire flow for Building 'B' is 283.33 L/s (4,485 USGPM), the recommended fire flow for Building 'C' is 333.33 L/s (5,277 USGPM), and the recommended fire flow for Building 'D' is 333.33 L/s (5,277 USGPM). The fire flow calculations have been prepared with the assumption that the



building will be classified as non-combustible construction, combustible hazard occupancy and will be equipped with a supervised sprinkler system. The results of these calculations are included in **Appendix** B.

There are currently 12 existing hydrants adjacent to the Site – ten (10) on Heart Lake Road, one (1) on Dougall Avenue and one (1) on Larson Peak Road. Hydrants will also be proposed within the Site in front of each building. The Siamese connection to the building will be located so that it is a maximum of 45m away from a hydrant.

#### 3.2.3. PROPOSED WATER SERVICING

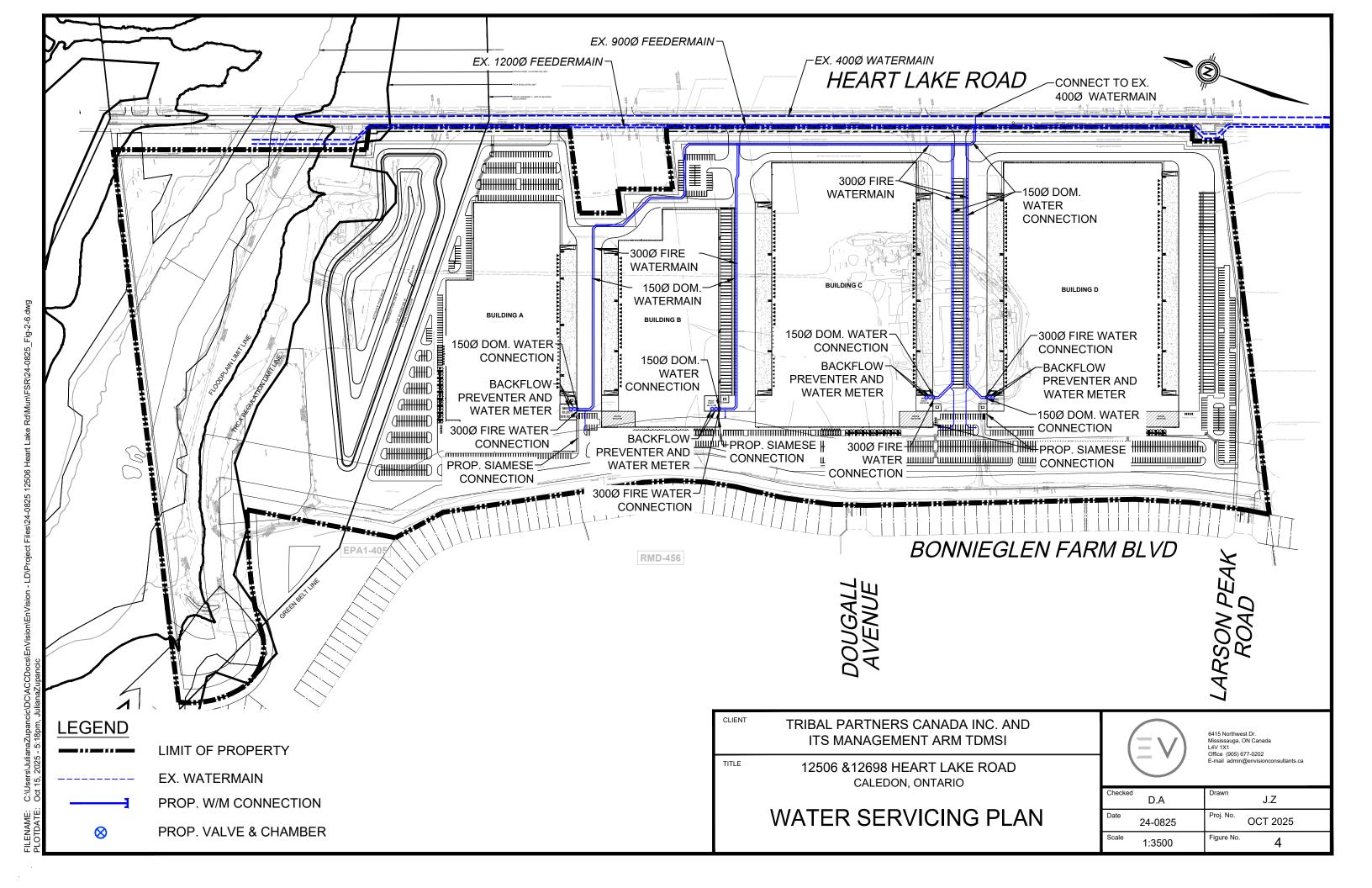
One (1) 150mm domestic and one (1) 300mm fire service connection is proposed for each building per Region of Peel requirements. The building service connections will be serviced by an internal 150mm domestic watermain network and an internal 300mm fire watermain network. One (1) H-style service connection with a 150mm domestic service connection branching off a 300mm fire service connection will be extended from the existing 400mm watermain on Heart Lake Road. The service connection to the municipal watermain is proposed to include valve and boxes at the property line. A water meter and backflow preventer will be installed on the domestic service connection within each building. A double detector check valve will be installed on the fire service connection inside the property line.

The on-site watermains and service connection within the municipal right-of-way will be designed to Region of Peel standards and the water services within the proposed buildings will be designed by the Site mechanical consultant to meet Ontario Plumbing Code Standards. The proposed water servicing and the hydrant locations are shown on Figure 4.

#### 3.3. HYDRANT FLOW TEST

The maximum required fire flow demand for the proposed development was calculated to be 333.33 L/s (5,277 USGPM) as defined by the Fire Underwriters Survey (FUS). The total maximum day demand for the proposed development is 13.82 L/s. Therefore, the total maximum day plus fire flow demand is 347.15 L/s for the proposed development. Refer to Appendix B for FUS fire flow and detailed domestic demand calculations.

A hydrant flow test has been scheduled to be completed on the watermains adjacent to the development. The test results are not available at the time of preparing this report but will be included once made available.





#### 4. SANITARY SERVICING

#### 4.1. EXISTING CONDITIONS

EnVision has obtained record engineering drawings from the Region of Peel for the area surrounding the Site. Under existing conditions, there are 250mm sanitary sewers on Dougall Avenue and Larson Peak Road at the western boundary of the Site which drain west towards the Kennedy Road trunk sanitary sewer. Further south of the Site, there is an existing 375mm sanitary sewer on Speirs Giffen Avenue located approximately 1.2km south of the development.

#### 4.2. PLANNED MUNICIPAL SANITARY SERVICING UPGRADES

Based on information obtained from the Region of Peel municipal infrastructure database, Capital Project 13-2107 and Capital Project 24-2187 propose a sanitary sewer extension on Speirs Giffen Avenue from the existing sanitary sewer system on Dixie Road to Heart Lake Road, and a sanitary sewer system along Heart Lake Road from Speirs Giffen Avenue to approximately 200m north of the southern development limit respectively. Construction works for the capital projects are anticipated to commence in Spring 2025 and Winter 2027 respectively. The proposed sanitary flow generation from the development as well as the location and depth of the proposed sanitary sewer system will be coordinated with the adjacent development and the Region to ensure that the proposed sewers will have sufficient capacity to service the development. The construction timing will be coordinated with the Region and adjacent development, ensuring completion of the sanitary sewer extension prior to occupancy of the buildings.

#### 4.3. SANITARY FLOWS

#### 4.3.1. DESIGN PARAMETERS

To calculate the peak sanitary flows, the following Region of Peel design criteria have been utilized:

- · 270 L/employee/day average daily flow for non-residential use;
- · Light industrial population equivalent: 70 persons/ha;
- Peaking Factor: Harmon Formula M =  $1+(14/\sqrt{(4+P/1000)})$
- Inflow/Infiltration Allowance: 0.26 L/s/ha

An estimate of the pre- and post-development sanitary sewage flows has been calculated and is included in Appendix C. The results of the calculations are discussed in Sections 4.3.2 and 4.3.3.

#### 4.3.2. EXISTING SEWAGE FLOWS

The Site does not contribute to the downstream sanitary sewer system under existing conditions as the property is primarily vacant.



#### 4.3.3. POST-DEVELOPMENT SEWAGE FLOW

An estimate of the post-development sanitary sewage flows from the Site to the downstream sanitary sewer system has been calculated based on the development statistics provided by Powers Brown Architecture and has been calculated using the Region of Peel Design Criteria. The calculations are summarized in Error! Reference source not found.. Refer to Appendix C for detailed post-development sanitary flow calculations.

Table 4-1: Estimated Sanitary Flows

CRITERION	INFORMATION
LAND USE	Light Industrial
SITE AREA	50.9 ha
NET DEVELOPABLE SITE AREA	40.6 ha
TOTAL INDUSTRIAL GFA	158,167 m <sup>2</sup>
POPULATION DENSITY	70 persons/ha
TOTAL EQUIVALENT INDUSTRIAL POPULATION	2,842 people
ICI SANITARY GENERATION RATE	270 L/employee/day
PEAKING FACTOR	3.46 (Harmon Peaking Factor)
INFLOW / INFILTRATION ALLOWANCE	11.61 L/s
TOTAL AVERAGE SANITARY FLOW FROM SITE	20.49 L/s
TOTAL PEAK SANITARY FLOW FROM SITE	42.36 L/s

The approximate peak sanitary flow to the existing sanitary sewer system for the pre- and post-development conditions are 0 L/s and 42.36 L/s, respectively. Consequently, the increase in peak sanitary design flow resulting from the development to the sanitary sewer is 42.36 L/s.

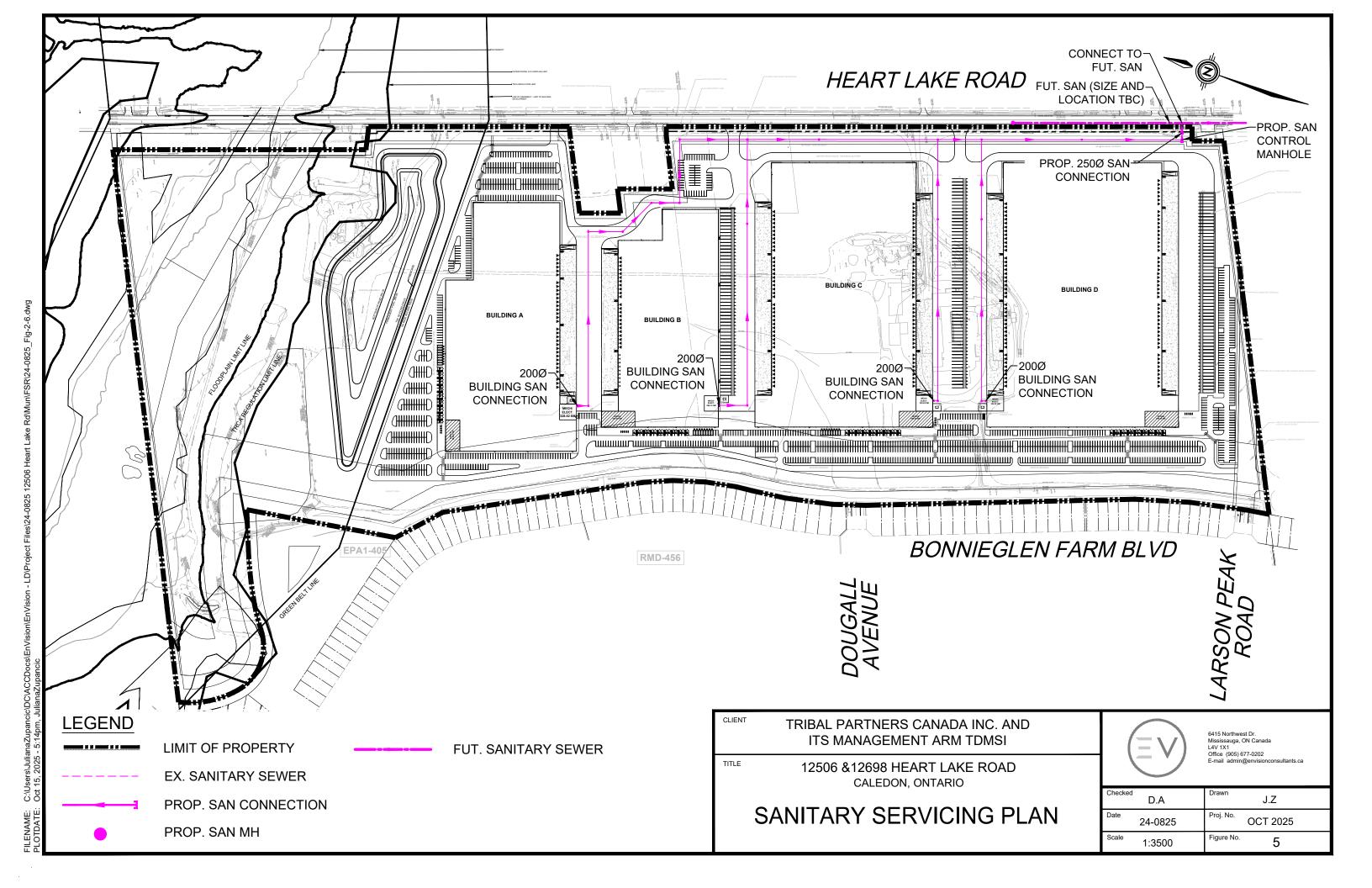
#### 4.4. SANITARY SERVICING

Each proposed building will have one (1) 200mm sanitary service connection. The building service connections will be serviced by an internal 200mm sanitary sewer network. The internal 200mm sanitary sewer network will connect to the proposed sanitary sewer extension on Heart Lake Road. As per the Region of Peel requirements, a control manhole is proposed to be placed immediately inside the property line for the service connection. The on-site sanitary sewers and service connection within the municipal right-of-way will be designed to Region of Peel standards and the sanitary services within the proposed building will be designed by the Site mechanical consultant to meet Ontario Plumbing Code Standards. The proposed sanitary servicing layout shown on Figure 5.



#### 4.5. DOWNSTREAM SEWER CAPACITY ANALYSIS

The increase in sanitary flow contributions to the downstream municipal sewer system resulting from the proposed development is 42.36 L/s as discussed in Section 4.3.3. To ensure adequate sewer capacity is available, the proposed sanitary flow generation as well as the construction timing of the proposed sanitary sewer on Heart Lake Road will be coordinated with the Region and adjacent development to confirm the available receiving sewer capacity and ensure the completion of the proposed municipal works prior to occupancy of the buildings. It is our understanding that the Region of Peel will use the multiuse demand table appended to this report to confirm using their sanitary infrastructure model that there will be sufficient capacity in the existing municipal sanitary sewer system to meet the estimated sanitary demand from the proposed development. The multi-use demand table for the Site has been included in Appendix D.





#### 5. STORM DRAINAGE

#### 5.1. STORMWATER MANAGEMENT REPORT

A Stormwater Management (SWM) Report outlining the proposed stormwater quality and quantity controls has been prepared under a separate cover by EnVision Consultants Ltd., dated October 16, 2025. The SWM Report is in compliance with MECP Stormwater Management Planning and Design Manual (2003), TRCA Stormwater Management Criteria (August 2012), the Region of Peel Public Works Stormwater Design Criteria and Procedural Manual (June 2019) and the Town of Caledon Development Standards Manual (2019) and identifies the stormwater quantity and quality controls under which this Site will operate.

#### 5.2. EXISTING CONDITIONS

The Site is located within the West Humber River and Etobicoke Creek subwatersheds. There is an existing 300mm storm sewer on Dougall Avenue and an existing 300mm storm sewer on Larson Peak Road at the western limit of the development. These storm sewers ultimately discharge flows to the existing SWM pond "E3" located at Larson Peak Road @ Kennedy Road downstream of the Site.

Under existing conditions, majority of the Site drains southwest overland towards Dougall Avenue and Larson Peak Road. The remainder of the Site drains northeast overland towards Kilmanagh Creek which traverses through the northeast portion of the Site.

#### 5.3. PROPOSED MINOR STORM DRAINAGE SYSTEM

For the purposes of stormwater management, the Site will have three (3) stormwater management systems ("Pond", "Dougall" and "Larson Peak"). All storm flows within the development will be captured and directed to the respective stormwater management systems which will capture, treat and discharge flows such that for all storm flows up to the 100-year storm event, the storm outflow will be reduced to the corresponding pre-development levels using TRCA's unit flows for the subwatershed. The proposed storm servicing layout is shown on Figure 6. For detailed storage and storm flow calculations, refer to the separate Stormwater Management Report prepared by EnVision.

#### *5.3.1.* "POND" SYSTEM

The proposed stormwater management strategy for the "Pond" system proposes the use of a Stormwater Management (SWM) Pond to provide quantity, quality and erosion control. The SWM Pond is proposed to control the post-development runoff to the corresponding pre-development release rates for the 2-year to 100-year return period events in accordance with the TRCA's quantity control criteria.

At-grade runoff from the portion of the Site north of Building 'C' will be captured by proposed catchbasins and conveyed through storm sewers to the proposed SWM pond located in the north portion of the Site. The on-site minor storm drainage system is proposed to be designed to capture and convey the runoff from the 5-year event. For portions of the catchment where the overland flow can not be directed to the



stormwater management pond, the minor storm drainage system will be designed to capture and convey the runoff for the 100-year storm event. This will ensure runoff from the controlled areas of the catchment for all storm events up to and including the 100-year storm event will be conveyed to the proposed stormwater management pond.

The SWM Pond is designed with a total storage volume of approximately 50,586 m³ of which 14,435 m³ is permanent pool and 36,151 m³ is active storage. The pond is sized to provide quantity control for all storm flows up to the 100-year storm event and to convey storm flows in the Region storm event. The proposed storm servicing of the Site includes two (2) inlet draining into the forebay. The SWM Pond is proposed to outlet to Kilmanagh Creek in the northeast portion of the development. Outflows from the pond will be controlled to allowable release rates such that for all storm flows up to the 100-year storm event, the storm outflow will be reduced to the corresponding pre-development levels using TRCA's unit flows for the subwatershed.

To meet water quality criteria, the proposed SWM pond is designed to treat storm flows to achieve an 80% TSS removal rate in accordance with TRCA Stormwater Management Criteria.

The Building 'A' roof runoff and Building 'B' roof runoff will be directed to a storm infiltration chamber located north of Building 'A' with a volume of 589.6 m³ to be retained, infiltrated and/or re-used on-site for the water balance requirement. Excess flows from the infiltration chamber will then be released and conveyed to the proposed SWM Pond.

Since all storm flows up to and including the 100-year storm event will be reduced to the corresponding pre-development levels using TRCA's unit flows for the subwatershed, the existing storm drainage system will not be adversely affected under the post-development condition and will have adequate capacity to support the development. The proposed storm servicing layout is shown on Figure 6. For detailed storage and storm flow calculations, refer to the separate Stormwater Management Report prepared by EnVision under separate cover.

#### 5.3.2. "DOUGALL" SYSTEM

The proposed stormwater management strategy for the "Dougall" system proposes the use of an underground stormwater storage tank to meet quantity, water balance and erosion control targets. The tank is proposed to control the post-development runoff to the corresponding pre-development release rates for the 2-year to 100-year return period events and convey flows from the Regional storm event in accordance with the TRCA's quantity control criteria.

At-grade runoff from the truck court between Buildings 'C' and 'D' will be captured by proposed catchbasins and conveyed through storm sewers to the proposed tank located west of Building 'C'. The on-site minor storm drainage system is proposed to be designed to capture and convey the runoff from the 5-year event. For portions of the Site where flows will be directed to the chamber, the internal storm sewer system will be sized to capture and convey flows from all storm events up to the 100-year and Regional storm events. Rooftop runoff from Building 'C' will also be directed to the proposed tank. This will ensure runoff from the controlled areas of the Site for all storm events up to and including the 100-year storm event and Regional storm event will be conveyed to the proposed stormwater storage tank.



The tank is designed with a total storage volume of approximately 1584 m³. The tank is sized to provide quantity control for all storm flows up to the 100-year storm event and convey storm flows from the Regional storm event. The stormwater tank is proposed to outlet to the existing 300mm storm sewer on Dougall Avenue at the western boundary of the development. Outflows from the tank will be controlled to allowable release rates such that for all storm flows up to the 100-year storm event, the storm outflow will be reduced to the corresponding pre-development levels using TRCA's unit flows for the subwatershed.

To meet water quality criteria, the downstream receiving pond "E3" was sized to treat storm flows from up to 16.83 ha of area from the proposed development to achieve an 80% TSS removal rate in accordance with TRCA Stormwater Management Criteria.

Since all storm flows up to and including the 100-year storm event will be reduced to the corresponding pre-development levels using TRCA's unit flows for the subwatershed, the existing storm drainage system will not be adversely affected under the post-development condition and will have adequate capacity to support the development. The proposed storm servicing layout is shown on Figure 6. For detailed storage and storm flow calculations, refer to the separate Stormwater Management Report prepared by EnVision under separate cover.

#### 5.3.3. "LARSON PEAK" SYSTEM

The proposed stormwater management strategy for the "Larson Peak" system proposes the use of an underground stormwater storage tank to meet quantity, water balance and erosion control targets. The tank is proposed to control the post-development runoff to the corresponding pre-development release rates for the 2-year to 100-year return period events and convey flows from the Regional storm event in accordance with the TRCA's quantity control criteria.

At-grade runoff from the truck court south of Building 'D' will be captured by proposed catchbasins and conveyed through storm sewers to the proposed tank located west of Building 'D'. The on-site minor storm drainage system is proposed to be designed to capture and convey the runoff from the 5-year event. For portions of the Site where flows will be directed to the chamber, the internal storm sewer system will be sized to capture and convey flows from all storm events up to the 100-year and Regional storm events. Rooftop runoff from Building 'D' will also be directed to the proposed tank. This will ensure runoff from the controlled areas of the Site for all storm events up to and including the 100-year storm event and Regional storm event will be conveyed to the proposed stormwater storage tank.

The tank is designed with a total storage volume of approximately 6000 m³. The tank is sized to provide quantity control for all storm flows up to the 100-year storm event and convey storm flows from the Regional storm event. The stormwater tank is proposed to outlet to the existing 300mm storm sewer on Larson Peak Road at the western boundary of the development. Outflows from the tank will be controlled to allowable release rates such that for all storm flows up to the 100-year storm event, the storm outflow will be reduced to the corresponding pre-development levels using TRCA's unit flows for the subwatershed.

To meet water quality criteria, the downstream receiving pond "E3" was sized to treat storm flows from up to 16.83 ha of area from the proposed development to achieve an 80% TSS removal rate in accordance



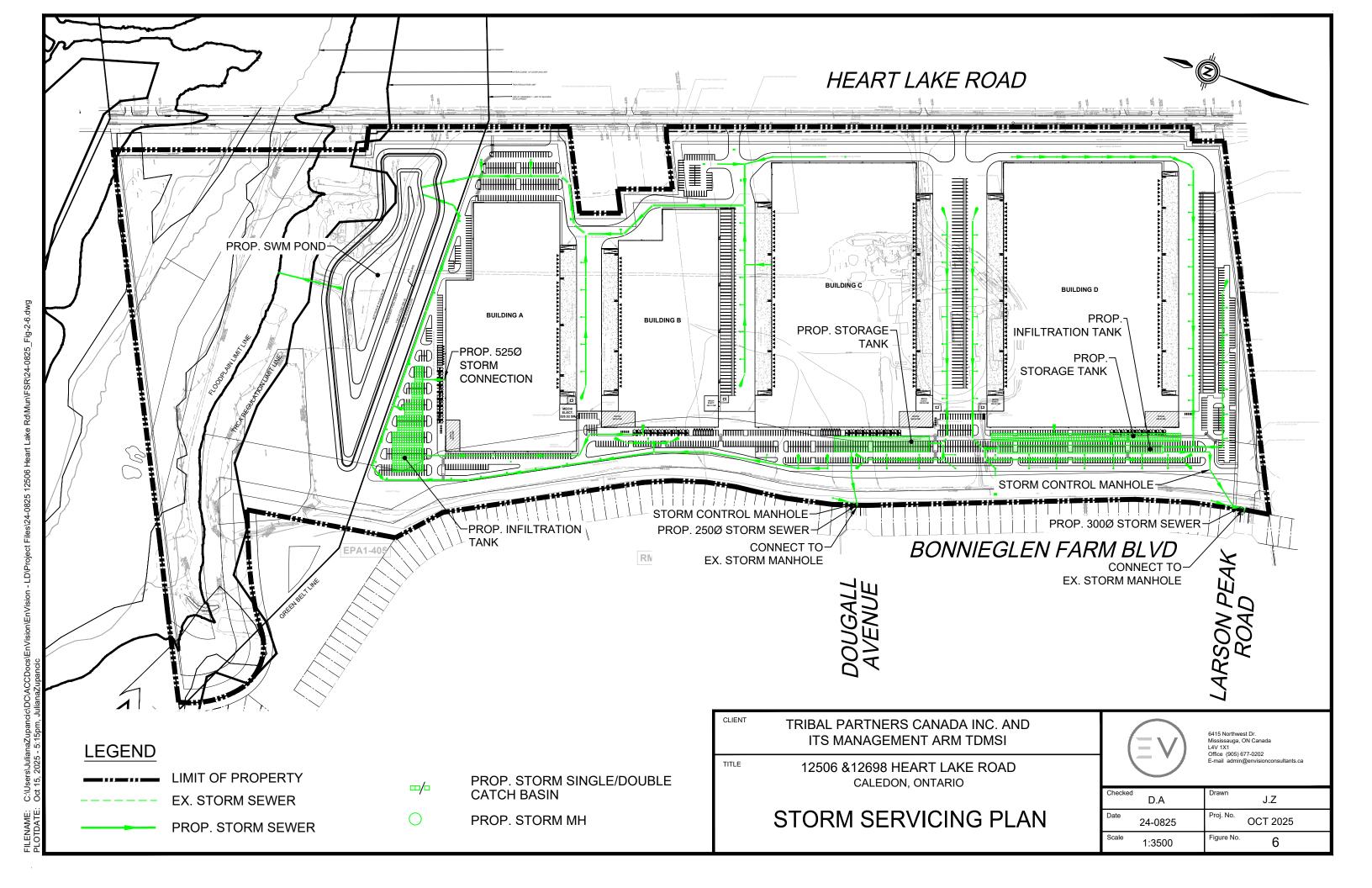
with TRCA Stormwater Management Criteria. The Building 'D' roof runoff will be directed to a storm infiltration chamber located west of Building 'D' with a volume of 526.5 m³ to be retained, infiltrated and/or re-used on-site for the water balance requirement. Excess flows from the infiltration chamber will then be released and conveyed to the proposed SWM tank.

Since all storm flows up to and including the 100-year storm event will be reduced to the corresponding pre-development levels using TRCA's unit flows for the subwatershed, the existing storm drainage system will not be adversely affected under the post-development condition and will have adequate capacity to support the development. The proposed storm servicing layout is shown on Figure 6. For detailed storage and storm flow calculations, refer to the separate Stormwater Management Report prepared by EnVision under separate cover.

#### 5.4. PROPOSED MAJOR STORM DRAINAGE SYSTEM

The major storm system is a conveyance system for flows in excess of the minor system flows. Stormwater runoff from events up to and including the 100-year storm event will be contained on-site via stormwater management facilities and released at a controlled rate within the allowable post development limits to approved outlet locations. For major storm events exceeding the 100-year storm and the capacity of the stormwater management facilities, overland flow routes will be provided to direct excess flows to the approved discharge locations.

For the development of the Site, the grading design will be prepared such that the surface (i.e. parking lots, drive aisles and landscaped areas) grades will direct surface drainage away from the buildings to approved outlets such as the stormwater management pond and the Heart Lake Road right-of-way through overland flow routes. The proposed grading of the Site will ensure that existing grade elevations will be met along the property limits. The plumbing system for the buildings will be coordinated with the mechanical consultant to ensure that they are designed to convey the 100-year storm event runoff from the development.





#### 6. SITE GRADING

Under existing conditions, majority of the Site slopes southwest overland towards Dougall Avenue and Larson Peak Road. The remainder of the Site drains northeast overland towards Kilmanagh Creek which traverses through the northeast portion of the Site. Existing elevations vary from 269.5 masl to 274.0 masl.

The grading design of the proposed development will direct storm runoff to the on-site collection points so that the drainage is self-contained. The grading design will comply with the Town of Caledon standards and will be designed to achieve the following:

- · Maintain existing perimeter grades so that there is no impact to adjacent properties;
- · Optimize earthworks i.e. minimize the quantity of deficit materials to be imported or exported;
- Minimize disruption to existing municipal rights-of-way containing existing utilities and services;
- Promote drainage to the minor storm sewer system and accommodate stormwater management requirements;
- · Provide adequate cover for underground services;
- Provide safe overland conveyance of flows exceeding the capacity of the storm sewer system through ponding;
- Satisfy the Town's requirement for maximum 0.30m of stormwater ponding; and
- Building floor levels will be set to avoid building / property damage during all design storms.

The proposed grading for the Site will, where possible, generally follow the existing grades to maintain drainage patterns and match boundary grades. Minor storm drainage is to be conveyed towards catchbasins that convey flows to the internal storm sewer networks which ultimately discharge to Kilmanagh Creek and storm sewers on Dougall Avenue and Larson Peak Road. Overland flow routes are provided to direct major storm drainage away from proposed and existing structures towards the approved outlet points.

Retaining walls are proposed in various locations along the development limits to ensure that drainage is contained within the Site. Retaining walls above 1.0m in height will be designed by a Structural Engineer in accordance with Town standards. Maximum 3:1 sloping is proposed along the development limits where feasible.

The grading design for drive aisles and parking areas will be saw-toothed to maintain a constant finished floor elevation for the warehouse building. The maximum ponding of the saw-tooth design is limited to 0.30m. Drive aisles will be designed with a minimum grade of 1.0%.

Coordination with the landscape consultant and mechanical consultant will be necessary to ensure grading initiatives support stormwater management and landscape objectives and provided sufficient cover above the sewers within the Site.



#### 7. CLOSING

#### 7.1. CONCLUSIONS AND RECOMMENDATIONS

Based on the information obtained through functional servicing assessment, EnVision presents the following conclusions and recommendations.

#### 7.1.1. WATER SERVICING

The Site will be serviced by the existing 400mm Zone 7 watermain on Heart Lake Road. There will be one (1) 150mm domestic water service connection and one (1) 300mm fire service connection to the Site which will service the proposed buildings. A hydrant flow test has been scheduled to be performed on the existing 400mm watermain on Heart Lake Road to verify the available municipal water supply. This report will be updated with the test results once available.

The water service connections within the municipal right-of-way and the on-site watermains will be designed to Region of Peel standards while the water services within the proposed buildings are to be designed by the Site mechanical consultant per OBC, and coordinated with EnVision.

#### 7.1.2. SANITARY SERVICING

The Site will be serviced by the proposed sanitary sewer on Heart Lake Road which is proposed by the adjacent 12304 Heart Lake Road development. There will be one (1) 200mm sanitary service connection to the Site which will service the proposed buildings. The proposed development will increase sanitary flow contributions to the Speir Giffen Avenue sanitary sewer and consequently the Dixie Road trunk sanitary trunk sewer by 42.36 L/s. The proposed sanitary flow generation as well as the location, depth and construction timing of the proposed sanitary sewer on Heart Lake Road will be coordinated with the Region and adjacent development to confirm the available receiving sewer capacity and ensure the completion of the proposed municipal works prior to occupancy of the buildings.

The sanitary service connection within the municipal right-of-way and the on-site sanitary sewers will be designed to Region of Peel standards while the sanitary services within the proposed buildings are to be designed by the Site mechanical consultant per OBC, and coordinated with EnVision.

#### 7.1.3. STORM SERVICING

Runoff from majority of the at-grade areas within the development is proposed to be captured and conveyed by proposed catchbasins and storm sewers to a combination of SWM facilities including Oil-Grit Separators, underground storage facilities and a stormwater management pond. Storm runoff from the rooftops will be discharged to infiltration chambers. The proposed SWM facilities are sized to provide quantity, quality and erosion control for the development and are sized to capture, treat, and attenuate flows, up to the 100-year storm event, to the corresponding pre-development levels using TRCA's unit flows for the subwatershed, and convey storm runoff from the Regional storm event. The treated and attenuated flows form the development will be discharged to Kilmanagh Creek in the northeast portion



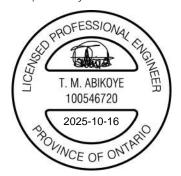
of the Site and the existing storm sewers on Dougall Avenue and Larson Peak Road at the western limit of the Site.

The on-site storm sewers will be designed to Town of Caledon standards while the storm services within the proposed buildings are to be designed by the Site mechanical consultant per OBC, and coordinated with EnVision.

A separate Stormwater Management Report has been prepared by EnVision under a separate cover to address requirements concerning stormwater management.

#### 7.2. CERTIFICATION AND SIGNATURES

Prepared by



Dabi Abikoye, P.Eng. Senior Project Engineer dabikoye@envisionconsultants.ca Reviewed by

Alex Williams, P.Eng.
Director – Land Development
awilliams@envisionconsultants.ca

Alx Will

#### 7.3. QUALIFIER

EnVision prepared this report solely for the use of the intended recipient in accordance with the professional services agreement. In the event a contract has not been executed, the parties agree that the EnVision General Terms and Conditions, which were provided prior to the preparation of this report, shall govern their business relationship.

The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment. The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the report are based on the observations and/or information available to EnVision at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by EnVision and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.



EnVision disclaims any obligation to update this report if, after the date of this report, any conditions appear to differ significantly from those presented in this report; however, EnVision reserves the right to amend or supplement this report based on additional information, documentation or evidence.

EnVision makes no other representations whatsoever concerning the legal significance of its findings. The intended recipient is solely responsible for the disclosure of any information contained in this report. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. EnVision does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report.

EnVision has provided services to the intended recipient in accordance with the professional services agreement between the parties and in a manner consistent with that degree of care, skill and diligence normally provided by members of the same profession performing the same or comparable services in respect of projects of a similar nature in similar circumstances. It is understood and agreed by EnVision and the recipient of this report that EnVision provides no warranty, express or implied, of any kind. Without limiting the generality of the foregoing, it is agreed and understood by EnVision and the recipient of this report that EnVision makes no representation or warranty whatsoever as to the sufficiency of its scope of work for the purpose sought by the recipient of this report.

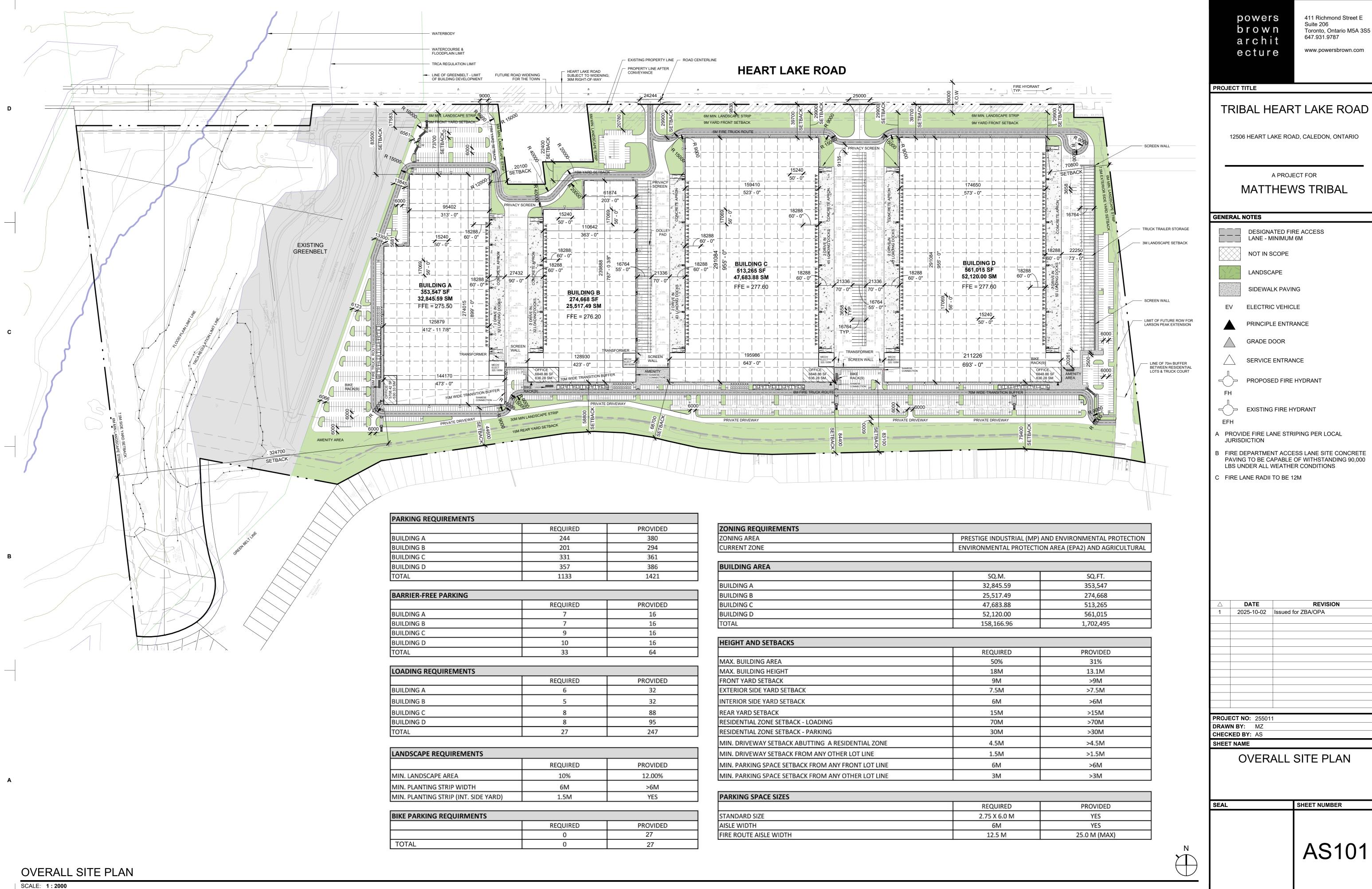
In preparing this report, EnVision has relied in good faith on information provided by others, as noted in the report. EnVision has reasonably assumed that the information provided is correct and EnVision is not responsible for the accuracy or completeness of such information.

Unless otherwise agreed in writing by EnVision, the Report shall not be used to express or imply warranty as to the suitability of the site for a particular purpose. EnVision disclaims any responsibility for consequential financial effects on transactions or property values, or requirements for follow-up actions /or costs.

This limitations statement is considered an integral part of this report.

## **APPENDIX A:**

Site Plan and Topographic Survey





## **APPENDIX B:**

Domestic Water Demand, Fire Flow Calculations & Hydrant Flow Test Results

## **Domestic Water Demand**

Town of Caledon Designed: D.A.

2025-10-14

Project No.: 24-0825

#### **Proposed Flows**

EnVision Consultants Ltd.

12506 Heart Lake Road, Caledon

Land Use	Site Area (ha)	Gross Floor Area (ha)	Population Density		Equivalent Population (persons)	Unitary Demand Rate (L/employee/day)	Average Daily Demand (L/s)	Max Day Peaking Factor	Max Day Demand (L/s)	Max Hour Peaking Factor	Max Hour Demand (L/s)
PROPOSED DEVELOPMENT AREA											
Industrial Area - Building A		3.28	70	persons/ha							
Industrial Area - Building B	40.6	2.55	70	persons/ha	2842	300	9.87	1.4	13.82	3.0	29.60
Industrial Area - Building C	40.0	4.77	70	persons/ha	2042						
Industrial Area - Building D		5.21	70	persons/ha							
TOTAL	40.60	15.81		•	2842		9.87		13.82		29.60

#### Notes:

- 1. Site statistics are based on the architectural site plan prepared by Powers Brown Architecture dated October 10, 2025.
- 2. Population densities and average daily flow generation rates are based on the guidelines outlined in Region of Peel Linear Wastewater Standards dated March 29, 2023.
- 3. Average Consumption Rates are based on the guidelines outlined in the Region of Peel Public Works Watermain Design Criteria dated June 2010.

## Fire Flow Demand - Building A

EnVision Consultants Ltd. 12506 Heart Lake Road, Caledon Project No.: 24-0825

Town of Caledon

2025-10-14 Designed: S.W. Checked: D.A.

 $RFF = 220C\sqrt{A}$ 

where RFF = Required Fire Flow (Lpm)

C = Construction Coefficient

A = Total Effective Floor Area (m2)

#### Section A - Building Construction Type

Construction Type = Type II Noncombustible Construction

Therefore Construction Coeffecient, C = 0.8

#### Section B - Total Effective Floor Area

For structures with a Construction Coefficient value below 1.0 and protected vertical openings;

A = Total Effective Floor Area

= Largest Floor Area + 25% of Adjoining Floor Areas

= 32845.59 + 0.25(0 + 0)

= 32846 m2

#### Section C - Building Height in Storeys

1 storey

#### Section D - Base Required Fire Flow

RFF = Required Fire Flow

 $= 220 \times C \times \sqrt{A}$ 

 $= 220 \times 0.8 \times \sqrt{32846}$ 

= 31897 Lpm

#### Section E - Additions and Reductions to Required Fire Flow

 $Building\ Contents =\ Combustible$ 

RFF Adjustment for Building Contents = 0%

Sprinkler System = Fully Supervised Automatic Sprinkler System per NFPA 13 with

standard water supply for both the system and fire department hose line

RFF Adjustment for Sprinkler System = -50%

North exposure distance = 100 m

South exposure distance = 45 m

East exposure distance = 27 m

West exposure distance = 100

RFF Adjustment for Building Exposure = 10%

Total RFF Adjustment = -40%

= -0.4 x 31897 Lpm

= -12759 Lpm

#### Section F - Required Fire Flow Calculation

RFF = Base RFF + Total RFF Adjustments

m

= 19138 Lpm

≈ 19000 Lpm (rounded to the nearest 1000 Lpm)

= 5013 US GPM

= 316.67 L/s

#### Notes

- 1. Fire Flow Calculations per Water Supply for Public Fire Protection, 2020 by Fire Underwriters Survey.
- 2. Largest floor area is equivalent to the building footprint from the Site Plan statistics provided by Powers Brown Architecture dated October 10, 2025.

### Fire Flow Demand - Building B

EnVision Consultants Ltd. 12506 Heart Lake Road, Caledon

Project No.: 24-0825

Town of Caledon

Designed: S.W.

2025-10-14

Checked: D.A.

 $RFF = 220C\sqrt{A}$ 

where RFF = Required Fire Flow (Lpm)

C = Construction Coefficient

A = Total Effective Floor Area (m2)

#### Section A - Building Construction Type

Construction Type = Type II Noncombustible Construction

Therefore Construction Coeffecient, C = 0.8

#### Section B - Total Effective Floor Area

For structures with a Construction Coefficient value below 1.0 and protected vertical openings;

A = Total Effective Floor Area

= Largest Floor Area + 25% of Adjoining Floor Areas

= 25517.49 + 0.25(0 + 0)

= 25517 m2

#### Section C - Building Height in Storeys

1 storey

#### Section D - Base Required Fire Flow

RFF = Required Fire Flow

 $= 220 \times C \times \sqrt{A}$ 

 $= 220 \times 0.8 \times \sqrt{25517}$ 

= 28114 Lpm

#### Section E - Additions and Reductions to Required Fire Flow

Building Contents = Combustible

RFF Adjustment for Building Contents = 0%

Sprinkler System = Fully Supervised Automatic Sprinkler System per NFPA 13 with

standard water supply for both the system and fire department hose line

RFF Adjustment for Sprinkler System = -50%

North exposure distance = 100 m

South exposure distance = 59 m

East exposure distance = 40 m

West exposure distance = 27 m

RFF Adjustment for Building Exposure = 10%

Total RFF Adjustment = -40%

= -0.4 x 28114 Lpm

= -11246 Lpm

#### Section F - Required Fire Flow Calculation

RFF = Base RFF + Total RFF Adjustments

= 16868 Lpm

≈ 17000 Lpm (rounded to the nearest 1000 Lpm)

= 4485 US GPM

= 283.33 L/s

#### Notes:

- $1.\ Fire\ Flow\ Calculations\ per\ Water\ Supply\ for\ Public\ Fire\ Protection,\ 2020\ by\ Fire\ Underwriters\ Survey.$
- 2. Largest floor area is equivalent to the building footprint from the Site Plan statistics provided by Powers Brown Architecture dated August 26, 2025.

## Fire Flow Demand - Building C

EnVision Consultants Ltd. 12506 Heart Lake Road, Caledon Project No.: 24-0825

Town of Caledon

2025-10-14 Designed: S.W. Checked: D.A.

(

## $RFF = 220C\sqrt{A}$

where RFF = Required Fire Flow (Lpm)

C = Construction Coefficient

A = Total Effective Floor Area (m2)

#### Section A - Building Construction Type

Construction Type = Type II Noncombustible Construction

Therefore Construction Coeffecient, C = 0.8

#### Section B - Total Effective Floor Area

For structures with a Construction Coefficient value below 1.0 and protected vertical openings;

A = Total Effective Floor Area

= Largest Floor Area + 25% of Adjoining Floor Areas

= 49683.88 + 0.25(0 + 0)

= 49684 m2

#### Section C - Building Height in Storeys

1 storey

#### Section D - Base Required Fire Flow

RFF = Required Fire Flow

 $= 220 \times C \times \sqrt{A}$ 

 $= 220 \times 0.8 \times \sqrt{49684}$ 

= 39230 Lpm

#### Section E - Additions and Reductions to Required Fire Flow

Building Contents = Combustible

RFF Adjustment for Building Contents = 0%

Sprinkler System = Fully Supervised Automatic Sprinkler System per NFPA 13 with

standard water supply for both the system and fire department hose line

RFF Adjustment for Sprinkler System = -50%

North exposure distance = 100 m South exposure distance = 80 m

East exposure distance = 76 m

West exposure distance = 40

RFF Adjustment for Building Exposure = 0%

Total RFF Adjustment = -50%=  $-0.5 \times 39230 \text{ Lpm}$ 

= -19615 Lpm

#### Section F - Required Fire Flow Calculation

RFF = Base RFF + Total RFF Adjustments

m

= 19615 Lpm

 $\approx 20000 \text{ Lpm}$  (rounded to the nearest 1000 Lpm)

= 5277 US GPM

= 333.33 L/s

#### Notes

- 1. Fire Flow Calculations per Water Supply for Public Fire Protection, 2020 by Fire Underwriters Survey.
- 2. Largest floor area is equivalent to the building footprint from the Site Plan statistics provided by Powers Brown Architecture dated August 26, 2025.

### Fire Flow Demand - Building D

EnVision Consultants Ltd. 12506 Heart Lake Road, Caledon

Project No.: 24-0825

Town of Caledon

Designed: S.W. Checked: D.A.

2025-10-14

## $RFF = 220C\sqrt{A}$

where RFF = Required Fire Flow (Lpm)

C = Construction Coefficient

A = Total Effective Floor Area (m2)

#### Section A - Building Construction Type

Construction Type = Type II Noncombustible Construction

Therefore Construction Coeffecient, C = 0.8

#### Section B - Total Effective Floor Area

For structures with a Construction Coefficient value below 1.0 and protected vertical openings;

A = Total Effective Floor Area

= Largest Floor Area + 25% of Adjoining Floor Areas

= 52120 + 0.25(0 + 0)

= 52120 m2

#### Section C - Building Height in Storeys

1 storey

#### Section D - Base Required Fire Flow

RFF = Required Fire Flow

 $= 220 \times C \times \sqrt{A}$ 

 $= 220 \times 0.8 \times \sqrt{52120}$ 

= 40180 Lpm

#### Section E - Additions and Reductions to Required Fire Flow

Building Contents = Combustible

RFF Adjustment for Building Contents = 0%

Sprinkler System = Fully Supervised Automatic Sprinkler System per NFPA 13 with

standard water supply for both the system and fire department hose line

RFF Adjustment for Sprinkler System = -50%

North exposure distance = 100 m

South exposure distance = 79 m

East exposure distance = 100 m

West exposure distance = 76 m

RFF Adjustment for Building Exposure = 0%

Total RFF Adjustment = -50%

 $= -0.5 \times 40180 \text{ Lpm}$ 

= -20090 Lpm

#### Section F - Required Fire Flow Calculation

RFF = Base RFF + Total RFF Adjustments

= 20090 Lpm

 $\approx 20000 \text{ Lpm}$  (rounded to the nearest 1000 Lpm)

= 5277 US GPM

= 333.33 L/s

#### Notes:

- $1.\ Fire\ Flow\ Calculations\ per\ Water\ Supply\ for\ Public\ Fire\ Protection,\ 2020\ by\ Fire\ Underwriters\ Survey.$
- 2. Largest floor area is equivalent to the building footprint from the Site Plan statistics provided by Powers Brown Architecture dated August 26, 2025.

## **APPENDIX C:**

Sanitary Demand Calculations & Sanitary Design Sheet

## **Sanitary Flow Generation**

Region of Peel

Designed: D.A. Checked: A.W.

2025-10-14

Project No.: 24-0825

EnVision Consultants Ltd.

12506 Heart Lake Road, Caledon

PROPOSED FLOWS

Land Use	Site Area (ha)	Gross Floor Area (ha)	Populat	ion Density	Equivalent Population (persons)	Unitary Flow Rate (L/cap/day)	Average Daily Flow (L/s)	Peaking Factor	Peak Flow (L/s)	I&I Allowance (L/s)	Total Design Flow (L/s)
DISCHARGE											
Industrial Area - Building A		3.28	70	persons/ha							
Industrial Area - Building B	40.6	2.55	70	persons/ha	2842	270	8.9	3.46	30.7	11.6	42.4
Industrial Area - Building C	40.0	4.77	70	persons/ha	2042	270	0.9	3.40	30.7	11.0	42.4
Industrial Area - Building D		5.21	70	persons/ha							
Total Discharge	40.60	15.81			2842		8.88		30.75	11.61	42.36

#### Notes

- 1. Site statistics are based on the architectural site plan prepared by Powers Brown Architecture dated October 10, 2025.
- 2. Population densities and average daily flow generation rates are based on the guidelines outlined in Region of Peel Linear Wastewater Standards dated March 29, 2023.

## **APPENDIX D:**

Region Multi-Use Demand Table

#### Water and Wastewater Multi-Use Demand Table

12506 Heart Lake Road, Caledon Project No.: 24-0825

EnVision Consultants Ltd.

Town of Caledon

2025-10-15 Designed: D.A. Checked: A.W.

#### **POPULATION**

Existing	N/A
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#### Proposed

	area (m <sup>2</sup> )	persons*	
Industrial	158,167	2842	
Proposed Employment			
Total Proposed	158,167	2842	

#### Other

Existing GFA (industrial) (sqm)	N/A
Proposed GFA (industrial) (sqm)	158,167
Proposed Land Area (ha)	40.6

#### **WATER CONNECTION**

Hydrant	flow test	
1	To be	conducted
2	To be	conducted

		Pressure (kPa)	Flow (L/s)	Time
1	Minimum water pressure	TBC	TBC	TBC
2		TBC	TBC	TBC
1	Maximum water pressure	TBC	TBC	TBC
2		TBC	TBC	TBC

	Water demands				
No.		Demand (L/s)			
	Demand type	Industrial	Total		
	Existing Fire Flow	-	-		
1	Proposed average day flow	9.87	9.87		
2	Proposed maximum day flow	13.82	13.82		
3	Proposed peak hour flow	29.60	29.6		
4	Proposed fire flow	333.33	333.33		
Analysis					
5	Maximum day plus fire flow	347.15	347.15		

#### **WASTEWATER CONNECTION**

	Discharge Location	Flow (L/s)	
		Residential	
Existing Effluent	N/A	N/A	
Proposed Effluent	Fut. San Sewer Heart Lake Rd	42.36	

