SERVICING AND STORMWATER MANAGEMENT REPORT - 355 FRANKTOWN ROAD

Project No.: CCO-22-0402

Prepared for:

11309455 Canada Inc
190 Lisgar St,
Ottawa, ON L2P 0C4

Prepared by:

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July 15, 2022

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McINTOSH PERRY

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1.0 PROJECT DESCRIPTION

1.1 Purpose

McIntosh Perry (MP) has been retained by 11309455 Canada Inc to prepare this Servicing and Stormwater Management Report in support of the site plan approval for the proposed development at 355 Franktown Road within the Town of Carleton Place.

The main purpose of this report is to demonstrate that the proposed development has access to sufficient public services in accordance with the recommendations and guidelines provided by the Town of Carleton Place (Town), the Mississippi Valley Conservation Authority (MVCA) and the Ministry of the Environment, Conservation and Parks (MECP). This report will address access to water, sanitary and storm servicing for the development, ensuring that existing services will adequately service the proposed development.

1.2 Site Description

The property is located at 355 Franktown Road in the Town of Carleton Place. The site, which is not considered to include the commercial plaza, covers approximately 1.34 ha and is located between the proposed second phase of Coleman Central Subdivision (***Coleman Subdivision***) and Franktown Road.

The site which is considered to exclude the existing commercial plaza, is currently undeveloped consisting of wooded and grassed areas. Adjacent lots to the north and south are also undeveloped. ***Coleman Subdivision*** flanks the eastern portion of the property and existing commercial and residential developments along Franktown Road are located to the west.

The development proposes two 4-storey condominium buildings and six townhouses. The condominium buildings will be separated from the townhouse blocks by a public ROW. The future ROW will connect the proposed development to the ***Coleman Subdivision*** to the east and eventually to 347 Franktown Road, north of the site.

2.0 BACKGROUND DOCUMENTS

Background documents available under separate cover include:

- JLR Watermain Capacity – Future Development_Final (Dated September 16, 2013, completed by J.L. Richards & Associates Ltd.)
- Functional Servicing Report – 347 Franktown Road (Dated August 13, 2021, completed by Mcintosh Perry Consulting Engineers Ltd.)
- Servicing and Stormwater Management Report – 347 Franktown Road (Date June 22, 2022, completed by Mcintosh Perry Consulting Engineers Ltd.)

- Servicing and Stormwater Management Report – Coleman Central Subdivision Phase 2 (Dated February 12, 2024) Note: This subdivision is currently ongoing approvals. Servicing and references will be updated to reflect the approved documents when complete. (***Coleman Subdivision***)

3.0 WATERMAIN

3.1 Existing Watermain

The following subsections outline the existing water infrastructure within Franktown Road and the proposed infrastructure within ***Coleman Subdivision***.

3.1.1 *Franktown Road*

There is an existing 200mm diameter watermain that runs north along Franktown Road, ending in a stub located at Findlay Avenue. Just before the stub there is a hydrant that services the existing commercial development adjacent to the subject site.

3.1.2 *Coleman Central Subdivision*

Although not yet constructed, the infrastructure within the proposed ***Coleman Subdivision*** is anticipated to be constructed prior to the proposed construction of the subject property. There is a proposed 200 mm diameter watermain that services the subdivision. The design of the ***Coleman Subdivision*** has taken the future development into account with stubs extending westward from the subdivision located both northeast and southeast of the subject site.

3.2 Proposed Watermain

The existing 200mm watermain within ***Coleman Subdivision*** will be extended along the future municipal road. In accordance with the Watermain Capacity – Future Development provided by the Town of Carleton Place, a new 200mm watermain is proposed to connect the extended main within the future municipal ROW. A 150mm PVC water lateral will extend from the proposed 200mm watermain to service the condo buildings, as shown on drawing C102. The townhouse block will be serviced via 19mm copper 'k' type laterals extending from the 200mm watermain within the future municipal road. A new service will be extended to the existing mall from the proposed 200mm watermain within the site. The proposed watermain will be extended through the site and connect to the existing municipal watermain within Franktown Road.

The Fire Underwriters Survey 2020 (FUS) method was utilized to determine the required fire flow for the proposed development. All buildings in the development were evaluated for the worst-case fire flow scenario. It was determined that the townhouse block is the worst case. Detailed water and fire calculations for the development can be found in Appendix 'C' of this report.

The 'C' factor (type of construction) for the townhouses was determined to be 1.5 (Wood Frame). The total floor area ('A' value) for the FUS calculation was determined to be 1132.0 m^2. The results of the calculations yielded a required fire flow of 11,000 L/min. The detailed calculations for the FUS can be found in Appendix 'C'.

The water demands have been calculated to adhere to the *Ottawa Design Guidelines – Water Distribution* manual and can be found in Appendix 'C'. ***Table 1***, below, summarizes the design criteria and total calculated demands.

Table 1: Water Supply Design Criteria and Water Demands

Water Demand Rate (Commercial)	28,000 L/gross ha/d
Water Demand Rate (Residential)	280 L/c/day
1-Bedroom Apartment	1.4 Persons/unit
2-Bedroom Apartment	2.1 Persons/unit
Townhouse	2.7 Persons/unit
Residential Peaking Factor (Day)	4.9 x avg. day
Residential Peaking Factor (Hour)	7.4 x max. day
Site Area (ha)	2.07
Average Day Demand (L/s)	0.86
Maximum Daily Demand (L/s)	3.42
Peak Hourly Demand (L/s)	5.27
FUS Fire Flow Requirement (L/s)	183.33
Max Day + Fire Flow (L/s)	186.75

3.3 Hydraulic Water Model Results

With reference to the Watermain Capacity – Future Development Pg. 18, pressures under peak demand were analyzed and a hydraulic water model was completed using Bentley's WaterCAD modelling software based on those conditions. A total of three (3) scenarios were analyzed. The performance of the proposed water distribution system within the development was analyzed under each scenario. The following summarizes the modelling scenarios that were analyzed.

Scenario 1: Average Day Demands (w/ Maximum HGL)
Scenario 2: Peak Hour Demands (w/ Minimum HGL)
Scenario 3: Max Day Plus Fire Flow (w/ Reduced Minimum HGL)

The normal operating pressure range is anticipated to be 449 kPa to 462 kPa and will not be less than 275 kPa (40 psi) or exceed 689 kPa (100 psi). ***Table 2***, below, summarizes the resultant water pressures at each junction per scenario.

Table 2: Water Pressure at Junctions per Scenario

Junction	Scenario 1: Average Day Demand (psi)	Scenario 2: Peak Hourly Demand (psi)
J-2	67	67
J-3	68	68
J-4	68	67
J-5	68	68
J-6	68	67
J-7	68	67
J-8	68	68
J-9	68	68
J-10	68	68
J-11	68	68
J-12	68	68
J-13	72	71
J-14	68	67
J-15	68	67
J-16	67	66
J-17	66	65
J-18	64	63
J-19	64	63

To analyze the maximum day demands plus fire flow scenario, the fire flow calculation tool in the water modelling software was used to run multiple iterations of the scenario while gradually increasing fire flows being applied to a single junction until the minimum pressure of 20 psi is reached at any point in the system. A summary of the maximum available fire flow results is provided in Appendix C. Please note the results are considered conservative, as reductions were applied to the HGL at the connection point within Franktown Road.

The water model results determined that the proposed 200mm watermain can adequately provide enough fire flow to meet the required flow rate of 11,000 L/min (183.33 L/sec) at the location of the proposed hydrants H-4 and H-3 (junctions J-15 and J-19), with available fire flows ranging from 13,532 L/min to 11,488 L/min (225.54 L/sec to 191.46 L/sec) while maintaining a minimum residual pressure of 20 psi in the network.

Fire flow to the proposed townhouse block will be provided in part by the proposed hydrant within the ***Coleman Subdivision***, given the distance between Hydrant H-4 and the townhouse block will exceed 150m. The water model results determined that the proposed hydrant within the ***Coleman Subdivision*** (J10) will provide 15,312 L/min of fire flow, or 255.20 L/s, while maintaining a residual pressure of 20 psi in the network. Refer to the Hydraulic Water Modelling results and figure C1 in Appendix C for more details.

To provide fire flow to the proposed condo buildings internal fire suppression system, a private hydrant (H-4) within 45m of the siamese connection is proposed. A hydrant summary based on the water model can be seen in ***Table 3***, below.

Table 3: Fire Protection Confirmation

Building	Max Fire Flow Demand (L/min.)	Fire Hydrant H-3 (L/min.)	Fire Hydrant H-4 (L/min.)	Coleman Subdivision Hydrant (J10) (L/min.)	Combined Fire Flow (L/min.)
Condo Buildings	9,000	13,532.4	11,488	-	>9,000
Townhouse Block	11,000	13,532.4	-	15,312	>11,000

4.0 SANITARY DESIGN

4.1 Existing Sanitary Sewer

Although not yet constructed, ***Coleman Subdivision*** has a proposed 200 mm diameter sanitary sewer with stubs located to the northeast and southeast of the subject site.

4.2 Proposed Sanitary Sewer

The 200 mm sanitary sewer stub within the ***Coleman Subdivision*** is proposed to be extended along the future municipal road to service the subject property. A 200 mm sanitary sewer is proposed to be extended from the municipal road within the drive aisles bounding the condo buildings. The condo buildings will have shared servicing through a 200 mm sanitary service connection to the proposed 200 mm diameter sanitary sewer. The proposed sewer will also service the existing mall to the west. Each townhouse will be serviced by 135mm sanitary laterals extending from the 200mm sewer within the future municipal road. Refer to drawing C102 for a detailed servicing layout.

The peak design flow was calculated for the proposed site using the Ottawa Sewer Design Guidelines (SDG). Design criteria used in the sanitary demand calculation can be seen in ***Table 4***, below.

Table 4: Sanitary Design Criteria

1-Bedroom Apartment	1.4 persons/unit
2-Bedroom Apartment	2.1 persons/unit
Townhouse	2.7 persons/unit
Average Daily Demand	280 L/day/person
Site Area (Condos, Townhouses, and Existing Mall))	2.07 ha
Residential Peaking Factor	3.52
Commercial	2,800 L/(1000m²/d)
Extraneous Flow Allowance	0.33 L/s/ha

Table 5¸ below, summarizes the estimated wastewater flow from the proposed development. Wastewater flows from the proposed 347 Franktown Road development are not included in this summary but have been accounted for in sanitary sizing and capacity. Detailed calculations for each contributing area can be found in Appendix 'D'.

Table 5: Summary of Estimated Sanitary Flow

Average Dry Weather Flow	0.97 L/s
Peak Dry Weather Flow	2.66 L/s
Peak Wet Weather Flow	3.24 L/s

Based on the calculation provided within the ***Coleman Subdivision*** Servicing Report and the results shown in ***Table 5***, above, it is anticipated that there will be no downstream capacity concerns within the development sites. Flow from the subject site has been accounted for in the ***Coleman Subdivision*** design, refer to subdivision design documents for details.

Further to the above, the Town has indicated that the McNeely sanitary sewer, downstream of the developments, will need to be upgraded in order to support the developments. Discussions regarding this upgrade are ongoing.

5.0 STORM DESIGN

5.1 Existing Storm Sewer

There is no existing storm infrastructure within the subject property. Stormwater runoff currently sheet drains to the southeast where it is collected by the existing creek. The existing mall currently outlets to a storm water management area within the development area. The ***Coleman Subdivision*** proposes a 975mm concrete storm sewer, which is being constructed to provide an outlet for 355 Franktown Road. The 975mm sewer ultimately outlets to an existing ditch that has been realigned as part of the ***Coleman Subdivision*** development. Please refer to the subdivision documents for details.

5.2 Proposed Storm Sewer

The proposed development will be serviced by a new storm network extended from the future 975mm storm sewer within the ***Coleman Subdivision***. A new outlet to the realigned ditch within the ***Coleman Subdivision*** is proposed to accommodate flows from the proposed development as well as flows from the adjacent commercial mall.

Runoff from the condo buildings and rear yard, drive aisles, existing mall, and southern landscaped area will be captured and restricted to pre-development flow rates.

Flow attenuation for the above-mentioned areas will be provided via a 180mm plug style orifice located on the inlet of the stormwater storage area outlet pipe. Storms in excess of the 100-year event will overtop the weir and be collected by DICB5 before being conveyed to the downstream ditch.

Runoff from the townhouses will sheet drain without attenuation to the future municipal Row.

Foundation drainage from the condominium building will be conveyed to the future municipal road downstream of any controls. Foundation drainage from the townhomes is anticipated to be pumped via sump pump to the future municipal road.

Runoff from the future municipal road will be collected by catch basins and conveyed downstream of the site restrictions.

6.0 STORMWATER MANAGEMENT

6.1 Design Criteria and Methodology

Stormwater management for the proposed site will be maintained through flow attenuation via an inlet control device, a weir, and a depressed surface storage area within a landscape area at south-east corner of the site. Catch basins within the development area will collect runoff from at-grade areas within the site and convey drainage towards the depressed storage area. Drainage from the townhomes and municipal road will be conveyed to the outlet without flow attenuation.

The quantitative and qualitative properties of the storm runoff for both the pre- & post-development flows are further detailed below. The post-development 5-year and 100-year flows will be restricted to the pre-development 5-year and 100-year flows.

6.2 Runoff Calculations

Runoff calculations presented in this report are derived using the Rational Method, given as:

$$Q = 2.78CIA \text{ (L/s)}$$

Where: C = Runoff coefficient

I = Rainfall intensity in mm/hr (City of Ottawa IDF curves)

A = Drainage area in hectares

It is recognized that the Rational Method tends to overestimate runoff rates. As a result, the conservative calculation of runoff ensures that any SWM facility sized using this method is expected to function as intended.

The following coefficients were used to develop an average C for each area:

Roofs/Concrete/Asphalt	0.90
Gravel	0.60
Undeveloped and Grass	0.20

As per the *City of Ottawa - Sewer Design Guidelines*, the 5-year balanced 'C' value must be increased by 25% for a 100-year storm event to a maximum of 1.0.

The time of concentration (Tc) used for pre-development and post-development shall be calculated using a Tc of 10 minutes.

6.3 Pre-Development Drainage

It has been assumed that the site contains no stormwater management controls for flow attenuation. The existing site drainage limits are demonstrated on the Pre-Development Drainage Area Plan. A summary of the Pre-Development Runoff Calculations can be found in ***Table 6,*** *below.* Please note the SWM area and site area

vary slightly as a portion of the townhouse blocks will be directed to ***Coleman Subdivision*** as was designed within their stormwater management calculations.

Table 6: Pre- Development Runoff Summary

Drainage Area	Area (ha)	Runoff Coefficient (5-Year)	Runoff Coefficient (100-Year)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)
A1	1.33	0.20	0.25	77.11	165.18
A2	0.69	0.20	0.25	40.04	85.78
A3	4.47	0.20	0.25	259.20	555.25

See CCO-22-0402 - *PRE* in Appendix 'E' and Appendix 'G' for calculations.

6.4 Post-Development Drainage

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-22-0402 - *POST* in Appendix 'F' of this report for more details. A summary of the Post-Development Runoff Calculations can be found in ***Table 7***¸ below.

Table 7: Post Development Flow Rate

Drainage Area	Area (ha)	Runoff Coefficient (5-Year)	Runoff Coefficient (100-Year)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)
B1	0.28	0.47	0.54	37.77	74.32
B2	0.74	0.64	0.73	137.34	265.21
B3	0.57	0.87	0.97	143.13	272.82
B4	0.32	0.56	0.64	51.37	99.91
B5	4.47	0.20	0.25	259.20	555.25
Total	**6.36**			**628.80**	**1267.51**

See Appendix 'G' for calculations.

Runoff for area B1-B3 will be restricted before draining to the sewer within the future municipal ROW. The flow will be controlled through the use of a 180mm plug style ICD within the depressed stormwater storage area. Runoff from area B4 will leave the site unrestricted and will be compensated for in areas with controls. Quantity and quality control will be further detailed in Sections 6.5 and 6.7.

6.5 Quantity Control

The post-development runoff from the development has been restricted to match the 5-year and 100-year pre-development flow rates, calculated with a combined C value. Note that areas A3 and B5 are offsite and will outlet to the storm sewer within the future public road at full buildout conditions; therefore, these areas are not included in the site quantity calculations. These values create the following allowable release rate and storage volumes for the development site.

Table 8: **Allowable Release Rate Summary**

Drainage Area	Area (ha)	Runoff Coefficient 5-Year	Runoff Coefficient 100-Year	Required Restricted Flow 5-Year (L/s)	Required Restricted Flow 100-Year (L/s)
A1	1.33	0.20	0.25	77.11	165.18
A2	0.69	0.20	0.25	40.04	85.78
Total	**2.02**			**117.15**	**250.95**

See Appendix 'G' for calculations.

Reducing site flows will be achieved using a flow restriction and will create the need for onsite storage. Runoff from areas B1 to B3 will be restricted as shown in ***Table 9***, below.

Table 9: **Post-Development Restricted Runoff Summary**

Drainage Area	Post Development Unrestricted Flow (L/s)		Post Development Restricted Flow (L/s)		
	5-Year	100-Year	5-Year	100-Year	
B1	37.77	74.32	55.77	135.10	Restricted – ICD
B2	137.34	265.21			
B3	143.13	272.82			
B4	51.37	99.91	51.37	99.91	Unrestricted
Total	**369.60**	**712.25**	**107.13**	**235.01**	

See Appendix 'G' for calculations.

Runoff from areas B1 to B3 will be restricted using an ICD within the inlet of the stormwater storage area outlet pipe as well as by a 2.00m weir. During minor storm events, stormwater will be controlled to the pre-development flow rates via the 180mm ICD. During larger events, both the ICD and weir will provide flow restriction. Flows in excess of the 100-year storm event will overtop the weir and will be collected by DICB5. The stormwater storage area will pond to elevations of 133.17 and 133.47 for the 5-year and 100-year storms, respectively.

A storage summary can be seen in ***Table 10***, below.

Table 10: Storage Summary

Drainage Area	Storage Required (m^3)	Storage Available (m^3)	Storage Required (m^3)	Storage Available (m^3)
	5-Year		100-Year	
B1	195.9	199.9	331.7	353.7
B2				
B3				

6.6 Hydraulic Grade Line Analysis

The hydraulic grade line was reviewed within the proposed storm sewer network to evaluate the need for sump pumps within the proposed condo buildings and townhouse block. PCSWMM was used to evaluate the HGL based on a 100-year Chicago Storm with a 3-hour duration. The results of the HGL analysis indicated that sump pumps are anticipated for the townhouse block, as the 100-year HGL elevation will be greater than the USF elevation. The model will be reviewed during detailed design to evaluate options to eliminate the need for sump pumps. Results can be found in ***Table 11***, below. Please refer to Appendix 'G' for additional information.

Table 11: Junction HGL vs USF Elevation

Max HGL (m) (MH111)	Max. HGL (m) (MH106)	USF Elev. (m) (Condo Buildings)	USF Elev. (m) (Townhouse Block)
131.85	131.70	132.75	131.36

Additional notes have been added to drawing C102 regarding the requirement for sump pumps and back-flow preventors.

6.7 Quality Control

The development of this lot will employ Best Management Practices (BMP's) wherever possible. The intent of implementing stormwater BMP's is to ensure that water quality and quantity concerns are addressed at all stages of development. BMP's at this site will be implemented at the lot level. Lot level BMP's typically include temporary retention of the parking lot runoff, minimizing ground slopes and maximizing landscaped areas.

A quality treatment unit has been sized to provide a TSS removal rate of 80% as per the Mississippi Valley Conservation Authority (MVCA) requirements. The Oil and Grit Separator (OGS) will provide a water quality of at least 80% TSS. The OGS Unit shall be placed downstream of the restriction unit to provide the required water quality treatment for the site runoff before discharging to the existing ditch southeast of the site.

7.0 EROSION AND SEDIMENT CONTROL

7.1 Temporary Measures

Before construction begins, temporary silt fence, straw bale or rock flow check dams will be installed at all natural runoff outlets from the property. It is crucial that these controls be maintained throughout construction and inspection of sediment and erosion control will be facilitated by the Contractor or Contract Administration staff throughout the construction period.

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the town, Conservation Authority or the Contract Administrator shall increase the quantity of sediment and erosion controls on-site to ensure that the site is operating as intended and no additional sediment finds its way off site. The rock flow, straw bale & silt fence check dams and barriers shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the fences and check dams as required. Fibre roll barriers are to be installed at all existing curb inlet catchbasins and filter fabric is to be placed under the grates of all existing catchbasins and manholes along the frontage of the site and any new structures immediately upon installation. The measures for the existing/proposed structures are to be removed only after all areas have been paved. Care shall be taken at the removal stage to ensure that any silt that has accumulated is properly handled and disposed of. Removal of silt fences without prior removal of the sediments shall not be permitted.

Although not anticipated, work through winter months shall be closely monitored for erosion along sloped areas. Should erosion be noted, the Contractor shall be alerted and shall take all necessary steps to rectify the situation. Should the Contractor's efforts fail at remediating the eroded areas, the Contractor shall contact the town and/or Conservation Authority to review the site conditions and determine the appropriate course of action. As the ground begins to thaw, the Contractor shall place silt fencing at all required locations as soon as ground conditions warrant. Please see the *Erosion & Sediment Control Plan* for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

7.2 Permanent Measures

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any watercourse to ensure that no sediment is washed out into the watercourse. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established. Once the construction is complete, it will be up to the landowner to maintain the vegetation and ensure that the vegetation is not overgrown or impeded by foreign objects.

8.0 SUMMARY

- Two new condominium buildings and a block of townhouses are proposed at 355 Franktown Road.
- A new 200mm water main will be extended from the proposed ***Coleman Subdivision*** to Franktown Road.
- The FUS method estimated a maximum fire flow of 11,000 L/min would be required for the proposed development.
- Based on boundary conditions provided by the Town, the proposed 200 mm watermain and two private hydrants in the vicinity of the development are capable of meeting daily and fire flow demands.
- A new 200mm sanitary sewer main will be installed and connected to the proposed stub provided by the ***Coleman Subdivision.***
- The development is anticipated to have a peak wet weather flow of 3.24 L/s. A proposed 200 mm diameter sanitary main will collect and outlet flow to the proposed 200 mm diameter sanitary stub located within the ***Coleman Subdivision***. 135mm services will service the block of townhouses, extending from the sanitary sewer within the future municipal road. Based on the sanitary analysis conducted in the ***Coleman Subdivision*** Servicing Report, the subdivision's sanitary network has sufficient capacity for the proposed wastewater flow.
- A new storm system will be installed on-site to capture storm runoff and restrict flows to pre-development rates. The new storm system will discharge to the future 975mm sewer located within the ***Coleman Subdivision***.
- Storage for the 5-year and 100-year storm events will be provided via surface storage.

9.0 RECOMMENDATION

Based on the information presented in this report, we recommend that Town of Carleton Place approve this Servicing and Stormwater Management Report in support of the proposed development at 355 Franktown Road.

This report is respectfully being submitted for approval.

Regards,

McIntosh Perry Consulting Engineers Ltd.

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10.0 STATEMENT OF LIMITATIONS

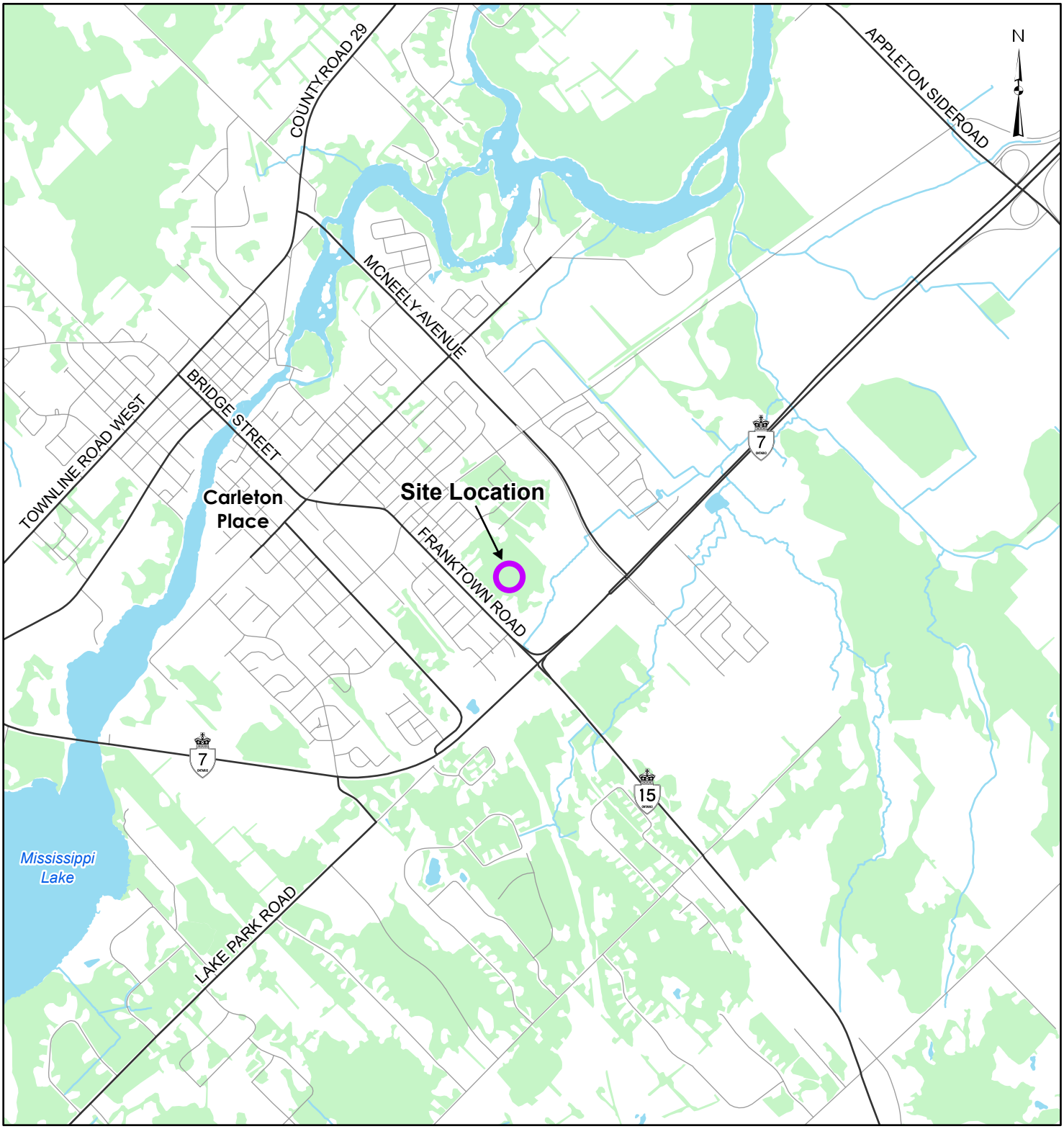
This report was produced for the exclusive use of 11309455 Canada Inc. The purpose of the report is to assess the existing stormwater management system and provide recommendations and designs for the post-construction scenario that are in compliance with the guidelines and standards from the Ministry of the Environment, Parks and Climate Change, Town of Carleton Place and local approval agencies. McIntosh Perry reviewed the site information and background documents listed in Section 2.0 of this report. While the previous data was reviewed by McIntosh Perry and site visits were performed, no field verification/measures of any information were conducted.

Any use of this review by a third party, or any reliance on decisions made based on it, without a reliance report is the responsibility of such third parties. McIntosh Perry accepts no responsibility for damages, if any, suffered by any third party as a result of decisions or actions made based on this review.

The findings, conclusions and/or recommendations of this report are only valid as of the date of this report. No assurance is made regarding any changes in conditions subsequent to this date. If additional information is discovered or becomes available at a future date, McIntosh Perry should be requested to re-evaluate the conclusions presented in this report, and provide amendments, if required.

APPENDIX A
KEY PLAN

McINTOSH PERRY



LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

1,000 500 0 1,000

Scale 1:30,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

CLIENT: HEAFEY GROUP

PROJECT: 355 FRANKTOWN ROAD

TITLE: SITE LOCATION

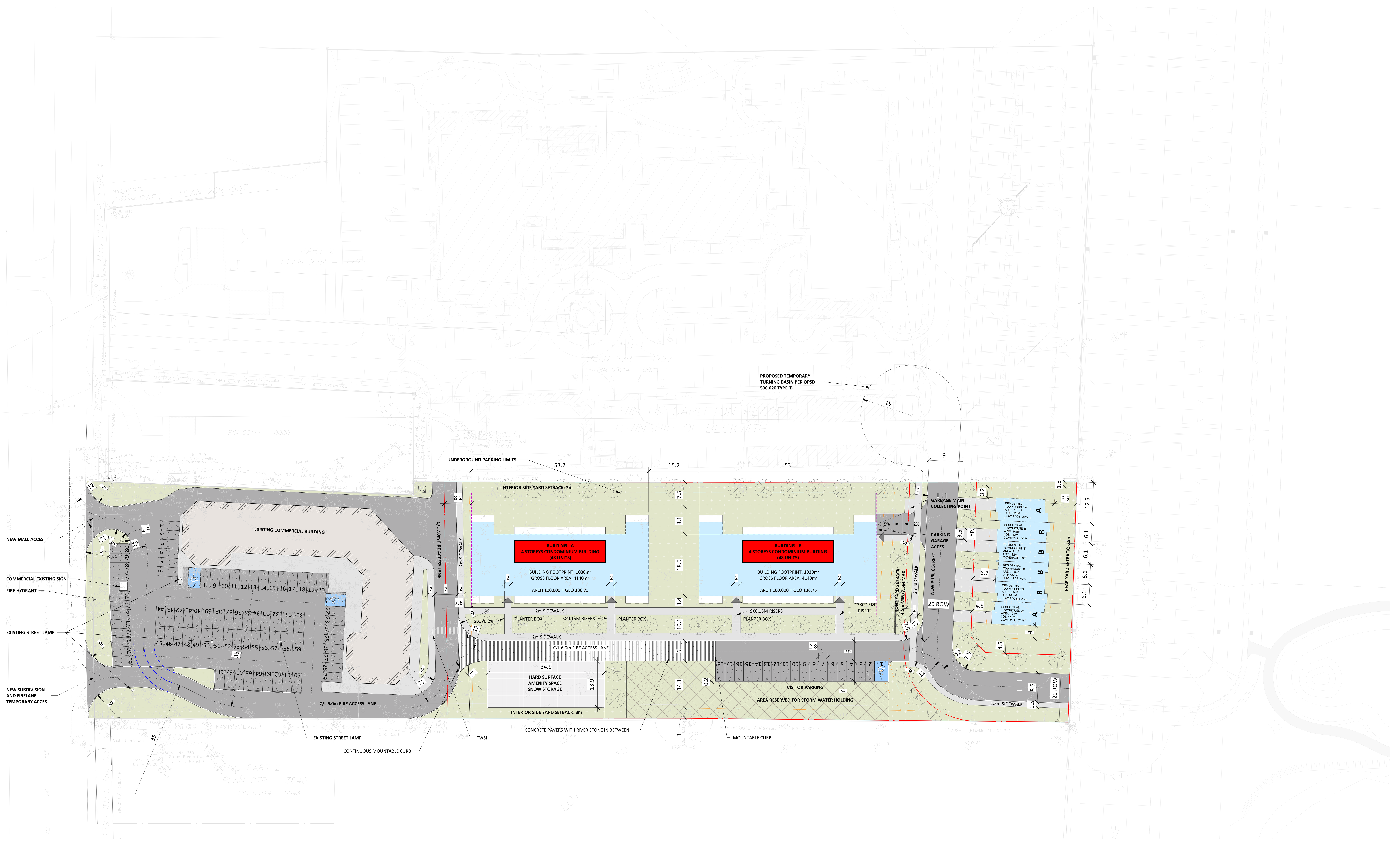
McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO: CCO-22-0402	
Date	Aug., 09, 2021
GIS	EU
Checked By	NV

FIGURE: 1

APPENDIX B
BACKGROUND DOCUMENTS

McINTOSH PERRY



355 FRANKTOWN RD - FRANKTWON DEVELOPMENT

96 CONDOMINIUMS UNITS
6 FREEHOLD TOWNHOUSES

102 UNITS TOTAL

PARKINGS

RESIDENTIAL COMPLEX
RESIDENTIAL: 116 (RATIO 1.21)
VISITOR: 24 (RATIO .25)
BIKE: 48 (RATIO .5)

COMMERCAL PLAZA
COMMERCIAL: 80

SITE PLAN LEGEND

- LOT LINE
- BUILDING SETBACK
- SERVITUDE
- 0000 GEO ÉLÉVATION GÉODÉSIQUE
- NEW TREE
- DEMOLISHED BUILDING
- EXISTING BUILDING
- LANDSCAPED AREA
- PAVER
- SIDEWALK
- AHPHALT

PROJECT

FRANKTOWN DEVELOPMENT

355 Franktown Rd,
Carleton Place, ON K7C 4M6

OWNER

ARCHITECT

PMA ARCHITECTES

PLANNER

FOTENN Planning + Design

CIVIL

McINTOSH PERRY

115 WALGREEN ROAD, R.R. 3 CARP,
OTTAWA, ON K0A 1L0

LANDSCAPE

JAMES B. LENNOX & ASSOCIATES INC.
LANDSCAPE ARCHITECTS

MECHANICAL

STRUCTURAL

KEY PLAN

ARCHITECT SEAL

REVISIONS

NO	DESCRIPTION	DATE
5	FOR COORDINATION	2024-05-31
4	FOR COORDINATION	2024-02-08
3	FOR COORDINATION	2023-08-30
2	FOR COORDINATION	2023-07-17
1	FOR COORDINATION	2023-06-29

NOTE

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON THE SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT. ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS. DO NOT SCALE DRAWINGS.

DO NOT USE FOR CONSTRUCTION

DATE 2024-05-31
DESIGNED P.POMERLEAU
DRAWN P.POMERLEAU
PROJECT No 21006
CHECKED P.MARTIN

SHEET TITLE
SITE PLAN

SHEET No
A101

C:\Users\ppomerleau\OneDrive - PMA Architectes\Documents\21006_A_GEN-CONDO_R21_ppomerleauUW453.rvt

APPENDIX C
WATERMAIN CALCULATIONS

McINTOSH PERRY

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Water Demands - BLDG A

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	September 1, 2023
Site Area:	0.50 gross ha

Residential	**NUMBER OF UNITS**		**UNIT RATE**	
Single Family		homes	3.4	persons/unit
Semi-detached		homes	2.7	persons/unit
Townhouse		homes	2.7	persons/unit
Bachelor Apartment		units	1.4	persons/unit
1 Bedroom Apartment	18	units	1.4	persons/unit
2 Bedroom Apartment	30	units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit
Total Population	89	persons		
Commercial		m2		
Industrial - Light		m2		
Industrial - Heavy		m2		

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	280	L/c/d	
Industrial - Light	35,000	L/gross ha/d	
Industrial - Heavy	55,000	L/gross ha/d	
Shopping Centres	2,500	L/(1000m² /d	
Hospital	900	L/(bed/day)	
Schools	70	L/(Student/d)	
Trailer Park with no Hook-Ups	340	L/(space/d)	
Trailer Park with Hook-Ups	800	L/(space/d)	
Campgrounds	225	L/(campsite/d)	
Mobile Home Parks	1,000	L/(Space/d)	
Motels	150	L/(bed-space/d)	
Hotels	225	L/(bed-space/d)	
Tourist Commercial	28,000	L/gross ha/d	
Other Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	Residential	0.29	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	2.74	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	4.12	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.29	L/s
MAXIMUM DAILY DEMAND	2.74	L/s
MAXIMUM HOUR DEMAND	4.12	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Water Demands - BLDG B

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	September 1, 2023
Site Area:	0.50 gross ha

Residential	**NUMBER OF UNITS**		**UNIT RATE**	
Single Family		homes	3.4	persons/unit
Semi-detached		homes	2.7	persons/unit
Townhouse		homes	2.7	persons/unit
Bachelor Apartment		units	1.4	persons/unit
1 Bedroom Apartment	18	units	1.4	persons/unit
2 Bedroom Apartment	30	units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit
Total Population	89	persons		
Commercial		m2		
Industrial - Light		m2		
Industrial - Heavy		m2		

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	280	L/c/d	
Industrial - Light	35,000	L/gross ha/d	
Industrial - Heavy	55,000	L/gross ha/d	
Shopping Centres	2,500	L/(1000m² /d	
Hospital	900	L/(bed/day)	
Schools	70	L/(Student/d)	
Trailer Park with no Hook-Ups	340	L/(space/d)	
Trailer Park with Hook-Ups	800	L/(space/d)	
Campgrounds	225	L/(campsite/d)	
Mobile Home Parks	1,000	L/(Space/d)	
Motels	150	L/(bed-space/d)	
Hotels	225	L/(bed-space/d)	
Tourist Commercial	28,000	L/gross ha/d	
Other Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	Residential	0.29	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	2.74	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	4.12	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.29	L/s
MAXIMUM DAILY DEMAND	2.74	L/s
MAXIMUM HOUR DEMAND	4.12	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Water Demands - Existing Mall

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	September 1, 2023
Site Area:	0.73 gross ha

Residential	**NUMBER OF UNITS**		**UNIT RATE**	
Single Family		homes	3.4	persons/unit
Semi-detached		homes	2.7	persons/unit
Townhouse		homes	2.7	persons/unit
Bachelor Apartment		units	1.4	persons/unit
1 Bedroom Apartment		units	1.4	persons/unit
2 Bedroom Apartment		units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit

Total Population **0 persons**

Commercial	7299	m2
Industrial - Light		m2
Industrial - Heavy		m2

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	280	L/c/d	
Industrial - Light	35,000	L/gross ha/d	
Industrial - Heavy	55,000	L/gross ha/d	
Shopping Centres	2,500	L/(1000m² /d	
Hospital	900	L/(bed/day)	
Schools	70	L/(Student/d)	
Trailer Park with no Hook-Ups	340	L/(space/d)	
Trailer Park with Hook-Ups	800	L/(space/d)	
Campgrounds	225	L/(campsite/d)	
Mobile Home Parks	1,000	L/(Space/d)	
Motels	150	L/(bed-space/d)	
Hotels	225	L/(bed-space/d)	
Tourist Commercial	28,000	L/gross ha/d	
Other Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	**Residential**	**0.00**	**L/s**
	Commerical/Industrial/ Institutional	**0.24**	**L/s**

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	**Residential**	**0.00**	**L/s**
	Commerical/Industrial/ Institutional	**0.35**	**L/s**

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	**Residential**	**0.00**	**L/s**
	Commerical/Industrial/ Institutional	**0.64**	**L/s**

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.24	L/s
MAXIMUM DAILY DEMAND	0.35	L/s
MAXIMUM HOUR DEMAND	0.64	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Water Demands - Heafey Townhouse

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	September 1, 2023
Site Area:	0.35 gross ha

Residential	**NUMBER OF UNITS**		**UNIT RATE**	
Single Family		homes	3.4	persons/unit
Semi-detached		homes	2.7	persons/unit
Townhouse	6	homes	2.7	persons/unit
Bachelor Apartment		units	1.4	persons/unit
1 Bedroom Apartment		units	1.4	persons/unit
2 Bedroom Apartment		units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit
Total Population	**17**	**persons**		
Commercial		m2		
Industrial - Light		m2		
Industrial - Heavy		m2		

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	280	L/c/d	
Industrial - Light	35,000	L/gross ha/d	
Industrial - Heavy	55,000	L/gross ha/d	
Shopping Centres	2,500	L/(1000m² /d	
Hospital	900	L/(bed/day)	
Schools	70	L/(Student/d)	
Trailer Park with no Hook-Ups	340	L/(space/d)	
Trailer Park with Hook-Ups	800	L/(space/d)	
Campgrounds	225	L/(campsite/d)	
Mobile Home Parks	1,000	L/(Space/d)	
Motels	150	L/(bed-space/d)	
Hotels	225	L/(bed-space/d)	
Tourist Commercial	28,000	L/gross ha/d	
Other Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	**Residential**	**0.06**	**L/s**
	Commerical/Industrial/ Institutional	**0.00**	**L/s**

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	**Residential**	**0.52**	**L/s**
	Commerical/Industrial/ Institutional	**0.00**	**L/s**

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	**Residential**	**0.79**	**L/s**
	Commerical/Industrial/ Institutional	**0.00**	**L/s**

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.06	L/s
MAXIMUM DAILY DEMAND	0.52	L/s
MAXIMUM HOUR DEMAND	0.79	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Water Demands - Heafey Total

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	September 1, 2023
Site Area:	2.07 gross ha

Residential	**NUMBER OF UNITS**		**UNIT RATE**	
Single Family		homes	3.4	persons/unit
Semi-detached		homes	2.7	persons/unit
Townhouse	6	homes	2.7	persons/unit
Bachelor Apartment		units	1.4	persons/unit
1 Bedroom Apartment	**36**	units	1.4	persons/unit
2 Bedroom Apartment	**60**	units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit
Total Population	**193**	**persons**		
Commercial	7299	m2		
Industrial - Light		m2		
Industrial - Heavy		m2		

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	280	L/c/d	
Industrial - Light	35,000	L/gross ha/d	
Industrial - Heavy	55,000	L/gross ha/d	
Shopping Centres	2,500	L/(1000m² /d	
Hospital	900	L/(bed/day)	
Schools	70	L/(Student/d)	
Trailer Park with no Hook-Ups	340	L/(space/d)	
Trailer Park with Hook-Ups	800	L/(space/d)	
Campgrounds	225	L/(campsite/d)	
Mobile Home Parks	1,000	L/(Space/d)	
Motels	150	L/(bed-space/d)	
Hotels	225	L/(bed-space/d)	
Tourist Commercial	28,000	L/gross ha/d	
Other Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	**Residential**	**0.63**	**L/s**
	Commerical/Industrial/ Institutional	**0.24**	**L/s**

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	4.9	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	**Residential**	**3.06**	**L/s**
	Commerical/Industrial/ Institutional	**0.35**	**L/s**

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	7.4	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	**Residential**	**4.63**	**L/s**
	Commerical/Industrial/ Institutional	**0.64**	**L/s**

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.86	L/s
MAXIMUM DAILY DEMAND	3.42	L/s
MAXIMUM HOUR DEMAND	5.27	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Fire Underwriters Survey - Building A

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	March 13, 2024

From the Fire Underwriters Survey (2020)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
City of Ottawa Technical Bulletin ISTB-2018-02 Applied Where Applicable

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where:

F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type: Ordinary Construction

C	1	A	4,140.0	m^2
	Total Floor Area (per the 2020 FUS Page 20 - Total Effective Area)		4,140.0	m^2

*Unprotected Vertical Openings

Calculated Fire Flow	14,155.4 L/min
	14,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From Page 24 of the Fire Underwriters Survey:

Limited Combustible	-15%

Fire Flow	11,900.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Standard Water Supply Sprinklered	-40%

Reduction	-4,760.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor		
Exposure 1	10.1 to 20	Ordinary - Mass Timber (Unprotected)	25	2	50.5	7%	
Exposure 2	10.1 to 20	Ordinary - Mass Timber (Unprotected)	22	4	88.0	0%	*Both Buildings Sprinklered
Exposure 3	Over 30 m	Ordinary - Mass Timber (Unprotected)	15	2	30.0	0%	
Exposure 4	10.1 to 20	Ordinary - Mass Timber (Unprotected)	34	1	34.0	6%	
					% Increase*	13%	

Increase*	1,547.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	8,687.0 L/min
Fire Flow Required**	9,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Fire Underwriters Survey - Building B

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	March 13, 2024

From the Fire Underwriters Survey (2020)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
City of Ottawa Technical Bulletin ISTB-2018-02 Applied Where Applicable

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type: Ordinary Construction

C	1	A	4,140.0	m^2
	Total Floor Area (per the 2020 FUS Page 20 - Total Effective Area)		4,140.0	m^2

*Unprotected Vertical Openings

Calculated Fire Flow	14,155.4 L/min
	14,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From Page 24 of the Fire Underwriters Survey:

Limited Combustible	-15%	
Fire Flow		11,900.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Standard Water Supply Sprinklered	-40%	
Reduction		-4,760.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	Over 30 m	Ordinary - Mass Timber (Unprotected)	16	2	32.0	0%
Exposure 2	Over 30 m	Wood frame	38	2	76.0	0%
Exposure 3	Over 30 m	Ordinary - Mass Timber (Unprotected)	15	2	30.0	0%
Exposure 4	10.1 to 20	Ordinary - Mass Timber (Unprotected)	19	4	76.0	0% *Both Buildings Sprinklered
					% Increase*	0%

Increase*	0.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	7,140.0 L/min
Fire Flow Required**	7,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Fire Underwriters Survey - Townhouse Block

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	March 13, 2024

From the Fire Underwriters Survey (2020)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
City of Ottawa Technical Bulletin ISTB-2018-02 Applied Where Applicable

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where:

F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type: Wood Frame

C	1.5	A	1,132.0 m^2	
	Total Floor Area (per the 2020 FUS Page 20 - Total Effective Area)		1,132.0 m^2	**Unprotected Vertical Openings*

Calculated Fire Flow	11,102.9 L/min
	11,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From Page 24 of the Fire Underwriters Survey:

Limited Combustible	-15%

Fire Flow	9,350.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered	0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	3.1 to 10	Wood frame	15	2	30.0	16%
Exposure 2	20.1 to 30	Wood frame	29	2	58.0	4%
Exposure 3	Over 30 m	Ordinary - Mass Timber (Unprotected)	20	2	40.0	0%
Exposure 4	Over 30 m	Ordinary - Mass Timber (Unprotected)	22	4	88.0	0%
					% Increase*	20%

Increase*	1,870.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	11,220.0 L/min
Fire Flow Required**	11,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

Coleman Phase 2 & 355 Franktown Water Model

Average Day Demands

Junction Table - Time: 0.00 hours

ID	Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
31	J-2	133.92	0.00	181.14	67
32	J-3	133.31	0.07	181.16	68
34	J-4	133.50	0.12	181.16	68
36	J-5	133.19	0.39	181.17	68
38	J-6	133.35	0.10	181.17	68
40	J-7	133.35	0.10	181.18	68
42	J-8	133.06	0.04	181.18	68
44	J-9	133.12	0.03	181.19	68
46	J-10	133.10	0.00	181.20	68
48	J-11	133.26	0.00	181.16	68
50	J-12	133.27	0.00	181.17	68
52	J-13	130.65	0.00	181.18	72
54	J-14	133.56	0.11	181.15	68
88	J-15	133.31	0.00	181.21	68
90	J-16	133.91	0.58	181.23	67
92	J-17	134.88	0.06	181.21	66
95	J-18	136.18	0.00	181.29	64
97	J-19	136.41	0.25	181.25	64

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (m)	Hydraulic Grade (m)
57	R-1	181.14	181.14
58	R-2	181.16	181.16
59	R-3	181.18	181.18
94	R-4	181.32	181.32

Pipe Table - Time: 0.00 hours

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
35	P-2	62	J-3	J-4	204.0	PVC	110.0	-2.38	0.07
37	P-3	72	J-4	J-5	204.0	PVC	110.0	-2.50	0.08
39	P-4	75	J-5	J-6	204.0	PVC	110.0	-2.89	0.09
41	P-5	87	J-6	J-7	204.0	PVC	110.0	-2.99	0.09
43	P-6	47	J-7	J-8	204.0	PVC	110.0	-3.09	0.09
45	P-7	31	J-8	J-9	204.0	PVC	110.0	-5.01	0.15
47	P-8	35	J-9	J-10	204.0	PVC	110.0	-5.04	0.15
49	P-9	12	J-11	J-3	204.0	PVC	110.0	1.96	0.06
51	P-10	45	J-12	J-5	204.0	PVC	110.0	0.00	0.00
53	P-11	103	J-13	J-8	204.0	PVC	110.0	-1.88	0.06
55	P-1(1)	50	J-2	J-14	204.0	PVC	110.0	-4.16	0.13

Coleman Phase 2 & 355 Franktown Water Model

Average Day Demands

Pipe Table - Time: 0.00 hours

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
56	P-1(2)	47	J-14	J-3	204.0	PVC	110.0	-4.27	0.13
60	P-12	20	R-1	J-2	204.0	PVC	110.0	-4.16	0.13
61	P-13	19	R-2	J-11	204.0	PVC	110.0	1.96	0.06
62	P-14	23	R-3	J-13	204.0	PVC	110.0	-1.88	0.06
89	P-16	45	J-10	J-15	204.0	PVC	110.0	-5.04	0.15
91	P-17	80	J-15	J-16	204.0	PVC	110.0	-5.10	0.16
93	P-18	48	J-15	J-17	204.0	PVC	110.0	0.06	0.00
96	P-19	111	R-4	J-18	204.0	PVC	110.0	5.93	0.18
98	P-20	130	J-18	J-19	204.0	PVC	110.0	5.93	0.18
99	P-21	66	J-19	J-16	204.0	PVC	110.0	5.68	0.17

Coleman Phase 2 & 355 Franktown Water Model

Peak Hour Demands

Junction Table - Time: 0.00 hours

ID	Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (psi)
31	J-2	133.92	0.00	181.04	67
32	J-3	133.31	1.00	180.95	68
34	J-4	133.50	1.72	180.90	67
36	J-5	133.19	0.39	180.87	68
38	J-6	133.35	1.43	180.83	67
40	J-7	133.35	1.43	180.80	67
42	J-8	133.06	0.57	180.79	68
44	J-9	133.12	0.43	180.78	68
46	J-10	133.10	0.00	180.76	68
48	J-11	133.26	0.00	180.95	68
50	J-12	133.27	0.00	180.87	68
52	J-13	130.65	0.00	180.81	71
54	J-14	133.56	1.57	180.99	67
88	J-15	133.31	0.00	180.74	67
90	J-16	133.91	8.15	180.70	66
92	J-17	134.88	0.06	180.74	65
95	J-18	136.18	0.00	180.72	63
97	J-19	136.41	3.58	180.70	63

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (m)	Hydraulic Grade (m)
57	R-1	181.06	181.06
58	R-2	180.95	180.95
59	R-3	180.81	180.81
94	R-4	180.74	180.74

Pipe Table - Time: 0.00 hours

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
35	P-2	62	J-3	J-4	204.0	PVC	110.0	9.64	0.29
37	P-3	72	J-4	J-5	204.0	PVC	110.0	7.92	0.24
39	P-4	75	J-5	J-6	204.0	PVC	110.0	7.53	0.23
41	P-5	87	J-6	J-7	204.0	PVC	110.0	6.10	0.19
43	P-6	47	J-7	J-8	204.0	PVC	110.0	4.67	0.14
45	P-7	31	J-8	J-9	204.0	PVC	110.0	7.99	0.24
47	P-8	35	J-9	J-10	204.0	PVC	110.0	7.56	0.23
49	P-9	12	J-11	J-3	204.0	PVC	110.0	0.67	0.02
51	P-10	45	J-12	J-5	204.0	PVC	110.0	0.00	0.00
53	P-11	103	J-13	J-8	204.0	PVC	110.0	3.89	0.12
55	P-1(1)	50	J-2	J-14	204.0	PVC	110.0	11.54	0.35

Coleman Phase 2 & 355 Franktown Water Model

Peak Hour Demands

Pipe Table - Time: 0.00 hours

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
56	P-1(2)	47	J-14	J-3	204.0	PVC	110.0	9.97	0.30
60	P-12	20	R-1	J-2	204.0	PVC	110.0	11.54	0.35
61	P-13	19	R-2	J-11	204.0	PVC	110.0	0.67	0.02
62	P-14	23	R-3	J-13	204.0	PVC	110.0	3.89	0.12
89	P-16	45	J-10	J-15	204.0	PVC	110.0	7.56	0.23
91	P-17	80	J-15	J-16	204.0	PVC	110.0	7.50	0.23
93	P-18	48	J-15	J-17	204.0	PVC	110.0	0.06	0.00
96	P-19	111	R-4	J-18	204.0	PVC	110.0	4.23	0.13
98	P-20	130	J-18	J-19	204.0	PVC	110.0	4.23	0.13
99	P-21	66	J-19	J-16	204.0	PVC	110.0	0.65	0.02

Coleman Phase 2 & 355 Franktown Water Model

Max Day + Fire Flow, Reduced HGL (Min. 190L/sec)

Fire Flow Results Table - Time: 0.00 hours

Label	Fire Flow (Available) (L/s)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone)	Pipe w/ Maximum Velocity	Velocity of Maximum Pipe (m/s)	Satisfies Fire Flow Constraints ?
J-2	300.00	39	J-19	P-12	6.61	True
J-3	300.00	42	J-19	P-9	6.36	True
J-4	300.00	23	J-12	P-2	6.56	True
J-5	261.30	20	J-12	P-2	4.80	True
J-6	251.51	20	J-12	P-6	4.05	True
J-7	283.80	20	J-6	P-6	5.63	True
J-8	300.00	27	J-9	P-11	4.85	True
J-9	289.81	20	J-10	P-7	6.53	True
J-10	255.20	20	J-17	P-7	5.37	True
J-11	300.00	46	J-19	P-13	8.48	True
J-12	187.39	20	J-5	P-10	5.73	False
J-13	300.00	49	J-19	P-14	8.85	True
J-14	300.00	35	J-19	P-1(2)	4.80	True
J-15	225.54	20	J-17	P-7	4.39	True
J-16	201.37	20	J-19	P-7	3.43	True
J-17	168.32	20	J-15	P-18	5.17	False
J-18	233.94	20	J-19	P-19	4.94	True
J-19	191.46	20	J-16	P-20	3.23	True

Reservoir Table - Time: 0.00 hours

ID	Label	Elevation (m)	Hydraulic Grade (m)
57	R-1	166.06	166.06
58	R-2	165.95	165.95
59	R-3	165.81	165.81
94	R-4	165.74	165.74

Pipe Table - Time: 0.00 hours

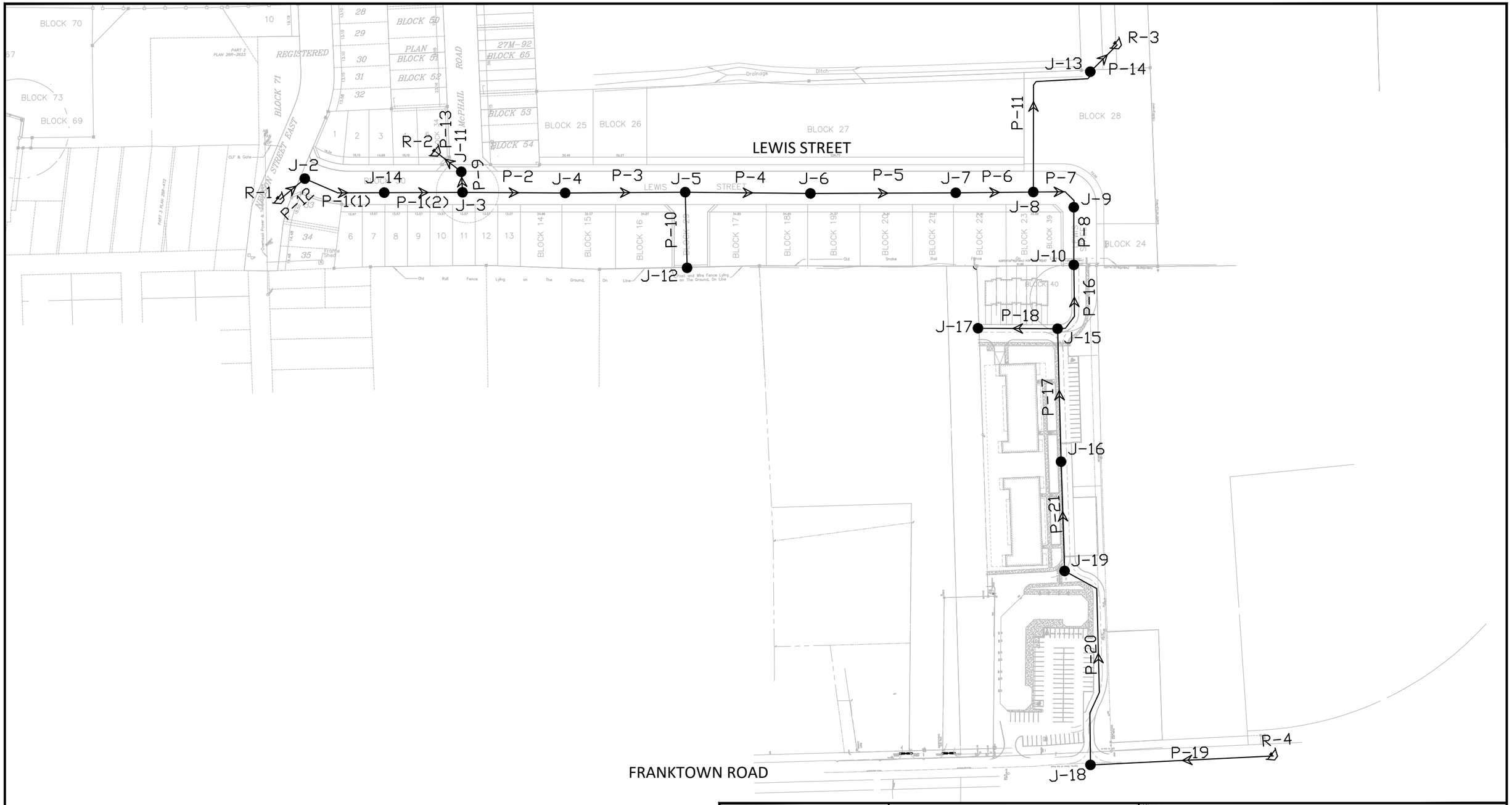
ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
35	P-2	62	J-3	J-4	204.0	PVC	110.0	10.53	0.32
37	P-3	72	J-4	J-5	204.0	PVC	110.0	9.39	0.29
39	P-4	75	J-5	J-6	204.0	PVC	110.0	5.68	0.17
41	P-5	87	J-6	J-7	204.0	PVC	110.0	4.73	0.14
43	P-6	47	J-7	J-8	204.0	PVC	110.0	3.78	0.12
45	P-7	31	J-8	J-9	204.0	PVC	110.0	6.84	0.21
47	P-8	35	J-9	J-10	204.0	PVC	110.0	6.55	0.20
49	P-9	12	J-11	J-3	204.0	PVC	110.0	0.90	0.03
51	P-10	45	J-12	J-5	204.0	PVC	110.0	0.00	0.00
53	P-11	103	J-13	J-8	204.0	PVC	110.0	3.44	0.11

Coleman Phase 2 & 355 Franktown Water Model

Max Day + Fire Flow, Reduced HGL (Min. 190L/sec)

Pipe Table - Time: 0.00 hours

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
55	P-1(1)	50	J-2	J-14	204.0	PVC	110.0	11.34	0.35
56	P-1(2)	47	J-14	J-3	204.0	PVC	110.0	10.29	0.31
60	P-12	20	R-1	J-2	204.0	PVC	110.0	11.34	0.35
61	P-13	19	R-2	J-11	204.0	PVC	110.0	0.90	0.03
62	P-14	23	R-3	J-13	204.0	PVC	110.0	3.44	0.11
89	P-16	45	J-10	J-15	204.0	PVC	110.0	6.55	0.20
91	P-17	80	J-15	J-16	204.0	PVC	110.0	5.98	0.18
93	P-18	48	J-15	J-17	204.0	PVC	110.0	0.57	0.02
96	P-19	111	R-4	J-18	204.0	PVC	110.0	1.81	0.06
98	P-20	130	J-18	J-19	204.0	PVC	110.0	1.81	0.06
99	P-21	66	J-19	J-16	204.0	PVC	110.0	-0.57	0.02



Client:	11309455 CANADA INC 768 BOULEVARD SAINT-JOSEPH SUITE 100, GATINEAU, QUEBEC
Project:	355 FRANKTOWN ROAD CARLETON PLACE, ON
Drawing Title:	HYDRAULIC WATER MODEL

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
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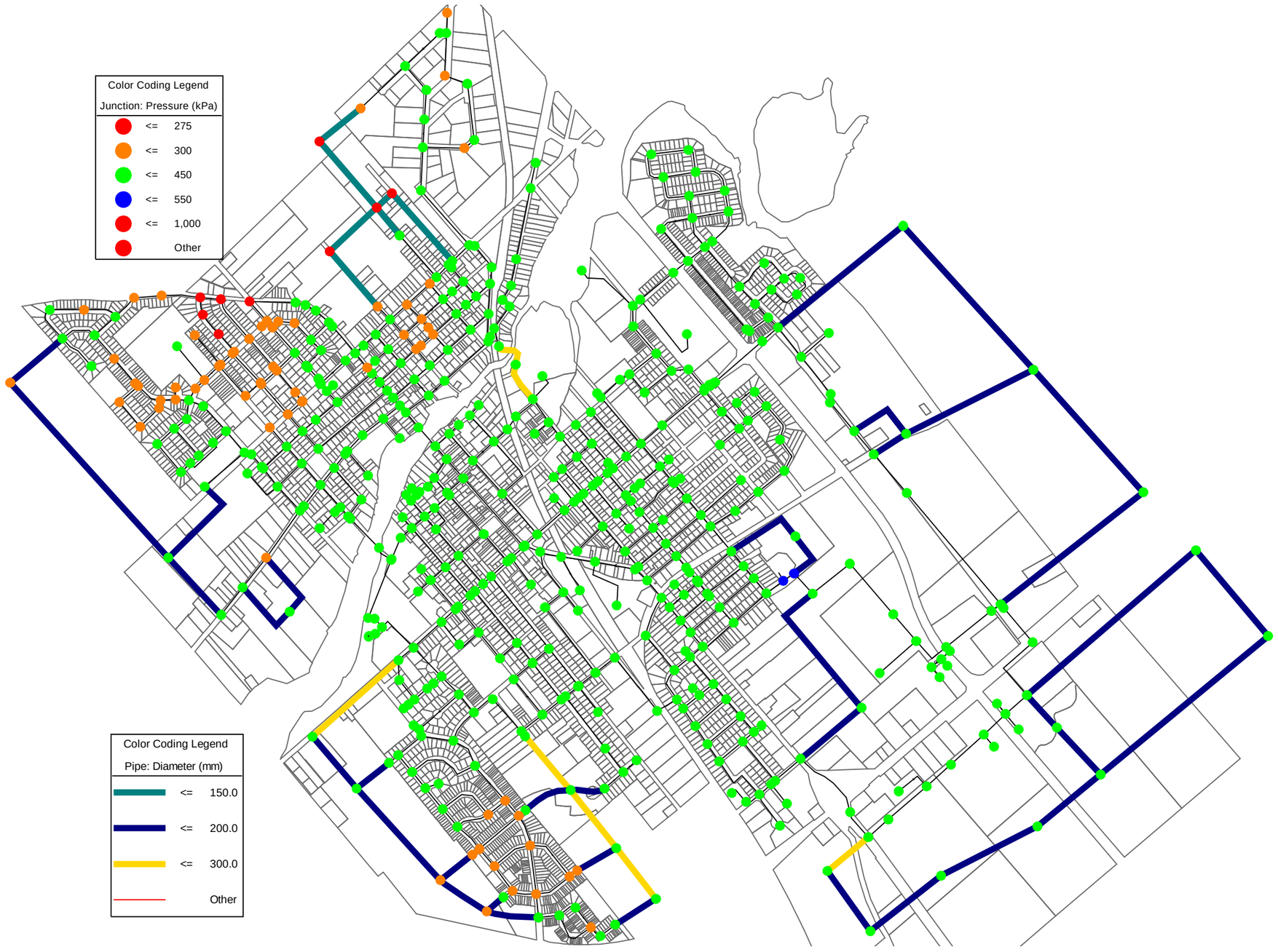
Drawn by:	Checked By:
J.H.	B.C.
Scale: N.T.S.	Project Number: CCO-22-0402

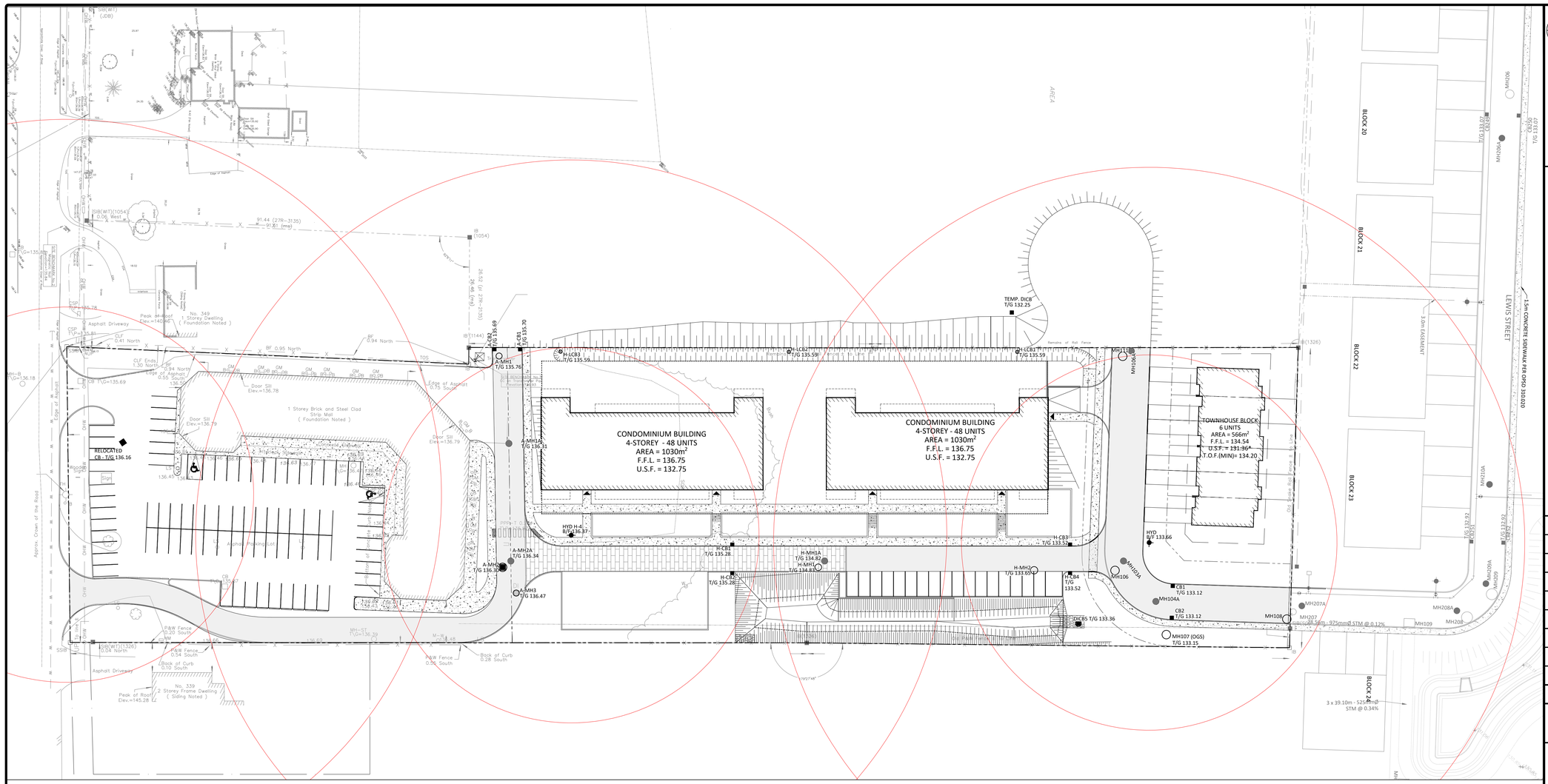
No.	Revisions	Date
2	UPDATE LAYOUT	2024-MAR
1	WATER MODEL	2023-AUG

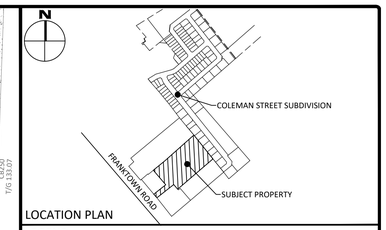
Drawing Number: C1

FILENAME: \\Ottawa\01 Project - Proposals\2018 Jobs\CCO\CCO-18-0360-01 Cavanagh_ NuGlobe Subdivision Ph 2_Carleton Place\Civil\03 - Servicing\WaterCAD\Background\Pipes_Export_2023-08-31.dwg
LAST SAVED: Thursday, March 14, 2024 - 4:57:00 PM (EST) J.Hewson
LAST PLOTTED: Thursday, March 14, 2024 - 5:08:18 PM (EST) J.Hewson
LAST PLOTTED BY: J.Hewson

Active Scenario: Peak Hour - Build-out







LOCATION PLAN

LEGEND

- BARRIER CURB / CURB DEPRESION
- MOUNTABLE CURB
- EASEMENT
- ASPHALT
- RETAINING WALL
- CONCRETE SIDEWALK
- PAVING STONE
- STORM MANHOLE
- CATCHBASIN OR DITCH INLET
- LANDSCAPE CATCHBASIN
- SANITARY MANHOLE
- PERFORATED PIPE IN SWALES
- WATER VAVLE/CHAMBER
- FIRE HYDRANT
- CENTRELINE OF SWALE
- SLOPING AT 3:1 (UNLESS SPECIFIED)
- PROPOSED ELEVATION / EXISTING ELEVATION
- SWALE ELEVATION
- TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION
- EMERGENCY OVERLAND FLOW ROUTE
- AREA DRAIN
- METER/REMOTE METER
- DOWNSPOUT
- SILT FENCE BARRIER (AS PER OPSD 219.130)
- STRAW BALE CHECK DAM (AS PER OPSD 219.180)
- SEDIMENT CONTROL DEVICE
- BUILDING ENTRANCE OVERHEAD DOOR
- REMOTE WATER METER
- WATER METER
- MISC. ROCK BOULDER
- SEDIMENT CONTROL DEVICE

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date
4	REVISED AS PER COMMENTS	JUNE 14, 2024
3	REVISED AS PER COMMENTS	SEPT. 1, 2023
2	REVISED SERVICING	AUG. 14, 2023
1	ISSUED FOR REVIEW	APR. 06, 2022

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 150

0 5 10 15 Metres

McINTOSH PERRY
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Stamp:

Client:

Project:

355 FRANKTOWN ROAD
CARLETON PLACE, ONTARIO

Drawing Title:

HYDRANT COVERAGE PLAN

Scale: 1:500	Project Number: CCO-22-0402
Drawn By: C.H.	
Checked By: B.C.	Drawing Number: HYD
Designed By: C.H.	

FILENAME: L:\Ottawa\001 Project - Proposal\2022 jobs\CCO\CCO-22-0402 Hwy_Sub'd_355 Franktown Road, Carleton Place\12 - Drawing\CCO-22-0402 Presentation.dwg
LAST SAVED: Thursday, June 13, 2024 LAST SAVED BY: K.Valenti
LAST PLOTTED: Thursday, June 13, 2024 7:38 PM EDT (GMT-4)

APPENDIX D
SANITARY CALCULATIONS

McINTOSH PERRY

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CCO-22-0402 - 355 Franktown - Sanitary Demands - Areas S1, S2 & S3

Project:	355 Franktown		
Project No.:	CCO-22-0402		
Designed By:	CH		
Checked By:	BSC		
Date:	Mar-24		
Site Area	2.99	Gross ha	
1 Bedroom	207	1.40	Persons per unit
2 Bedroom	15	2.10	Persons per unit
Townhouse	18	2.70	Persons per unit
Total Population	370	Persons	
Commercial Area	1144	m^2	
Amenity Space		m^2	

DESIGN PARAMETERS

Institutional/Commercial Peaking Facto	1.5	*Check technical bulleting (Either use 1.0 or 1.5)
Residential Peaking Factor	3.43	* *Using Harmon Formula* = 1+(14/(4+P^0.5))*0.8
		where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.15
Wet	0.84
Total	0.99

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	370	1.20
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m² /d)	1144.00	0.04
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	1.20	L/s
PEAK RESIDENTIAL FLOW	4.11	L/s
AVERAGE ICI FLOW	0.04	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.06	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.06	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	1.39	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	4.32	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	5.16	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Sanitary Demands -Condos - Area S5

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	Mar-24

Site Area	0.99	Gross ha		
1 Bedroom	36		1.40	Persons per unit
2 Bedroom	60		2.10	Persons per unit
Townhouse	0		2.70	Persons per unit
Total Population	177	Persons		
Commercial Area	0.00	m^2		
Amenity Space	0.00	m^2		

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1.5	*Check technical bulleting (Either use 1.0 or 1.5)
Residential Peaking Factor	3.53	* *Using Harmon Formula* = 1+(14/(4+P^0.5))*0.8
		where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.05
Wet	0.28
Total	0.33

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	177	0.57
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m² /d)	0.00	0.00
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.57	L/s
PEAK RESIDENTIAL FLOW	2.03	L/s
AVERAGE ICI FLOW	0.00	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.00	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.00	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.62	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	2.08	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	2.35	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Sanitary Demands - Existing Mall - Area S6

Project:	355 Franktown	
Project No.:	CCO-22-0402	
Designed By:	CH	
Checked By:	BSC	
Date:	Mar-24	
Site Area	0.73	Gross ha
Total Population	0	Persons
Commercial Area	7288	m^2
Amenity Space	0.00	m^2

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1.5	*Check technical bulleting (Either use 1.0 or 1.5)
Residential Peaking Factor	3.80	* *Using Harmon Formula* = 1+(14/(4+P^0.5))*0.8
		where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.04
Wet	0.20
Total	0.24

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	0	0.00
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m² /d)	7288.00	0.24
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.00	L/s
PEAK RESIDENTIAL FLOW	0.00	L/s
AVERAGE ICI FLOW	0.24	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.35	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.35	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.27	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	0.39	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	0.60	L/s

McINTOSH PERRY

CCO-22-0402 - 355 Franktown - Sanitary Demands Total - Areas S4-S6

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	C.H.
Checked By:	BSC
Date:	Mar-24

Site Area	2.07	Gross ha	
1 Bedroom	36	1.40	Persons per unit
2 Bedroom	60	2.10	Persons per unit
Apartment	0	1.80	Persons per unit
Townhouse	6	2.70	Persons per unit
Total Population	193	Persons	
Commercial Area	7288.0	m^2	

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1.5	*Check technical bulleting (Either use 1.0 or 1.5)
Residential Peaking Factor	3.52	* *Using Harmon Formula* = 1+(14/(4+P^0.5))*0.8
		where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.10
Wet	0.58
Total	0.68

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	193	0.63
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m^2 /d)	7288.00	0.24
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.63	L/s
PEAK RESIDENTIAL FLOW	2.20	L/s
AVERAGE ICI FLOW	0.24	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.35	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.35	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.97	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	2.66	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	3.24	L/s

McINTOSH PERRY

CCO-22-0402 - 347 & 355 Franktown - Sanitary Demands Total - Areas S1-S6

Project:	355 Franktown
Project No.:	CCO-22-0402
Designed By:	CH
Checked By:	BSC
Date:	Mar-24

Site Area	5.06	Gross ha	
1 Bedroom	243	1.40	Persons per unit
2 Bedroom	75	2.10	Persons per unit
Apartment	0	1.80	Persons per unit
Townhouse	24	2.70	Persons per unit
Total Population	563	Persons	
Commercial Area	8432.00	m^2	
Amenity Space		m^2	

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1.5	*Check technical bulleting (Either use 1.0 or 1.5)
Residential Peaking Factor	3.36	* *Using Harmon Formula* = 1+(14/(4+P^0.5))*0.8
		where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.25
Wet	1.42
Total	1.67

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	563	1.82
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m² /d)	8432.00	0.27
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	1.82	L/s
PEAK RESIDENTIAL FLOW	6.13	L/s
AVERAGE ICI FLOW	0.27	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.41	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.41	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	2.35	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	6.79	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	8.21	L/s

SANITARY SEWER DESIGN SHEET

PROJECT:
LOCATION: 355 Franktown Road
CLIENT: Heafey Group

McINTOSH PERRY

LOCATION				RESIDENTIAL									ICI AREAS							INFILTRATION ALLOWANCE			FLOW	SEWER DATA						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
AREA ID	STREET	FROM MH	TO MH	UNIT TYPES				AREA (ha)	POPULATION		PEAK FACTOR	PEAK FLOW (L/s)	AREA (ha)						PEAK FLOW (L/s)	AREA (ha)		FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	DIA (mm)	SLOPE (%)	VELOCITY (full) (m/s)	AVAILABLE CAPACITY	
				1-BED	2-BED	TH	APT		IND	CUM			INSTITUTIONAL		COMMERCIAL		INDUSTRIAL			IND	CUM								L/s	(%)
													IND	CUM	IND	CUM	IND	CUM											
S1	Chadha Lands	MH101A	MH102A	207	15			2.34	321.3	321	3.45	3.59			0.11	0.11			0.06	2.34	2.34	0.77	4.42	19.36	129.34	200	0.32	0.597	14.93	77.15
S2	Municipal Road	MH105A	MH102A			12		0.45	32.4	32	3.68	0.39								0.45	0.45	0.15	0.54	19.36	87.61	200	0.32	0.597	18.82	97.23
S3	Municipal Road	MH102A	MH106A			6		0.20	16.2	370	3.43	4.11				0.11			0.06	0.20	2.99	0.99	5.16	19.36	90.35	200	0.32	0.597	14.20	73.36
S4	Municipal Road	MH106A	MH103A			6		0.35	16.2	386	3.42	4.28				0.00			0.00	0.35	3.34	1.10	5.39	19.36	50.39	200	0.32	0.597	13.97	72.17
S6	Mall Lands	A-MH1A	A-MH2A												0.73	0.73			0.35	0.73	0.73	0.24	0.59	34.22	28.18	200	1.00	1.055	33.62	98.26
	Heafey Lands	A-MH2A	H-MH1A													0.73			0.35	0.00	0.73	0.24	0.60	48.39	75.17	200	2.00	1.492	47.79	98.77
S5	Heafey Lands	H-MH1A	MH103A	36	60			0.99	176.4	176	3.53	2.02				0.73			0.35	0.99	1.72	0.57	2.94	57.46	71.63	200	2.82	1.772	54.52	94.88
S1-S6	Municipal Road	MH103A	MH104A							563	3.36	6.12				0.84			0.41	0.00	5.06	1.67	8.20	22.95	12.40	200	0.45	0.708	14.75	64.27
S1-S6	Municipal Road	MH104A	MH207A							563	3.36	6.12				0.84			0.41	0.00	5.06	1.67	8.20	22.95	32.74	200	0.45	0.708	14.75	64.27

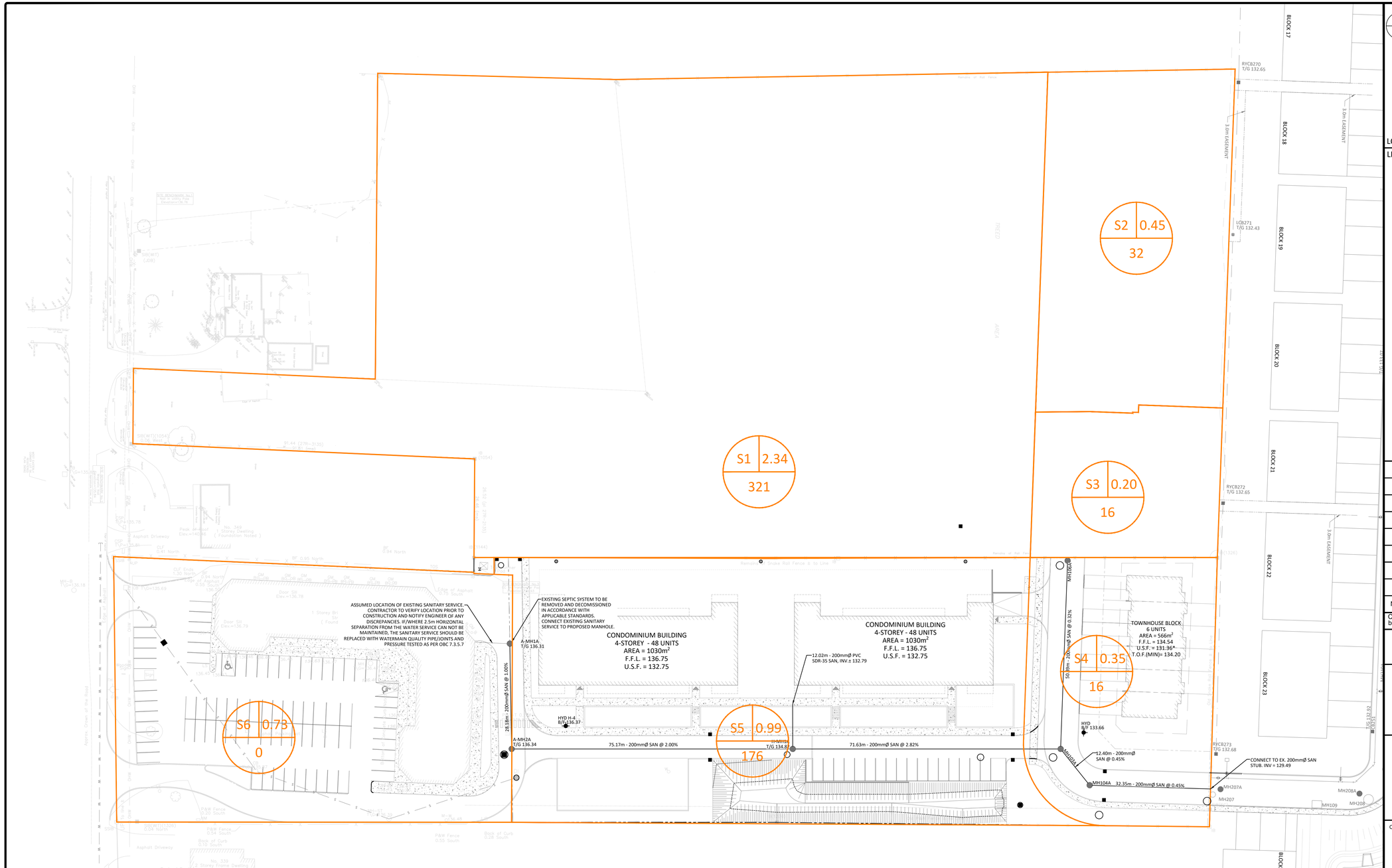
Design Parameters:

Residential			ICI Areas			
1-BED	1.4	p/p/u				Peak Factor
2-BED	2.1	p/p/u	INST	28,000	L/Ha/day	1.5
TH	2.7	p/p/u	COM	28,000	L/Ha/day	1.5
Apt	1.8	p/p/u	IND	35,000	L/Ha/day	MOE Chart
Other	60	p/p/Ha				

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
Harmon Formula = 1+(14/(4+P^0.5)*0.8)
where P = population in thousands

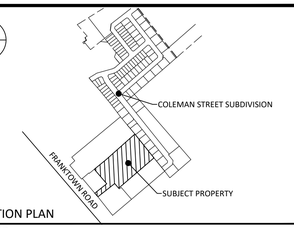
Designed: RP
Checked: RF
Project No.: CCO-22-0402

No.	Revision	Date
1	ISSUED FOR REVIEW	2022-07-15
2	ISSUED FOR REVIEW	2023-03-02
3	REVISED PER COMMENTS	2023.05.25
4	ISSUED FOR REVIEW	2023.07.14
5	REVISED PER COMMENTS	2023.09.01
6	ISSUED FOR REVIEW	2024.03.06
		Sheet No: 1 of 1

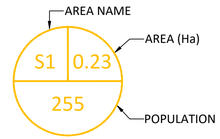


N

LOCATION PLAN



LEGEND



No.	Revisions	Date
5	ISSUED FOR REVIEW	JUNE 13, 2024
4	ISSUED FOR REVIEW	MAR. 08, 2024
3	REVISED AS PER COMMENTS	SEPT. 1, 2023
2	ISSUED FOR REVIEW	AUG. 11, 2023
1	ISSUED FOR REVIEW	MAR. 25, 2023

Check and verify all dimensions before proceeding with the work

Do not scale drawings

SCALE 1 : 500

0 10 20 30 40 50 Metres

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp:

Client:

11309455 CANADA INC
190 LISGAR ST,
OTTAWA, ON K2P 0C4

Project:

355 FRANKTOWN ROAD
CARLETON PLACE, ONTARIO

Drawing Title:

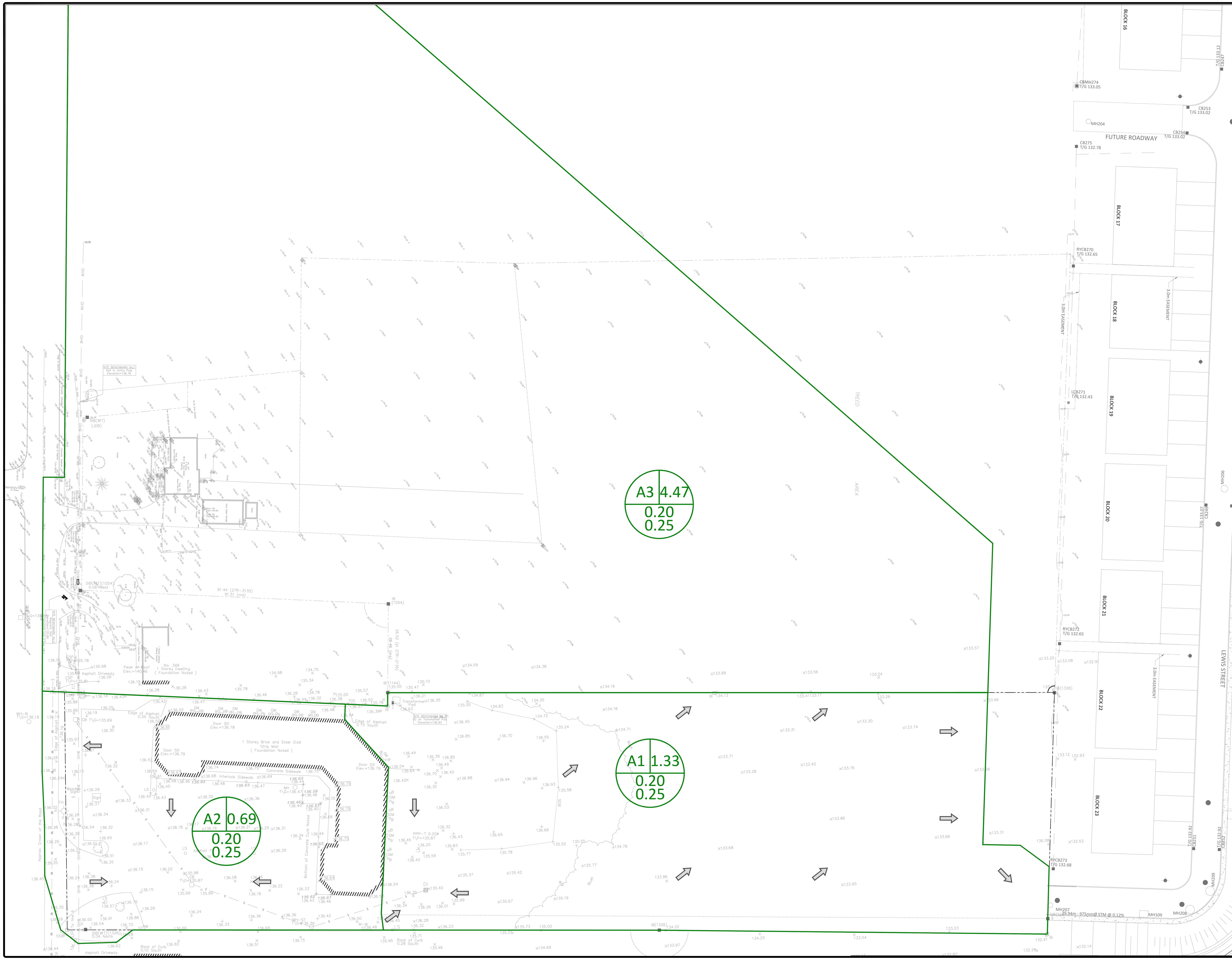
SANITARY DRAINAGE PLAN

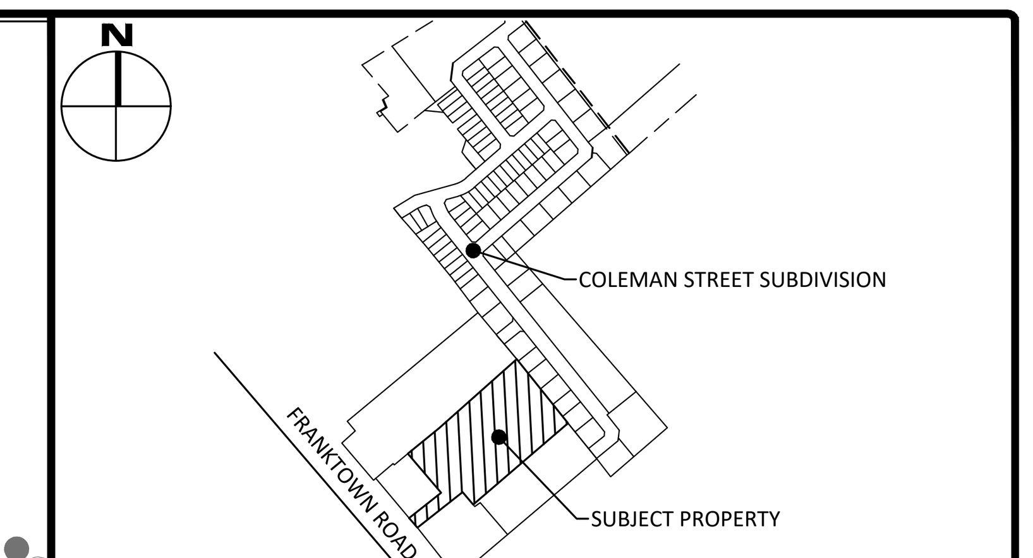
Scale: 1:500	Project Number: CCO-22-0402
Drawn By: C.H.	
Checked By: B.C.	Drawing Number: SAN
Designed By: C.H.	

FILENAME: U:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-0402 Hinfey_Sid\4_355 Franktown Road, Carleton Place\12 - Drawings\CCO-22-0402 Presentation.dwg
LAST SAVED: Thursday, June 13, 2024 LAST SAVED BY: C Valenti
LAST PLOTTED: Thursday, June 13, 2024 PLOTTED BY: C Valenti

APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY





LOCATION PLAN

LEGEND

A1 0.25 / 0.90 / 1.00 — AREA NAME; AREA (Ha); 5yr & 100yr COEFFICIENT

PRE-DEVELOPMENT DRAINAGE DIRECTION

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date
3	REVISED AS PER COMMENTS	MAR. 15, 2024
2	REVISED AS PER COMMENTS	SEPT. 1, 2023
1	ISSUED FOR REVIEW	JUNE 30, 2022

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 500 (0 10 20 30 40 50 Metres)

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Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp:

Client:

Project:
355 FRANKTOWN ROAD
CARLETON PLACE, ONTARIO

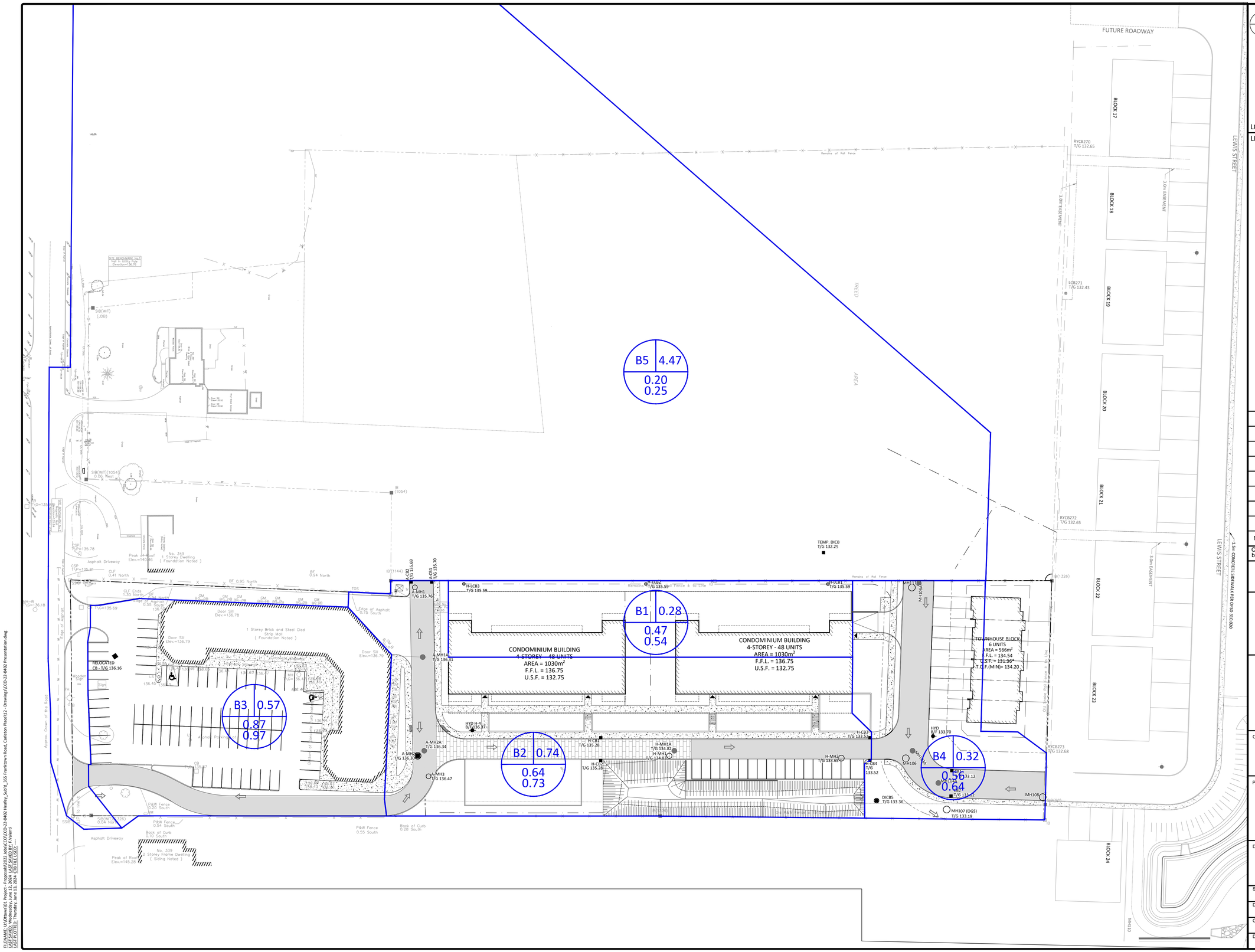
Drawing Title:
PRE-DEVELOPMENT DRAINAGE PLAN

Scale: 1:500	Project Number: CCO-22-0402
Drawn By: C.H.	
Checked By: B.C.	Drawing Number: PRE
Designed By: C.H.	

FILENAME: U:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-0402 Heafey_Sub'd_355 Franktown Road, Carleton Place\12 - Drawings\CCO-22-0402 Presentation.dwg
LAST SAVED: Thursday, March 14, 2024 LAST SAVED BY: F.Valenti
LAST PLOTTED: Thursday, March 14, 2024 CTB FILE USED: ----

APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY



N

LOCATION PLAN

LEGEND

AREA NAME
AREA (Ha)
B101 0.23
0.90
1.00
5yr & 100yr COEFFICIENT

POST-DEVELOPMENT DRAINAGE DIRECTION

No.	Revisions	Date
4	ISSUED FOR REVIEW	JUNE 13, 2024
3	REVISED AS PER COMMENTS	MAR. 15, 2024
2	REVISED AS PER COMMENTS	SEPT. 1, 2023
1	ISSUED FOR REVIEW	JULY 14, 2022

Check and verify all dimensions before proceeding with the work

Do not scale drawings

SCALE 1 : 500

0 10 20 30 40 50 Metres

McINTOSH PERRY
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Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp:

Client:

Project:

355 FRANKTOWN ROAD
CARLETON PLACE, ONTARIO

Drawing Title:

POST-DEVELOPMENT DRAINAGE PLAN

Scale: 1:500	Project Number: CCO-22-0402
Drawn By: C.H.	
Checked By: B.C.	Drawing Number: POST
Designed By: C.H.	

FILENAME: U:\Ottawa\01 Project - Proposal\2022 Jobs\CCO\CCO-22-0402 Hinfey_Sukd_355 Frankfown Road, Carleton Place\12 - Drawing\CCO-22-0402 Presentation.dwg
LAST SAVED: Wednesday, June 12, 2024 LAST SAVED BY: F.Valenti
LAST PLOTTED: Thursday, June 13, 2024 CTB FILE USED:

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

McINTOSH PERRY

Tc (min)	Intensity (mm/hr)		
	5-Year	100-Year	
10	104.2	178.6	PRE-DEVELOPMENT
10	104.2	178.6	POST-DEVELOPMENT

C-Values	
Impervious	0.90
Gravel	0.60
Pervious	0.20

Pre-Development Runoff Coefficient

Drainage Area	Area (ha)	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (5-year)	Average C (100-year)
A1	1.33	0	0	13,310	0.20	0.25
A2	0.69	0	0	6,912	0.20	0.25
A3	4.47	0	0	44,743	0.20	0.25

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)	
					5-Year	100-Year
A1	1.33	0.20	0.25	10	77.11	165.18
A2	0.69	0.20	0.25	10	40.04	85.78
A3	4.47	0.20	0.25	11	259.20	555.25
Total	6.49				376.35	806.21

Post-Development Runoff Coefficient

Drainage Area	Area (ha)	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (5-year)	Average C (100-year)	
B1	0.28	1,064	0	1,733	0.47	0.54	North
B2	0.74	4,671	0	2,687	0.64	0.73	South
B3	0.57	5,444	0	208	0.87	0.97	Mall
B4	0.32	1,632	0	1,523	0.56	0.64	Townhouse and Municipal Road
B5	4.47	0	0	44,743	0.20	0.25	Offsite Area

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)		
					5-Year	100-Year	
B1	0.28	0.47	0.54	10	37.77	74.32	Rear Swale / Building
B2	0.74	0.64	0.73	10	137.34	265.21	Front Building and Road
B3	0.57	0.87	0.97	10	143.13	272.82	Mall
B4	0.32	0.56	0.64	10	51.37	99.91	Townhouse and Municipal Road
B5	4.47	0.20	0.25	10	259.20	555.25	Offsite Area
Total	6.36				628.80	1267.51	

Required Restricted Flow

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)	Q (L/s)
					5-Year	100-Year
A1	1.33	0.20	0.25	10	77.11	165.18
A2	0.69	0.20	0.25	10	40.04	85.78
Total	2.02				117.15	250.95

Post-Development Restricted Runoff Calculations

Drainage Area	Unrestricted Flow		Restricted Flow		Storage Required (m^3)		Storage Provided (m^3)	
	5-year	100-Year	5-Year	100-Year	5-Year	100-Year	5-Year	100-Year
B1	37.77	74.32	55.77	135.10	195.9	331.7	199.9	353.7
B2	137.34	265.21						
B3	143.13	272.82						
B4	51.37	99.91	51.37	99.91	x	x	x	x
Total	369.60	712.25	107.13	235.01	195.94	331.70	199.94	353.71

Storage Requirements for Area B1, B2, B3

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1, B2, B3	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	318.25	55.77	262.49	157.49
15	83.6	255.34	55.77	199.57	179.61
20	70.3	214.72	55.77	158.95	190.74
25	60.9	186.01	55.77	130.24	195.35
30	53.9	164.63	55.77	108.86	195.94
35	48.5	148.13	55.77	92.36	193.96
40	44.2	135.00	55.77	79.23	190.15
45	40.6	124.00	55.77	68.23	184.23
50	37.7	115.15	55.77	59.38	178.13
Maximum Storage Required 5-year =				195.9	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1, B2, B3	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	612.49	135.10	477.38	286.43
15	142.9	490.06	135.10	354.95	319.46
20	120.0	411.52	135.10	276.42	331.70
25	103.8	355.97	135.10	220.86	331.30
30	91.9	315.16	135.10	180.06	324.10
35	82.6	283.27	135.10	148.16	311.14
40	75.1	257.55	135.10	122.44	293.86
45	69.1	236.97	135.10	101.87	275.04
50	64.0	219.48	135.10	84.38	253.13
Maximum Storage Required 100-year =				331.7	m^3

5-Year Storm Event Storage Summary

		Water Elev. (m) =		133.17
Location	BOTTOM	Area (m^2)	Depth (m)	Volume (m^3)
POND	132.40	439.1	0.77	199.9

ICD Location	INV. (out)	Head (m)
H-MH2	131.26	0.68

Storage Available (m^3) =	199.9
Storage Required (m^3) =	195.9

*Available Storage calculated from AutoCAD

100-Year Storm Event Storage Summary

		Water Elev. (m) =		133.47
Location	BOTTOM	Area (m^2)	Depth (m)	Volume (m^3)
POND	132.40	586.7	1.07	353.7

ICD Location	INV. (out)	Head (m)
H-MH2	131.26	0.98

Storage Available (m^3) =	353.7
Storage Required (m^3) =	331.7

*Available Storage calculated from AutoCAD

For Orifice Flow, C= 0.60
For Weir Flow, C= 1.84

	Orifice 1	Orifice 2	Weir 1	Weir 2
invert elevation	132.40	X	133.40	X
center of crest elevation	132.49	X		X
orifice width / weir length	180 mm	X	2.00 m	X
weir height				X
orifice area (m^2)	0.025	X	x	X

Elevation Discharge Table - Storm Routing

Elevation	Orifice 1		Orifice 2		Weir 1		Weir 2		Total	
	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	Q [L/s]	
132.40	x	x	x	x	x	x	x	x	0.00	
132.41	x	x	x	x	x	x	x	x	0.00	
132.42	x	x	x	x	x	x	x	x	0.00	
132.43	x	x	x	x	x	x	x	x	0.00	
132.44	x	x	x	x	x	x	x	x	0.00	
133.08	0.59	0.05	x	x	x	x	x	x	51.95	
133.09	0.60	0.05	x	x	x	x	x	x	52.39	
133.10	0.61	0.05	x	x	x	x	x	x	52.82	
133.11	0.62	0.05	x	x	x	x	x	x	53.25	
133.12	0.63	0.05	x	x	x	x	x	x	53.68	
133.13	0.64	0.05	x	x	x	x	x	x	54.10	
133.14	0.65	0.05	x	x	x	x	x	x	54.52	
133.15	0.66	0.05	x	x	x	x	x	x	54.94	
133.16	0.67	0.06	x	x	x	x	x	x	55.36	
133.17	0.68	0.06	x	x	x	x	x	x	55.77	5-Year
133.18	0.69	0.06	x	x	x	x	x	x	56.18	
133.19	0.70	0.06	x	x	x	x	x	x	56.58	
133.20	0.71	0.06	x	x	x	x	x	x	56.99	
133.21	0.72	0.06	x	x	x	x	x	x	57.39	
133.22	0.73	0.06	x	x	x	x	x	x	57.78	
133.23	0.74	0.06	x	x	x	x	x	x	58.18	
133.24	0.75	0.06	x	x	x	x	x	x	58.57	
133.25	0.76	0.06	x	x	x	x	x	x	58.96	
133.26	0.77	0.06	x	x	x	x	x	x	59.34	
133.27	0.78	0.06	x	x	x	x	x	x	59.73	
133.28	0.79	0.06	x	x	x	x	x	x	60.11	
133.29	0.80	0.06	x	x	x	x	x	x	60.49	
133.30	0.81	0.06	x	x	x	x	x	x	60.87	
133.31	0.82	0.06	x	x	x	x	x	x	61.24	
133.32	0.83	0.06	x	x	x	x	x	x	61.61	
133.33	0.84	0.06	x	x	x	x	x	x	61.98	
133.34	0.85	0.06	x	x	x	x	x	x	62.35	
133.35	0.86	0.06	x	x	x	x	x	x	62.72	
133.36	0.87	0.06	x	x	x	x	x	x	63.08	
133.37	0.88	0.06	x	x	x	x	x	x	63.44	
133.38	0.89	0.06	x	x	x	x	x	x	63.80	
133.39	0.90	0.06	x	x	x	x	x	x	64.16	
133.40	0.91	0.06	x	x	x	x	x	x	64.51	
133.41	0.92	0.06	x	x	0.01	0.00	x	x	68.55	
133.42	0.93	0.07	x	x	0.02	0.01	x	x	75.63	
133.43	0.94	0.07	x	x	0.03	0.02	x	x	84.69	
133.44	0.95	0.07	x	x	0.04	0.03	x	x	95.36	
133.45	0.96	0.07	x	x	0.05	0.04	x	x	107.41	
133.46	0.97	0.07	x	x	0.06	0.05	x	x	120.69	
133.47	0.98	0.07	x	x	0.07	0.07	x	x	135.10	100-Year
133.48	0.99	0.07	x	x	0.08	0.08	x	x	150.56	
133.49	1.00	0.07	x	x	0.09	0.10	x	x	166.99	
133.50	1.01	0.07	x	x	0.10	0.12	x	x	184.34	
133.51	1.02	0.07	x	x	0.11	0.13	x	x	202.56	
133.52	1.03	0.07	x	x	0.12	0.15	x	x	221.61	
133.53	1.04	0.07	x	x	0.13	0.17	x	x	241.46	
133.54	1.05	0.07	x	x	0.14	0.19	x	x	262.07	
133.55	1.06	0.07	x	x	0.15	0.21	x	x	283.42	
133.56	1.07	0.07	x	x	0.16	0.24	x	x	305.48	
133.57	1.08	0.07	x	x	0.17	0.26	x	x	328.22	
133.58	1.09	0.07	x	x	0.18	0.28	x	x	351.64	
133.59	1.10	0.07	x	x	0.19	0.30	x	x	375.70	
133.60	1.11	0.07	x	x	0.20	0.33	x	x	400.40	

Notes:
1. For Orifice Flow, User is to Input an Elevation Higher than Crown of Orifice.
2. Orifice Equation: $Q = cA(2gh)^{1/2}$
3. Weir Equation: $Q = CLH^{3/2}$
4. These Computations Do Not Account for Submergence Effects Within the Pond Riser.
5. H for orifice equations is depth of water above the centroide of the orifice.
6. H for weir equations is depth of water above the weir crest.

STORM SEWER DESIGN SHEET

PROJECT: CCO-22-0402
LOCATION: 355 Franktown
CLIENT: Heafey Group

McINTOSH PERRY

LOCATION				CONTRIBUTING AREA (ha)				RATIONAL DESIGN FLOW										SEWER DATA								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Phase	AREA ID	FROM MH	TO MH	C-VALUE	AREA	INDIV AC	CUMUL AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm)			SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (5yr)	
																					DIA	W	H			(L/s)	(%)
		Temp. DICB	MH111	0.25	1.94	0.49	0.49	10.00	0.29	10.29	104.19	122.14	178.56	140.48		240.75		240.75	266.03	28.56	450			0.80	1.620	25.28	10%
	B5	MH111	MH106	0.25	4.47	1.12	1.12	10.29	0.86	11.15	102.67	120.34	175.92	318.95		546.51		546.51	654.22	51.39	900			0.12	0.996	107.71	16%
	B1	H-LCB1	H-LCB2	0.50	0.08	0.04	0.04	10.00	0.66	10.66	104.19	122.14	178.56	12.16				12.16	100.88	54.72	300			1.00	1.383	88.73	88%
		H-LCB2	H-LCB3	0.42	0.12	0.05	0.09	10.66	0.66	11.32	100.83	118.18	172.75	26.24				26.24	100.88	54.72	300			1.00	1.383	74.64	74%
		H-LCB3	A-CB1	0.50	0.07	0.04	0.13	11.32	0.11	11.43	97.71	114.50	167.34	35.49				35.49	100.88	9.29	300			1.00	1.383	65.39	65%
	B2	A-CB1	A-CB2	0.78	0.09	0.07	0.20	11.43	0.08	11.52	97.20	113.90	166.45	55.29				55.29	100.88	7.00	300			1.00	1.383	45.59	45%
	B2	A-CB2	A-MH1			0.00	0.20	11.52	0.03	11.54	96.82	113.45	165.80	55.08				55.08	100.88	2.24	300			1.00	1.383	45.81	45%
	B2	A-MH1	A-MH2			0.00	0.20	11.54	0.74	12.29	96.69	113.31	165.59	55.01				55.01	129.34	50.66	375			0.50	1.134	74.33	57%
	B3	A-MH3	A-MH2	0.87	0.57	0.49	0.49	10.00	0.07	10.07	104.19	122.14	178.56	143.13				143.13	182.91	6.98	375			1.00	1.604	39.79	22%
	B2	A-MH2	H-MH1	0.77	0.18	0.14	0.83	12.29	0.89	13.17	93.49	109.54	160.05	216.79				216.79	317.25	75.63	525			0.50	1.420	100.45	32%
	B2	H-MH1	H-MH2			0.00	0.83	13.17	0.61	13.78	89.96	105.38	153.95	208.61				208.61	317.25	51.72	525			0.50	1.420	108.64	34%
	B2	H-MH2	SWM Outlet	0.68	0.27	0.18	1.02	13.78	0.10	13.88	87.71	102.74	150.07	248.31				248.31	845.52	11.18	750			0.53	1.854	597.21	71%
		SWM Inlet	DICB5	0.38	0.19	0.07	1.09	13.88	0.07	13.95	87.35	102.31	149.44	265.06			55.77	55.77	87.74	7.05	250			2.00	1.731	31.97	36%
		DICB5	MH107			0.00	1.09	13.95	0.11	14.06	87.11	102.03	149.03	264.33			55.77	55.77	905.89	20.23	600			2.00	3.104	850.12	94%
	B4	MH106	MH107	0.56	0.32	0.18	1.29	11.15	0.31	11.47	98.47	115.40	168.66	48.55			546.51	595.06	809.89	19.71	975			0.12	1.051	214.83	27%
		MH107	MH108				1.29	14.06	0.45	14.51	86.73	101.58	148.36	42.76			602.28	645.04	809.89	28.56	975			0.12	1.051	164.85	20%
		MH108	MH109				1.29	14.51	0.47	14.99	85.17	99.75	145.67	41.99			602.28	644.27	809.89	29.94	975			0.12	1.051	165.62	20%
		MH109	MH110				1.29	14.99	0.56	15.54	83.60	97.90	142.97	41.21			602.28	643.50	784.83	39.10	525	3x525		0.34	1.171	141.33	18%
		MH110	HEADWALL				1.29	15.54	0.32	15.87	81.84	95.83	139.93	40.35			602.28	642.63	784.83	22.62	525	3x525		0.34	1.171	142.20	18%

Definitions:
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.013

Designed:
FV

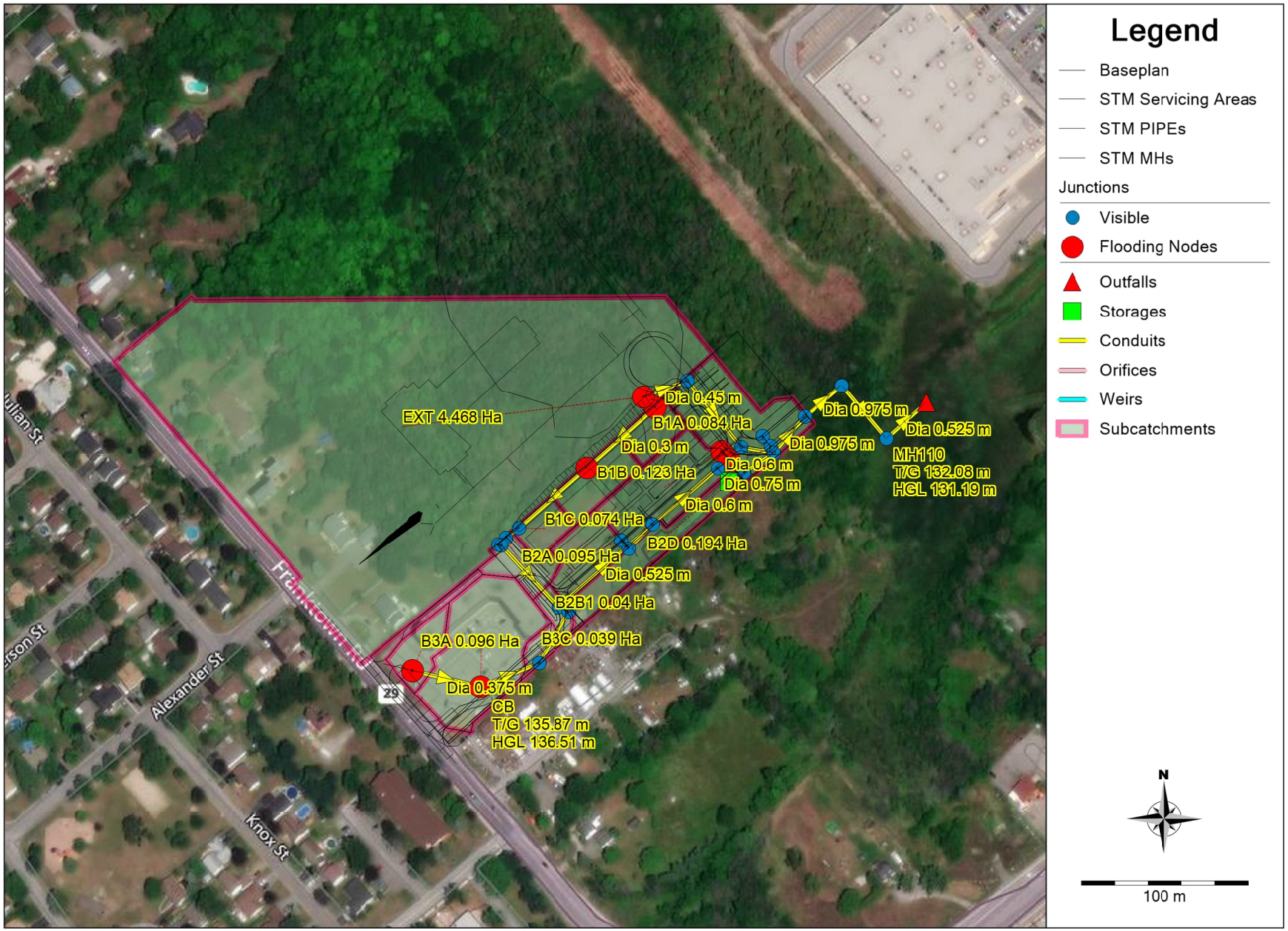
Checked:
RF

Project No.:
CCO-22-0402

No.	Revision	Date
1.	ISSUED FOR REVIEW	2022-07-15
2.	REVISED AS PER COMMENTS	2023-08-25
3.	ISSUED FOR REVIEW	2024.03.13

Date:
2022-07-15

Sheet No:
1 of 1


Legend
Baseplan
STM Servicing Areas
STM PIPEs
STM MHs
Junctions
Visible
Flooding Nodes
Outfalls
Storages
Conduits
Orifices
Weirs
Subcatchments
EXT 4.468 Ha
Dia 0.45 m
B1A 0.084 Ha
Dia 0.975 m
Dia 0.525 m
Dia 0.3 m
Dia 0.975 m
MH110
T/G 132.08 m
HGL 131.19 m
B1B 0.123 Ha
Dia 0.6 m
Dia 0.75 m
Dia 0.6 m
B1C 0.074 Ha
B2D 0.194 Ha
B2A 0.095 Ha
Dia 0.525 m
B2B1 0.04 Ha
B3A 0.096 Ha
B3C 0.039 Ha
Dia 0.375 m
CB
T/G 135.87 m
HGL 136.51 m
Alexander St
Knox St
29
N
100 m

PCSWMM Report

355 Franktown Road - PCSWMM Report

Model 22-31376-PCSWMMModel_V3.0.inp

March 14, 2024

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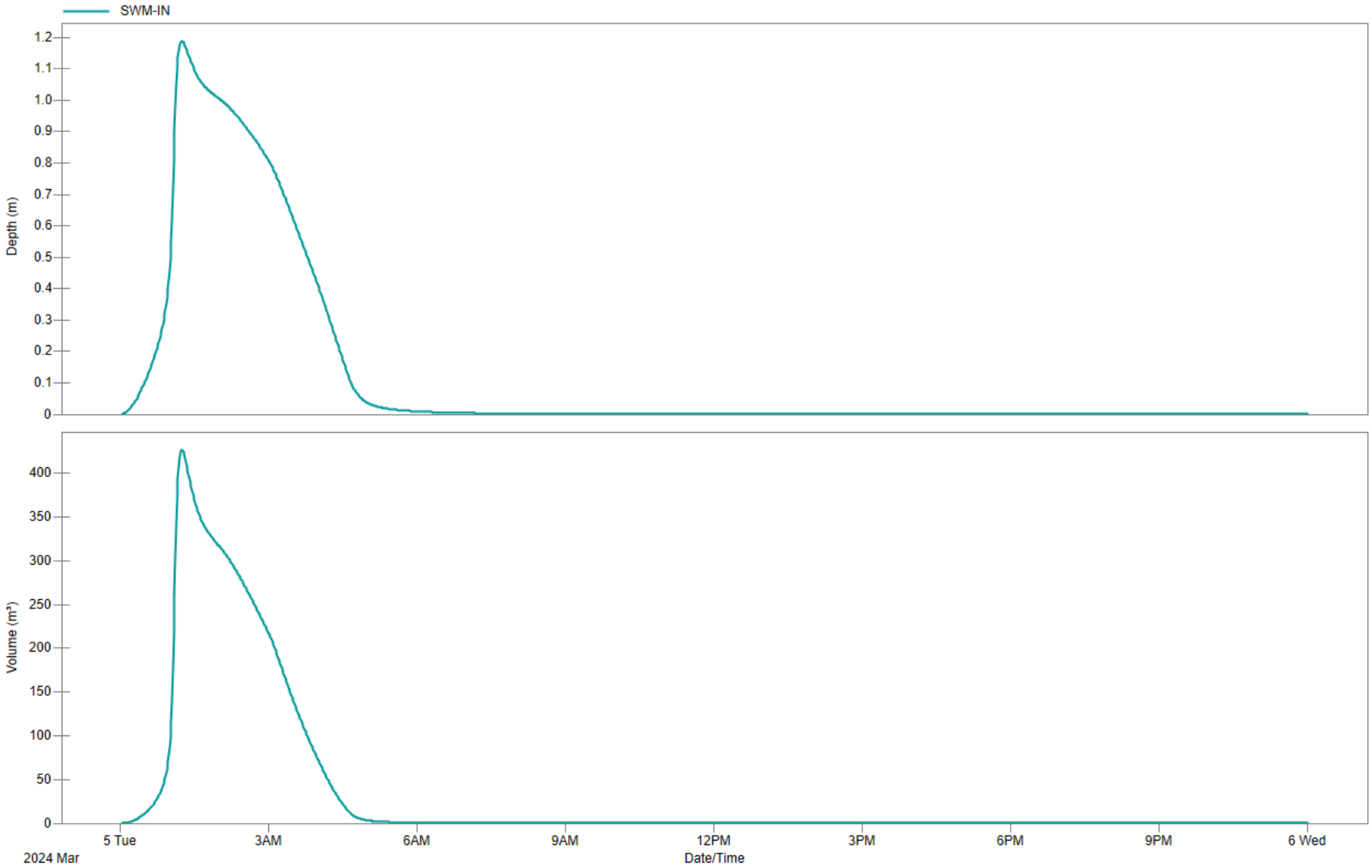


Figure 1: SWM Facility

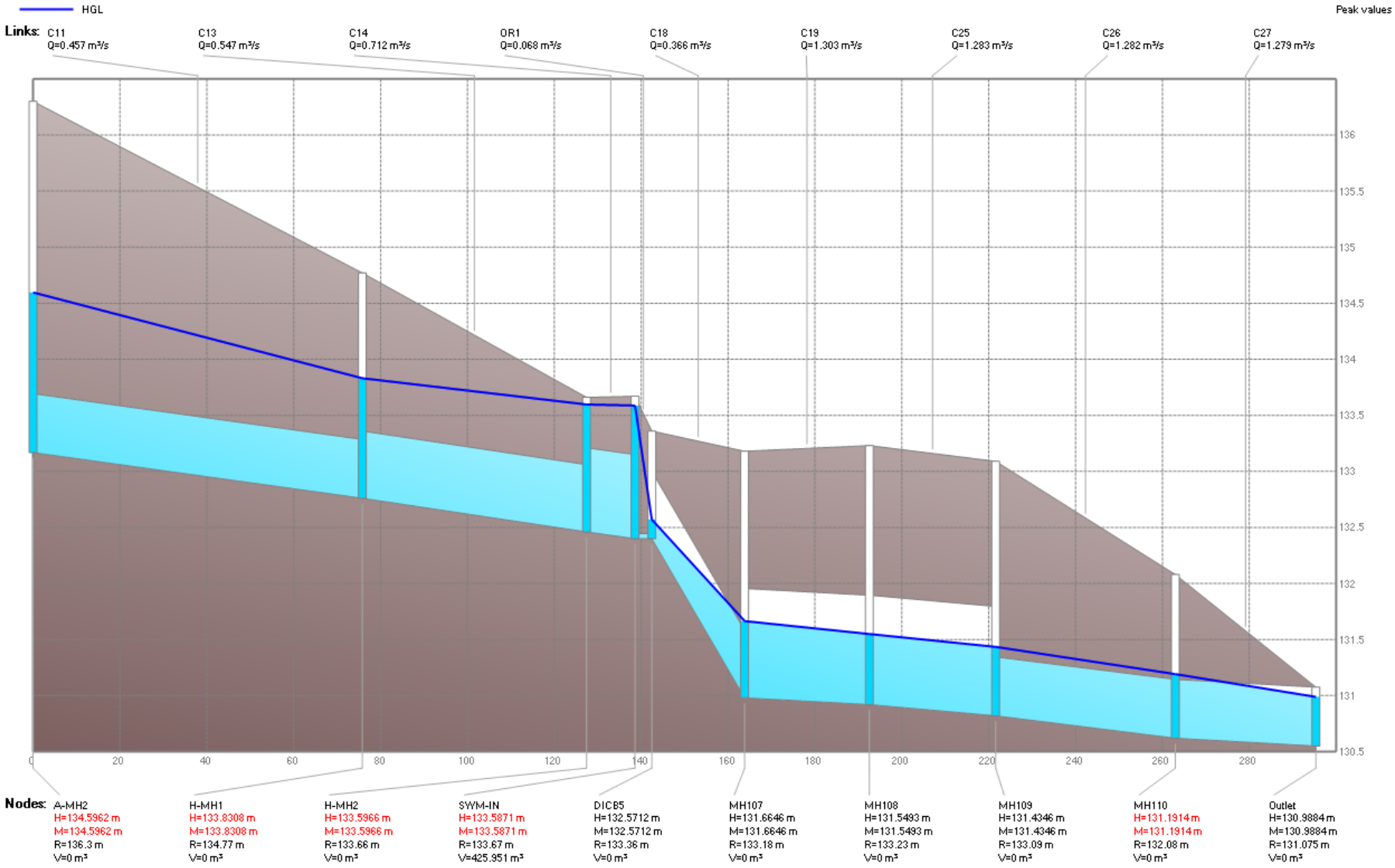


Figure 2: Stormsewer Profile

Table 1: Subcatchments

Name	X-Coordinate	Y-Coordinate	Rain Gage	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	Peak Runoff (m^3/s)
B1A	334097.944	4999159.014	Chicago_3H_100YR	H-LCB1	0.084	56	15	2.9	50	0.06
B1B	334064.503	4999129.269	Chicago_3H_100YR	H-LCB2	0.123	82	15	2	50	0.08
B1C	334032.732	4999100.894	Chicago_3H_100YR	H-LCB3	0.074	49.333	15	2.3	50	0.05
B2A	334019.289	4999078.383	Chicago_3H_100YR	A-CB1	0.095	63.333	15	2.8	80	0.06
B2B1	334039.871	4999050.956	Chicago_3H_100YR	A-MH2	0.04	26.667	15	2.4	80	0.03
B2B2	334057.009	4999084.764	Chicago_3H_100YR	H-CB1	0.137	91.333	15	1	80	0.09
B2C	334104.973	4999126.023	Chicago_3H_100YR	H-CB3	0.27	33.75	80	2.5	75	0.18
B2D	334094.834	4999086.742	Chicago_3H_100YR	SWM-IN	0.194	43.111	45	3.2	5	0.1
B3	334147.748	4999167.457	Chicago_3H_100YR	CB1	0.316	210.667	15	3	75	0.16
B3A	333958.809	4999027.189	Chicago_3H_100YR	REL-CB	0.096	64	15	2.5	98	0.06
B3B	333995.214	4999027.127	Chicago_3H_100YR	CB	0.43	286.667	15	1.7	98	0.29
B3C	334031.241	4999028.924	Chicago_3H_100YR	MH-ST	0.039	26	15	2.2	90	0.03
EXT	333947.194	4999161.914	Chicago_3H_100YR	TEMP-DICB	4.468	127.657	350	2.5	10	0.91

Table 2: Junctions

Name	Invert Elev. (m)	Rim Elev. (m)	Max. HGL (m)	Depth (m)	Time Max. HGL (M/D/Y)	Max. Total Inflow (m^3/s)	Contributing Area (ha)	Flooding
A-CB1	132.46	135.7	135.05	3.24	03/05/2024 01:05 AM	0.171	0.376	0
A-CB2	133.52	135.69	135	2.17	03/05/2024 01:05 AM	0.171	0.376	0
A-MH1	133.48	135.76	134.99	2.28	03/05/2024 01:05 AM	0.172	0.376	0
A-MH2	133.168	136.3	134.67	3.132	03/05/2024 01:02 AM	0.458	0.981	0
A-MH3	133.3	136.49	134.86	3.19	03/05/2024 01:02 AM	0.28	0.565	0
CB	134.37	135.87	136.51	1.5	03/05/2024 01:07 AM	0.333	0.526	0.102
CB1	131.67	133.12	132.46	1.45	03/05/2024 01:05 AM	0.16	0.316	0
CB2	131.56	133.12	131.9	1.56	03/05/2024 01:05 AM	0.16	0.316	0
DICB5	132.4	133.36	132.57	0.96	03/05/2024 01:14 AM	0.366	1.582	0
H-CB1	133.82	135.26	134.45	1.44	03/05/2024 01:04 AM	0.092	0.137	0
H-CB2	133.46	135.26	134.28	1.8	03/05/2024 01:04 AM	0.092	0.137	0
H-CB3	132.57	133.52	133.6	0.95	03/05/2024 01:14 AM	0.175	0.27	0.041
H-CB4	132.54	133.51	133.6	0.97	03/05/2024 01:15 AM	0.174	0.27	0.026
H-LCB1	133.707	135.15	135.25	1.443	03/05/2024 01:09 AM	0.083	0.084	0.057
H-LCB2	133.137	135.59	135.25	2.453	03/05/2024 01:05 AM	0.099	0.207	0.025
H-LCB3	132.55	135.59	135.08	3.04	03/05/2024 01:05 AM	0.126	0.281	0
H-MH1	132.76	134.77	134.18	2.01	03/05/2024 01:03 AM	0.549	1.118	0
H-MH2	132.46	133.66	133.6	1.2	03/05/2024 01:15 AM	0.724	1.388	0
MH106	131.044	133.34	131.7	2.296	03/05/2024 01:12 AM	0.905	4.468	0
MH107	130.98	133.18	131.67	2.2	03/05/2024 01:12 AM	1.288	6.366	0
MH108	130.92	133.23	131.56	2.31	03/05/2024 01:12 AM	1.336	6.366	0
MH109	130.82	133.09	131.43	2.27	03/05/2024 01:12 AM	1.312	6.366	0
MH110	130.62	132.08	131.19	1.46	03/05/2024 01:13 AM	1.282	6.366	0
MH-111	131.162	133.92	131.85	2.758	03/05/2024 01:11 AM	0.902	4.468	0
MH-ST	134.89	136.39	135.68	1.5	03/05/2024 01:06 AM	0.28	0.565	0
REL-CB	134.66	136.16	136.55	1.5	03/05/2024 01:07 AM	0.075	0.096	0.085
TEMP-DICB	131.76	134.56	134.69	2.8	03/05/2024 01:08 AM	0.908	4.468	0.019

Table 3: Storages

Name	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Storage Curve	Max. HGL (m)	Max. Volume (1000 m^3)	Max. Percent Full (%)	Max. Outflow (m^3/s)
SWM-IN	133.67	1.27	0	TABULAR	133.59	0.426	88.5	0.366

Table 4: Conduits

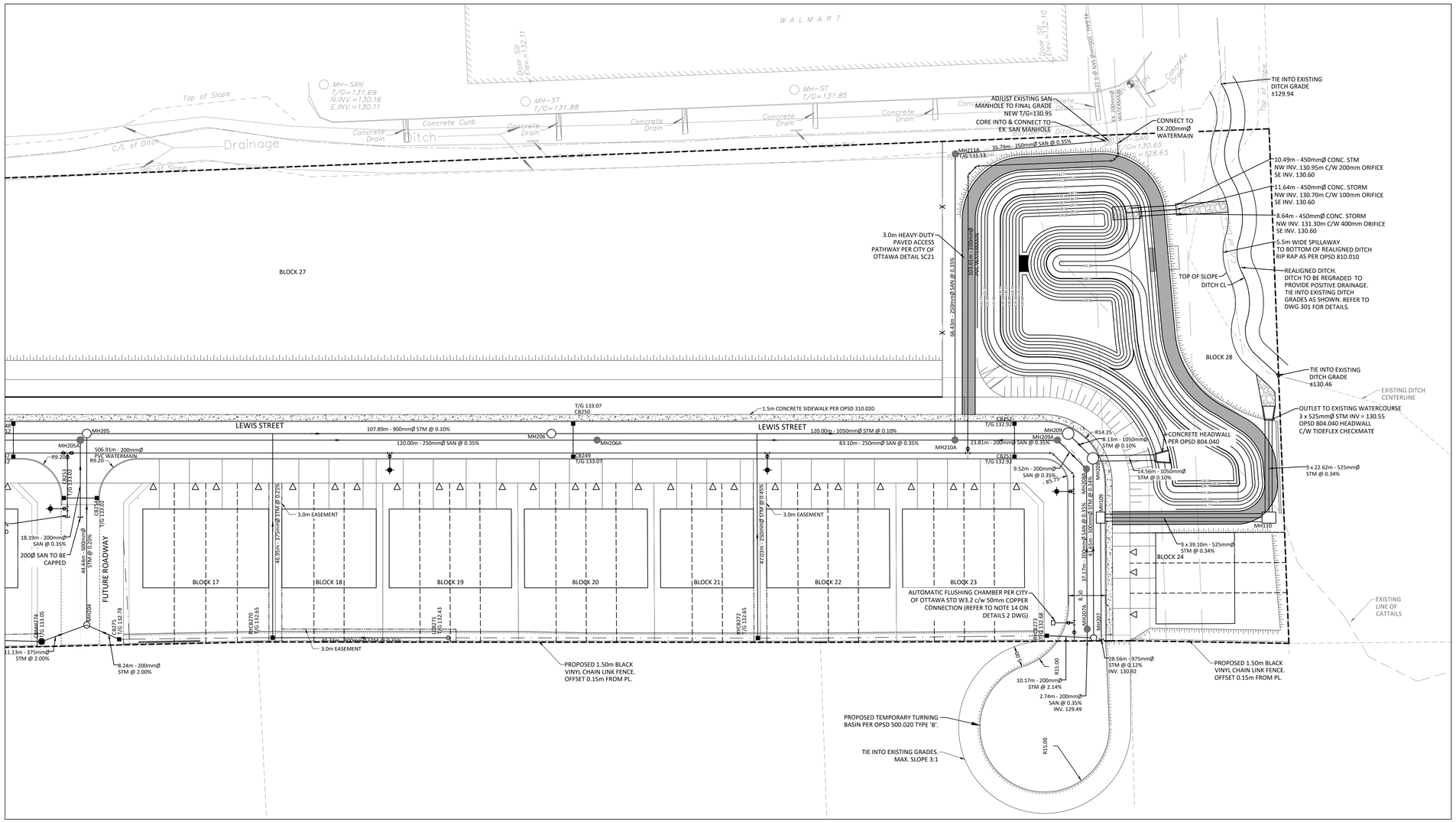
Name	Inlet Node	Outlet Node	Length (m)	Inlet Elev. (m)	Outlet Elev. (m)	Geom1 (m)	Barrels	Slope (m/m)	Max. |Flow| (m^3/s)	Max. |Velocity| (m/s)	Inlet Structure
C1	REL-CB	CB	42.211	134.66	134.37	0.375	1	0.00687	0.071	0.64	
C10	A-MH3	A-MH2	7.036	133.3	133.168	0.375	1	0.01876	0.28	2.53	
C11	A-MH2	H-MH1	75.785	133.168	132.76	0.525	1	0.00538	0.458	2.11	
C12	H-CB2	H-MH1	20.712	133.46	132.76	0.25	1	0.03382	0.092	1.87	
C13	H-MH1	H-MH2	51.642	132.76	132.46	0.6	1	0.00581	0.549	1.94	
C14	H-MH2	SWM-IN	11.145	132.46	132.4	0.75	1	0.00538	0.725	1.64	
C15	H-CB1	H-CB2	6.863	133.82	133.46	0.25	1	0.05253	0.092	2.45	
C16	H-CB3	H-CB4	6.737	132.57	132.54	0.6	1	0.00445	0.174	0.7	
C17	H-CB4	H-MH2	8.687	132.54	132.46	0.6	1	0.00921	0.178	0.63	
C18	DICB5	MH107	21.386	132.4	130.98	0.6	1	0.06655	0.366	1.91	
C19	MH107	MH108	28.717	130.98	130.92	0.975	1	0.00209	1.336	2.5	
C2	CB	MH-ST	37.878	134.37	134.89	0.375	1	-0.01373	0.259	2.49	
C20	TEMP-DICB	MH-111	28.441	131.76	131.162	0.45	1	0.02103	0.902	5.67	
C21	MH-111	MH106	51.392	131.162	131.044	0.9	1	0.0023	0.905	1.85	
C22	MH106	MH107	19.652	131.044	130.98	0.975	1	0.00326	0.914	1.83	
C23	CB1	CB2	7.667	131.67	131.56	0.25	1	0.01435	0.16	3.25	
C24	CB2	MH107	4.209	131.56	130.98	0.25	1	0.13913	0.16	3.25	
C25	MH108	MH109	29.071	130.92	130.82	0.975	1	0.00344	1.312	2.88	
C26	MH109	MH110	41.366	130.82	130.62	0.525	3	0.00483	1.282	1.97	
C27	MH110	Outlet	32.374	130.62	130.55	0.525	3	0.00216	1.283	2.05	
C3	MH-ST	A-MH3	35.73	134.89	133.3	0.375	1	0.04454	0.28	2.58	
C4	H-LCB1	H-LCB2	54.623	133.707	133.137	0.3	1	0.01044	0.08	1.13	
C5	H-LCB2	H-LCB3	54.825	133.137	132.55	0.3	1	0.01071	0.099	1.41	
C6	H-LCB3	A-CB1	9.7	132.55	132.46	0.375	1	0.00928	0.126	1.14	
C7	A-CB1	A-CB2	6.183	132.46	133.52	0.375	1	-0.17401	0.171	1.55	
C8	A-CB2	A-MH1	1.983	133.52	133.48	0.375	1	0.02018	0.172	1.97	
C9	A-MH1	A-MH2	50.678	133.48	133.168	0.375	1	0.00616	0.173	1.56	

Table 5: Orifices

Name	Inlet Node	Outlet Node	Type	Cross-Section	Height (m)	Inlet Elev. (m)	Discharge Coeff.	Max. |Flow| (m^3/s)	Capacity
OR1	SWM-IN	DICB5	BOTTOM	CIRCULAR	0.18	132.4	0.6	0.068	0

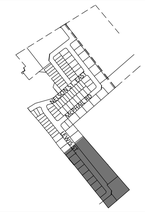
Table 6: Weirs

Name	Inlet Node	Outlet Node	Type	Height (m)	Length (m)	Side Slope (m/m)	Inlet Elev. (m)	Discharge Coeff. (m^3/s)	End Coeff. (m^3/s)	Max. |Flow| (m^3/s)
W1	SWM-IN	DICB5	TRAPEZOIDAL	0.2	2	3	133.4	1.84	0	0.298



NOTE: ALL UNITS TO BE EQUIPPED WITH SUMP PUMP. REFER TO DRAWING "DETAILS 1".

LOCATION PLAN



LEGEND

- CONCRETE MOUNTABLE CURB DEPRESSED (DC)
- MOUNTABLE CURB
- EASEMENT
- STORM MANHOLE (MH7)
- CATCHBASIN OR DITCH INLET c/w 3.0m SUBDRAIN STUBS (CB6 DI6)
- LANDSCAPE CATCHBASIN (ECB4 TCB4)
- SANITARY MANHOLE (MH7A)
- PERFORATED PIPE
- WATER VAVLE/CHAMBER
- FIRE HYDRANT
- SILT FENCE (AS PER OPSD 219.110)
- SEDIMENT CONTROL DEVICE
- STRAW BALE CHECK DAM (AS PER OPSD 219.180)
- TACTILE WALKING SURFACE INDICATOR (TWSI) PER OPSD 310.039
- PRECAST BLOCK RETAINING WALL C/W PEDESTRAIN GAURD (BY OTHERS)
- APPROXIMATE EASEMENT LINE
- CENTRELINE OF SWALE
- SLOPING AT 3:1 (UNLESS SPECIFIED)
- PROPOSED ELEVATION 205.61 99.52 / EXISTING ELEVATION
- SWALE ELEVATION 205.30 OS
- TOP OF WALL ELEVATION 205.91 TOW / BOTTOM OF WALL ELEVATION
- F.F.L. 100.94 T.F.ND. 100.64 U.S.F. 98.07 M.U.S.F. 98.00 — FINISHED FLOOR TOP OF FOUNDATION UNDERSIDE OF FOOTING MINIMUM U.S.F.
- 2 — ADDITIONAL RISERS
- LWF — LIGHTWEIGHT FILL REQUIRED
- WO — WALK OUT BASEMENT
- GS — GRADE SPLIT UNIT

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date
7	REVISED AS PER COMMENTS	FEB. 12, 2024
6	REVISED AS PER COMMENTS	NOV. 17, 2023
5	REVISED AS PER COMMENTS	MAY 31, 2023
4	REVISED AS PER COMMENTS	DEC. 5, 2022
3	REVISED AS PER COMMENTS	MAR. 21, 2022
2	REVISED LOT LINES	SEP. 23, 2021
1	ISSUED FOR REVIEW	AUG. 20, 2021

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 500

0 10 20 30 40 50 Metres

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Client:
CAVANAGH DEVELOPMENTS
9094 CAVANAGH RD, ASHTON, ON K0A 1B0

Project:
COLEMAN CENTRAL SUBDIVISION - PHASE 2

Drawing Title:
GENERAL PLAN OF SERVICES

Scale: 1:500	Project Number: CP-18-0360-01
Drawn By: C.H.	
Checked By: B.C.	Drawing Number: 101
Designed By: C.H.	

FILENAME: L:\Ottawa\901 Project - Proposals\2018 Jobs\CC\CCO-18-0360-01 Cavanagh_McGlobe Subdivision Ph 2_Carleton Place\Civil\12 - Drawings\Production\CCO-18-0360-01 DRAWING SET.dwg
LAST SAVED: Monday, February 12, 2024 LAST SAVED BY: c.hall
LAST PLOTTED: Monday, February 12, 2024 [TIME PLOTTED]