

1400 Coldrey Avenue
City of Ottawa, ON
Stormwater Management Brief

Prepared For:

Kehillat Beth Israel

Prepared By:

Robinson Land Development

Project No. 24060
Revision 1.0
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LEGAL NOTIFICATION

This report was prepared by Robinson Land Development for the account of **Kehillat Beth Israel**.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **Robinson Land Development** accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project

1.0 INTRODUCTION

Robinson Land Development have been retained by Kehillat Beth Israel to prepare a Stormwater Management Brief in support of the proposed redevelopment of the site located at 1400 Coldrey Avenue in the City of Ottawa. The subject site is bound by Coldrey Avenue to the north, Laperriere Avenue to the south and existing residential properties to the west and east (refer to **Figure 1 – Key Plan** following page 1). This report will detail the proposed stormwater management designs required to redevelop the site in accordance with current City of Ottawa guidelines.

2.0 GUIDELINES, STUDIES AND REPORTS

The designs provided herein have been prepared in keeping with the following documents:

- **Sewer Design Guidelines**, City of Ottawa, Second Edition, October 2012, and subsequent technical bulletins (herein referred to as the OSDG).
- **Stormwater Planning and Design Manual**, Ministry of the Environment, March 2003 (herein referred to as the MECP SWM Manual).

A pre-consultation meeting was held with the City of Ottawa on February 10th, 2025 to discuss requirements for the proposed development. Refer to pre-consultation notes provided under **Appendix A** for more details.

3.0 EXISTING CONDITIONS

The subject site is zoned minor institutional (I1A) and is currently operated as a synagogue. The property is 1.8 hectares in area and is largely developed. The existing building has a footprint of approximately 2860 square metres. Existing asphalt and gravel parking areas are located to the south of the building. The parking areas are accessed via an entrance connection to Laperriere Avenue. An existing asphalt access road runs north-south along the eastern boundary and provides a connection between Coldrey Avenue and Laperriere Avenue. The access road is contained within an easement in favour of the City of Ottawa for existing storm sewer infrastructure which runs along the eastern boundary of the property. The area north of the existing building is primarily landscaped space. Existing municipal infrastructure is available in proximity to the subject site as follows:

Water

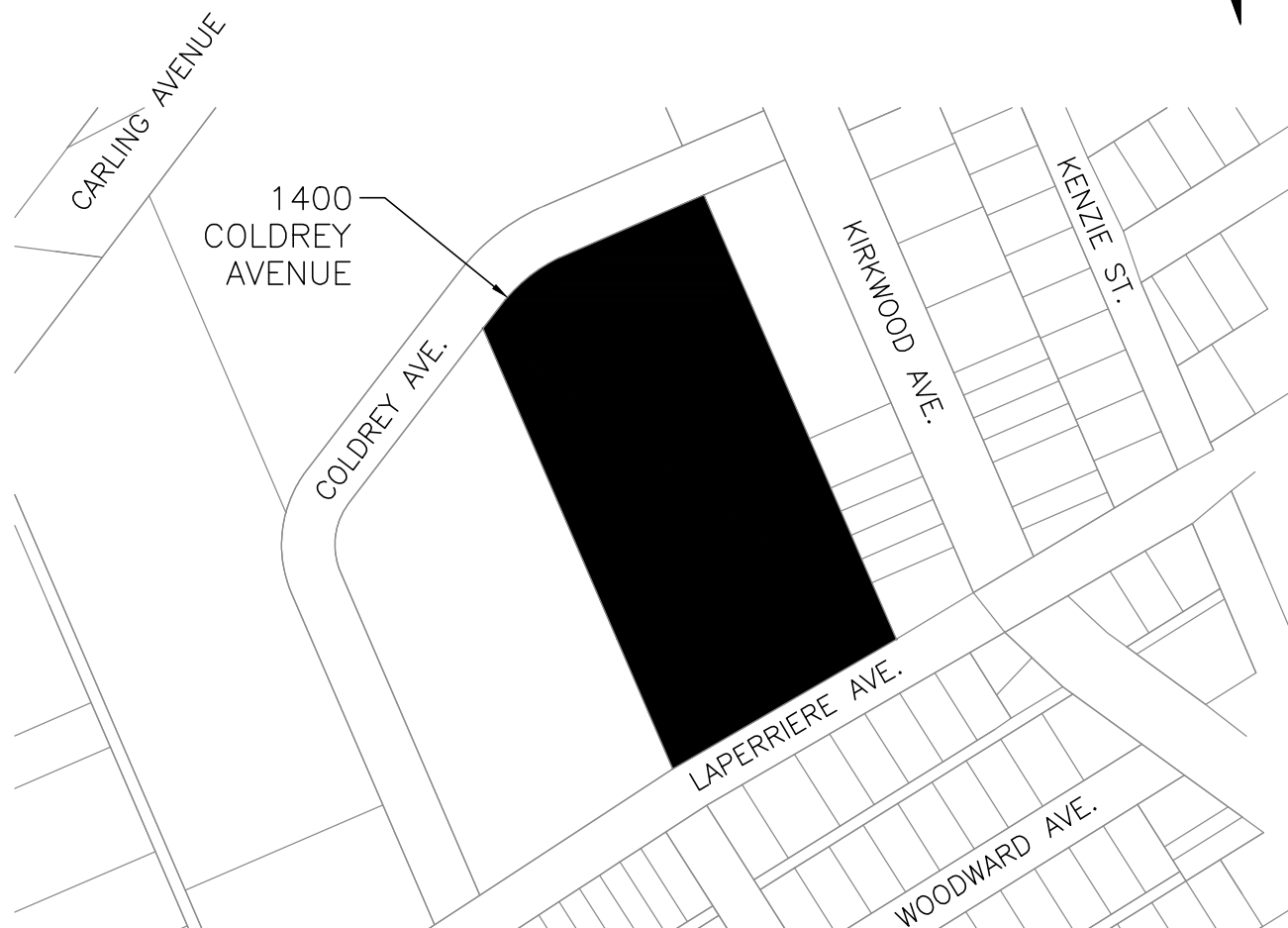
- An existing 203mm diameter UCI watermain within the Coldrey Avenue right-of-way.
- An existing 203mm diameter UCI watermain within the Laperriere Avenue right-of-way.

Sanitary

- An existing 225mm diameter concrete sanitary sewer within the Coldrey Avenue right-of-way.
- An existing 225mm diameter concrete sanitary sewer within the Laperriere Avenue right-of-way.

Storm

- Existing 450mm-600mm diameter concrete storm sewers within the Coldrey Avenue right-of-way.
- Parallel 600mm diameter concrete storm sewers within the Laperriere Avenue right-of-way.



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scale	N.T.S.	1400 COLDREY AVENUE, OTTAWA	project no.
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drawn by	BLM	KEY PLAN	FIG 1.0

- An existing 1200mm diameter concrete storm sewer and an existing 2100mm diameter concrete storm trunk sewer contained within parts subject to an easement on the subject site.

Refer to the figure below for an aerial view of the subject site under its current development state. Refer also to the Plan of Survey, prepared by AOV, under **Appendix A**.



Figure 2: Existing Conditions

4.0 PROPOSED CONDITIONS

The Owner is proposing to redevelop the subject site to increase parking and provide a more direct connection to the main entrance of the building. The proposed redevelopment works will include:

- Construction of new parking areas and access roads surrounding the existing building.
- Construction of a new entrance connection to Coldrey Avenue on the west side of the site.
- Removal of the existing asphalt/gravel parking areas to the south of the existing building and reinstatement with landscaping.
- Removal of the existing westerly entrance connection to Laperriere Avenue.
- The access road over the existing storm sewer easement will be regraded and resurfaced, however, access will be maintained.

Refer to the Site Plan, prepared by IDEA, under **Appendix B** for more details.

5.0 STORM SERVICING

5.1 Existing System

The existing municipal storm sewer system on Laperriere Avenue is conveyed to the 2100mm diameter storm trunk sewer contained within the easement running along the eastern boundary of the subject site. The existing 1200mm storm sewer runs parallel with the trunk sewer but is higher in elevation. Minor system flows are conveyed north for approximately 200 metres before converging with the minor storm sewer system on Coldrey Avenue. The parallel storm sewers continue to flow in a northerly direction for approximately 150 metres before converging to the single 2100mm storm trunk sewer, south of Carling Avenue. Refer to the as-built storm sewer plan and profile drawings provided by the City of Ottawa under **Appendix A** for more details.

Through pre-consultation, the City has noted that the existing storm sewer system on Coldrey Avenue is experiencing surcharging even during smaller rainfall events. Hydraulic grade line (HGL) elevations have been provided by the City for the 5-year and 25-year storm events. Refer to the HGL profiles under **Appendix A** for more details.

Under current conditions, the subject site has minimal private storm sewers to capture and convey stormwater runoff. Foundation drainage from the existing building is conveyed north by a +/-100mm diameter storm sewer system to the existing 450mm diameter storm sewer on Coldrey Avenue.

Stormwater runoff from the flat portion of the existing building roof is captured by roof drains and conveyed east by an existing storm sewer (size unknown). The existing storm sewer size and outlet location could not be verified through field investigation, however, it is assumed that the outlet is either to the existing 1200mm diameter storm sewer or to the existing 2100mm diameter storm trunk sewer contained within the easement.

Stormwater runoff from the southern portion of the site is conveyed uncontrolled to an open-ended inlet structure located on the west side of the existing access road. The inlet structure consists of a 600mm x 650mm rectangular opening converging to a +/-300mm diameter concrete storm sewer. The existing outlet location could not be verified through field investigation, however, it is assumed that the outlet is either to the existing 1200mm diameter storm sewer or to the existing 2100mm diameter storm trunk sewer contained within the easement. No other existing minor storm sewer systems are known to be located on the subject site.

5.2 Design Criteria

The proposed storm sewer (minor) system for the subject site has been designed using the following design criteria in accordance with the current OSDG:

- | | | |
|------------------------------|------------------------------------|-----------------|
| • Peak Flow (Q) | 2.78CiA (Rational Method) | |
| • Rainfall Intensity (i) | City of Ottawa IDF Curve Equations | |
| • Runoff Coefficient (C) | | |
| ▪ Pervious Areas | 0.20 | |
| ▪ Impervious Areas | 0.90 | |
| ▪ Gravel Areas | 0.80 | |
| ▪ 100-Year C | C + 25% (Max. 1.0) | |
| • Inlet Time | 10 minutes | (OSDG S5.1.4) |
| • Minimum Full Flow Velocity | 0.80 m/s | (OSDG S6.1.2.1) |

• Maximum Full Flow Velocity	3.0 m/s	(OSDG S6.1.2.1)
• Minimum Sewer Diameter	250 mm	(OSDG S6.1.1.2)
• Minimum Catch Basin Lead	200 mm	(OSDG S5.6.7)
• Manning's 'n' Value	0.013	(OSDG S6.1.8.1)
• Design Level of Service	2-Year Event	(PIEDTB-2016-01)

5.3 Storm Sewer Design (Minor System)

Stormwater runoff from the subject site will be captured by surface inlets and conveyed to the proposed on-site storm sewer system. Stormwater from the northern portion of the site (denoted as areas STM1-STM4) will be captured and conveyed by new storm sewers to the existing storm sewer system on Coldrey Avenue, immediately upstream of the 2100mm storm trunk sewer (i.e. connection to MHST27626). During the 5-year design event, the HGL at MHST27626 is anticipated to be below the obvert of the existing storm sewers, however, the system becomes surcharged within the existing pipe runs immediately upstream of the connection (refer to HGL profiles under **Appendix A**).

Stormwater runoff from the landscaped area along the western boundary and the northern property frontage (denoted as area FF1) will be conveyed uncontrolled to the existing surface inlets on Coldrey Avenue where it will be captured and conveyed to the existing municipal storm sewer system.

Stormwater runoff from the southern portion of the site (denoted as area STM5) will be captured and conveyed by new storm sewers to the existing 2100mm diameter storm trunk sewer contained within the easement (refer to additional discussion and rationale under **Section 6.5**).

Stormwater runoff from the flat portion of the existing building roof (denoted as area R1) will continue to be captured by roof drains and conveyed east by the existing storm sewer (size unknown).

The proposed storm sewers have been designed using the Rational Method to have adequate capacity to convey the unrestricted 2-year peak flow from the subject site. The storm sewers have also been designed with adequate capacity to convey with 100-year restricted peak flow without surcharging of the system. The storm sewers have been designed to meet the allowable full flow velocities for self-cleansing in accordance with the current OSDG. Refer to the runoff coefficient calculations, storm sewer design sheet and the Storm Drainage Area Plan (DWG. 24060-STM1) provided under **Appendix C** for more details. The proposed storm sewer network is shown on the Servicing Plan (24060-S1) provided under **Appendix B**.

6.0 STORMWATER MANAGEMENT

6.1 Design Criteria

In keeping with current City of Ottawa design guidelines and pre-consultation notes, the following stormwater management design criteria are recommended for the subject site:

- Control post-development peak flows to the 2-year pre-development rate for up to and including the 100-year design event.
- Provide on-site storage (in excess of pre-development flows) for all storm events up to and including the 100-year design event.
- Eliminate surface ponding during the 2-year design event.
- Maximum surface ponding depth of 0.35 m.

- Provide major overland flow routes to the municipal right-of-ways.
- Quality control measures are not required.

The sections below will provide detailed discussions and calculations to demonstrate how the above design criteria can be achieved.

6.2 Pre-Development Flows

Under pre-development conditions, stormwater runoff from the subject site is conveyed by surface sheet flow to the municipal storm sewer systems located adjacent to the site. Runoff from the southern portion of the site (denoted as area PRE1) is conveyed uncontrolled by surface sheet flow in an easterly direction to the open-ended inlet structure located on the west side of the existing access road. The inlet structure consists of a 600mm x 650mm rectangular opening converging to a +/-300mm diameter concrete storm sewer. The existing outlet location could not be verified through field investigation, however, it is assumed that the outlet is either to the existing 1200mm diameter storm sewer or to the existing 2100mm diameter storm trunk sewer contained within the easement.

Runoff from the northwest corner of the site (denoted as area PRE2) is conveyed uncontrolled by surface sheet flow to the Coldrey Avenue right-of-way where it is captured by an existing roadside catch basin and conveyed to the existing 450mm diameter municipal storm sewer on Coldrey Avenue. The existing 450mm diameter storm sewer conveys stormwater in an easterly direction until it converges with the 2100mm diameter storm trunk sewer.

Runoff from the east and northeast portion of the site (denoted as area PRE3) is conveyed uncontrolled by surface sheet flow to the Coldrey Avenue right-of-way where it is captured by an existing roadside catch basin and conveyed to the existing 2100mm diameter storm trunk sewer.

Runoff from a small portion of the site on the west side of the building (denoted as area PRE4) is conveyed uncontrolled by surface sheet flow to an existing catch basin located within the parking lot on the adjacent residential lands to the west. The routing of the adjacent private storm sewer system is unknown but is assumed to outlet to either the existing storm sewer system on Laperriere Avenue or Coldrey Avenue.

Runoff from the flat portion of the existing building roof (denoted as area PRE5) is captured by roof drains and conveyed east by an existing storm sewer (size unknown). The existing storm sewer size and outlet location could not be verified through field investigation, however, it is assumed that the outlet is either to the existing 1200mm diameter storm sewer or to the existing 2100mm diameter storm trunk sewer contained within the easement.

Pre-development peak flows for the subject site have been calculated using the Rational Method. Due to the short flow lengths of the individual drainage areas, a minimum time of concentration of 10 minutes has been utilized. The calculated peak flows for the 2-year, 5-year, and 100-year design events have been summarized in the table below.

Table 5.1: Pre-Development Peak Flows

Drainage Area ID	Pre-Development Peak Flow (L/s)		
	2-Year	5-Year	100-Year
PRE1	89.3	121.1	259.7
PRE2	12.1	16.4	35.2
PRE3	44.1	59.9	128.2
PRE4	5.4	7.4	15.8
PRE5	39.9	54.1	103.0
Total	190.9	259.0	541.9

Notes:

1. Peak flows calculated using the Rational Method ($Q=2.78CiA$)
2. Rainfall intensity calculated using City of Ottawa IDF curve equations.
3. Time of concentration = 10 minutes

As demonstrated in the table above, the pre-development peak flow from the subject site ranges from 190.9 L/s during the 2-year design event up to 541.9 L/s during the 100-year design event. Refer to the Pre-Development Drainage Area Plan (DWG. 24060-PRE1) and pre-development flow calculations provided under **Appendix D** for more details.

The overall site has a calculated pre-development runoff coefficient value of 0.50 based on the various surface covers present. Since the pre-development runoff coefficient does not exceed a value of 0.50, the actual existing site runoff coefficients may be used in determining the allowable release rate for the site without the need for over-controlling (*OSDG Section 8.3.7.3*).

6.3 Quantity Control

As recommended by the City during pre-consultation, post-development peak flows must be controlled to the 2-year pre-development rate for all storm events up to and including the 100-year design event. The requested 2-year level of service is aligned with Technical Bulletin PIEDTB-2016-01, however, it should be acknowledged that the receiving municipal storm sewers adjacent to the site would have originally been designed for a greater level of service given that their construction well preceded the 2016 technical bulletin.

Under post-development conditions, the overall site has a calculated post-development runoff coefficient of 0.55 which exceeds the pre-development value of 0.50. The increase in impervious area will result in increased stormwater runoff from the site. In order to control the post-development outflows to pre-development rates, inlet control devices (ICDs) will be implemented within the on-site storm sewer system. Stormwater outflows for the on-site drainage areas for the 2-year through 100-year design events have been summarized in the table below.

Table 5.2: Post-Development Peak Flows

Drainage Area	2-Year Outflow (L/s)	5-Year Outflow (L/s)	100-Year Outflow (L/s)	Flow Control
STM1	20.5	21.6	22.8	ICD
STM2	27.6	28.9	30.0	ICD
STM3	27.6	28.8	29.9	ICD
STM4	20.0	20.5	21.1	ICD
STM5	69.9	74.7	80.0	ICD
R1	39.9	54.1	103.0	Uncontrolled* ^{4,5}
FF1	7.5	10.1	21.7	Uncontrolled* ⁵
Total	212.6	238.7	308.4	
Pre-Development*³	190.9	259.0	541.9	

Notes:

1. Flows calculated using the Rational Method ($Q=2.78CiA$)
2. Rainfall intensity calculated using City of Ottawa IDF curve equations.
3. Refer to **Table 5.1**.
4. Flows from existing flat roof will have some level of control from the existing roof drains, however, since the roof drain details are unknown the drainage area has been assumed to be uncontrolled. There is no change in peak flows from the pre-development condition.
5. Free flow calculations provided under **Appendix D**.

As demonstrated in the table above, the 2-year peak flow will be increased by approximately 21.7 L/s, however, the 5-year and 100-year peak flows will be reduced by 20.3 L/s and 233.5 L/s respectively. The increase in peak flows during the 2-year design event can be attributed to the following:

- As per the recommended design criteria, no surface ponding can occur during the 2-year design event. As a result, available surface storage volumes cannot be fully utilized by overcontrolling release rates without resulting in surface ponding during the 2-year event.
- The building is an existing feature and will not be modified as part of the redevelopment, therefore, runoff from the building roof cannot be overcontrolled in post-development to reduce the overall peak flows during the 2-year design event.
- The relatively shallow and surcharged municipal storm sewer system makes underground storage unsuitable for the subject site.

Although there will be an increase in peak flows during the 2-year event, the post-development peak flows will be controlled to less than pre-development rates during the 5-year and 100-year design events. Given that the receiving storm sewer systems were designed for a greater than a 2-year level of service, the reduction in peak flows from the subject site during the 5-year and greater events should adequately mitigate impacts to the downstream systems resulting from the redevelopment of the property. Refer to the ponding and ICD calculations under **Appendix D** for more details.

6.4 Quantity Storage

In order to control stormwater outflows to the rates provided in **Table 5.2**, on-site storage will be required. On-site storage (in excess of the allowable release rates) will be required for all storm events up to and including the 100-year event. In accordance with the current OSDG, there will be no surface ponding during the 2-year event and the maximum ponding depth will

not exceed 0.35 m. Required storage volumes have been calculated using the Modified Rational Method and the allowable release rates provided in **Table 5.2**. Storage volume and ponding depths for the on-site catchment areas during the 100-year design event have been summarized in the table below.

Table 5.3: 100-Year Surface Storage Volumes & Ponding Depths

Drainage Area	100-Year		Ponding Depth ^{*1} (m)
	Required Storage Volume (m ³)	Provided Storage Volume ^{*2,3} (m ³)	
STM1	22.4	29.2	0.27
STM2	30.8	35.0	0.25
STM3	30.8	31.3	0.25
STM4	19.6	21.4	0.22
STM5	73.7	75.6	0.32

Notes:

1. Ponding depths are measured from the ponding elevation to the top of grate elevation.
2. Provided storage volumes are calculated using AutoCAD Civil3D by Autodesk.
3. Provided storage volumes only account for surface storage.

As demonstrated in the table above, adequate on-site storage has been provided to detain the 100-year event to the established release rates for the site. Refer to the storage volume provided under **Appendix D** for more details. Ponding limits are shown on the Grading Plan (24060-GR1) provided under **Appendix B**.

6.5 Major Storm System

The major storm system for the subject site has been designed to cascade overland flow from the individual catchment areas to the adjacent municipal right-of-way. For drainage areas STM1 to STM4, the major overland flow route will convey stormwater to the Coldrey Avenue right-of-way. A minimum freeboard of 0.30 m has been provided between the spill elevations and any adjacent building openings.

For drainage area STM5 (i.e. southern portion of the site) a major overland route to a municipal right-of-way is not feasible due to the natural topography of the property relative to the existing building which is to remain. The southerly building entrance has a surveyed door sill elevation of 75.62 m. The surrounding elevations are significantly higher and therefore it is not feasible to provide an overland spill elevation below the existing door sill elevation. To mitigate the risk of flooding at the existing building, a freeboard of 0.30 m has been provided between the 100-year ponding elevation (for adjacent drainage area STM5) and the existing door sill elevation. The springline elevation of the existing 1200mm storm sewer at this location is approximately 75.00 m which is only 0.62 m below the door sill elevation. For this reason, a connection to the deeper 2100mm diameter storm trunk sewer is required to lower the localized grades and thereby facilitate a stormwater management design with adequate protection against flooding impacts.

7.0 EROSION AND SEDIMENT CONTROL

Prior to construction and until vegetation has been re-established in disturbed areas, erosion and sediment control measures must be implemented to mitigate the impact on receiving

watercourses and existing infrastructure. The following erosion and sediment control (ESC) measures are proposed for the subject site:

- Limit the extent of exposed soils at any given time.
- Erosion and sediment control measures shall be maintained until vegetation has been re-established in all disturbed areas. Re-vegetate disturbed areas as soon as possible.
- Stockpile soil away (15 metres or greater) from watercourses, drainage features and top of steep slopes.
- Silt sacks and silt fence barriers are to be installed and maintained where indicated on the erosion and sediment control plans.
- Mud mats are to be installed and maintained at all construction entrances.
- For dry weather periods (active and/or inactive construction phases) inspections of ESC measures shall be undertaken on a weekly basis.
- Inspection of ESC measures shall be undertaken immediately after major storm events (>25mm of rain in 24 hour period), significant snowmelt events (melting of snow at a rate which adversely affects the performance and function of the system), and extreme weather events.
- Visual inspections shall also be undertaken in anticipation of large storm events (or a series of rainfall and/or snowmelt days) that could potentially yield significant runoff volumes.
- Identify and rectify any deficiencies and undertake necessary maintenance measures as soon as possible.
- Inspections and maintenance of temporary ESC measures shall continue until they are no longer required.
- The Contractor shall ensure that records of inspection are taken, including at a minimum:
 - the inspector's name;
 - date of inspection;
 - visual observations;
 - any necessary remedial measures taken to maintain the interim ESC measures.
- Care shall be taken to prevent damage to ESC during construction operations.
- In some cases, barriers may be removed temporarily to accommodate construction operations. The affected barriers shall be reinstated immediately after construction operations are completed.
- ESC should be adjusted during construction to adapt to site features as the site becomes developed.
- ESC shall be cleaned of accumulated sedimentation as required and replaced as necessary.
- During the course of construction, if the Engineer believes that additional prevention methods are required to control erosion and sedimentation, the Contractor shall implement additional measures, as required, to the satisfaction of the Engineer.
- Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification (OPSS) 805.

Refer to the Erosion and Sediment Control Plan (DWG. 24060-ESC1) provided under **Appendix B** for more details.

8.0 CONCLUSIONS

It has been demonstrated that the proposed redevelopment of the property located at 1400 Coldrey Avenue can be accomplished in keeping with current City of Ottawa guidelines and can be designed to meet the stormwater management criteria outlined for the site. Specifically, the site design will include the following key design features:

- Post-development outflows will be controlled to less than pre-development rates for the 5-year and 100-year design events.
- Adequate on-site storage will be provided to detain the 100-year design event in excess of the allowable release rates.
- No surface ponding will occur during the 2-year design event.
- A major overland flow route will be provided to Coldrey Avenue.
- A minimum freeboard of 0.30 m will be provided between 100-year ponding elevations and any adjacent building openings.
- Erosion and sediment control measures will be implemented prior to construction and maintained until vegetation has been re-established in disturbed areas.

Report Prepared By:



Brandon MacKechnie, P.Eng.
Project Engineer

Appendix A

Pre-Consultation Notes

Plan of Survey (prepared by AOV)

As-Built Existing Storm Sewer in
Coldrey/Easement Plan and Profile

As-Built Existing Storm Sewer in
Easement Plan and Profile

Coldrey Avenue Storm Sewer HGL
Profiles

February 13, 2025

Tim Eisner
JFSA Canada
Via email: teisner@jfsa.com

**Subject: Pre-Consultation: Meeting Feedback
Proposed parking lot relocation Application – 1400 Coldrey Avenue**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on February 10, 2025.

Pre-Consultation Preliminary Assessment

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
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One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Supporting Information and Material Requirements

The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on [Ottawa.ca](https://ottawa.ca). These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Planning Comments:

1. The Official Plan designates the property Neighbourhood in the Inner Urban Transect. Sections 4.1.4, 4.6.5, and 5.2.2 of the Official Plan provide direction for designing parking lots that support the growth of mature trees and screening parking from the public realm. The design of the new parking lot should be based on the least impacts to trees and should accommodate new planting along Coldrey Avenue. The minimum 3 m-wide landscape buffer along the perimeter of the site also provides an opportunity for tree retention and planting.
2. The parking lot will need to comply with City's Zoning By-law. Please note the following performance standards and revise the concept plan accordingly:
 - Minimum drive aisle width of 6.7 metres
 - Minimum 3 metre-wide landscape buffer between the parking lot and lot lines

- Minimum 15% soft landscaping requirement (includes landscape buffer around the perimeter)
 - Based on the current number of parking spaces, a minimum of 5 accessible parking spaces are required (2 Type A and 3 Type B). Please refer to Section 3.1 of the [Accessibility Design Standards](#) for additional information on the design and layout.
 - Bicycle parking spaces are required as per Section 111. The applicable rate is 1 per 1500 m² of gross floor area.
3. The proposed passenger loading zone should comply with the City's Accessible Design Standards, which includes a 2.4 m x 7.4 m side access aisle. See Section 3.2 of the [Accessibility Design Standards](#) for more information.
 4. According to City records, a building permit was issued for the synagogue in June 1956. As the use predates the City's Zoning By-law (former municipality), the use is not subject to the current minimum parking rate/requirement for a place of worship.
 5. A copy of the building permit and associated plans from 1956 may be available. The property owner can request a copy through the City's [Access to Building Permit Records | City of Ottawa](#) program.
 6. An Environmental Site Assessment (ESA) is not required.
 7. Please provide additional information on the proposed fence and gate controlled access. Staff will confirm access requirements to the easements on site.
 8. Development Review Management approved the request to apply a reduction in application fees. We will apply the "Standard Revision" fee: \$14,802.54 (2025 fee)

Urban Design Comments:

9. An Urban Design Brief is not required.
10. Staff recommend maintaining all trees and landscaping along the property lines abutting the residential zones.
11. Staff recommend illustrating the future of the southern portion of the site (e.g., being preserved for use, greenspace, trees etc.)
12. This is an exciting project, and we look forward to helping you achieve its goals with the highest level of design resolution.

If you have any questions, please contact Christopher Moise, Planner II Urban Design, at Christopher.moise@ottawa.ca

Engineering Comments:

13. The Stormwater Management Criteria, for the subject site, is to be based on the following:

- a. Application of the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
- b. In separated areas, the pre-development runoff shall be the lower of the existing coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).
- c. A calculated time of concentration (cannot be less than 10 minutes).
- d. Flows to the storm sewer in excess of the 2-year storm release rate, up to and including the 100-year storm event, must be detained on site. There shall be no surface ponding occurring during the 2-year storm event.
- e. Storm sewer outlets should not be submerged.
- f. The quantity control criteria for this site are to control the 100-year post-development flows to the 2-year pre-development flow rate.
- g. Quality control is not required for this development application.
- h. The existing storm sewers on Coldrey Avenue are flowing uncontrolled and the sewer is surcharging even during small/more frequent events.

14. Deep Services (Storm)

- a. It is recommended that the sites existing storm sewer connection be reused. In the event the post-development flows to this outlet are greater than the pre-development flows, please contact the Project Manager, Tyler Cassidy, with the proposed flows for confirmation.
- b. If a new connection to the municipal storm system is required, it is recommended to connect to the 450mm dia. Conc. Sewer on Coldrey Avenue. A new connection to the West Hintonburg Storm Trunk sewer (2100mm dia.) will not be permitted.
- c. Connections to trunk sewers and easement sewers are typically not permitted.
- d. A monitoring maintenance hole is not required.
- e. Sewer connections to be made above the springline of the sewermain as per:
 - i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.
 - ii. Std Dwg S11 (For rigid main sewers) – lateral must be less than 50% the diameter of the sewermain,
 - iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,

- iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.
- 15. An MECP Environmental Compliance Approval **Municipal/Private Sewage Works** may be required for the proposed development. A Ministry contact has been provided below but please work with City staff on the need (or not) of an application.
 - a. Shannon Hamilton-Browne at (613) 521-3450 or Shannon.Hamilton-Browne@ontario.ca
- 16. Any new private approaches should be designed to meet the criteria outlined in the Private Approach (By-law No. 2003-447).
- 17. Major overland flow routes should be shown on the plan. Provide the 2-year, 100-year, and maximum static ponding limits on the grading/drainage (or stormwater management) plan.
- 18. Construction constraints: There is a planned Sidewalk Renewal project on Laperriere Avenue (estimated construction date is 1-2 years). Coordination may be required if there are overlapping construction dates.

If you have any questions, please contact Tyler Cassidy, P.Eng., Project Manager, at tyler.cassidy@ottawa.ca

Transportation Comments:

- 19. Ensure that the development proposal complies with the Right-of-way protection requirements. Please see [Schedule C16 of the Official Plan](#).

Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.
- 20. Increase the clear throat length at the proposed eastern access by removing or relocating some parking spaces near the entrance. Clear throat length requirement is a minimum of 15 metres. Ensure this length is provided and dimension it on the plan. The clear throat length is measured from the ends of the driveway curb return radii to the first point of conflict on-site.
- 21. Sidewalks will be required along the Coldrey and Laperriere frontages, as well as on one side of both proposed accesses.
- 22. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb, and boulevard to City standards.
- 23. Bicycle parking spaces are required as per Section 111 of the Zoning By-law. Bicycle parking spaces should be in safe, secure places near entrances and preferably protected from the weather. Consider providing bicycle parking under the canopy.

24. There is an existing transit stop (#4830) along the Laperriere property frontage. Communications with OC Transpo's Transit Planners are underway, additional information will be provided as soon as it is available.

25. As the proposed site is institutional use and for the public, AODA legislation applies.

- Please Please consider using the [City's Accessibility Design Standards](#), which provide a summary of AODA requirements.
- Ensure all crosswalks located internally on the site provide a TWSI at the depressed curb, per requirements of the Integrated Accessibility Standards Regulation under the AODA.
- Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).
- Ensure the design and layout of passenger loading and drop-off zones achieve AODA standards.

26. Preliminary site plan comments:

- Ensure site accesses meet the [City's Private Approach Bylaw](#) and all driveways/aisles meet the requirements outlined in [Section 107 of the Zoning By-law](#).
- Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.
- Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
- Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).
- Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)
- Sidewalk is to be continuous across access as per City Specification 7.1.
- Parking stalls at the end of dead-end parking aisles require adequate turning around space
- Grey out any area that will not be impacted by this application.

If you have any questions, please contact Rochelle Fortier-Lesage, Transportation Project Manager, at rochelle.fortier@ottawa.ca

Environmental Planning Comments:

27. There are no natural heritage features, surface water features, or species-at-risk habitat present on or near the site that would trigger the need for an Environmental Impact Statement (EIS). An EIS is not required as part of this submission.
28. The City has policies aimed at reducing the impacts of climate change and the urban heat island effect. Tree preservation and planting form central components of these policies. Please seek to limit tree removals as much as possible. Also consider ways to reduce the impermeable surface area on site.
29. Additional tree plantings, especially in the reclaimed southern portions of the site, are strongly recommended. Please note that the City prefers all plantings be of native and non-invasive species.

If you have any questions, please contact Mark Elliott, Environmental Planner, at mark.elliott@ottawa.ca

Forestry Comments:

30. A Tree Conservation Report and Landscape Plan are submission requirements of this Site Plan Control application.
31. Explore parking configurations that retain as many existing trees as possible. Retention over removal of healthy trees and protecting suitable space for tree planting are priorities under the Official Plan (OP Section 4.8.2, policy 3 a, b).
32. Development must have the least impact to protected healthy trees as feasible (OP Section 4.8.2, policy 3, d). Design around existing trees and leave space for tree planting to compensate for the increase in hard surface on the site. Planning Forestry would not support a reduction in the minimum soft landscaping or landscape buffer requirements.
33. Plant trees and vegetation in the soft landscaped areas (i.e., landscape buffer, along Coldrey Avenue, and islands).
34. As this is a large property, there is an opportunity to contribute to the City's 40% canopy cover target. Provide a robust landscape plan that provides significant canopy contributions.
35. Section 4.1.4 of the Official Plan (policy 11, c, d) states that surface parking lots should be designed to have regular spacing of tree islands that support the growth of mature shade trees and landscaping requirements shall be in addition the landscaping requirements for the right of way around the perimeter of parking lots.
36. Section 4.6.5 of the Official Plan states development shall minimize conflict between vehicles and pedestrians and improve the attractiveness of the public realm including accommodating space for trees on site. It goes on to say that surface parking must be visually screened from the public realm. Incorporate new trees and protect existing trees around the entire perimeter of the parking lot.

37. Trees need to be planted in openings along street frontages (OP 4.1.3, policy 1). If on City property, maintain spacing distances noted below.

38. Tree Conservation Report requirements:

The following Tree Conservation Report (TCR) requirements have been adapted from the Schedule E of the Urban Tree Protection Guidelines. For more information, please contact hayley.murray@ottawa.ca

- A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City.
- Any tree 10 cm in diameter or greater and City-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
- The TCR must contain two separate plans/maps:
 - i. Plan/Map 1 - show existing conditions with tree cover information.
 - ii. Plan/Map 2 - show proposed development with tree cover information.
- The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter, and health condition. Please note that averages can be used if there are forested areas.
- Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
- The removal of trees on a property line will require the permission of both property owners.
- All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca.
- The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- Removal of a City tree is not permitted unless justified. If justified, monetary compensation for the value of the tree must be paid before a tree removal permit is issued.

39. Landscape Plan (LP) requirements:

- Landscape Plan Terms of Reference must be adhered to for all tree planting: [Click Here.](#)

40. Additional Elements for Tree Planting in the Right of Way:

- Please ensure any retained trees are shown on the Landscape Plan.

- Sensitive Marine Clay - Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.
- Soil Volume - Please demonstrate as per the Landscape Plan Terms of Reference that the available soil volumes for new plantings will meet or exceed the minimum soil volumes requested.
- The city requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.
- Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. Please provide a projection of the future canopy cover for the site to 40 years
- Minimum Setbacks
 - Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
 - Maintain 2.5m from curb.
 - Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
 - Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas.
 - Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.
- Tree specifications
 - Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
 - Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
 - Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and if possible, include watering and warranty as described in the specification.
 - No root barriers, dead-man anchor systems, or planters are permitted.
 - No tree stakes unless necessary (and only one on the prevailing winds side of the tree)

If you have any questions, please contact Hayley Murray, Planning Forester, at hayley.murray@ottawa.ca

Parks and Facilities Planning Comments:

41. The applicant indicated at the pre-consultation meeting that the existing use is a place of worship. On the pre-consultation application form, the land use was described as a religious institution, which is not a defined term in the Zoning By-law or the Parkland Dedication By-law. For the site plan application submission, please refer to the use as a place of worship rather than a religious institution.
42. Subsection 11(2)(c) of Parkland Dedication [By-law No. 2022-280](#) exempts a place of worship, excluding any ancillary uses as defined by the Zoning By-law, from parkland conveyance or cash-in-lieu of parkland conveyance.



43. As the primary use of the property is a place of worship and the proposed development does not involve an addition of any ancillary uses to the building, the proposed development is exempt from parkland conveyance or cash-in-lieu of parkland conveyance under subsection 11(2)(c) of the Parkland Dedication By-law.

If you have any questions, please contact Burl Walker, Parks Planner, at burl.walker@ottawa.ca

Submission Requirements and Fees

The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.

The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Please address all comments detailed in this feedback form to support and an effective and expedited review of the application.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Regards,

Siobhan Kelly
Planner II
Development Review South
Planning, Development and Building Services

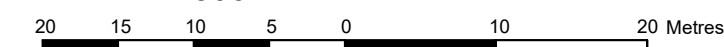
Encl. Study and Plan Identification List

c.c. John Oke, Student Planner
Christopher Moise, Planner II Urban Design
Tyler Cassidy, Infrastructure Project Manager
Rochelle Fortier-Lesage, Transportation Project Manager
Mark Elliott, Environmental Planner II
Hayley Murray, Forester
Burl Walker, Parks Planner

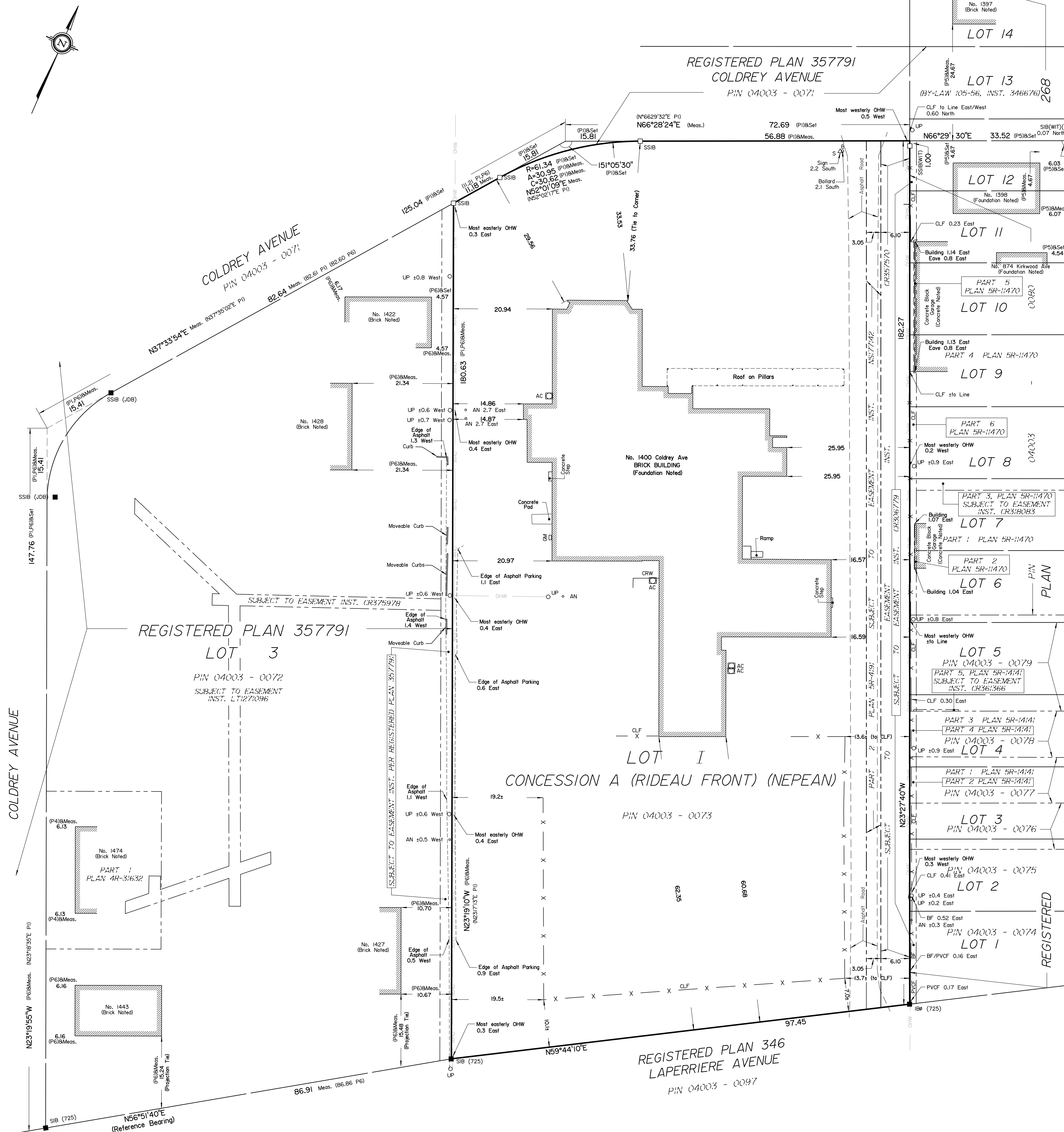
**PART OF LOT I
CONCESSION A RIDEAU FRONT
Geographic Township of Nepean
CITY OF OTTAWA**

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 500



Metric
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND
CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048



KIRKWOOD AVENUE
(Formerly Holland Avenue)

Surveyor's Certificate

I CERTIFY THAT:

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 1st day of May, 2025.

May 9, 2025
Date

A. Handspiker
A. Handspiker
Ontario Land Surveyor

Notes & Legend

Denotes	
—+—	Survey Monument Planted
—■—	Survey Monument Found
SIB	Standard Iron Bar
SSIB	Short Standard Iron Bar
IB	Iron Bar
IBØ	Round Iron Bar
(WIT)	Witness
(AOG)	Annis, O'Sullivan, Vollebekk Ltd.
Meas.	Measured
(P1)	Registered Plan 357791
(P2)	Plan 5R-4191
(P3)	Plan 5R-14141
(P4)	Plan 4R-31632
(P5)	(857) Plan December 16, 1987
(P6)	(JDB) Plan September 18, 2017
CLF	Chain Link Fence
BF	Board Fence
PVCF	Plastic Fence
UP	Utility Pole
AN	Anchor
AC	Air Conditioner
GM	Gas Meter
Δ S	Sign
Ø B	Bollard
CRW	Concrete Retaining Wall
—OHW—	Overhead Wires
—X—	Fence
—	Property Line

SITE AREA= 1.7967 Hectares

Bearings are grid, are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 0°22'35" counter-clockwise was applied to bearings on plans P1, P6

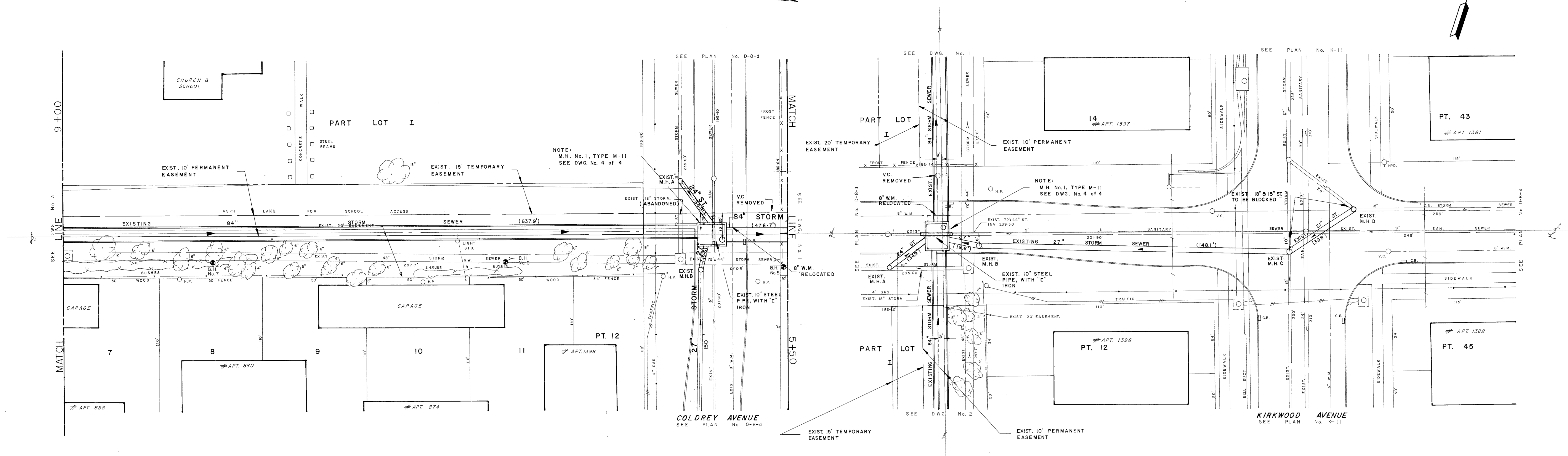
ASSOCIATION OF ONTARIO
LAND SURVEYORS
PLAN SUBMISSION FORM
V-103885



THIS PLAN IS NOT VALID UNLESS
IT IS AN EMBOSSED ORIGINAL
COPY ISSUED BY THE SURVEYOR
In accordance with
Regulation 1026, Section 29 (3).

EXISTING EASEMENT

COLDREY AVENUE



Notes:

- Utilities shown are taken from best available records. Contractor is requested to check with all utility companies before digging.
- Soil information shown is not guaranteed and contractors are advised to collect additional soil information as deemed necessary.
- A minimum of 18 inches vertical clearance to be maintained between sewers and watermain where practical.
- Borehole soil descriptions are not based on sieve analysis but on visual inspection only. Except where otherwise noted.
- Soil information taken from:
 - Date of survey
 - Reference bench mark
 - Existing sewers constructed in:
- This plan supercedes (in whole or in part) plan no. 5R 4191.
- Actual rock line recorded during construction of existing storm sewer.
- Boreholes taken May 6-7, 1958.
- All manhole details as per Central Precast Products Ltd. (or equal) Manufactures 1979 Catalogue.

Final Measurements:

84" STORM		Type Of Sewer	
Work Commenced	OCT. 79	Work Completed	
Contractor	JAGGART	Contractor	
Designed By	JOYCE	Designed By	
Inspector	MUNAR	Inspector	
Field Book	3933	Field Book	
Signed By		Signed By	
Checked By		Checked By	

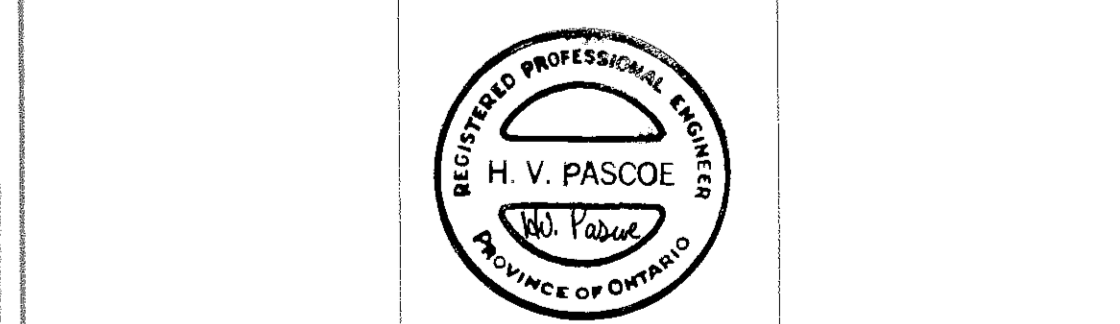
Legend:	
PROPOSED	EXISTING
MANHOLE & SEWER	MANHOLE & SEWER
STANDARD CATCH BASIN	STANDARD CATCH BASIN
HEAVY DUTY CATCH BASIN	HEAVY DUTY CATCH BASIN
WATERMAIN	WATERMAIN
BELL	BELL
HYDRANT	HYDRANT
TRAFIC	TRAFIC
TRAFIC SIGN	TRAFIC SIGN
TRAFIC LIGHT	TRAFIC LIGHT

Revisions:

No.	Date	Description	Drawn By	App'd By
-----	------	-------------	----------	----------

1	JAN. 82	ENG. AS-BUILT APPLIED - SEWERS	B.L.R.	TEST B.G.
---	---------	--------------------------------	--------	-----------

Storm Sewer Designed By	Date Checked By	Date
Sanitary Sewer Designed By	Date Checked By	Date
Road Grade Designed By	Date Checked By	Date
Survey Detail By	Date Checked By	Date
Drafting By	Date Checked By	Date



Engineering And Surveys Branch

C. Slim P. Eng.	D.K. Donaldson P. Eng.
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Commissioner	Branch Director
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Section Head	Section Head
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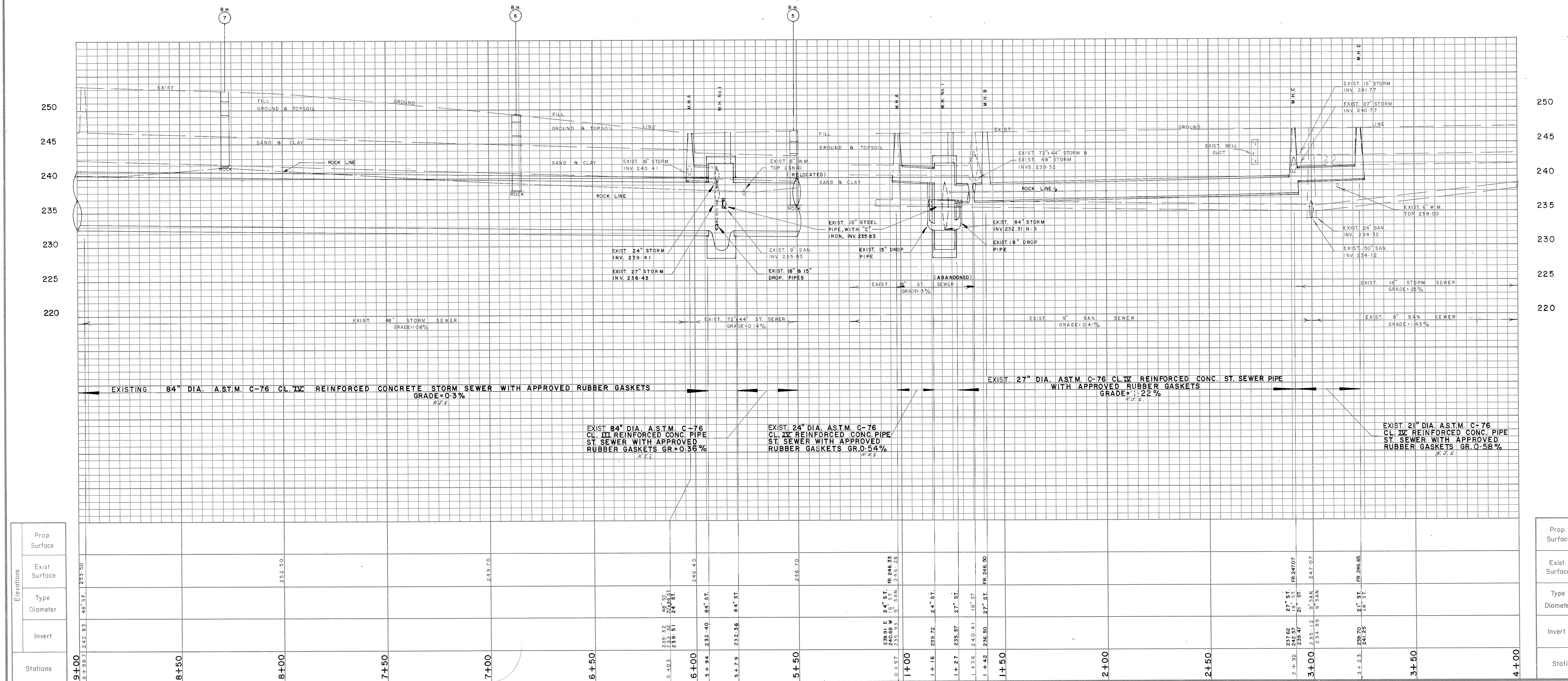
EXISTING STORM SEWER IN COLDREY AVE.

AND IN EXISTING EASEMENT

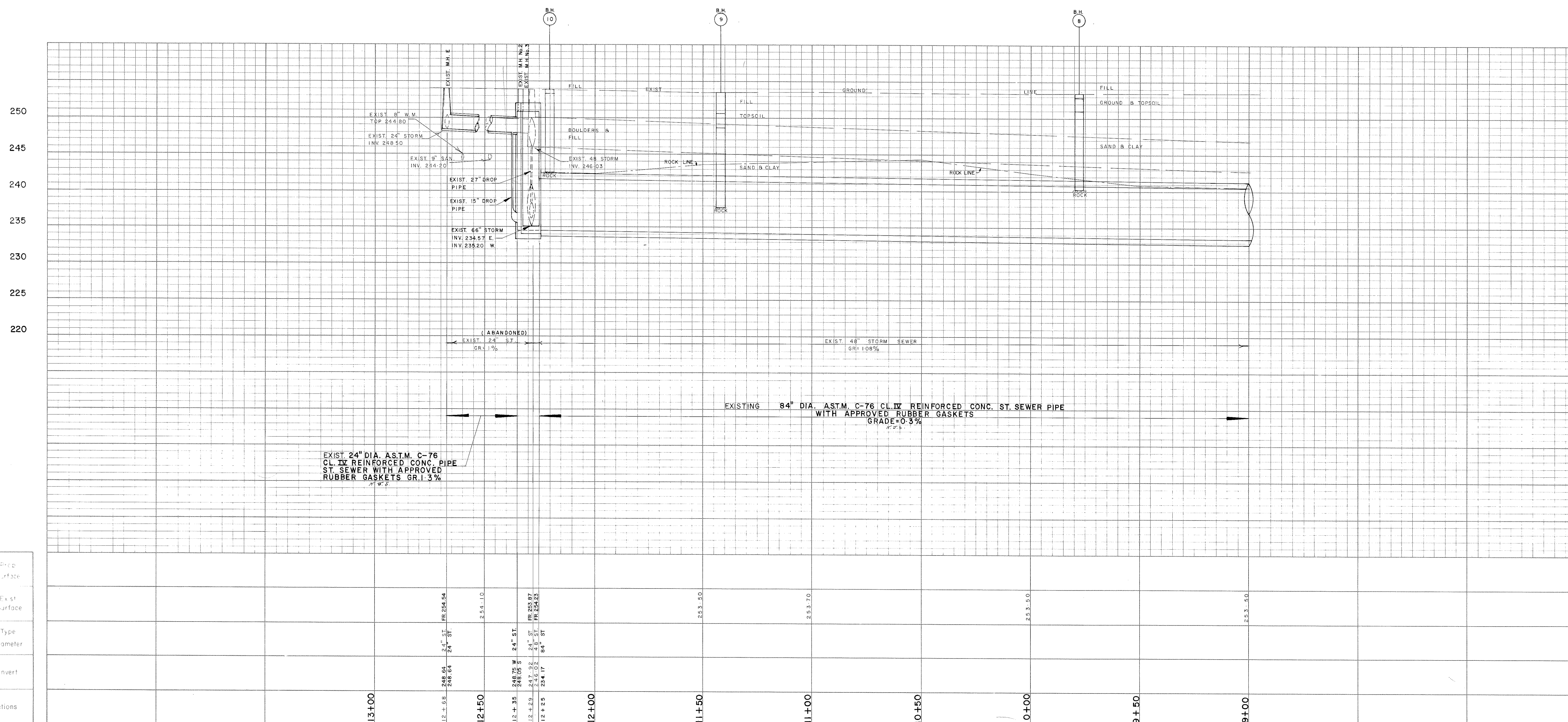
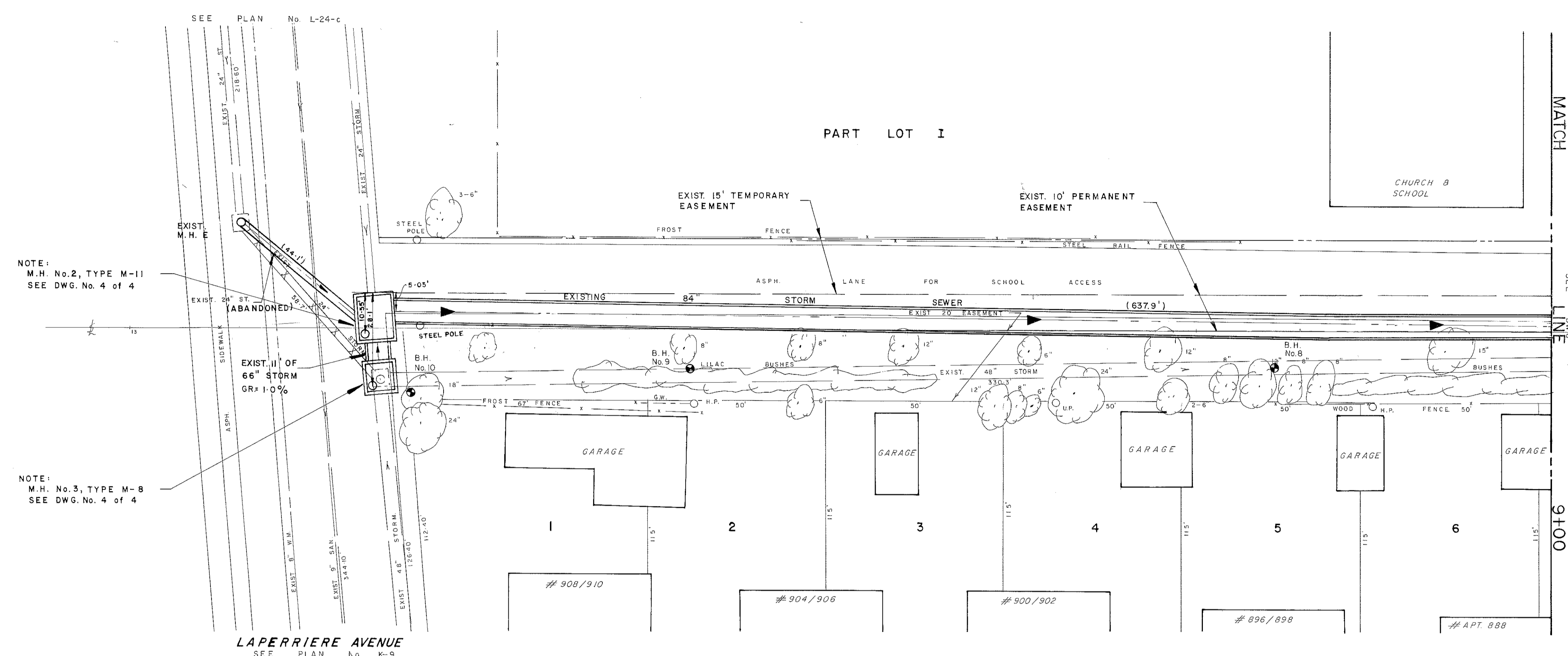
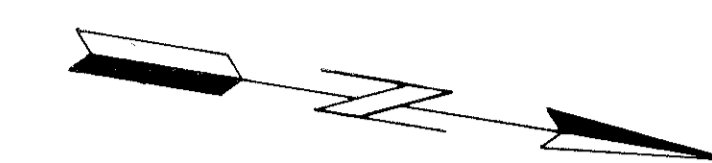
FROM KIRKWOOD AVE. TO 300' SOUTH OF COLDREY AVE.

Contract No. 79-35 Survey Book 3886 Scale: HOR. 1"=20' VERT. 1"=6'

Plan No. 1490 Sheet 2 of 4



EXISTING EASEMENT



Notes:

- Utilities shown are taken from best available records. Contractor is requested to check with all utility companies before digging.
- Soil information shown is not guaranteed and contractors are advised to collect additional soils information as deemed necessary.
- A minimum of 18 inches vertical clearance to be maintained between sewers and watermain where practical.
- Borehole soil descriptions are not based on sieve analysis but on visual inspection only. Except where otherwise noted.
- Soil information taken from:
 - Date of survey
 - Reference bench mark
 - Existing sewers constructed in
 - This plan supercedes (in whole or in part) plan no.
 - Actual rock line recorded during construction of existing storm sewer
 - Registered plan no. SR 4931
 - Boreholes taken May 6-7, 1958
 - All manhole details as per: Central Precast Products Ltd. (or equal) Manufactures 1979 Catalogue

Final Measurements:

84" STORM		Type Of Sewer	Type Of Sewer
Type Of Sewer	OCT. 79	Work Completed	Work Completed
Work Completed	JAN. 80	Contractor	Contractor
Contractor	TAGBART	Inspector	Inspector
Inspector	JOYCE	Field Book	Field Book
Field Book	3933	Date	15/1/80
Date	15/1/80	Signer By	Signer By
Signer By	Checked By	Checked By	Checked By

Legend:

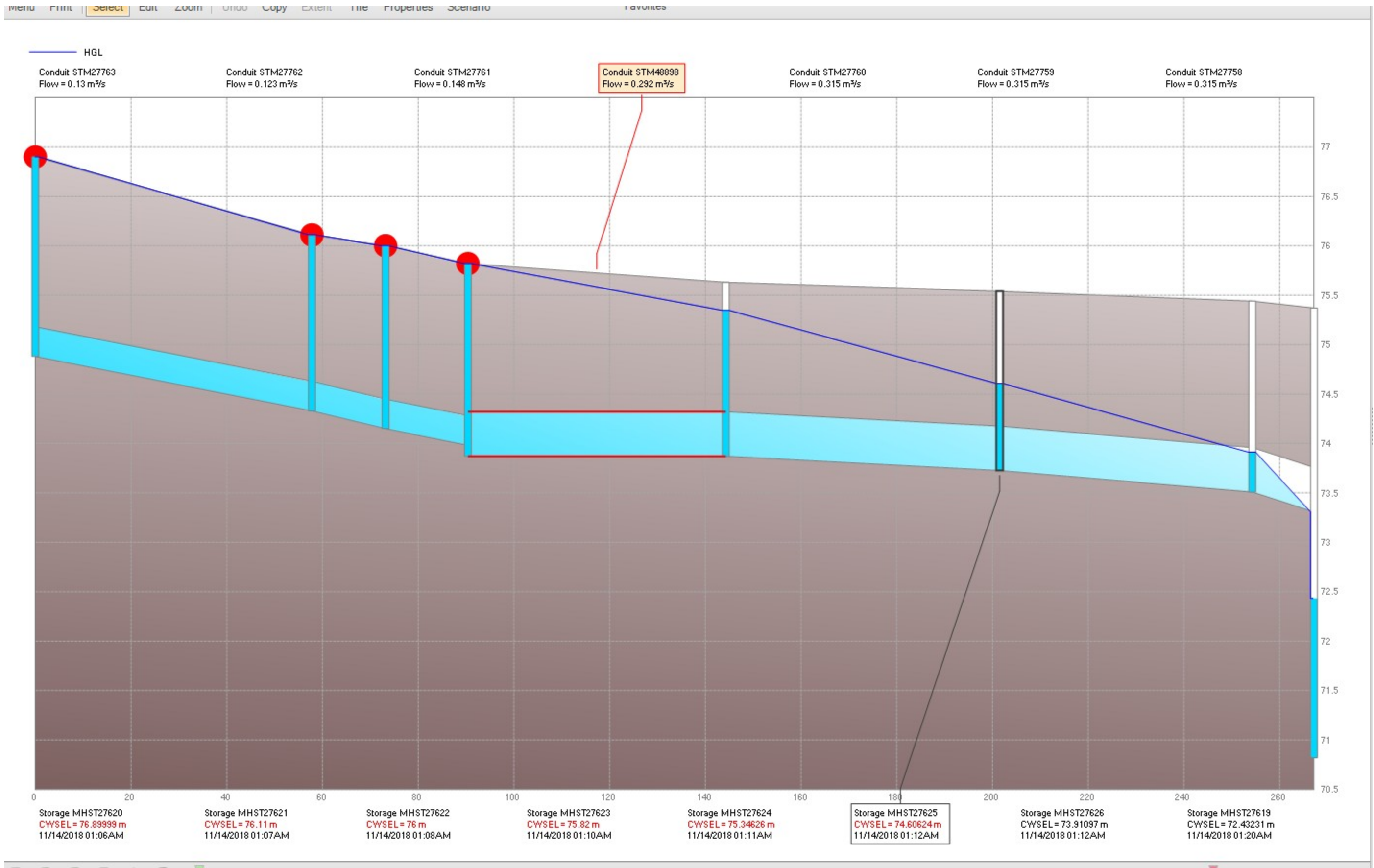
PROPOSED	EXISTING

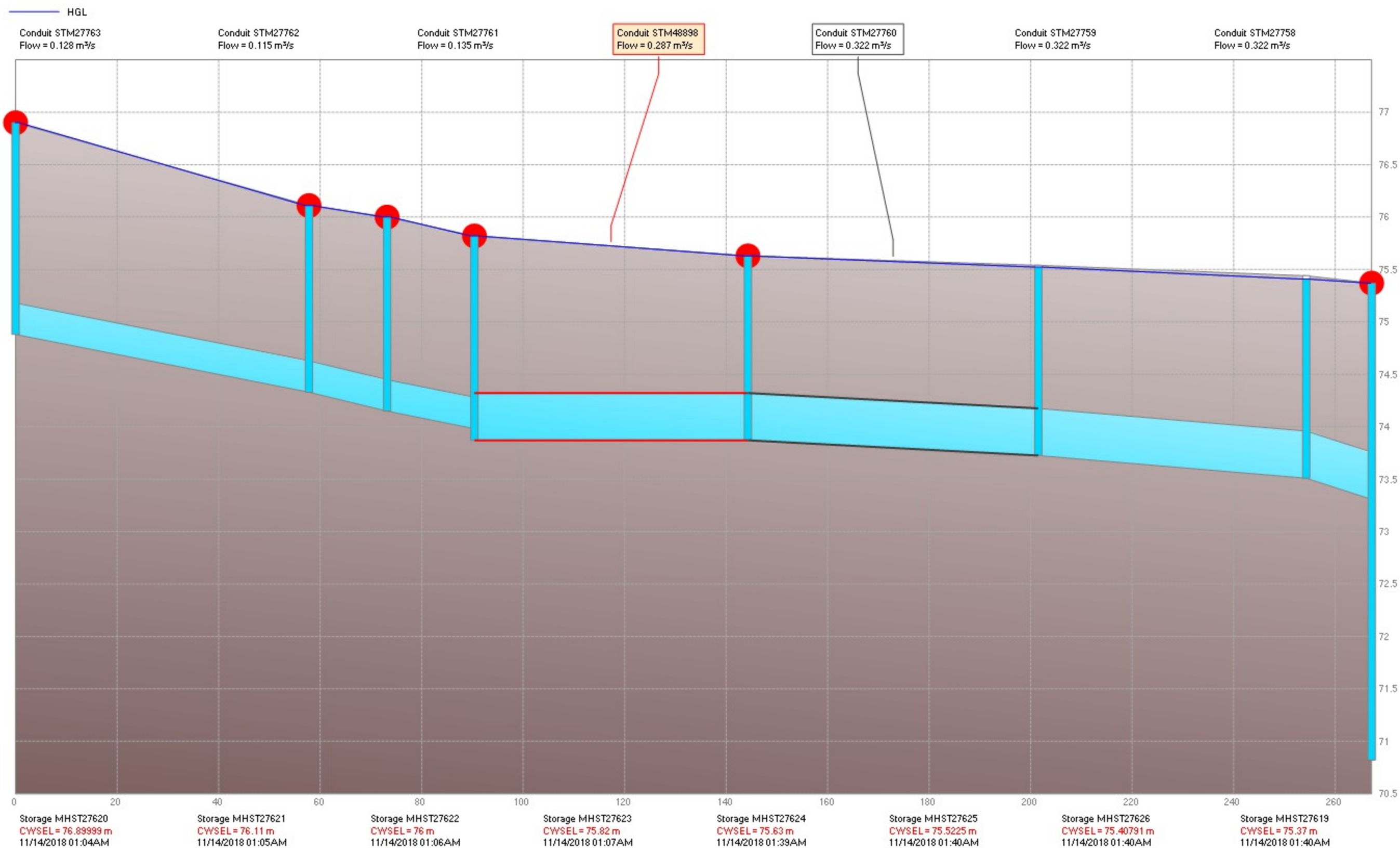
Revisions:

No.	Date	Description	Drawn By	App'd By
1	JAN. 82	ENG. AS BUILT APPLIED - SEWERS	B.L.R. (TES) B.C.	

Sanitary Sewer	18/7/79	Date
Prop. Grade	18/7/79	Date
Survey	18/7/79	Date
Stationing	18/7/79	Date







Appendix B

Site Plan (prepared by IDEA)

Servicing Plan (DWG. 24060-S1)

Grading Plan (DWG. 24060-GR1)

Erosion and Sediment Control Plan
(DWG. 24060-ESC1)

Notes & Details (DWG. 24060-N1)

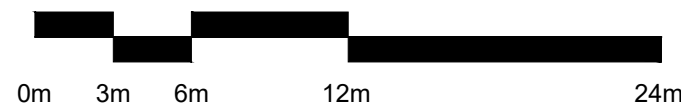
Existing Conditions and Removals Plan
(DWG. 24060-R1)

- GENERAL NOTES**
- NOTE-A:**
- ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND SPECIFICATIONS, INCLUDING OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES BETWEEN DRAWINGS WILL BE REPORTED TO THE PROJECT LEAD IMMEDIATELY FOR CLARIFICATION PRIOR TO COMMENCING ANY CONSTRUCTION.
- NOTE-B:**
- ALL GENERAL SITE INFORMATION AND CONDITIONS HAVE BEEN COMPILED FROM EXISTING PLANS AND SURVEYS.
- NOTE-C:**
- CONTRACTOR IS RESPONSIBLE TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND / OR OMISSIONS TO THE ARCHITECT.
- NOTE-D:**
- REFER TO LANDSCAPE PLAN FOR ALL EXTERIOR LANDSCAPING.
- NOTE-E:**
- DO NOT SCALE DRAWINGS.
- NOTE-F:**
- ALL CONTRACTORS MUST COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS.

SURVEY INFO

INFORMATION FOR THIS DRAWING
TAKEN FROM PLAN OF SURVEY OF

PARTS 1-6 OF LOT 1
CONCESSION "A" (RIDEAU FRONT)
GEOGRAPHIC TOWNSHIP OF NEPEAN
CITY OF OTTAWA
COMPLETED 2019
PREPARED BY ANNIS O'SULLIVAN VOLLEBEKK LTD.



PROJECT INFORMATION

SITE SUMMARY			
ADDRESS	1400 COLDREY AVENUE		
SITE AREA	17385.98 m²		
GROSS FLOOR AREA	3510.00 m²		
ASSEMBLY AREA	1950.00 m²		
ZONING TYPE	I1A		
ZONING SUMMARY	REQUIRED	PROPOSED	
MIN LOT WIDTH	15.0 m	97.5 m	
MIN LOT AREA	400 m²	17386 m²	
MAX BUILDING HEIGHT	15.0 m	8.2 m	
MIN FRONT YARD SETBACK	3.0 m	29.5 m	
MIN REAR YARD SETBACK	4.5 m	60.6 m	
MIN INTERIOR SIDE YARD SETBACK	7.5 m	14.8 m	
MIN LANDSCAPED AREA	2607.89 m²	4041.00 m²	
VEHICULAR PARKING	REQUIRED	PROPOSED	
MIN PARKING SPACES	98	130	
MIN ACCESSIBLE PRKG SPACES	5	8	
BICYCLE PARKING	REQUIRED	PROPOSED	
MIN PARKING SPACES	3	5	
BUILDING SUMMARY			
GROUND FLOOR	GFA - CITY		
BASEMENT	2560.00 m²		
	950.00 m²		

LEGEND

SURFACES	
	GRASS
	SIDEWALK
	ASPHALT PAVING
	EXISTING BUILDING TO REMAIN
	FIRE ROUTE
LINES	
	PROPERTY LINE
	EXISTING FENCE
	NEW FENCE
	OVERHEAD WIRES

SYMBOLS

	DIRECTIONAL ARROWS
	BUILDING ACCESS
	UTILITY POLE
	FIRE HYDRANT
	CATCH BASIN / MANHOLE
	DEPRESSED CURB
	LOT CORNERS
PARKING	
	BIKE PARKING H: HORIZONTAL 0.6M x 1.8M
	CAR PARKING (REGULAR) 5.2M X 2.6M
	CAR PARKING (REDUCED) 4.6M X 2.4M
	BF PARKING (TYPE A) 5.2M X 3.4M 1.5M AISLE
	BF PARKING (TYPE B) 5.2M X 2.4M 1.5M AISLE

OWNER

KEHILLAT BETH ISRAEL CONGREGATION
1400 COLDREY AVENUE
OTTAWA, ON K1Z 7P9

ARCHITECT

IDEA INC.
595 BYRON AVENUE
OTTAWA, ON K2A 4C4

ENGINEER

ROBINSON CONSULTANTS INC.
350 PALLADIUM DRIVE
STITTVILLE, ON K2V 1A8

SURVEYOR

ANNIS O'SULLIVAN VOLLEBEKK LTD.
14 CONCOURSE GATE
NEPEAN, ON K2E 7S6

APPLICANT

JFSA CANADA INC.
52 SPRINGBROOK DRIVE
OTTAWA, ON K2S 1B9
ATTN: TIM EISNER

IDEA

**INTEGRATED DESIGN
ENGINEERING + ARCHITECTURE**

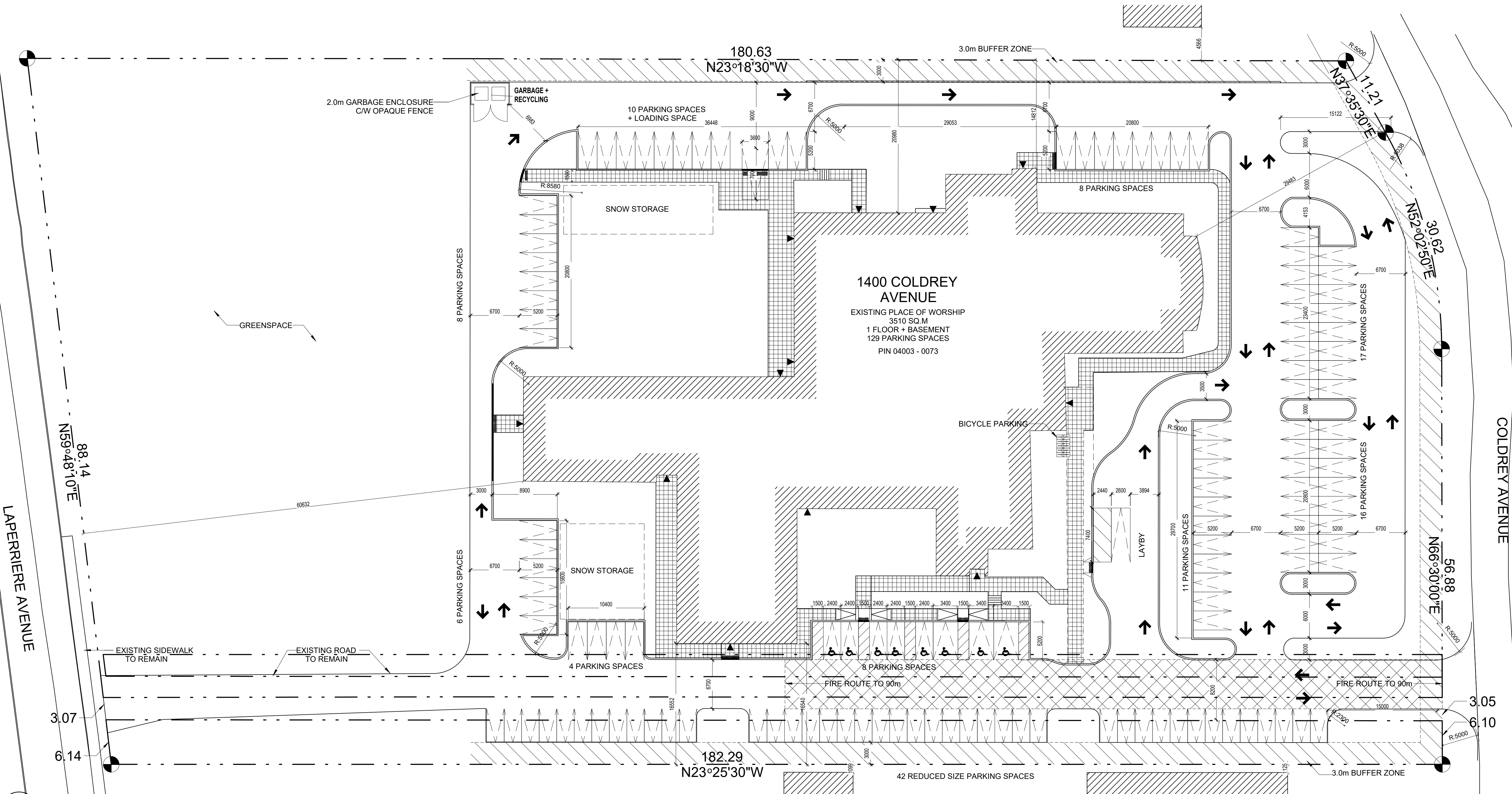
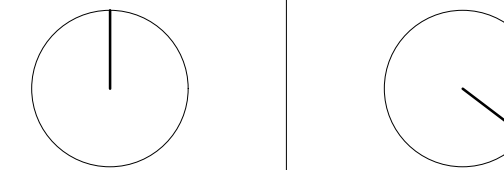
595 BYRON AVE., OTTAWA, ONT. K1A 4C4
T 613.728.0008 E info@integrateddesign.ca

SEAL

NOT FOR CONSTRUCTION

GENERAL NOTES
DO NOT SCALE DRAWINGS.
CONTRACTOR TO VERIFY ALL DIMENSIONS & CONDITIONS
AND REPORT ANY DISCREPANCIES.

PROJECT NORTH TRUE NORTH



B	2025-06-06	SITE PLAN SUBMISSION
A	2025-05-29	SITE PLAN COORDINATION
No.	DATE	DESCRIPTION

REVISIONS

PROJECT	KEHILLAT BATH ISRAEL PARKING AREA
---------	--------------------------------------

COORDINATION
1400 COLDREY AVENUE
OTTAWA, ON K1Z 7P9

IDEA # 25519 CLIENT #
SHEET NAME

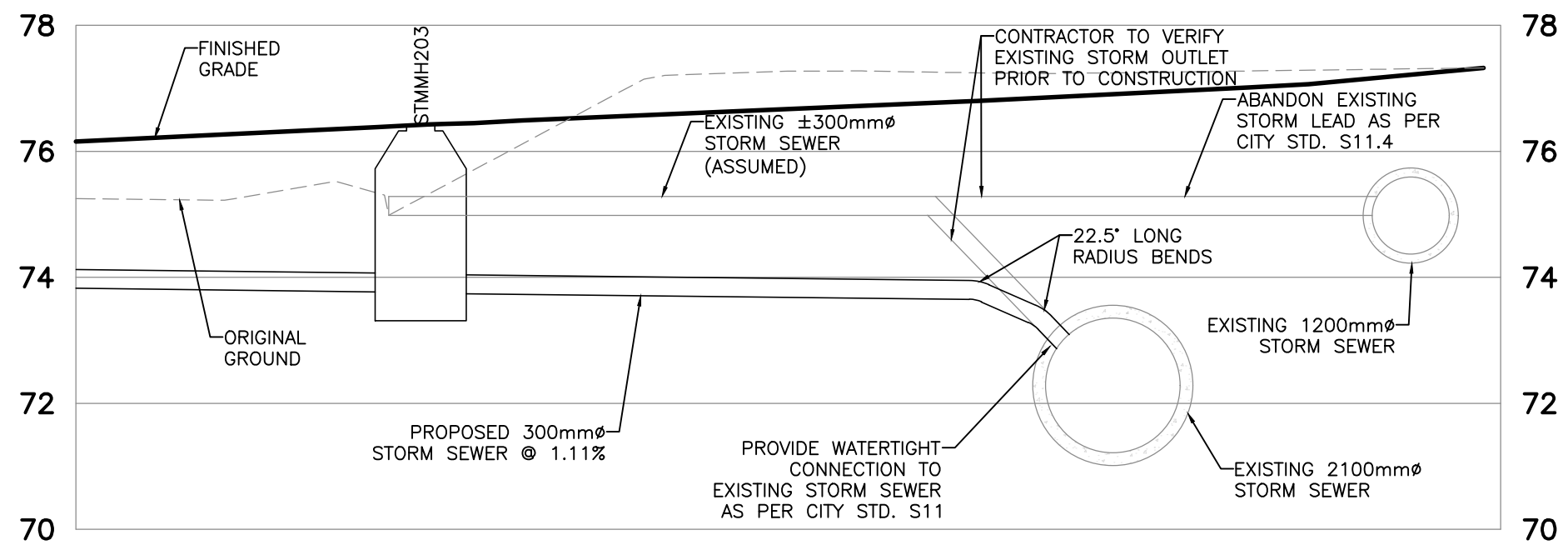
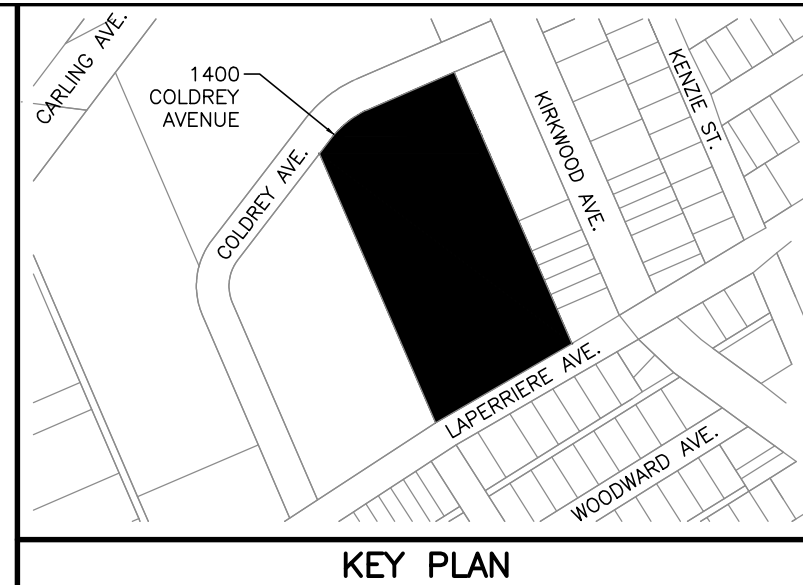
SITE PLAN

DATE 2025-04-16	SCALE AS NOTED.
CHECKED BY D.DI SANO	DRAWN BY M.ALLEN
SHEET No.	

A101

A1 (841x594)

NOT FOR CONSTRUCTION

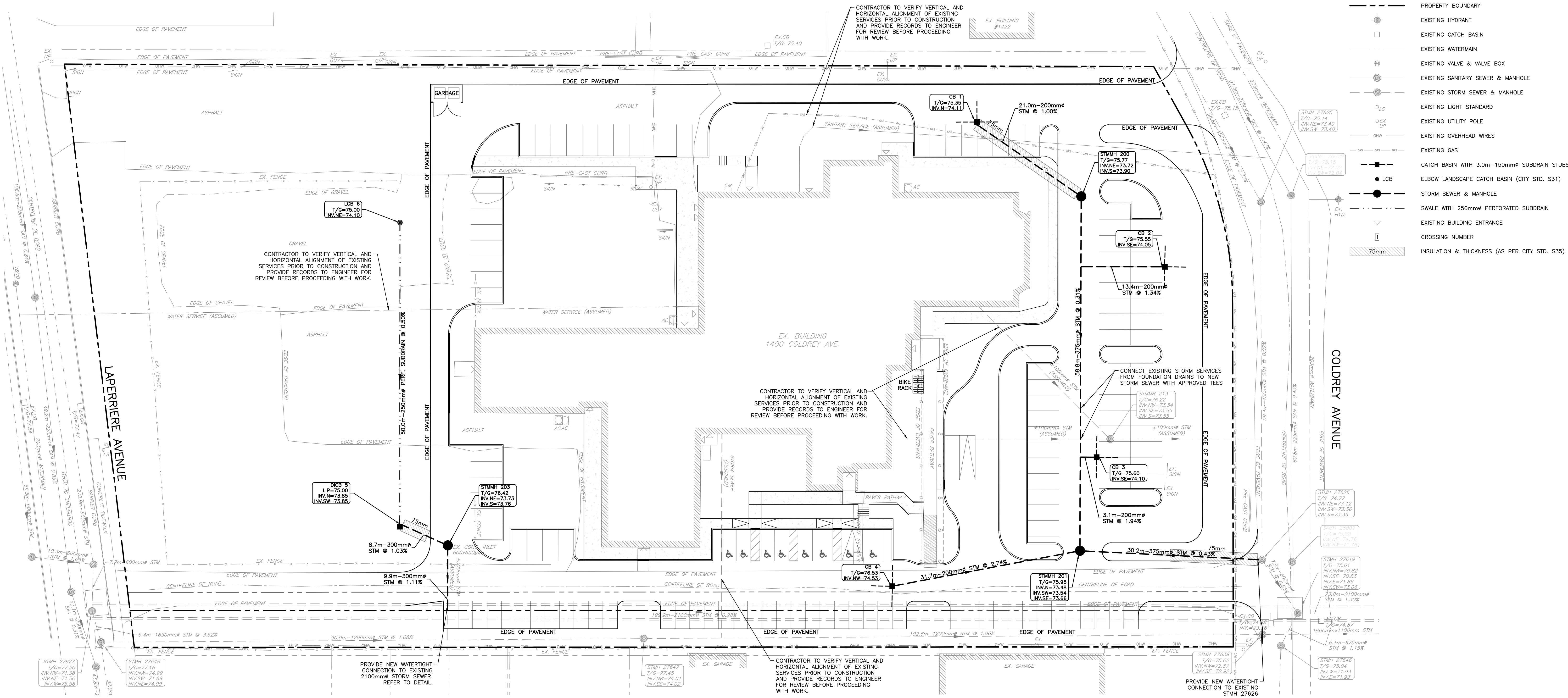


STORM SEWER CONNECTION DETAIL
N.T.S.

INLET CONTROL DEVICE (ICD) TABLE				
STRUCTURE	2-YR HEAD (m)	2-YR OUTFLOW (L/s)	ORIFICE DIAMETER (mm)	ORIFICE TYPE
CB 1	1.14	20.5	95	CIRCULAR, SLIDE
CB 2	1.40	27.6	105	CIRCULAR, SLIDE
CB 3	1.40	27.6	105	CIRCULAR, SLIDE
CB 4	1.90	20.0	83	CIRCULAR, SLIDE
DICB 5	1.00	69.6	181	CIRCULAR, SLIDE



- | | |
|--|---|
| | PROPERTY BOUNDARY |
| | EXISTING HYDRANT |
| | EXISTING CATCH BASIN |
| | EXISTING WATERMAIN |
| | EXISTING VALVE & VALVE BOX |
| | EXISTING SANITARY SEWER & MANHOLE |
| | EXISTING STORM SEWER & MANHOLE |
| | EXISTING LIGHT STANDARD |
| | EXISTING UTILITY POLE |
| | EXISTING OVERHEAD WIRES |
| | EXISTING GAS |
| | CATCH BASIN WITH 3.0m-150mmØ SUBDRAIN TUBES |
| | ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31) |
| | STORM SEWER & MANHOLE |
| | SWALE WITH 250mmØ PERFORATED SUBDRAIN |
| | EXISTING BUILDING ENTRANCE |
| | CROSSING NUMBER |
| | INSULATION & THICKNESS (AS PER CITY STD. S35) |

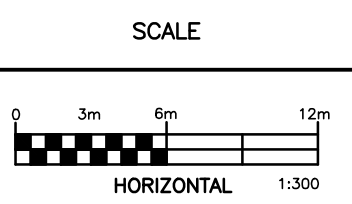


NOTES

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RIDEAU FRONT, GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, SURVEYED BY ANNIS,
O'SULLIVAN, VOLLEBEKK LTD. BEARINGS ARE GRID, ARE REFERRED TO THE CENTRAL MERIDIAN OF
MTM ZONE 9, NAD-83 (ORIGINAL).

1	ISSUED FOR REVIEW	09/06/25	BLM	
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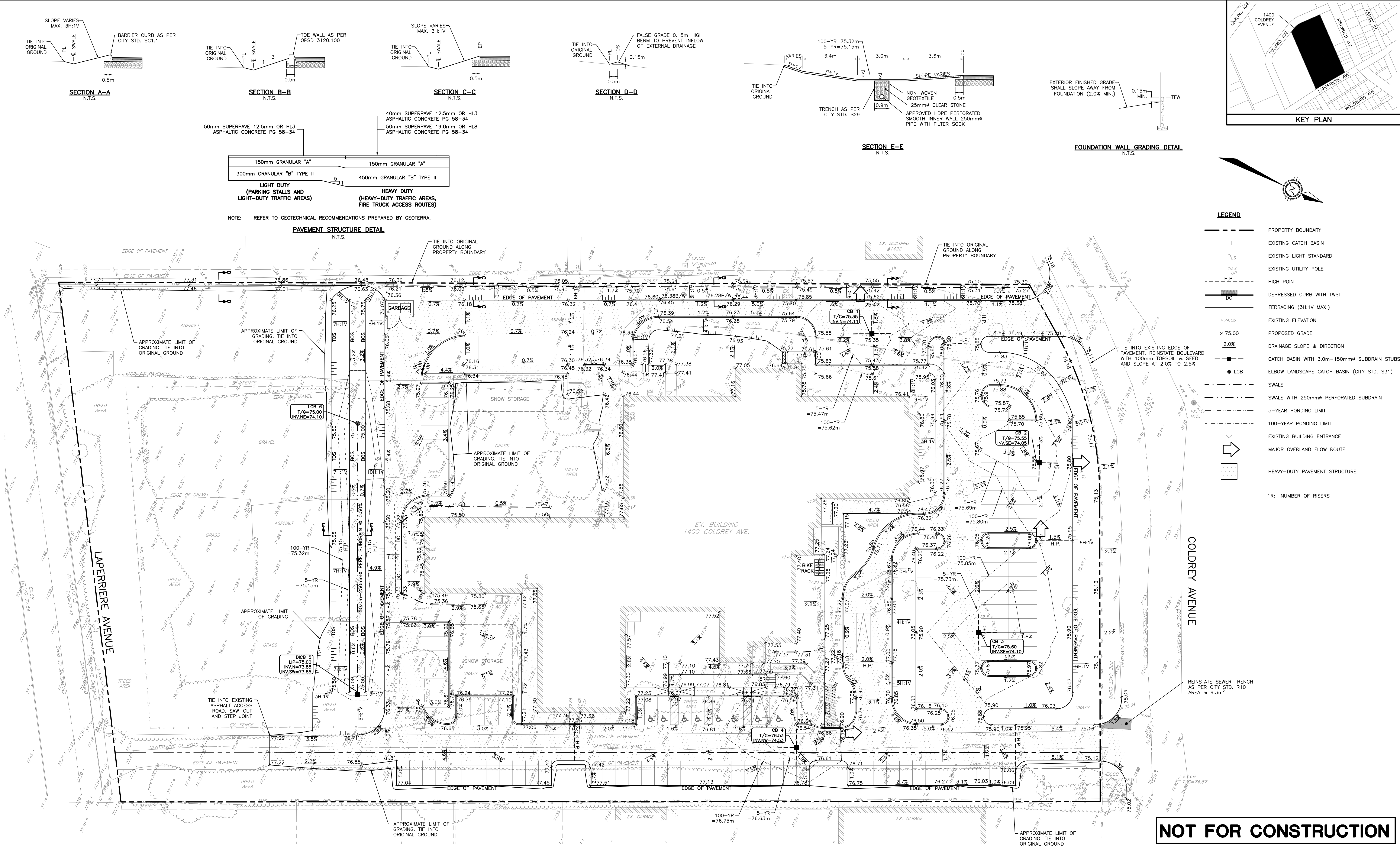
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KEHILLAT BETH ISRAEL

1400 COLDREY AVENUE
CITY OF OTTAWA

SERVICING PLAN

PROJECT No.	24060
SURVEY	RCI
DATED	JUNE 2025
DWG. No:	24060-S1



NOTES

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SCALE

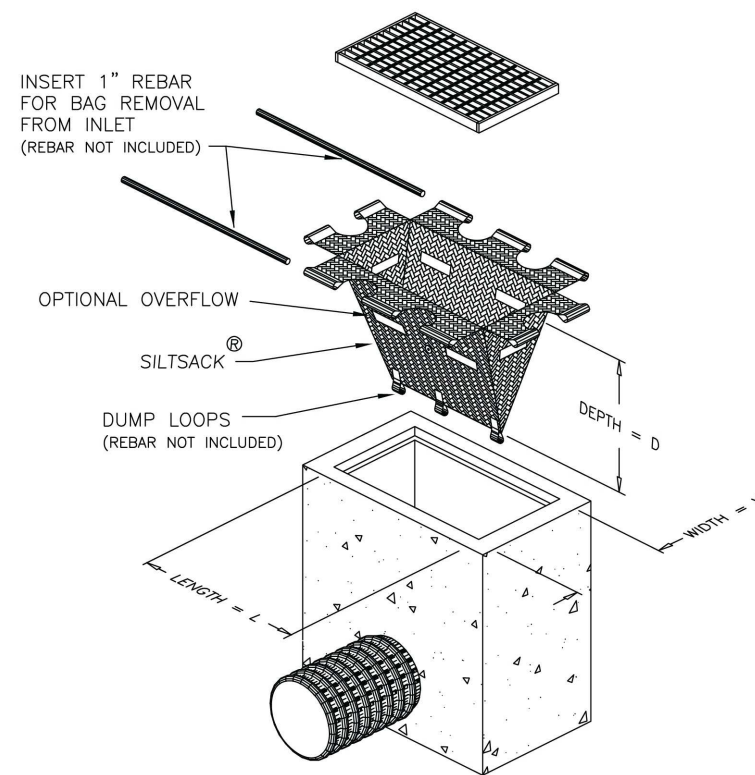
03m6m12m

HORIZONTAL1:300

LICENCED PROFESSIONAL ENGINEER

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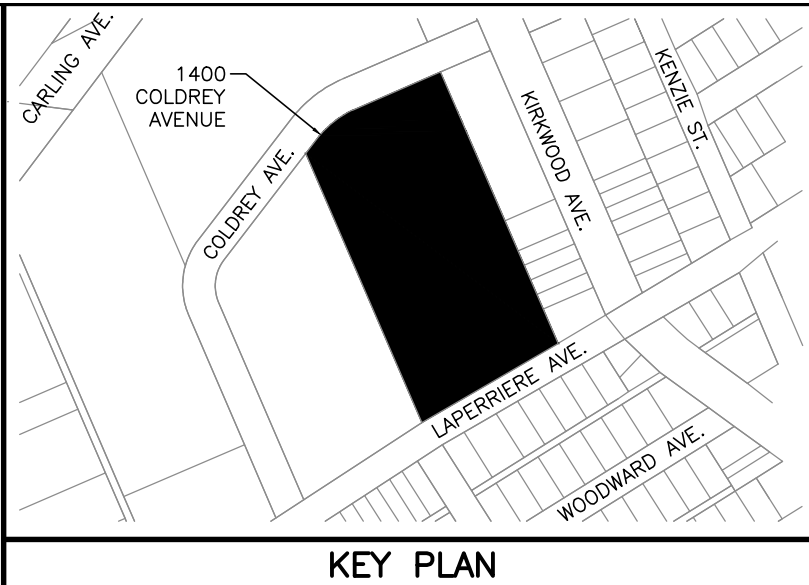
Typical Silt sack® Construction - Type B



NOTES:
1. SEDIMENT SHALL BE CLEANED FROM ROADWAYS AS REQUIRED.

MUD MAT DETAIL
N.T.S.

NOT FOR CONSTRUCTION



LEGEND

- PROPERTY BOUNDARY
- EXISTING CATCH BASIN
- EXISTING STORM SEWER & MANHOLE
- CATCH BASIN
- LCB
- ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31)
- STORM SEWER & MANHOLE
- SWALE
- SWALE WITH 250mmØ PERFORATED SUBDRAIN
- SILT FENCE
- SILT SACK (OR APPROVED EQUIVALENT)
- MUD MAT

NOTES:

- THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE ULTIMATE RECEIVING WATERCOURSE DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
- LIMIT THE EXTENT OF EXPOSED SOILS AT ANY GIVEN TIME. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL VEGETATION HAS BEEN RE-ESTABLISHED IN ALL DISTURBED AREAS. RE-VEGETATE DISTURBED AREAS AS SOON AS POSSIBLE.
- CONTRACTOR SHALL MINIMIZE THE AMOUNT OF STOCKPILED MATERIAL. ALL STOCKPILE SOIL SHALL BE AWAY (15 METRES OR GREATER) FROM WATERCOURSES, DRAINAGE FEATURES AND TOP OF STEEP SLOPES. THE DOWNSTREAM SIDE OF ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCE, FIBRE ROLLS OR EQUIVALENT MEASURES PRIOR TO A RAINFALL EVENT.
- SILT SACKS ARE TO BE PLACED UNDERNEATH THE FRAME AND COVER OF ALL PROPOSED AND EXISTING CATCH BASIN AND OPEN COVER STORM MANHOLES UNTIL CONSTRUCTION IS COMPLETED.
- LIGHT DUTY SILT FENCE BARRIERS SHALL BE INSTALLED AS PER OPSD 219.110 WHERE INDICATED AND MAINTAINED AS REQUIRED.
- DURING ACTIVE CONSTRUCTION PERIODS, VISUAL INSPECTIONS SHALL BE UNDERTAKEN ON A WEEKLY BASIS AND AFTER MAJOR STORM EVENTS (>25mm RAIN IN 24 HOUR PERIOD) ON SEDIMENT CONTROL BARRIERS AND ANY DAMAGE REPAIRED IMMEDIATELY.
- EROSION AND SEDIMENT CONTROL BARRIERS SHALL ALSO BE ASSESSED (AND REPAIRED AS REQUIRED) FOLLOWING SIGNIFICANT SNOWMELT EVENTS.
- VISUAL INSPECTIONS SHALL ALSO BE UNDERTAKEN IN ANTICIPATION OF LARGE STORM EVENTS (OR A SERIES OF RAINFALL AND/OR SNOWMELT DAYS) THAT COULD POTENTIALLY YIELD SIGNIFICANT RUNOFF VOLUMES.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION OPERATIONS.
- IN SOME CASES, BARRIERS MAY BE REMOVED TEMPORARILY TO ACCOMMODATE THE CONSTRUCTION OPERATIONS. THE AFFECTED BARRIERS SHALL BE REINSTITUTED IMMEDIATELY AFTER CONSTRUCTION OPERATIONS ARE COMPLETED.
- SEDIMENT CONTROL DEVICES SHALL BE CLEANED OF ACCUMULATED SEDIMENTATION AS REQUIRED AND REPLACED AS NECESSARY.
- DURING THE COURSE OF CONSTRUCTION, IF THE ENGINEER BELIEVES THAT ADDITIONAL PREVENTION METHODS ARE REQUIRED TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES, AS REQUIRED, TO THE SATISFACTION OF THE ENGINEER.
- CONSTRUCTION AND MAINTENANCE REQUIREMENTS FOR EROSION AND SEDIMENT CONTROLS ARE TO COMPLY WITH OPSB 805.
- MUD MATS SHALL BE INSTALLED AT ALL CONSTRUCTION ENTRANCES.
- INSPECTION AND MAINTENANCE OF TEMPORARY ESC MEASURES SHALL CONTINUE UNTIL THEY ARE NO LONGER REQUIRED.
- THE CONTRACTOR SHALL ENSURE THAT RECORDS OF INSPECTION ARE TAKEN, INCLUDING INSPECTOR'S NAME, DATE OF INSPECTION, VISUAL OBSERVATIONS, AND ANY NECESSARY REMEDIAL MEASURES TAKEN TO MAINTAIN INTERIM ESC MEASURES.

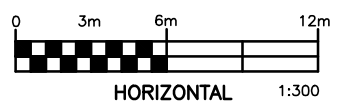
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NO.	REVISION	DESCRIPTION	DATE	BY
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SCALE



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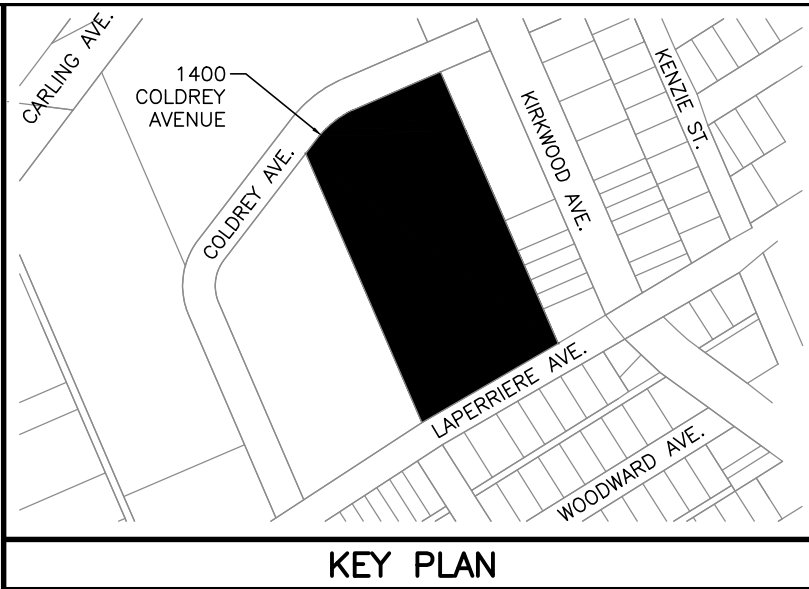
KEHILLAT BETH ISRAEL

1400 COLDREY AVENUE
CITY OF OTTAWA

EROSION AND SEDIMENT
CONTROL PLAN

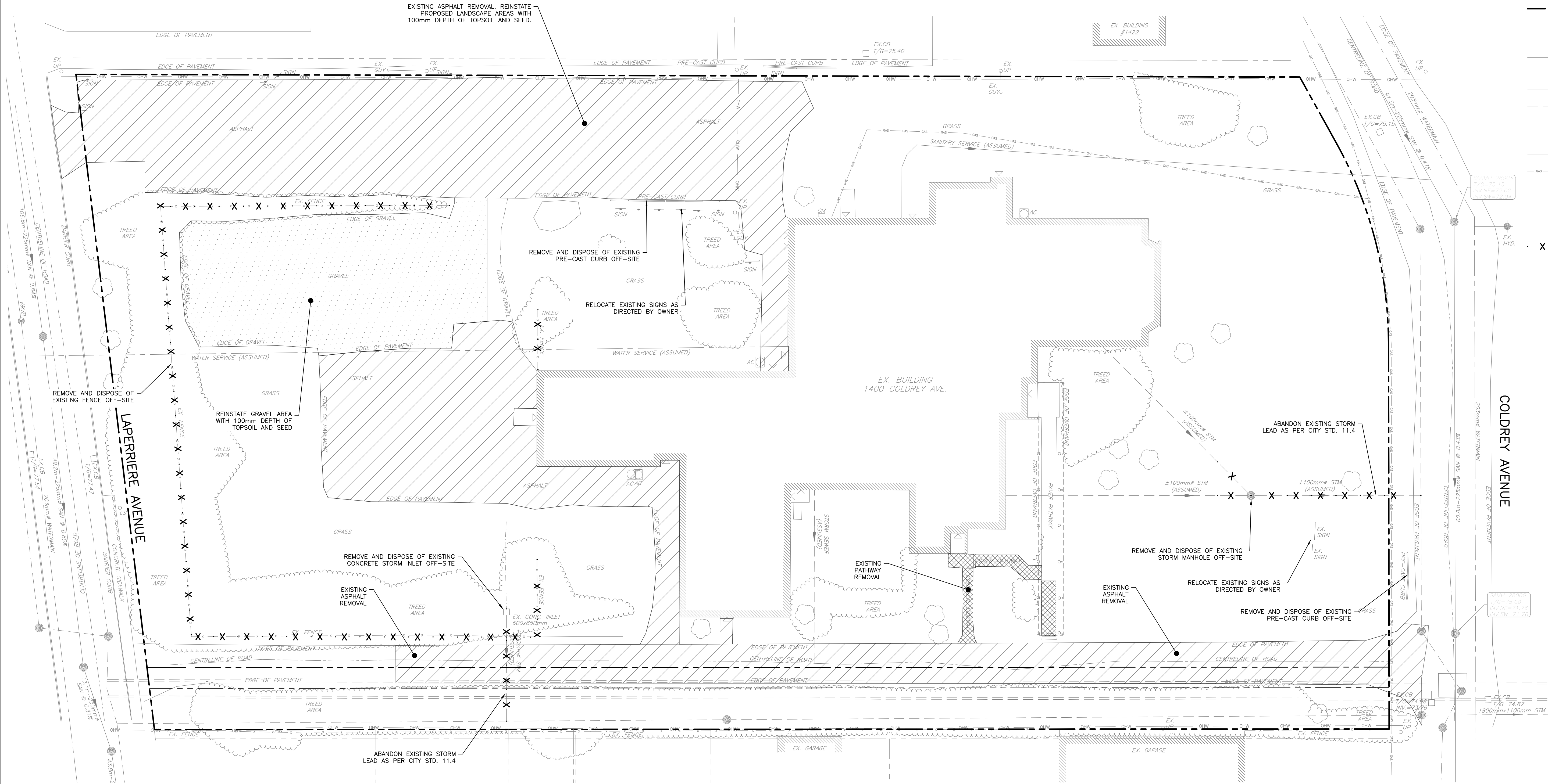
PROJECT No.	24060
SURVEY	RCI
DATED	JUNE 2025
DWG. No.	24060-ESC1

NOT FOR CONSTRUCTION



LEGEND

- PROPERTY BOUNDARY
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING WATERMAIN
- EXISTING VALVE & VALVE BOX
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- EXISTING LIGHT STANDARD
- EXISTING UTILITY POLE
- EXISTING OVERHEAD WIRES
- EXISTING GAS
- EXISTING BUILDING ENTRANCE
- FULL DEPTH ASPHALT REMOVAL
- CONCRETE/PAVERS REMOVAL
- REMOVALS

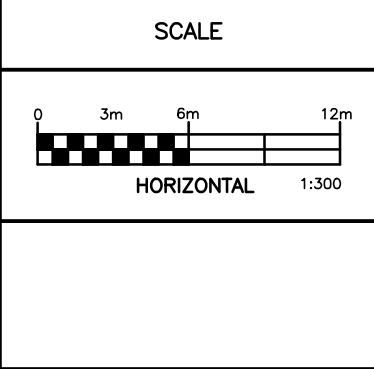


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KEHILLAT BETH ISRAEL

1400 COLDREY AVENUE
CITY OF OTTAWA

EXISTING CONDITIONS
AND REMOVALS PLAN

PROJECT No.	24060
SURVEY	RCI
DATED	JUNE 2025
DWG. No.	24060-R1

Appendix C

Runoff Coefficient Calculations

Storm Sewer Design Sheet

Storm Drainage Area Plan
(DWG. 24060-STM1)

Overall Coefficient Calculations

Drainage Area ID	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
PRE	0.69	1.02	0.09	1.80	0.50	0.62	43.3
POST	0.90	0.90	0.00	1.80	0.55	0.69	50.1

Sub-Drainage Area Runoff Coefficient Calculations

Drainage Area ID	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
R1	0.21	0.00	0.00	0.21	0.90	1.00	100.0
STM1	0.10	0.04	0.00	0.14	0.69	0.86	70.0
STM2	0.14	0.03	0.00	0.17	0.76	0.95	80.2
STM3	0.13	0.04	0.00	0.17	0.74	0.93	77.5
STM4	0.09	0.05	0.00	0.13	0.65	0.81	64.0
STM5	0.22	0.64	0.00	0.86	0.38	0.47	25.4
FF1	0.02	0.09	0.00	0.11	0.32	0.40	17.6
PRE1	0.30	0.40	0.09	0.78	0.53	0.67	49.5
PRE2	0.03	0.15	0.00	0.18	0.32	0.40	17.5
PRE3	0.13	0.44	0.00	0.58	0.36	0.45	22.7
PRE4	0.02	0.03	0.00	0.05	0.48	0.60	39.6
PRE5	0.21	0.00	0.00	0.21	0.90	1.00	100.0

Runoff Coefficients:

C impervious = 0.90

C pervious = 0.20

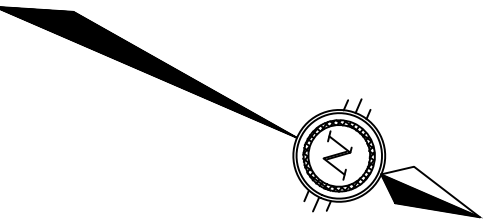
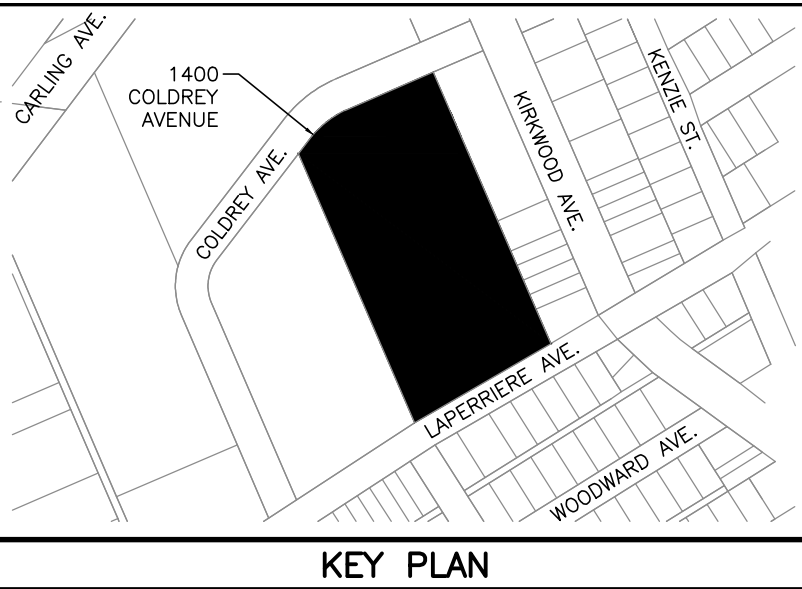
C gravel = 0.80

$C_{100} = C * 1.25$ (Max. 1.0)

STORM SEWER DESIGN SHEET
1400 COLDREY AVENUE, CITY OF OTTAWA

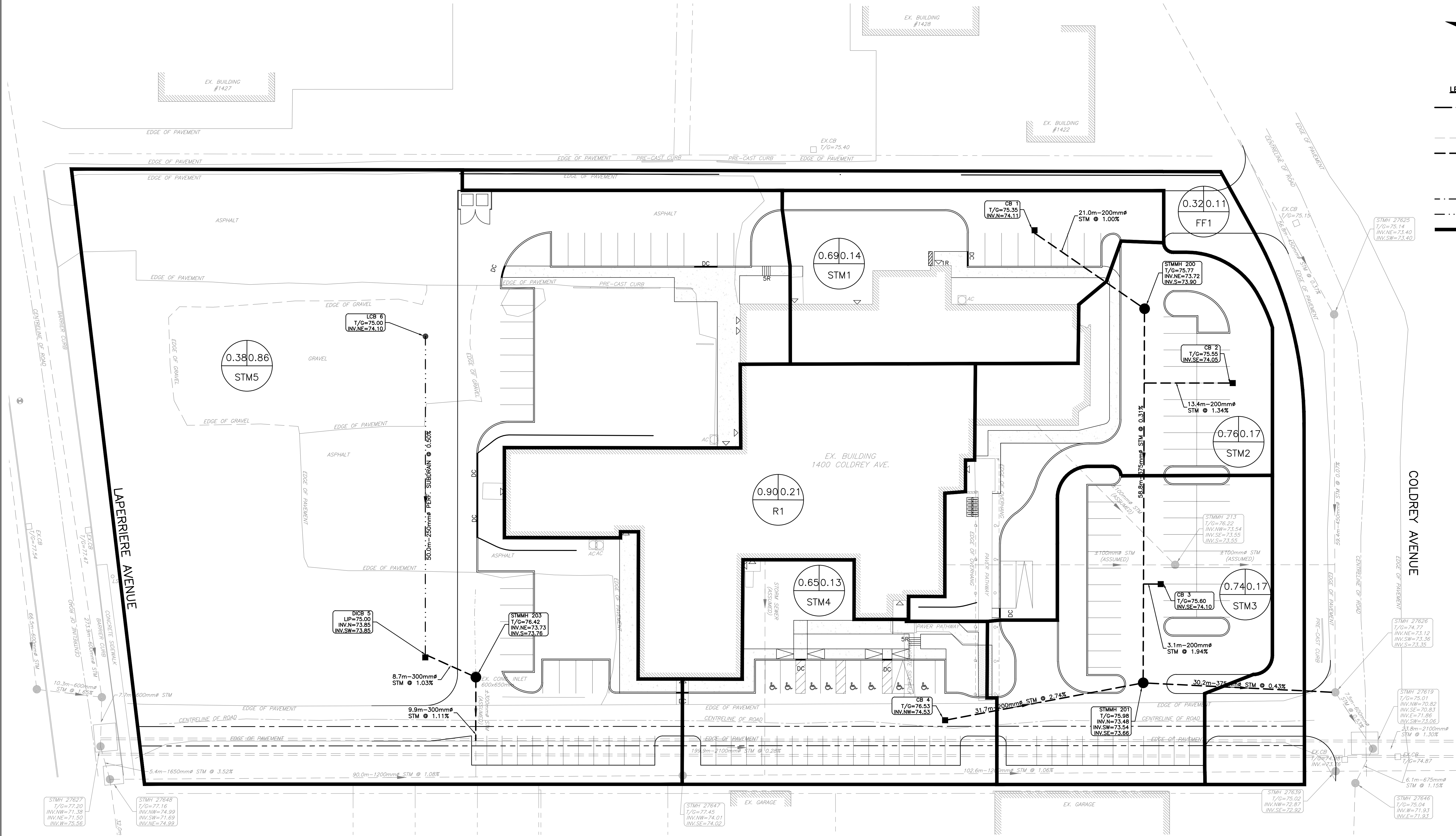
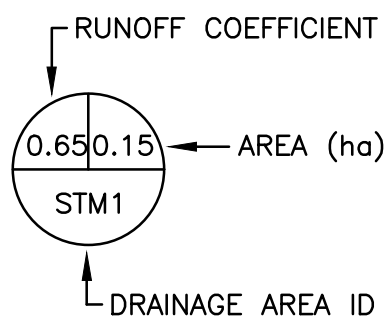
LOCATION			AREA (ha)	C	C (100 YR)	2 YR		100 YR		TIME OF CONC. (min)	2 YR RAINFALL INTENSITY (mm/hr)	2 YR PEAK FLOW (L/s)	100 YR RAINFALL INTENSITY (mm/hr)	100 YR PEAK FLOW (L/s)	RESTRICTED FLOW (L/s)	CUMULATIVE RESTRICTED FLOW (L/s)	PROPOSED SEWER							
DRAINAGE AREA	FROM MH	TO MH				INDIV. 2.78AC	ACCUM. 2.78AC	INDIV. 2.78AC	ACCUM. 2.78AC								PIPE DIA. (mm)	GRADE (%)	LENGTH (m)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min)	2 YR PERCENT FULL	100 YR PERCENT FULL WITH RESTRICTED CONTROLS
TO EXISTING 2100mm TRUNK SEWER																								
STM5	DICB 5	203	0.86	0.38	0.47	0.91	0.91	1.13	1.13	10.00	76.81	69.62	178.56	202.31	80.0	80.0	299.36	1.03	8.7	97.68	1.39	0.10	71%	82%
	203	EX MAIN	0.00	0.00	0.00	0.00	0.91	0.00	1.13	10.10	76.41	69.26	177.61	201.23		80.0	299.36	1.11	9.9	101.40	1.44	0.11	68%	79%
TO EXISTING COLDREY STORM SEWER																								
STM1	CB 1	200	0.14	0.69	0.86	0.27	0.27	0.33	0.33	10.00	76.81	20.50	178.56	59.58	22.8	22.8	201.16	1.00	21.0	33.34	1.05	0.33	61%	68%
STM2	CB 2	MAIN	0.17	0.76	0.95	0.36	0.36	0.45	0.45	10.00	76.81	27.59	178.56	80.17	30.0	30.0	201.16	1.34	13.4	38.60	1.21	0.18	71%	78%
STM3	CB 3	MAIN	0.17	0.74	0.93	0.36	0.36	0.45	0.45	10.00	76.81	27.58	178.56	80.14	29.9	29.9	201.16	1.94	3.1	46.44	1.46	0.04	59%	64%
	200	201	0.00	0.00	0.00	0.00	0.99	0.00	1.23	10.33	75.55	74.42	175.57	216.20		82.7	366.42	0.31	58.8	91.87	0.87	1.12	81%	90%
STM4	CB 4	201	0.13	0.65	0.81	0.24	0.24	0.30	0.30	10.00	76.81	18.46	178.56	53.64	21.1	21.1	201.16	2.74	31.7	55.19	1.74	0.30	33%	38%
	201	27626	0.00	0.00	0.00	0.00	1.23	0.00	1.53	11.46	71.62	87.77	166.24	254.65		103.8	366.42	0.43	30.2	108.20	1.03	0.49	81%	96%
Design Parameters																								
Notes:																								
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.																								
2. Peak flows calculated using the Rational Method.																								
Q = 2.78CIA, where:																								
Q = Peak Flow (L/s)																								
A = Drainage Area (ha)																								
I = Rainfall Intensity (mm/hr)																								
C = Runoff Coefficient																								
3. Manning's roughness coefficient = 0.013																								
4. Full flow velocity: MIN 0.8 m/s; MAX 3.0 m/s (City of Ottawa Sewer Design Guidelines, v.2012)																								
IDF curve equations (Intensity in mm/hr)																								
100 year Intensity = 1735.688 / (Time in min + 6.014) ^{0.820}																								
50 year Intensity = 1569.580 / (Time in min + 6.014) ^{0.820}																								
25 year Intensity = 1402.884 / (Time in min + 6.018) ^{0.819}																								
10 year Intensity = 1174.184 / (Time in min + 6.014) ^{0.816}																								
5 year Intensity = 998.071 / (Time in min + 6.053) ^{0.814}																								
2 year Intensity = 732.951 / (Time in min + 6.199) ^{0.810}																								

NOT FOR CONSTRUCTION



LEGEND

- PROPERTY BOUNDARY
- EXISTING CATCH BASIN
- EXISTING STORM SEWER & MANHOLE
- STORM SEWER & MANHOLE
- CATCH BASIN
- LCB
- ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31)
- SWALE
- SWALE WITH 250mm \varnothing PERFORATED SUBRAIN
- STORM DRAINAGE AREA BOUNDARY

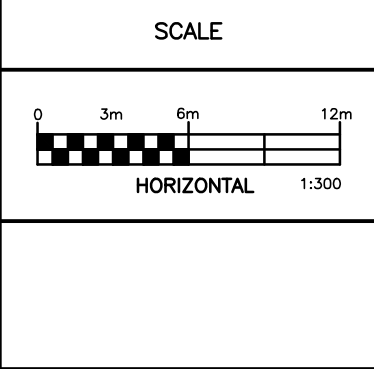


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NO.	REVISION	DESCRIPTION	DATE	BY
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CHECKED	CC
APPROVED	BLM

KEHILLAT BETH ISRAEL

1400 COLDREY AVENUE
CITY OF OTTAWA

STORM DRAINAGE AREA PLAN

PROJECT No.	24060
SURVEY	RCI
DATED	JUNE 2025
DWG. No.	24060-STM1

Appendix D

Pre-Development Drainage Area Plan
(DWG. 24060-PRE1)

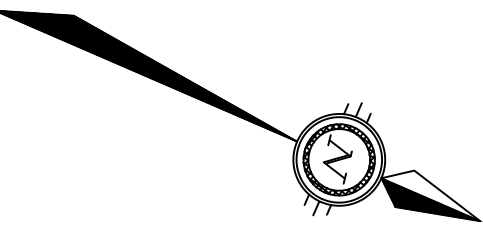
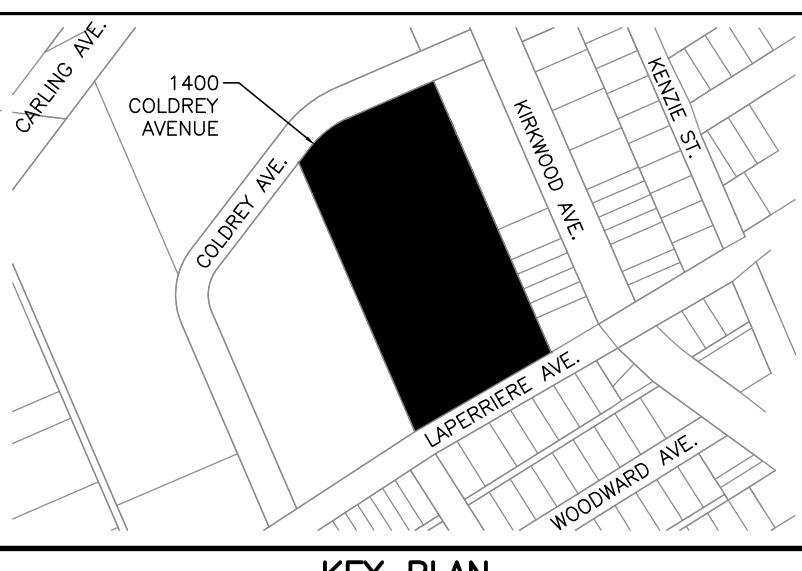
Pre-Development Flow Calculations

Storage Volume Tables





Free Flow Calculations

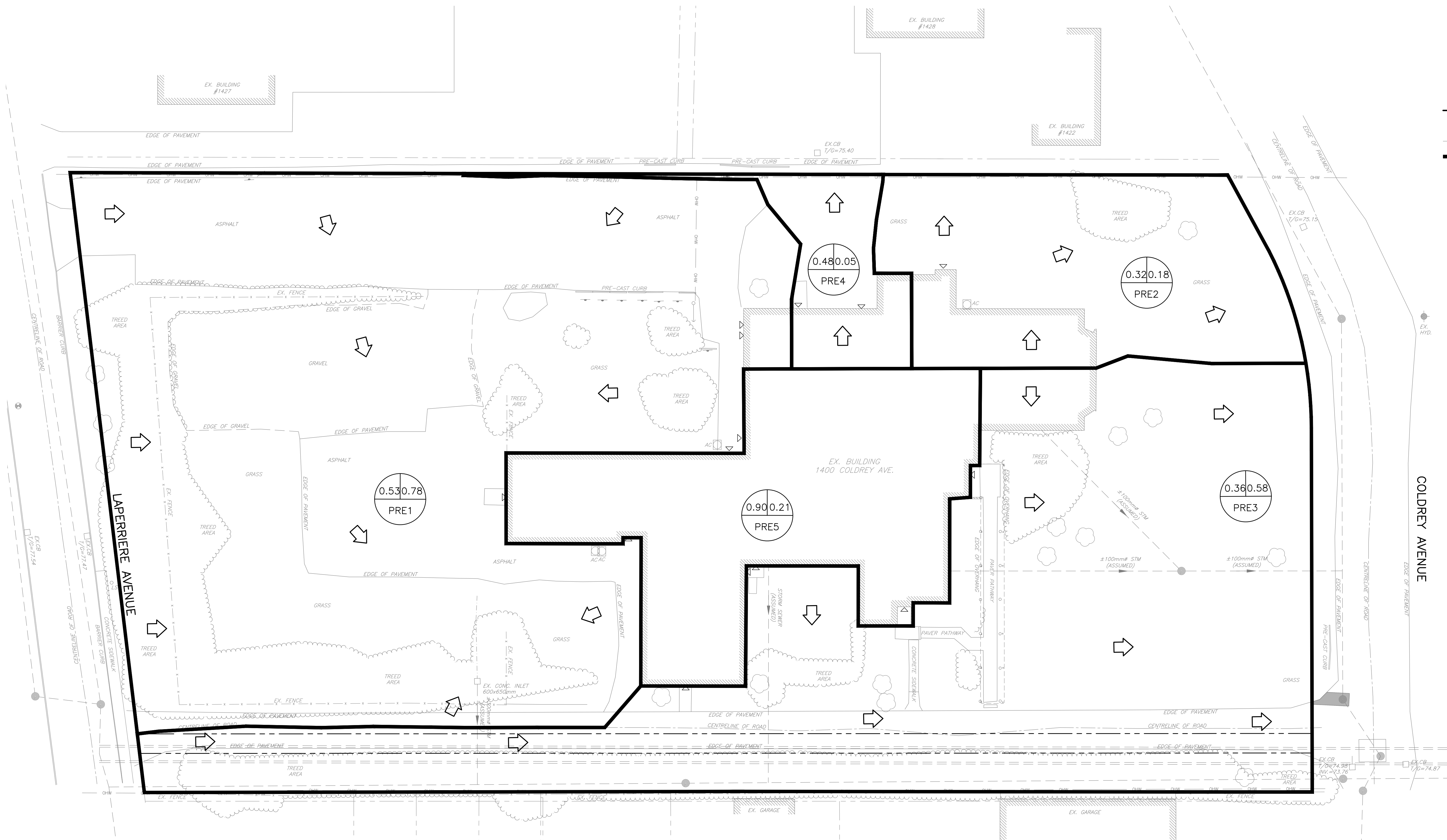
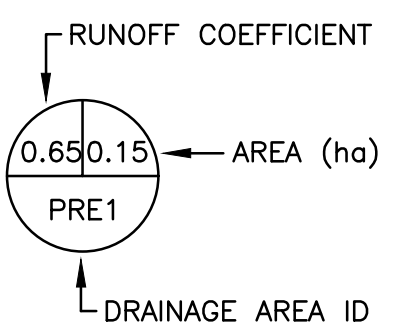
Ponding and ICD Calculations

NOT FOR CONSTRUCTION



LEGEND

- | | |
|---|--|
| | PROPERTY BOUNDARY |
|  | EXISTING CATCH BASIN |
|  | EXISTING STORM SEWER & MANHOLE |
|  | PRE-DEVELOPMENT DRAINAGE AREA BOUNDARY |
|  | PRE-DEVELOPMENT OVERLAND FLOW ROUTE |

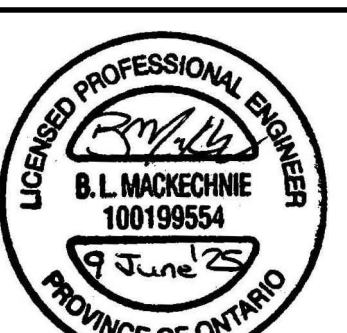
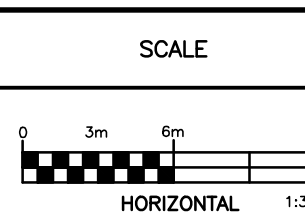


NOTES

THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

PROPERTY BOUNDARIES ARE DERIVED FROM PLAN OF SURVEY OF PART OF LOT 1 CONCESSION A RIDEAU FRONT, GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, SURVEYED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. BEARINGS ARE GRID, ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9, NAD-83 (ORIGINAL).

1	ISSUED FOR REVIEW	09/06/25	BLM
NO.	REVISION DESCRIPTION	DATE	BY



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DESIGN
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KEHILLAT BETH ISRAEL

1400 COLDREY AVENUE
CITY OF OTTAWA

PRE-DEVELOPMENT DRAINAGE AREA PLAN

ECT No.
24060

KEY
RCI

DD
JUNE 2025

No:
060-PRE1

Pre-Development Peak Flow Calculations

Drainage Area ID	Area, A (ha)	Runoff Coefficient, C	100 YR Runoff Coefficient,	Time of Concentration, T _c (min.)	Rainfall Intensity, i (mm/hr)			Peak Design Flow, Q (L/s)		
					2 YR	5 YR	100 YR	2 YR	5 YR	100 YR
PRE1	0.78	0.53	0.67	10.0	76.81	104.19	178.56	89.4	121.2	259.7
PRE2	0.18	0.32	0.40	10.0	76.81	104.19	178.56	12.1	16.4	35.2
PRE3	0.58	0.36	0.45	10.0	76.81	104.19	178.56	44.1	59.9	128.2
PRE4	0.05	0.48	0.60	10.0	76.81	104.19	178.56	5.4	7.4	15.8
PRE5	0.21	0.90	1.00	10.0	76.81	104.19	178.56	39.9	54.1	103.0
TOTAL	1.80	0.50	0.62					190.9	259.0	541.9

Notes:

1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Peak flows calculated using the Rational Method. ($Q=2.78CiA$)
3. T_c = 10 minutes (minimum)
4. C (100 YR) = $C + 25\%$ (Max. 1.0)

IDF curve equations (Intensity in mm/hr)

$$\begin{aligned}
 100 \text{ year Intensity} &= 1735.688 / (\text{Time in min} + 6.014)^{0.820} \\
 50 \text{ year Intensity} &= 1569.580 / (\text{Time in min} + 6.014)^{0.820} \\
 25 \text{ year Intensity} &= 1402.884 / (\text{Time in min} + 6.018)^{0.819} \\
 10 \text{ year Intensity} &= 1174.184 / (\text{Time in min} + 6.014)^{0.816} \\
 5 \text{ year Intensity} &= 998.071 / (\text{Time in min} + 6.053)^{0.814} \\
 2 \text{ year Intensity} &= 732.951 / (\text{Time in min} + 6.199)^{0.810}
 \end{aligned}$$

Storage Volume Calculations - Area STM1 (CB 1)

Area ID = STM1

Area (ha) = 0.14

C = 0.69

C (100 YR) = 0.86

2-Year Release Rate (L/s) = 20.5

5-Year Release Rate (L/s) = 21.6

100-Year Release Rate (L/s) = 22.8

Available Surface Storage (m³) = 29.2

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m³)
2 Year	10	76.8	20.5	20.5	0.0	0.0
	15	61.8	16.5	20.5	-4.0	-3.6
	20	52.0	13.9	20.5	-6.6	-7.9
	25	45.2	12.1	20.5	-8.4	-12.7
	30	40.0	10.7	20.5	-9.8	-17.7
	35	36.1	9.6	20.5	-10.9	-22.8
5 Year	10	104.2	27.8	21.6	6.3	3.8
	15	83.6	22.3	21.6	0.7	0.7
	20	70.3	18.8	21.6	-2.8	-3.4
	25	60.9	16.3	21.6	-5.3	-7.9
	30	53.9	14.4	21.6	-7.2	-12.9
	35	48.5	13.0	21.6	-8.6	-18.1
100 Year	10	178.6	59.6	22.8	36.8	22.1
	15	142.9	47.7	22.8	24.9	22.4
	20	120.0	40.0	22.8	17.2	20.7
	25	103.8	34.6	22.8	11.8	17.8
	30	91.9	30.7	22.8	7.9	14.1
	35	82.6	27.6	22.8	4.8	10.0

- Notes:
- Rainfall intensity calculated using City of Ottawa IDF curve equations.
 - Flow calculated using the Rational Method. $Q=2.78CiA$
 - $C (100 \text{ YR}) = C + 25\%$ (Max. 1.0)

Storage Volume Calculations - Area STM2 (CB 2)

Area ID = STM2

Area (ha) = 0.17

C = 0.76

C (100 YR) = 0.95

2-Year Release Rate (L/s) = 27.6

5-Year Release Rate (L/s) = 28.9

100-Year Release Rate (L/s) = 30.0

Available Surface Storage (m³) = 35.0

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m³)
2 Year	10	76.8	27.6	27.6	0.0	0.0
	15	61.8	22.2	27.6	-5.4	-4.9
	20	52.0	18.7	27.6	-8.9	-10.7
	25	45.2	16.2	27.6	-11.4	-17.0
	30	40.0	14.4	27.6	-13.2	-23.8
	35	36.1	13.0	27.6	-14.6	-30.7
5 Year	10	104.2	37.4	28.9	8.5	5.1
	15	83.6	30.0	28.9	1.1	1.0
	20	70.3	25.2	28.9	-3.7	-4.4
	25	60.9	21.9	28.9	-7.1	-10.6
	30	53.9	19.4	28.9	-9.6	-17.2
	35	48.5	17.4	28.9	-11.5	-24.2
100 Year	10	178.6	80.2	30.0	50.2	30.1
	15	142.9	64.2	30.0	34.2	30.8
	20	120.0	53.9	30.0	23.9	28.7
	25	103.8	46.6	30.0	16.7	25.0
	30	91.9	41.2	30.0	11.3	20.3
	35	82.6	37.1	30.0	7.1	15.0

- Notes:
- Rainfall intensity calculated using City of Ottawa IDF curve equations.
 - Flow calculated using the Rational Method. $Q=2.78CiA$
 - $C (100 \text{ YR}) = C + 25\%$ (Max. 1.0)

Storage Volume Calculations - Area STM3 (CB 3)

Area ID = STM3

Area (ha) = 0.17

C = 0.74

C (100 YR) = 0.93

2-Year Release Rate (L/s) = 27.6

5-Year Release Rate (L/s) = 28.8

100-Year Release Rate (L/s) = 29.9

Available Surface Storage (m³) = 31.3

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m³)
2 Year	10	76.8	27.6	27.6	0.0	0.0
	15	61.8	22.2	27.6	-5.4	-4.9
	20	52.0	18.7	27.6	-8.9	-10.7
	25	45.2	16.2	27.6	-11.4	-17.0
	30	40.0	14.4	27.6	-13.2	-23.8
	35	36.1	12.9	27.6	-14.6	-30.7
5 Year	10	104.2	37.4	28.8	8.6	5.1
	15	83.6	30.0	28.8	1.2	1.1
	20	70.3	25.2	28.8	-3.6	-4.3
	25	60.9	21.9	28.8	-7.0	-10.4
	30	53.9	19.4	28.8	-9.5	-17.0
	35	48.5	17.4	28.8	-11.4	-24.0
100 Year	10	178.6	80.1	29.9	50.2	30.1
	15	142.9	64.1	29.9	34.2	30.8
	20	120.0	53.8	29.9	23.9	28.7
	25	103.8	46.6	29.9	16.7	25.0
	30	91.9	41.2	29.9	11.3	20.3
	35	82.6	37.1	29.9	7.1	15.0

- Notes:
- Rainfall intensity calculated using City of Ottawa IDF curve equations.
 - Provided storage volumes have been calculated using Civil3D by Autodesk.
 - Flow calculated using the Rational Method. Q=2.78CiA
 - C (100 YR) = C + 25% (Max. 1.0)

Storage Volume Calculations - Area STM4 (CB 4)

Area ID = STM4

Area (ha) = 0.13

C = 0.65

C (100 YR) = 0.81

2-Year Release Rate (L/s) = 20.0

5-Year Release Rate (L/s) = 20.5

100-Year Release Rate (L/s) = 21.1

Available Surface Storage (m³) = 21.4

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m³)
2 Year	10	76.8	18.5	20.0	-1.5	-0.9
	15	61.8	14.8	20.0	-5.2	-4.6
	20	52.0	12.5	20.0	-7.5	-9.0
	25	45.2	10.9	20.0	-9.1	-13.7
	30	40.0	9.6	20.0	-10.4	-18.7
	35	36.1	8.7	20.0	-11.3	-23.8
5 Year	10	104.2	25.0	20.5	4.5	2.7
	15	83.6	20.1	20.5	-0.4	-0.4
	20	70.3	16.9	20.5	-3.6	-4.4
	25	60.9	14.6	20.5	-5.9	-8.8
	30	53.9	13.0	20.5	-7.6	-13.6
	35	48.5	11.7	20.5	-8.9	-18.6
100 Year	10	178.6	53.6	21.1	32.5	19.5
	15	142.9	42.9	21.1	21.8	19.6
	20	120.0	36.0	21.1	14.9	17.9
	25	103.8	31.2	21.1	10.1	15.1
	30	91.9	27.6	21.1	6.5	11.6
	35	82.6	24.8	21.1	3.7	7.7

- Notes:
- Rainfall intensity calculated using City of Ottawa IDF curve equations.
 - Provided storage volumes have been calculated using Civil3D by Autodesk.
 - Flow calculated using the Rational Method. Q=2.78CiA
 - C (100 YR) = C + 25% (Max. 1.0)

Storage Volume Calculations - Area STM5 (DICB 5)

Area ID = STM5

Area (ha) = 0.86

C = 0.38

C (100 YR) = 0.47

2-Year Release Rate (L/s) = 69.6

5-Year Release Rate (L/s) = 74.7

100-Year Release Rate (L/s) = 80.0

Available Surface Storage (m³) = 75.6

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m³)
2 Year	10	76.8	69.6	69.6	0.0	0.0
	15	61.8	56.0	69.6	-13.6	-12.3
	20	52.0	47.2	69.6	-22.5	-26.9
	25	45.2	40.9	69.6	-28.7	-43.0
	30	40.0	36.3	69.6	-33.3	-60.0
	35	36.1	32.7	69.6	-36.9	-77.6
5 Year	10	104.2	94.4	74.7	19.8	11.9
	15	83.6	75.7	74.7	1.1	1.0
	20	70.3	63.7	74.7	-11.0	-13.2
	25	60.9	55.2	74.7	-19.5	-29.2
	30	53.9	48.9	74.7	-25.8	-46.4
	35	48.5	44.0	74.7	-30.7	-64.4
100 Year	10	178.6	202.3	80.0	122.3	73.4
	15	142.9	161.9	80.0	81.9	73.7
	20	120.0	135.9	80.0	55.9	67.1
	25	103.8	117.7	80.0	37.7	56.5
	30	91.9	104.1	80.0	24.1	43.4
	35	82.6	93.6	80.0	13.6	28.5

- Notes:
- 1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
 - 2. Provided storage volumes have been calculated using Civil3D by Autodesk.
 - 3. Flow calculated using the Rational Method. Q=2.78CiA
 - 4. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations - Area FF1 (to Coldrey Avenue)

Area ID = FF1
Area (ha) = 0.11
C = 0.32
C (100 YR) = 0.40

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	10	76.8	7.5
	15	61.8	6.0
	20	52.0	5.0
	25	45.2	4.4
	30	40.0	3.9
	35	36.1	3.5
5 Year	10	104.2	10.1
	15	83.6	8.1
	20	70.3	6.8
	25	60.9	5.9
	30	53.9	5.2
	35	48.5	4.7
100 Year	10	178.6	21.7
	15	142.9	17.3
	20	120.0	14.5
	25	103.8	12.6
	30	91.9	11.1
	35	82.6	10.0

- Notes:
- 1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
 - 2. Flow calculated using the Rational Method. $Q=2.78CiA$
 - 3. $C(100\text{ YR}) = C + 25\%$ (Max. 1.0)

Free Flow Calculations - Area R1 (to Easement Storm Sewer)

Area ID = R1
Area (ha) = 0.21
C = 0.90
C (100 YR) = 1.00

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	10	76.8	39.9
	15	61.8	32.1
	20	52.0	27.0
	25	45.2	23.4
	30	40.0	20.8
	35	36.1	18.7
5 Year	10	104.2	54.1
	15	83.6	43.4
	20	70.3	36.5
	25	60.9	31.6
	30	53.9	28.0
	35	48.5	25.2
100 Year	10	178.6	103.0
	15	142.9	82.4
	20	120.0	69.2
	25	103.8	59.9
	30	91.9	53.0
	35	82.6	47.6

- Notes:
- 1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
 - 2. Flow calculated using the Rational Method. $Q=2.78CiA$
 - 3. $C(100\text{ YR}) = C + 25\%$ (Max. 1.0)

Ponding and Inlet Control Device Calculations

Structure	Drainage Area	Outlet Pipe Inv. Elev. (m)	Outlet Pipe Diam. (m)	C/L Orifice Elev. (m)	T/G Elev. (m)	2-YR Ponding Depth (m)	2-YR Ponding Elev. (m)	2-YR Head (m)	5-YR Ponding Depth (m)	5-YR Ponding Elev. (m)	5-YR Head (m)	100-YR Ponding Depth (m)	100-YR Ponding Elev. (m)	100-YR Head (m)	2-YR Outflow (L/s)	5-YR Outflow (L/s)	100-YR Outflow (L/s)	Orifice Area (m ²)	Orifice Diameter (mm)	Orifice Type
CB 1	STM1	74.11	0.201	74.21	75.35	0.00	75.35	1.14	0.12	75.47	1.26	0.27	75.62	1.41	20.5	21.6	22.8	0.007	95	Circular, slide
CB 2	STM2	74.05	0.201	74.15	75.55	0.00	75.55	1.40	0.14	75.69	1.54	0.25	75.80	1.65	27.6	28.9	30.0	0.009	105	Circular, slide
CB 3	STM3	74.10	0.201	74.20	75.60	0.00	75.60	1.40	0.13	75.73	1.53	0.25	75.85	1.65	27.6	28.8	29.9	0.009	105	Circular, slide
CB 4	STM4	74.53	0.201	74.63	76.53	0.00	76.53	1.90	0.10	76.63	2.00	0.22	76.75	2.12	20.0	20.5	21.1	0.005	83	Circular, slide
DICB 5	STM5	73.85	0.299	74.00	75.00	0.00	75.00	1.00	0.15	75.15	1.15	0.32	75.32	1.32	69.6	74.7	80.0	0.026	181	Circular, slide

- Notes:
- 1. Ponding depths are measured from the ponding elevation to the T/G elevation.
 - 2. Heads are measured from the ponding elevation to the centreline of orifice elevation.
 - 3. Orifice Area = (Q/1000) / 0.61(2*9.81*H₁₀₀)^0.5 (OSDG Section 8.3.8.1)
 - 4. Orifice areas are calculated using 2-year head and outflow values.