Stormwater Management Report and Servicing Brief

Nouvelle école ÉSP Orléans-Sud
2405 & 2419, Mer-Bleue Road, Orleans, ON K4A 3V1

Prepared for:

GRC Architects
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Attention: Patrick Dubuc

LRL File No.: 240462-01

January 31, 2025

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by GRC Architects to complete a Stormwater Management Analysis and Servicing Brief for the proposed institutional development (a 3-storey high school building), including asphalt driveways and parking lot. Refer to the ***Site Plan*** included in ***Appendix F*** for more details***.***

The subject property consists of two (2) property parcels; 2405 Mer-Bleue Road (approx. 6.44ha), 2419 Mer-Bleue Road (approximately 1.20ha). The site location is legally described as Part of Lot 4 Concession 11 (Geographic Township of Cumberland). The subject lot is zoned Institutional Zone I1A [2530]/R3Z.

Property parcel 2405 Mer-Bleue Road has already been subdivided to accommodate the development of both an elementary school (east portion of the site, approx. 2.01ha, fronting Monardia Way) and a high school (west portion of the site, approximately 4.43ha, fronting Mer-Bleue Road). This report will focus on the development of the high school on the western portion of the 2405 Mer-Bleue Road lot, as well as 2419 Mer-Bleue Road.

The location of the subject site and additional lot for consideration is shown in **Figure 1** below.

Figure 1: Aerial View of Subject Lands

The subject sites are surrounded by a mix of residential, agricultural undeveloped, and developing areas. To the east, the sites are bordered by low to medium density residential subdivision, with the adjacent collector road, Promenade Jerome Jodoin Drive. To the north, there is a similar residential subdivision with local road Voie Monardia Way. To the south, the site is adjacent to a single-family detached home at 2431 Mer Bleue Road, with surrounding lands currently used for agriculture but intended for future residential development. To the west, can be found more residential and future development fronted by Mer-Bleue Road.

This report has been prepared in consideration of the terms and conditions noted above and with the civil drawings prepared for the new development. Should there be any changes in the design features, which may relate to the stormwater and servicing considerations, LRL Associates Ltd. should be advised to review the report recommendations.

2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site (consisting of the west portion of 2405 Mer-Bleue, and 2419 Mer-Bleue) measures approximately ***3.313 ha*** and currently consists of two single family detached homes, paved driveways, a few accessory buildings and gravel driveways, and the balance agricultural land, all of which can be accessed from Mer-Bleue Road.

As far as site topography, the site is generally flat with a slight slope down towards the southwest. The highest point onsite is located at the northeast corner and has an elevation of ±80.00m, the lowest point onsite is located at the southwest corner of the site and has as elevation of ±77.50m. The site generally slopes towards the southwest. There is a drop of approximately 1m across the south property line, a drop of approximately 1m across the east property line and a drop of approximately 1.5m across the west property line.

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa indicate the following existing infrastructure located within the adjacent rights-of-way:

Mer-Bleue Road:
- 406mmØ DI watermain

Monardia Way:
- 200mmØ sanitary sewer
- 1200mmØ storm sewer
- 203mmØ watermain

Jerome Jodoin Drive:
- 200mmØ sanitary sewer
- 525mmØ storm sewer
- 305mmØ watermain

Refer to **Appendix F** for the relevant as-builts.

As per the pre-application consultation with the City of Ottawa planning department, it is intended that the proposed high school be serviced by the watermain within Mer-Bleue Road, as well as the sanitary sewer and storm sewer within Monardia Way. As tying to the Monardia Way sewers will create conflict with the proposed elementary school site development, the elementary school site has already proposed providing a servicing easement, equipped with sewer extensions and manholes, to allow the high school site to tie into the appropriate sewers simply and conveniently. A 1050mm storm sewer and storm manhole (STMH1), and a 200mm sanitary sewer and sanitary manhole (SAMH102) are proposed to be installed north of the elementary school site, extending from the Promenade Jerome Jodoin municipal sewers to the shared property line between the elementary school and high school sites, with the manholes to be installed at the northeast corner of the high school site. Please refer to **Appendix G** for greater detail on the servicing easement, sewer extensions and manholes.

3 SCOPE OF WORK

As per applicable guidelines, the scope of work includes the following:

Stormwater management

- Calculate the allowable stormwater release rate.
- Calculate the anticipated post-development stormwater release rates.
- Demonstrate how the target quantity objectives will be achieved.

Water services

- Calculate the expected water supply demand at average and peak conditions.
- Calculate the required fire flow as per the Fire Underwriters Survey (FUS) method.
- Confirm the adequacy of water supply and pressure during peak flow and fire flow.
- Describe the proposed water distribution network and connection to the existing system.

Sanitary services

- Describe the existing sanitary sewers available to receive wastewater from the building.
- Calculate peak flow rates from the development.
- Describe the proposed sanitary sewer system.

4 REGULATORY APPROVALS

An MECP Environmental Compliance Approval is not expected to be required for installation of the proposed storm and sanitary sewers within the site. No other approval requirements from other regulatory agencies are anticipated.

5 WATER SUPPLY AND FIRE PROTECTION

5.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa 1E water distribution network pressure zone. There is an existing 200mm watermain within Mer-Bleue Road. There are currently three (3) existing fire hydrants within proximity to the subject property.

5.2 Water Supply Servicing Design

We have analyzed the water demand requirements for the proposed building. The institutional water demand based on anticipated population were determined using Table 4.2 from the *City of Ottawa Water Distribution Design*.

According to the City of Ottawa Water Distribution Guidelines (Technical Bulletin ISDTB-2014-02), since the subject site is anticipated to have a basic day water demand greater than 50 m^3/day, the site is required to be serviced by two water service laterals. The laterals are to be separated by an isolation valve, allowing for a water service redundancy, and avoiding the creation of a vulnerable service area. Additionally, considering the presence of automatic sprinkler system inside the building, a recommended size to service the sprinkler system, as well as the addition of a private fire hydrant to site, the subject property is proposed to be serviced via 200mm diameter service laterals connected to the existing 406mmØ DI watermain within Mer-Bleue Road. Refer to *Site Servicing Plan* C.401 in ***Appendix E*** for servicing layout and proposed connection points.

The water supply requirements for the institutional development have been calculated using the following formulas:

$$Q = (q \times P \times M)$$

Where:
q = average water consumption (L/capita/day)
P = design population (# of students)
M = Peak factor

The proposed building is expected to have a student population of 1035, including the future expansions and portables currently shown on the architectural site plan**.** *Table 4.2 of the City of Ottawa Water Distribution Design Guidelines* was used to determine the unit rate and peaking factors of the institutional space. A water consumption rate of **70L/student/day**, a Maximum Daily Demand Factor of **1.5** and a Maximum Hourly Demand Factor and **1.8** were used to perform the water demand calculations.

Using the peak factors, the anticipated institutional demands were calculated as follows:

- Average daily domestic water demand is 0.84 L/s,
- Maximum daily demand is 1.26 L/s, and
- Maximum hourly demand is 2.26 L/s.

Refer to ***Appendix B*** for detailed water demand calculations.

5.3 Fire Flow and Boundary Conditions

The estimated fire flow for the proposed buildings was calculated in accordance with *ISTB-2018-02*. The following parameters were provided by the Architect:

- Type of construction – Non-combustible construction
- Occupancy type – Limited Combustible
- Sprinkler Protection –Fully Automatic Sprinkler System

The estimated fire flow demand was estimated to be 13,000 L/min (216.7 L/s), see Appendix B for details.

There are three (3) existing fire hydrants in proximity to the proposed institutional building that are available to contribute the required fire flow demands of 13,000 L/min. Refer to ***Appendix B*** for fire hydrant locations.

Due to the expected lack of required available fire flow, considering the long path of travel for fire services to reach the rear doors of the proposed school, and considering the potential for future portable developments at the rear of the school, the site has been proposed to be developed with a private fire hydrant.

Table 1 below summarizes the aggregate fire flow of the contributing hydrants in proximity to the proposed development, and private hydrant based on Table 18.5.4.3 of *ISTB-2018-02*.

Table 1: Fire Protection Summary Table

	Max. Fire Flow Demand (L/min)	Fire Hydrants(s) within 76m	Fire Hydrant(s) within 152m	Fire Hydrant(s) within 305m	Available Combined Fire Flow* (L/min)
Contemplated Development	13,000	2	1	1	(2 x 5678) + (1 x 3785) + (1 x 2839) = 17,980

*assuming residual pressure of minimum 20 psi (139.9 kPa)

The total available fire flow from contributing hydrants is equal to **17,980 L/min,** which is sufficient to provide adequate fire flow for the proposed development.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand and fire flow calculations, as indicated in the boundary request correspondence included in ***Appendix B***. *Table 2* below summarizes boundary conditions for the proposed development.

Table 2: Summary of Boundary Conditions

Design Parameter	Anticipated Demand (L/s)	Boundary Conditions @ Mer-Bleue Road (m H2O / kPa)
Average Daily Demand	0.84	130.5 / 61.6
Max Day + Fire Flow (per FUS)	1.26 + 216.67	125.4 / 54.3
Peak Hour	2.26	126.6 / 56.0
**Ground Elevation assumed at 87.20 for Connection 1 to Mer-Bleue WM*		

As indicated in Table 2, pressures in all scenarios meet the required pressure range stated in the City of Ottawa Design Guidelines – Water Distribution (Section 4.2.2). Refer to ***Appendix C*** for Boundary Conditions.

5.4 Water Distribution Network Hydraulic Modelling

To ensure that the proposed water distribution network can supply the required fire flow via the proposed new fire hydrant on-site, additional hydraulic analysis has been performed using EPANET (Version 2.2). The modeling results show that the proposed water distribution network is able to meet the designed fire flow of 5700 L/min while the residual pressure, at any point in the distribution network, is greater than 20 psi.

Three scenarios were analyzed in EPANET. For scenario 1 and 2, the anticipated average day and peak hour demand were applied to node J3 for the proposed school building. The residual pressures ranged from 60-61 psi. For scenario 3, a design fire flow of 5700 L/min was applied to the fire hydrant node (J9) with maximum day domestic demand simultaneously applied to building service entry node (J3). In this scenario, the residual pressure within the distribution network ranged from 57-61 psi thus exceeds the required minimum pressure of 20 psi.

For modeling results including pipe pressure and velocities, refer to Appendix B.

6 SANITARY SERVICE

6.1 Existing Sanitary Sewer Services

As per the pre-application consultation with the City of Ottawa, it is anticipated that the proposed high school development sanitary service will outlet to the sanitary sewer within Jerome Jodoin Drive. As per City of Ottawa resources (GeoOttawa), there is an existing 200mm dia. sanitary sewer located within Jerome Jodoin Dr.

In anticipation of this, the elementary school site was proposed to be developed with an additional sanitary sewer, running along the north property line, tying the Jerome Jodoin sanitary sewer to a sanitary maintenance hole (SANMH102) installed at the northwest corner of the site. This manhole is the proposed outlet point for the proposed high school site development sanitary discharge.

The elementary school servicing plan has been included within **Appendix G**.

6.2 Sanitary Sewer Servicing Design

The proposed development will be serviced via a 200mm dia. sanitary service connected & out letting to the existing sanitary manhole (SANMH102) at the northeast corner of the lot. Refer to LRL drawing C.401, included in **Appendix E,** for the proposed sanitary servicing.

The parameters used to calculate the anticipated institutional sanitary flows are a total site area of **3.313ha**, and institutional peak factor of **1.5**, and an extraneous flow of **0.33 L/s/ha**. Based on these parameters, the total anticipated wet wastewater flow was estimated to be **6.06 L/s**. Refer to ***Appendix C*** for the site sanitary sewer design sheet.

7 STORMWATER MANAGEMENT

7.1 Existing Stormwater Infrastructure

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system, and as such, approvals for the proposed development within this area are under the approval authority of the City of Ottawa.

As per the pre-application consultation with the City of Ottawa, it is anticipated that the proposed high school development storm runoff will be captured & conveyed to the storm sewer within Jerome Jodoin Drive. Based on the City of Ottawa resources (GeoOttawa), there is an existing 525mm dia. storm sewer located within Jerome Jodoin Dr.

In anticipation of this, the elementary school site was proposed to be developed with an additional storm sewer, running along the north property line, tying the Jerome Jodoin storm sewer to a storm maintenance hole (STMMH1) installed at the northwest corner of the site. This manhole is the proposed outlet point for the proposed developments storm runoff. The elementary school servicing plan has been included within **Appendix G**.

In the pre-development conditions, drainage from the subject lot is depicted by existing watershed EWS-01 (3.313ha), which drains primarily to the west towards Mer-Bleue Road and to the south towards the neighbouring lot at 2431 Mer-Bleue Road. Refer to plan C701 included in ***Appendix E*** for pre-development drainage characteristics. Refer to ***Appendix D*** for pre-development and post-development watershed information.

7.2 Design Criteria

The stormwater management criteria for this development are based on the pre-consultation with City of Ottawa officials, the City of Ottawa Sewer Design Guidelines, 2012 (City standards), as

well as the Ministry of the Environment's Stormwater Management Planning and Design Manual, 2003 (SWMPD Manual).

7.2.1 Water Quality

The proposed site does not require any stormwater quality treatment. As per the *Design Brief for Summerside West – Phase 2 Mer-Bleue Road* (as prepared by DSEL), Stormwater quality objectives are achieved downstream, as the Avalon West SWM facility has adequate capacity to meet the quality requirements for the proposed site. An extract of the Design Brief has been included in ***Appendix H***.

7.2.2 Water Quantity

Based on pre-consultation with the City, correspondence included in ***Appendix A***, the following stormwater management quantity requirements were identified for the subject site:

- Stormwater quantity objective for the total site (elementary, high school and future site) is to limit the release rate to 1062 L/s. The elementary school site has proposed limiting/controlling their runoff to 331 L/s. This would leave a balance of 731 L/s for the proposed high school site and future site, with a total of 4.518ha, resulting in an allowable release rate of **161.80 L/s/ha**. As the proposed high school site is 3.313ha (balance of 2409 Mer-Bleue, and 2419 Mer-Bleue), this would result in a total allowable release rate for of **536.03 L/s** for the proposed site.

- Attenuate all storms up to and including the City of Ottawa 100-year storm event on site.

7.3 Method of Analysis

The modified Rational method has been used to calculate the runoff rate from the site to quantify the storage required for quantity control of the development. Refer to ***Appendix D*** for storage calculations.

7.4 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity control for this development will be accomplished using an orifice plate inlet control device for flow attenuation, and a combination of rooftop ponding, overland ponding and underground chambers to accommodate storage requirements.

A large portion of the site is proposed to be controlled, composed various catchment areas with stormwater structures capturing and conveying runoff to a singe outlet point; the existing storm manhole (STMMH1) located at the northeast corner of the site. Stormwater will be controlled prior to release to the existing manhole, and ultimately be conveyed to the Jerome Jodoin storm sewer.

Many future expansions and additions have been included within the proposed architectural site plan. In anticipation of these future developments, stormwater management has taken these

areas into consideration, and calculations have been performed with runoff coefficients assuming these have already been developed.

A small portion of the site, mainly small buffers along the west, south and east property lines, will remain uncontrolled.

The proposed servicing layout and connection points are shown on drawing C401 in ***Appendix E,*** and detailed calculations can be found in ***Appendix D***.

The site has been analyzed and fifteen (15) post-development watersheds have been allocated.

- CA-01, CA-02, CA-08, CA-09, CA-10 and CA-11 consist of grassed and paved areas at the rear (east) of the proposed high school, with some consideration for proposed future parking lot expansion and portable classrooms. Stormwater is to be captured by the respective catch basins and conveyed to the control point.
- CA-03, CA-04, CA-05 and CA-06 consist mainly of the proposed north driveway, parking lot and multi-use pathway, with some consideration for future auditorium expansion. Stormwater is to be captured by the respective catch basins and conveyed to the control point.
- CA-07 consists of the proposed high schools' roof. Stormwater is to be controlled by multiple flow-control roof drains, and ultimately outlet into the proposed site underground stormwater network.
- CA-12, CA-13 and CA-14 consist of the south driveway and bus loop. Stormwater is to be captured by the respective catch basins and conveyed to the control point.
- CA-15 consists of mainly small buffers along the west, south and east property lines. These areas are to remain uncontrolled.
  Refer to C601, Stormwater Management Plan and C702, Post-Development Watershed Plan C702 in ***Appendix E*** for reference.

Table 3 below summarizes post-development drainage areas. Calculations can be seen in ***Appendix D.***

Table 3: Post-Development Estimated Areas & Runoff Coefficients

WATERSHED	Total Area (ha)	Weighted Runoff Coefficient (C)
CA-01 (controlled)	0.106	0.25
CA-02 (controlled)	0.185	0.66
CA-03 (controlled)	0.173	0.73
CA-04 (controlled)	0.187	0.85
CA-05 (controlled)	0.213	0.63
CA-06 (controlled)	0.208	0.74
CA-07 (controlled)	0.435	0.90
CA-08 (controlled)	0.197	0.29
CA-09 (controlled)	0.218	0.48

CA-10 (controlled)	0.210	0.73
CA-11 (controlled)	0.215	0.43
CA-12 (controlled)	0.265	0.83
CA-13 (controlled)	0.182	0.64
CA-14 (controlled)	0.149	0.69
CA-15 (uncontrolled)	0.370	0.34
TOTAL	**3.313**	**0.63**

In post development, watersheds CA-01 through to CA-14, with the exception of CA-07 (rooftop) will be controlled via the proposed flow control unit, an orifice plate to be installed within the outlet of CMBH02. Watershed CA-07 will be controlled independently via multiple flow control roof drains.

Table 4 below summarizes the release rates and storage volumes required to meet the allowable release rate of **536.03 L/s** for 100-year flow rates.

Table 4: Stormwater Release Rate & Storage Volume Summary (100 Year)

CATCHMENT AREAS	DRAINAGE AREAS (ha)	100-YEAR RELEASE RATE (L/s)	100-YEAR REQUIRED STORAGE (m^3)	TOTAL AVAILABLE STORAGE (m^3)
CA-01, CA-02, CA-03, CA-04, CA-05, CA-06	1.072	440.00	520.85	534.04
CA-08, CA-09, CA-10, CA-11, CA-12, CA-13, CA-14	1.436			
CA-07	0.435	15.11	155.53	183.40
TOTAL CONTROLLED	**2.943**	**455.11**	**676.38**	**717.44**
CA-15	0.370	78.93	/	/
TOTAL UNCONTROLLED	**0.370**	**78.93**	**/**	**/**
TOTAL	**3.313**	**534.04**		

For release rate and storage calculations, refer to ***Appendix D***. For additional information on overland storage, rooftop storage and underground chamber location etc., refer to drawing C.601 in ***Appendix E.***

To attenuate flows to the allowable release rate of **534.04 L/s**, it is calculated that a total of **676.38m^3** of storage will be required (assuming a 50% peak allowable release rate due to the addition of underground stormwater structures). The required storage is proposed to be met through the combination of rooftop storage, overland ponding and underground chambers. The total required storage, available storage and allowable release rate are summarized below:

- **183.40 m^3** will be provided on the proposed high schools rooftop, via 23 flow control roof drains at a total release rate of **21.60 L/s** (23 roof drains)
- **209.87 m^3** will be provided via overland ponding within the proposed south driveway and north driveway parking lot, and **322.88 m^3** provided by the proposed MC3500 Stormtech Chambers (or approved equivalent), controlled by a 371mm orifice plate limiting flow to **440.00 L/s.**

- The balance of the site will remain uncontrolled, with an allowable release rate of **78.93 L/s.**

8 EROSION AND SEDIMENT CONTROL

During construction, erosion and sediment controls will be provided primarily via a sediment control fence to be erected along the perimeter of the site where runoff has the potential of leaving the site. Inlet sediment control devices are also to be provided in any catch basin and/or manholes in and around the site that may be impacted by the site construction. Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification OPSS 577. For more details refer to drawing C101 Erosion and Sediment Control Plan in ***Appendix E***.

9 CONCLUSION

This Stormwater Management and Servicing Report for the development proposed at 2409-2415 Mer-Bleue Road presents the rationale and details for the servicing requirements for the subject property.

In accordance with the report objectives, the servicing requirements for the development are summarized below:

Water Service

- The maximum required fire flow was calculated to be **13,000 L/min** using the FUS method.
- Three (3) existing fire hydrants, and a proposed private hydrant, will available to service the proposed development. They will provide a combined fire flow of **17,980 L/min** to the site.
- The new development will be serviced via two (2) 200mm diameter service laterals separated by an isolation valve, that will be connected to the existing 406mm DI watermain within Mer-Bleue Road.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to service the proposed site.

Sanitary Service

- The total calculated wet wastewater flow from the proposed development is **6.06 L/s.**
- The proposed development will discharge to the existing sanitary sewer within Jerome Jodoin via a proposed 200 mm PVC sanitary service lateral, tied to the existing sanitary manhole provided at the northeast corner of the site.

Stormwater Management

- The stormwater release rates from the proposed development will meet the calculated allowable release rate of 536.03 L/s.

- The site stormwater quantity control objectives will be achieved through the use of the following;
    - a 371mm orifice place restricting flow to **440.00 L/s**, with **532.75m^3** of required stormwater storage being accommodated on site via overland ponding and underground storage chambers
    - 23 flow control roof drains, at a combined release rate of **15.11 L/s**, with **183.24m^3** of required stormwater storage being accommodated by rooftop ponding

10 REPORT CONDITIONS AND LIMITATIONS

The report conclusions are applicable only to this specific project described in the preceding pages. Any changes, modifications or additions will require a subsequent review by LRL Associates Ltd. to ensure compatibility with the recommendations contained in this document.

If you have any questions or comments, please contact the undersigned.

Prepared by:
LRL Associates Ltd.

Kyle Herold
Civil Engineering Services

Mohan Basnet, P.Eng.
Civil Engineer

APPENDIX A

Pre-consultation / Correspondance

File No.: PC2024-0390

October 4, 2024

Carolyn Jones
GRC Architects
Via email: cjones@grcarchitects.com

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control, Revision (Complex) Application – 2405 Mer Bleue Road

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on September 25, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☒	**3** ☐	**4** ☐	**5** ☐

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.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca. A completion of Phase 2 and Phase 3 is advisable if you wish to have a 60-day turnaround on approvals for a site plan control's formal submission.

2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

3. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

1. 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.

    a. 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.

Consultation with Technical Agencies

You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept.

Please contact James Holland of South Nation Conservation Authority.

jholland@nation.on.ca
James Holland | M.Sc. RPP, Senior Planner

38 Victoria Street, Box 29, Finch, ON K0C 1K0

Tel: 613-984-2948 or 1-877-984-2948 | Fax: 613-984-2872

nation.on.ca

Planning

Comments:

1. The site is located in the Suburban (East) Transect and is designated Neighbourhood with an Evolving Neighborhood Overlay in the Official Plan. Section 4.10 specifically relates to schools, however, these policies are to be read in the context of the entire Offical Plan.

2. The site is located within the Mer Bleue Developing Neighborhood Secondary Plan.

3. The site is currently zoned I1A [2530]/R3Z, Minor Institutional Subzone A, Exception 2530/Residential Third Density Subzone Z.

4. Further information about the site and the surrounding developing community can be found in Section 3.8.3 and Figure 3 of the Mer-Bleue Expansion Area Community Design Plan.

5. Easements and JUMA will be required if a severance between the elementary and high school site is sought prior to site plan control approval.

6. The concept's bus lay-by, proposed on the Mer Bleue Right of Way will not be accommodated in the final Mer Bleue Realignment. It is best to find an alternate permanent location for a bus lay-by.

7. The timing of the Mer Bleue Realignment is unknown, however it will happen. It is strongly advised that you plan your site elements based on the final realignment.

8. The temporary bus lay-by location is not a feasible back-up plan. The timing of the roads coming in service from which you assume connection, south of the current dead end of Jerome-Jodoin is unknown. This area is within a future Mattamy South, Phases 2 and 3 draft approved subdivision.

9. A pedestrian pathway must be finalized (constructed by CEPEO), as part of this upcoming site plan control process, connecting Monardia Way to Mer Bleue Road.

10. A public access easement will be required over the aforementioned pedestrian pathway – that connects Monardia Way to Mer Bleue Road.

11. Please consider the following aspects from a CPTED perspective regarding site design as you solve the temporary/permanent bus lay-by location:

    a) The U shaped building is not ideal-during off hours, it is hidden.
    b) Explore shifting the walkway along the north property line to the other side of the trees (i.e. fence, trees and then walkway instead of having the walkway between the fencing and trees -CPTED again).
    c) PRED also advises establishing formal walkway(s) to the basketball court - otherwise the grass will get beaten down
    d) Identify snow storage area(s).
    e) Maybe shift the basketball court to one side or the other to provide a larger grassed area.

Feel free to contact Shoma Murshid, Planner, for follow-up questions.

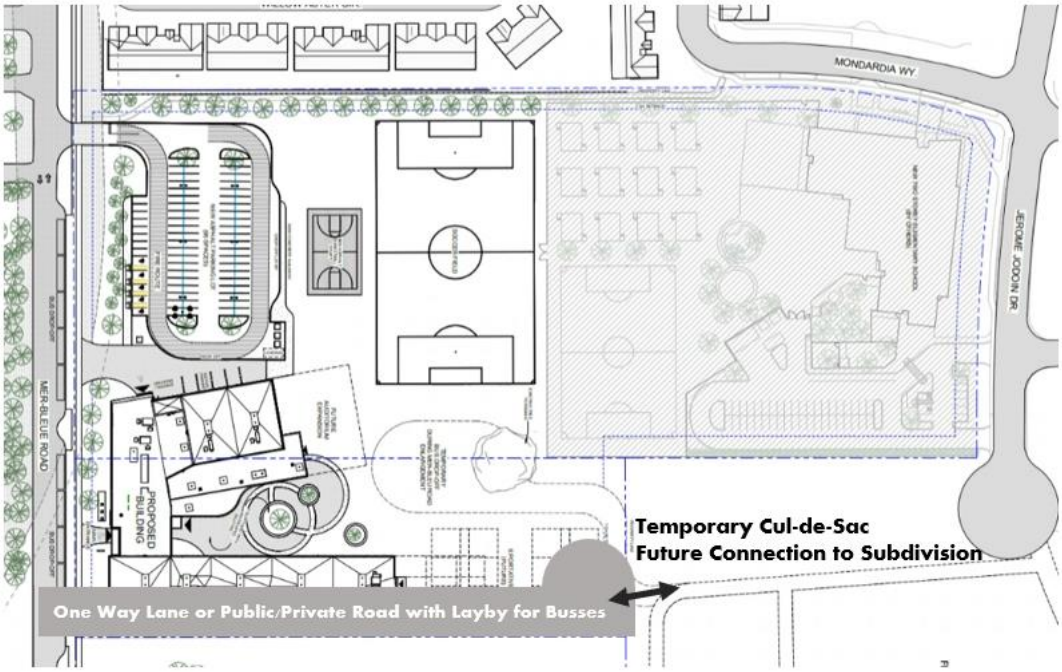
Urban Design

Comments:

12. As part of a complete application, staff require detailed architectural plans (including Building Elevations) and a Landscape Plan. An Urban Design Brief is not required.

13. Staff encourage the Applicant to consider a public or private roadway to accommodate the required bus lay-bys and access to vehicular parking. If public,

the roadway may be able to connect into future planned subdivisions in the area and remove various cul-de-sacs on and off-site.



14.
15. The relocation of parking presents an opportunity to make the outdoor play areas visible and accessible to Mer Bleue Road.
16. Staff have some concerns with the courtyard from a CPTED perspective. With the future expansion plans, there is the potential for it to become an entrapment zone when the school is not in service.
17. Provide a planted landscape buffer between the surface parking areas and the adjacent residential properties.
18. Explore additional tree planting opportunities, particularly along the perimeter of the site, the planned MUP, and street frontages.
19. Staff generally appreciate the direction that the architecture is heading.

Feel free to contact Nader Kadri, Urban Design Planner, for follow-up questions.

Engineering

Comments:

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

    a. Demonstrate the servicing strategy is consistent with higher-level studies and plans. Excerpts from relevant higher-level studies and plans will need to be discussed and provided in the Appendix of the Site Servicing and SWM report as supporting documentation to the design. Any deviations will require an update or addendum to the subdivision level MSS to

support any changes at the discretion of the City. The following studies apply: **(Design Brief – Summerside West – Phase 2 Mer Bleue, Servicing and Stormwater Management Report – 675 Monardia Way – CEPEO Elementary School – May 2024 – by WSP).**

b. Approved drainage patterns shall be respected as part of the proposed SWM solution otherwise an update or addendum to the subdivision level MSS will be required to support the project.

c. HGL Analysis to be completed and included as part of the Site Servicing and SWM report if basement levels are contemplated.

d. **Water Quality Control**: provided at Avalon West Pond.

e. **Water Quantity Control**: Based on the Design Brief – Summerside West – Phase 2 Mer Bleue and the Servicing and Stormwater Management Report – 675 Monardia Way – CEPEO Elementary School – May 2024 – by WSP, the allowable release rate for the subject site is 731 l/s. Please control post-development runoff from the subject site, for all storm events up to and including the 100-year storm event.

f. Please provide a Pre-Development Drainage Area Plan to define the pre-development drainage areas/patterns. Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution.

g. Ponding Notes:

    i. 100-year spill elevation must be 300mm lower than any building opening or ramp.

    ii. Demonstrate that the stress test spill elevation (100-year +20% event) does not spill onto any permanent structures.

    iii. The maximum permissible ponding depth for the 100-year storm event is 350mm. No spilling to adjacent sites.

    iv. Please note that as per Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14) there shall be no surface ponding on private parking areas during the 2-year storm rainfall event. 100-year spill elevation must be 300mm lower than any building opening or ramp

h. Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize

risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.

i. Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.

j. If rooftop control and storage is proposed as part of the SWM solutions, sufficient details (Cl. 8.3.8.4) shall be discussed and documented in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a Roof Drain Plan as part of the submission.

k. Dry ponds are only to be functional for events that are greater than the 2-year storm event, a freeboard of 0.3m between the 100-year HWL elevation and the emergency overflow elevation and to be designed with a maximum depth of 1.5m with 3:1 side slopes. An emergency overland flow route to an appropriate outlet (Rideau River) from the SWM facility needs to be designed.

l. **Underground Storage**: Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

    i. When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate. In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modelers in the Water Resources Group. Regarding all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

    ii. Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber

system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc. UG storage to provide actual 5- and 100-year event storage requirements.

21. General Servicing

    a. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.

    b. CCTV sewer inspection of city infrastructure is required to record pre and post construction conditions and ensure there is no damage to City Assets.

    c. It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an Existing Conditions Plan.

    d. Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A legal survey plan shall be provided, and all easements shall be shown on the engineering plans.

    e. All underground and above ground building footprints and permanent walls need to be shown on the plans to confirm that any permanent structure does not extend either above or below into the existing property lines and sight triangles.

22. Storm Sewer

    a. A 1200mm dia. concrete storm sewer stub will be available on the North-East corner of the site adjacent to 675 Monardia Way.

    b. A storm sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) Monitoring Devices.

23. Sanitary Sewer

    a. A 200 mm dia. PVC Sanitary sewer stub will be available on the North-East corner of the site adjacent to 675 Monardia Way.

    b. Please provide the new Sanitary sewer discharge and we will confirm if sanitary sewer main has the capacity. The allowable sanitary release rate for the high school site based on the Servicing and Stormwater

Management Report – 675 Monardia Way – CEPEO Elementary School – May 2024 – by WSP, is 3.61l/s.

c. Include correspondence from the Architect within the Appendix of the report confirming the number of residential units per building and a unit type breakdown for each of the buildings to support the calculated building populations.

d. Please apply the wastewater design flow parameters in Technical Bulletin PIEDTB-2018-01.

e. Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) Monitoring Devices.

f. The proposed wastewater servicing design shall be consistent with higher-level studies and plans (Design Brief – Barrett Lands – Phase 1 – 4660 Bank Street – Leitrim Development Area – Dated May 2018 and Memo – Dated August 2018).

24. Water:

a. A 400 mm dia. DI watermain (1976) is available at Mer Bleue Road.

b. Water Supply Redundancy: Residential buildings with a basic day demand greater than 50m3/day (0.57 L/s) or with 50+ units are required to be connected to a minimum of two water services, with each their own meter, separated by an isolation valve to avoid a vulnerable service area.

c. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:

i. Plan showing the proposed location of service(s).

ii. Type of development and the amount of fire flow required (L/min). Note: The OBC method can be used if the fire demand for the private property is less than 9,000 L/min. If the OBC fire demand reaches 9000 L/min, then the FUS method is to be used.

iii. Average daily demand: __L/s.

iv. Maximum daily demand: __L/s.

v. Maximum hourly daily demand: __L/s.

vi. Note: Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons.

d. Please review Technical Bulletin ISTB-2018-02, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal.

e. A Water Data Card will have to be submitted to size the water meter.

f. Any proposed fire (emergency) route is to be to the satisfaction of Fire Services. Please note that a siamese connection needs to be within 45m from an existing fire hydrant as per (OBC – 3.2.5.16 Fire Department Connections).

25. Grading and Erosion

a. Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A topographical plan of survey shall be provided as part of the submission and a note provided on the plans.

b. Erosion and sediment control plan must be provided.

c. Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site, please indicate this on the plan(s).

d. Street catch basins are not to be located at any proposed entrances.

e. Depressed driveways are discouraged and are not allowed in sag locations. For other locations, the builder must ensure that the maximum depth of flow on the street during the 100-year and stress test events will not spill onto the depressed driveway.

f. If Window wells are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.

26. Environmental

a. A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.

b. The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.

c. Official Plan: Section 10. Protection of Health and Safety (ottawa.ca)

27. Environmental Compliance Approval

a. The consultant shall determine if this project will be subject to an Environmental Compliance Approval (ECA) for Private Sewage Works. It shall be determined if the exemptions set out under Ontario Regulation 525/98: *Approval Exemptions* are satisfied. All regulatory approvals shall be documented and discussed in the report.

b. Please note that an ECA is required for:

   i. Stormwater management works servicing more than one parcel of land

   ii. Stormwater management works discharging to a combined sewer.

   iii. A storm or sanitary sewer servicing multiple parcels.

c. An MECP ECA [Industrial Sewage Works or Municipal/Private Sewage Works] will be required for the proposed development. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation.

   i. Emily Diamond at (613) 521-3450, ext. 238 or Emily.Diamond@ontario.ca

d. Environmental Compliance Approval | Ontario.ca

28. Geotechnical

a. A Geotechnical Study/Investigation shall be prepared in support of this development proposal.

b. Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the

ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long-term damages associated with lowering the groundwater in this area.

c. Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications. Geotechnical Investigation and Reporting (ottawa.ca)

d. If Sensitive marine clay soils are present in this area that are susceptible to soil shrinkage that can lead to foundation and building damages. All six (6) conditions listed in the Tree Planting in Sensitive Marine Clay Soils- 2017 Guidelines are required to be satisfied. Note that if the plasticity index of the soil is determined to be less than 40% a minimum separation between a street tree and the proposed building foundations of 4.5m will need to be achieved. A memorandum addressing the Tree in Clay Soil Guidelines prepared by a geotechnical engineer is required to be provided to the City. Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines (ottawa.ca)

29. Regarding Quantity Estimates

    a. Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities. In addition, sump pumps for Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

30. For any proposed exterior light fixtures, please provide certification from a licensed professional engineer confirming lighting has been designed only using fixtures that meet the criteria for full cut-off classification as recognized by the Illuminating Engineering Society of North America and result in minimal light spillage onto adjacent properties (maximum allowable spillage is 0.5 fc). Additionally, include in the submission the location of the fixtures, fixture type (make, model, part number and mounting height).

31. Gas pressure regulating stations: A gas pressure regulating station may be required depending on HVAC needs. Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans. This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.

Please refer to the City of Ottawa Guide to Preparing Studies and Plans [Engineering]: Planning application submission information and materials. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.

Feel free to contact Anton Chetrar, Project Manager, for follow-up questions at anton.chetrar@ottawa.ca .

Noise

Comments:

32. Noise Impact Studies required for the following:

    a. Road, as the site is within proximity to Mer Bleue Rd. Mer Bleue should be assessed as a 4-lane divided arterial roadway.

    b. Stationary, due to the proximity to neighboring exposed mechanical equipment and/or if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses.

Feel free to contact Josiane Gervais, TPM, for follow-up questions.

Transportation

Comments:

33. Follow Transportation Impact Assessment Guidelines:

    a. Note that the TIA Guidelines have been updated, the changes are available on the City's website.

    b. A Transportation Impact Assessment is required. Please ensure the TIA considers trips generated for the ultimate site and includes future portables.

    c. Please submit the Scoping/Forecasting report to josiane.gervais@ottawa.ca at your earliest convenience, or as part of the Phase 2 pre-con package. The applicant is responsible to submit the Scoping Report prior to application and must allow for a 14 day circulation period.

    d. The Strategy Report must be submitted with the formal submission to deem complete. The applicant is strongly encouraged to submit the Strategy Report to the TPM prior to formal submission and allow for a 14 day circulation period.

    e. If an RMA is required to support the proposed development, the functional plan and/or RMA plans must be submitted with the formal submission to deem complete. Request base mapping asap if RMA is required, contact Engineering Services

34. ROW Protection:

a. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.

b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

c. ROW and corner triangles must be unincumbered and conveyed at no cost to the City. Note that conveyance of the ROW/corner triangle will be required prior to registration of the SP agreement. Additional information on the conveyance process can be provided upon request.

d. Additional ROW is required to accommodate the Mer Bleue Widening. This plan was provided to the applicant via email. This ROW protection must be provided as part of this application.

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

    a. 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.

    b. 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).

    c. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements.

36. Clear throat requirements for on a collector is 25m. Ensure this length is provided. The clear throat length is measured from the ends of the driveway curb return radii at the roadway and the point of first conflict on-site. Note the minimum throat length provided must be maintained with the future ROW protection (as applicable).

37. Site access corner clearances should follow minimum distances set out within TAC Figure 8.8.2.

38. Nearby DC intersections include:

    a. Mer Bleue and Decoeur

    b. Mer Bleue and Renaud

39. Transportation Master Plan includes:

    a. Widening of Mer Bleue Road (Affordable Network)

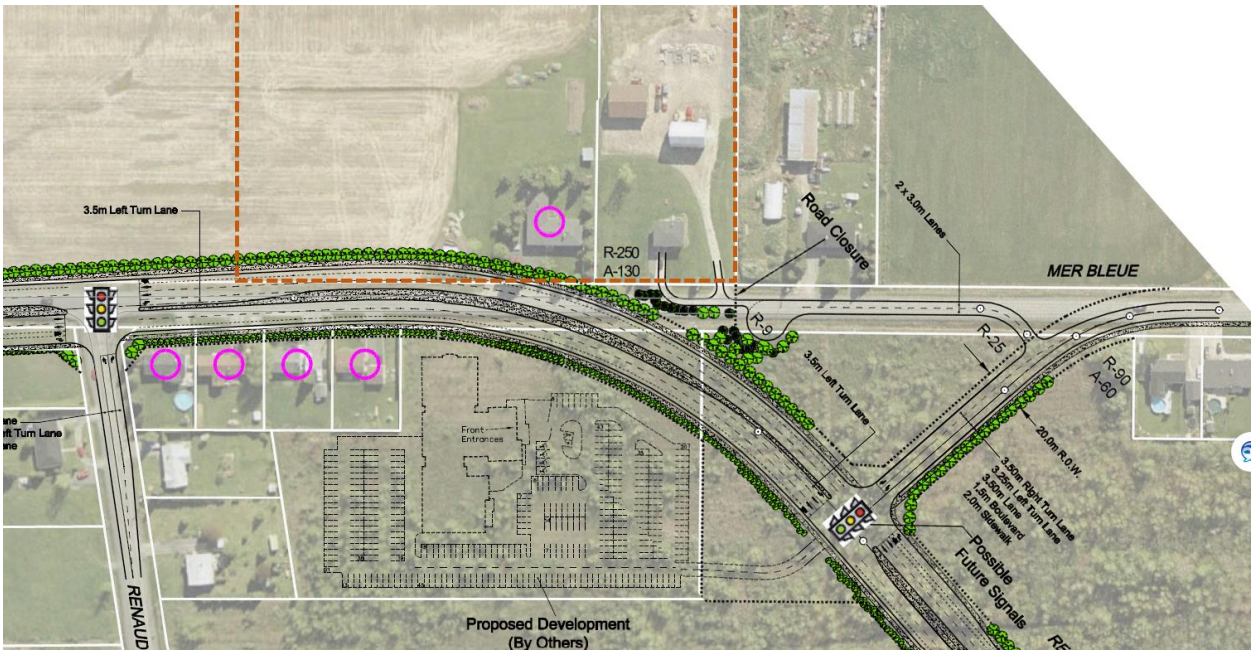
b. Realignment of Mer Bleu Road, south of Renaud Rd (2031 Network Concept)

40. Nearby planned construction and infrastructure projects include:

    a. Intersection Modifications at Mer Bleue and Decoeur

    b. Mer Bleue widening between Decoeur and Renaud, Planned in 2-3 years (PM Joe Mojsej)

41. The *Mer Bleue Road Environmental Assessment Study* was completed in 2006. The EA plans show a realignment of Mer Bleue Rd, and a cul-de-sac of the existing corridor in proximity to the site's southern boundary, as shown below.



42. Functional plans are being prepared by ISD for the intersection of Mer Bleue and Renaud. More details are anticipated regarding this intersection within a few months.

    a. The active transportation connector along the northern property line is shown in grey on the site plan. This should be constructed as part of this Site Plan application, including provision for an easement for public access.

    b. How would access be provided to the temporary bus loop in the instance the subdivision is not built prior to Mer Bleue construction? Is this intended to be a "Future" Bus loop that would remain operational once the Mer Bleue widening and realignment has been implemented?

c. The proposed lay-bys on Mer Bleue would require RMA. It is noted that due to the proximity to the Renaud Rd intersection and because of the ultimate plans for Mer Bleur Rd as per the EA, staff have concerns with the lay-bys.

d. The lay-bys, as presented, would be considered throw-away and would be removed once Mer Bleue realignment is constructed.

e. There would be no reinstatement of lay-bys on the future Mer Bleue Rd, as the roadway designation would change to arterial and lay-bys would not be supported.

f. The applicant is strongly encouraged to assess options for providing bus a drop-off area on-site.

g. A single private apporach from Mer Bleue is supported. Ensure site access meets the City's Private Approach Bylaw.

h. The applicant is encouraged to review alternative access locations that function for the site both in the interim, and ultimately when Mer Bleue is realigned.

i. On site plan:

j. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.

k. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.

l. Turning movement diagrams required for internal movements (loading areas, garbage).

m. 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).

n. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)

Feel free to contact Josiane Gervais, Transportation Project Manager, for follow-up questions.

Environment

Comments:

43. Environmental constraints on this site are minimal. The parcel has already been cleared and there are no natural heritage features, watercourse features, or

notable species at risk habitat (though some SAR may be on site – see below) present that would trigger the need for an environmental impact statement (EIS).

An EIS is not required as part of this submission.

44. There is the potential for species-at-risk field birds to be present on the open land currently. This does not preclude development, but makes adherence to the Protocol for Wildlife Protection During Construction essential. Of particular note are the sensitive timing windows and pre-stressing on site.

45. This site is located in the area covered by the Mer Bleu Environmental Management Plan and development will be required to conform to that document.

While it remains the duty of the applicant to ensure that the design conforms to the EMP specifications, there are no immediate outstanding concerns to flag at the moment.

46. The Bird Safe Design Guidelines will apply to this development. Of particular importance is Guideline 2, regarding glazing.

47. Additional tree plantings are always welcomed to help meet the City's urban forest canopy goals as well as to reduce the impacts of climate change and the urban heat island effect. Please note that the City prefers that all plantings be of native and non-invasive species.

Feel free to contact Mark Elliott, Environmental Planner, for follow-up questions.

Forestry

Comments:

Here are my phase 1 pre-consultation comments for 2405 Mer Bleue and 675 Monardia.

48. A Tree Conservation Report and Landscape Plan are submission requirements.

49. There is strong policy in section 4.8.2 of the Official Plan including the prioritization of tree retention over removal and replacement where feasible (3d). Explore retention options of healthy mature trees around Mer Bleue. Having mature trees on the subject site would provide immediate benefit to school users.

50. The Official Plan has a policy, 4.10.3, titled "Make trees an important component of school's outdoor space". Provide large canopy shade trees, a diversity of species, and regular groupings of trees throughout the school yard and along street frontages.

51. Space for mature shade trees must be provided regularly throughout surface parking areas. Reference section 4.1.4, policy 11 of the Official Plan.

52. A tree removal permit is required prior to any tree removal on site. The permit will be released upon site plan approval. Early release of a permit will be considered if justified. Note the implications of the Migratory Bird Convention Act on tree removal. For more information on the process, contact the Planning Forester.

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 on these requirements please contact hayley.murray@ottawa.ca

53. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City

54. 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.

55. The TCR must contain 2 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.

56. 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.

57. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)

58. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.

59. The removal of trees on a property line will require the permission of both property owners.

60. 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

61. 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.

62. 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.

Landscape Plan (LP) requirements.

63. Landscape Plan Terms of Reference must be adhered to for all tree planting: Click Here. For more information on these requirements please contact hayley.murray@ottawa.ca

Additional Elements for Tree Planting in the Right of Way:

64. Please ensure any retained trees are shown on the LP

65. Sensitive Marine Clay - Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.

66. 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.

67. The city requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.

68. 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

69. Minimum Setbacks

    a) Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
    b) Maintain 2.5m from curb
    c) Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
    d) 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.
    e) Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

70. Tree specifications

    a) Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
    b) Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
    c) 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.

d) No root barriers, dead-man anchor systems, or planters are permitted.
e) No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

71. Hard surface planting

a) If there are hard surface plantings, a planting detail must be provided.
b) Curb style planters are highly recommended.
c) No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
d) Trees are to be planted at grade.

Feel free to contact Hayley Murray, Planning Forester, for follow-up questions.

Other

72. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design and will be applicable to Site Plan Control and Plan of Subdivision applications.

    a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.

    b. Please refer to the HPDS information at ottawa.ca/HPDS for more information.

Submission Requirements and Fees

1. This proposal, once it has exhausted the phased pre-consultations, will trigger an 'Application for a New Development, Complex Site Plan Control, which has a planning fee of $72,000.22 plus an Initial Engineering Design Review and Inspection Fee, based on the value of Infrastructure and Landscaping, plus an Initial Conservation Authority Fee of $1,120.00.
    a. Additional information regarding fees related to planning applications can be found here.
2. 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.
    a. 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.

3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

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

Yours Truly,
Shoma Murshid

Encl. SPIL

c.c. Anton Chetrar, Nader Kadri, Josiane Gervais, Mark Elliott, Hayley Murray, Matthew Steeves,

File No.: PC2024-0496

December 18, 2024

Carolyn Jones
GRC Architects
Via email: cjones@grcarchitects.com

Subject: **Phase 2 Pre-Consultation: Meeting Feedback**
Proposed Site Plan Control Revision Complex and Zoning By-law Amendment Applications – 2405 and 2419 Mer Bleue Road

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on December 12, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

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.

Next Steps

1. A review of the materials submitted for the above-noted pre-consultation has been undertaken and staff are satisfied that the information is consistent with previous direction provided and sufficient to move to a Phase 3 pre-consultation.

2. Please note that if your development proposal changes significantly in scope, design, or density between the Phase 2 pre-consultation review and Phase 3 pre-consultation submission, you may be required to repeat the Phase 2 pre-consultation process.

3. In your Phase 3 pre-consultation submission, please ensure that all comments detailed herein are addressed. A detailed cover letter stating how each comment has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been further identified and/or confirmed, during this phase of pre-

consultation, as required (R) or advised (A) as part of a future complete application submission.

a. 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.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

1. The site is located in the Suburban (East) Transect and is designated Neighbourhood with an Evolving Neighborhood Overlay in the Official Plan. Section 4.10 specifically relates to schools, however, these policies are to be read in the context of the entire Official Plan.

2. The site is located within the Mer Bleue Developing Neighborhood Secondary Plan.

3. The site is currently zoned I1A [2530]/R3Z, Minor Institutional Subzone A, Exception 2530/Residential Third Density Subzone Z.

4. Further information about the site and the surrounding developing community can be found in Section 3.8.3 and Figure 3 of the Mer-Bleue Expansion Area Community Design Plan.

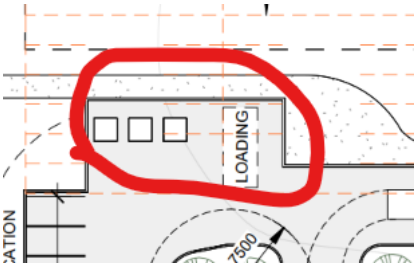
5. Ensure Site Plan refers to Plan of Survey boundaries.

6. Easements and JUMA will be required if a severance between the elementary and high school site is sought prior to site plan control approval.

7. Landscape requirement – large shade trees recommended along City ROW, along pathway connecting Monardia Way to Mer Bleue Road, and along internal lay-by. Recommended to find locations throughout the recreational area for introduction of large trees.

8. Confirm if there is any depressed curbing, particularly along the bus drop off and garbage areas.

9. Confirm this is the garbage area, provide dimensions of loading area.



10. Staff appreciate that the school board is proposing the planting of trees in the parking lot.

Please do not hesitate to reach out to Shoma Murshid, Planner II, should you have any questions or concerns.

Urban Design

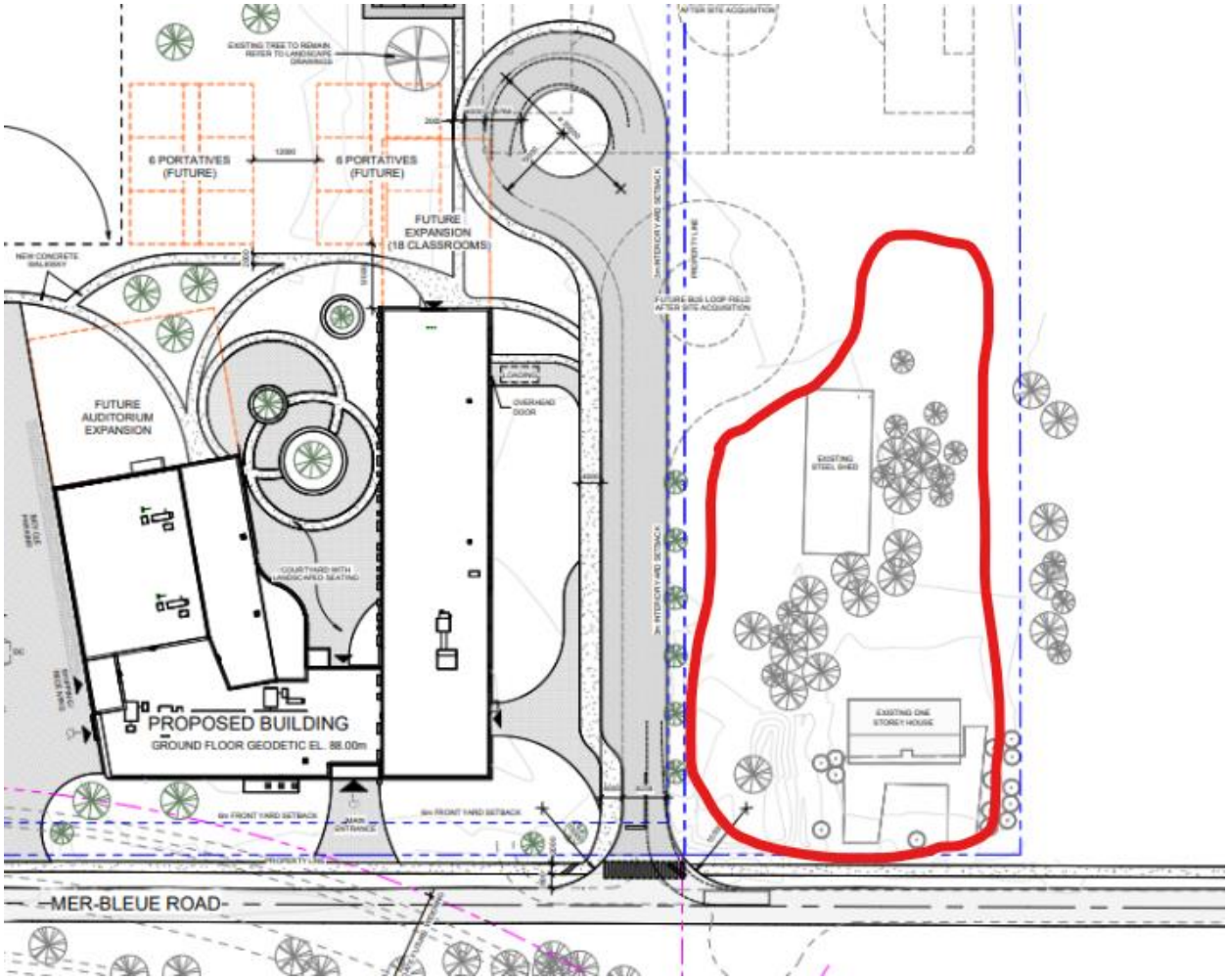
Deficiencies:

11. N/A

Comments:

12. Staff are still unclear on how the school block is stitching into the larger community. It would be helpful if the Applicant provided a context plan that illustrates the approved developments surrounding the site.

13. Staff understand that the school board is in the process of acquiring 2431 Mer Bleue Road. Please advise on the long term plan for the remainder of the site:



14. Staff would encourage the school board to consider reorganizing the site to include the balance of 2431 Mer Bleue Road.

Please do not hesitate to reach out to Nader Kadri, Planner III, should you have any questions or concerns.

Engineering

List of Studies and Plans Reviewed:

- **Phase One Environmental Site Assessment - 2405 and 2419 Mer Bleue Road (Draft)**, prepared by Cambium Inc., dated October 2024.
- **Geotechnical Investigation Report - 2405 and 2419 Mer Bleue Road (Draft)**, prepared by Cambium Inc., dated November 2024.

Deficiencies:

15. Phase One Environmental Site Assessment recommends that a Phase II ESA be completed and submitted for review. In this case we will deem the application complete without the submittal of the Phase II ESA. However, the Phase II ESA study is required for review prior to approval.

Comments:

16. Phase 1 – Pre-Consult engineering comments (PC2024-0390) stand/remain outstanding.

Feel free to contact Anton Chetrar, Infrastructure Project Manager, for follow-up questions at anton.chetrar@ottawa.ca

Noise

Deficiencies:

17. Noise Impact Studies required for the following:

    a. Road, as the site is within proximity to Mer Bleue Rd. Mer Bleue should be assessed as a 4-lane divided arterial roadway.

    b. Stationary, due to the proximity to neighboring exposed mechanical equipment and/or if there will be any exposed mechanical

Feel free to contact Josiane Gervais, TPM, for follow-up questions.

Transportation

List of Studies and Plans Reviewed:

- **Site Plan**, Drawing No. A002, prepared by GRC architects, dated Nov 5 2024.
- **Scoping Report**, prepared by J.L. Richards, dated October 18, 2024.

Deficiencies:

18. The Strategy Report must be provided with the formal submission to deem complete. The applicant is strongly encouraged to submit the Strategy Report to the TPM prior to formal submission and allow for a 14 day circulation period.

Comments:

19. The interim functional design for Mer Bleue and Renaud is now complete and is provided for your information. CAD files will be provided once they are available.

20. Additional ROW has been identified as part of the interim design of the Mer Bleue and Renaud Road intersection. This ROW must be conveyed as part of the Site Plan application. CAD files will be provided once they are available.

21. The sidewalk along Mer Bleue shown on the site plan is not existing, nor is it proposed. Please remove this from the plan.

22. The work at Mer Bleue/Renaud includes a sidewalk along Mer Bleue to the Renaud Rd intersection. Note that there is approximately 70m of missing sidewalk between the proposed signal and the school property, however this will be reviewed at detailed design. As commented below by TES, the school should provide a pedestrian pathway connection between the proposed building and the northwest corner of the site.

23. Review the throat length for the access to the parking lot under both existing and future scenarios. Ensure the throat length remains adequate, this must be discussed in the TIA strategy report.

24. Any pavers in the city ROW will require a Maintenance and Liability Agreement.

25. The removal of the lay-by and provision of a bus loop on south side of property is supported. Consideration for the future property, should it be acquired, must ensure there are no desire lines that would have pedestrians crossing bus loops and parking lots in the future. Fencing may be required.

26. In terms of timeline, the TIA can assume that the Mer Bleue/Renaud intersection is signalized as per the included design by the 2031 horizon. Assume existing conditions for the 2026 horizon.

27. 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.

28. Applicable comments provided for Phase 1 pre-application consultation should be reviewed and addressed within the next submission.

The following comments were provided to the consultant November 5 2024 and are included below for a complete record.

Transportation Engineering Services

29. Section 2.1 Existing and Planned Conditions – Area Road Network: Please clarify the description of Mer-Bleue Road to note that Mer-Bleue Road is currently designated as an arterial road north of Renaud Road, but a collector road south of Renaud Road.

30. Section 2.1 Existing and Planned Conditions – Pedestrian/Cycling Network: Reference to the Crosstown Bikeway Network should reference the 2023 TMP,

not the 2013 TMP. Remove reference to designated cycling "Spine Routes" and "Local Routes". Remove Figure 5.

31. Section 2.1 Existing and Planned Conditions – Peak Hour Travel Demands: In Figure 11, remove the northbound and southbound vehicle volumes shown adjacent to the site.

32. Section 2.1 Existing and Planned Conditions – Other Area Development: Estimate the portion of Trailsedge Phase 3 that has yet to be built-out / occupied, and therefore should be added to traffic generated by other area developments.

33. Section 2.2 Study Area and Time Periods – Study Area: Justify not including other major intersections within 1km of the site, including:

    a. Brian Coburn Boulevard and Mer Bleue Road
    b. Mer Bleue Road and Copperhead Street / Décoeur Drive

34. Section 2.3 Development Related Travel Demand:

    a. Site generated trips should include some auto driver mode share to account for the percentage of staff who drive to the school. Consider separating the estimate of staff trips from the estimate of student trips.
    b. The paragraph below Table 6 states that, “the proposed development is projected to generate approximate two-way vehicle volumes of 475 veh/h and 103 veh/h during weekday morning and afternoon peak hours, respectively”. School bus person trips are not the equivalent of vehicle trips. The number of school bus trips should be divided by the estimated # of students per bus to find the # of bus vehicle trips. Please correct.

35. Preliminary Site Plan Comments:

    a. The illustration of the ROW required for the Mer Bleue widening and realignment is appreciated.
    b. Please note that as part of Mer Bleue widening and realignment, the site’s parking lot access may be limited to right-in/right-out.
    c. The east-west pathway illustrated along the north side of the site, between Mer Bleue Road and Monardia Way, is appreciated.
    d. Please note that Monardia Way is spelled incorrectly on the site plan.
    e. Provide a pedestrian connection between the proposed building and the northwest corner of the site to allow for future tie-in with the Renaud Road and Mer Bleue Road intersection.

Traffic Engineering

36. The intersections of Mer Bleue Road & Renaud Road along with Mer Bleue Road & Décoeur Drive are currently under review for traffic signal installation or

roundabout construction. If traffic signals are the chosen intersection control, network impacts should be addressed.

Transit Services

37. Comments were not provided.

Transportation Project Manager

38. Revise section 2.1

    a. Description of Proposed Development: Include mention of the secondary access to a bus loop.
    b. Description of Proposed Development: Include size of proposed school development.
    c. Area Road Network: The school proposes temporary access onto Monardia Way - at a minimum, this roadway should be included in the study area.

39. Section 2.2, references that elementary schools end before afternoon peak hour, however this proposal is for a high school.

40. Section 2.1, Planned Conditions must also discuss the planned work along Mer Bleue and the intersection modifications at Mer Bleue and Decoeur, and Mer Bleue and Renaud, as described within the feedback form of the pre-application consultation.

41. Table 4 references Land Use Code 525, but the proposed school is for a high school land use. Please revise forecasting module accordingly.

42. Include trip distribution and assignment, as per the TIA Guidelines.

43. The following modules are to be included within the Strategy Report:

Module	Criteria	**Inclusion**
Design Review Component		
4.1.1: Development for Sustainable Modes	All	Yes
4.1.2: Circulation and Access	All	Yes
4.1.3: New Street Networks	Subdivisions Only	No
4.2.1: Parking Supply	All	Yes
4.2.2: Spillover	Deleted	No
4.3: Boundary Street Design	All	Yes
4.5.1: Context for TDM	All	Yes
4.5.2: Need and Opportunity	All	Yes
4.5.3: TDM Program	All	Yes

3.2: Background Network Travel Demands	> 75 auto and/or transit trips	Yes
3.3: Demand Rationalization	> 75 auto trips	Yes
Network Impact Component		
4.6: Neighborhood Traffic Calming	Reference criteria	No
4.7.1: Transit Route Capacity	> 75 transit trips	No
4.7.2: Transit Priority Requirements	> 75 auto trips	Yes
4.8: Network Concept	> 200 person trips	No
4.9.1: Intersection Controls & 4.4.2: Access Control)	> 75 auto trips	Yes
4.9.2: Intersection Design & 4.4.3: Access Design	> 75 auto trips	Yes

ISD PM

44. In addition to existing conditions and the ultimate future ROW, there will most likely be an intermediate road design/constructed when the City upgrades the Mer Bleue/Renaud intersection. Functional plans for this will be forthcoming soon. [Refer to comment above, these plans are now available.]

Transportation Project Manager

45. The applicant is encouraged to re-submit the Forecasting Report, as there are issues with the trip generation rates and results presented within the Scoping/Forecasting report submission.

46. At the applicant's discretion, you may proceed to the Strategy Report and the above comments can be addressed within the next submission. The applicant is strongly encouraged to submit the Strategy Report to the TPM prior to formal submission and allow for a 14 day circulation period. The Strategy Report must be submitted with the formal submission to deem complete.

Feel free to contact Josiane Gervais, Transportation Project Manager, for follow-up questions.

Environment

Deficiencies:

47. N/A

Comments:

48. No change in comments from previous submission.

Feel free to contact Kim MacDonald, Environmental Planner, for follow-up questions.

Forestry

List of Studies and Plans Reviewed:

- **Proposed Site Plan, prepared by GRC Architects, dated Nov 5, 2024**
- **Geotechnical Report, prepared by Cambium, dated November 18, 2024**

Comments:

49. In the Geotechnical Report, please update Section 5.15 “Effects of Trees” to:

    a. Identify the degree of sensitivty the soil is classified as for example, low/medium and/or high sensitivity soils. This is the direction given in the **Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines**, “A Geotechnical Engineer will provide a separate section within the Geotechnical Report on Sensitive Marine Clay soils, which includes a signed letter and corresponding map that confirms the locations of low/medium and/or high sensitivity clay soils, as determined by the plasticity tests.”

    b. Explain why the planting setbacks are more restrictive than the City’s 2017 guidelines.

    c. Address in the report whether the separation of a tree from the building foundation by asphalt/concrete would reduce the tree planting setback requirements.

50. Reduce hardscaping across the site. Provide minimum widths for drive isles, walkways...etc. A few examples include the shipping/receiving area, the entrance on the south side of the building, the pathways/pavers extending from the courtyard.

    a. Consider Low Impact Development technologies, like permeable pavers in the courtyard.

51. The City is working towards a 40% canopy cover target (OP Section 4.8.2). Based on the size of the site and the use, this is a suitable site to achieve this target.

    a. Incorporate large canopy trees wherever setbacks can be met, especially around the property perimeter.

    b. Providing grouping of trees wherever feasible.

    c. Refer to section 4.10.3, of the OP titled "Make trees an important component of school's outdoor space".

Feel free to contact Hayley Murray, Planning Forester, for follow-up questions.

Parkland

Comments:

52. Schools, where providing for outdoor recreation on site, are exempt from parkland dedication requirements. Kindly provide rational to fulfil this requirement.

Feel free to contact Jessica Button, Parks Planner, for follow-up questions.

Other

We look forward to further discussing your project with you.

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

Yours Truly,
Shoma Murshid

Encl. SPIL

c.c. Nader Kadri, Anton Chetrar, Josiane Gervais, Jessica Button, Abdul Mottalib, Hayley Murray, Wendy Tse, Kim MacDonald, Matthew Steeves

APPENDIX B

Water Supply Calculations & Fire Hydrant Coverage

Water Supply Calculations

LRL File No. : 240462
Project: Prop. High School ESP Orleans South
Location: Mer Bleue Road, Ottawa
Date: 2025-01-31
Designed: K. Herold
Checked: M. Basnet
Dwg Reference: C401

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Institutional Demand

Property Type	Unit Rate (L/student/d)	# of Students	Demand (L/d)
Institutional Demand	**70**	**1035**	**72450**

Average Day Demand	**72,450**	**L/d**		**0.839**	**L/s**
Maximum Day Factor	1.5		(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**108,675**	**L/d**		**1.258**	**L/s**
Peak Hour Factor	1.8		(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**195,615**	**L/d**		**2.264**	**L/s**

TOTAL DEMAND				
Average Day Demand	**72,450**	**L/d**	**0.84**	**L/s**
Maximum Daily Demand	**108,675**	**L/d**	**1.26**	**L/s**
Maximum Hour Demand	**195,615**	**L/d**	**2.26**	**L/s**

Water Service Pipe Sizing

Q = VA

Where: V = velocity (m/s)
A = area of pipe (m^2)
Q = flow rate (L/s)

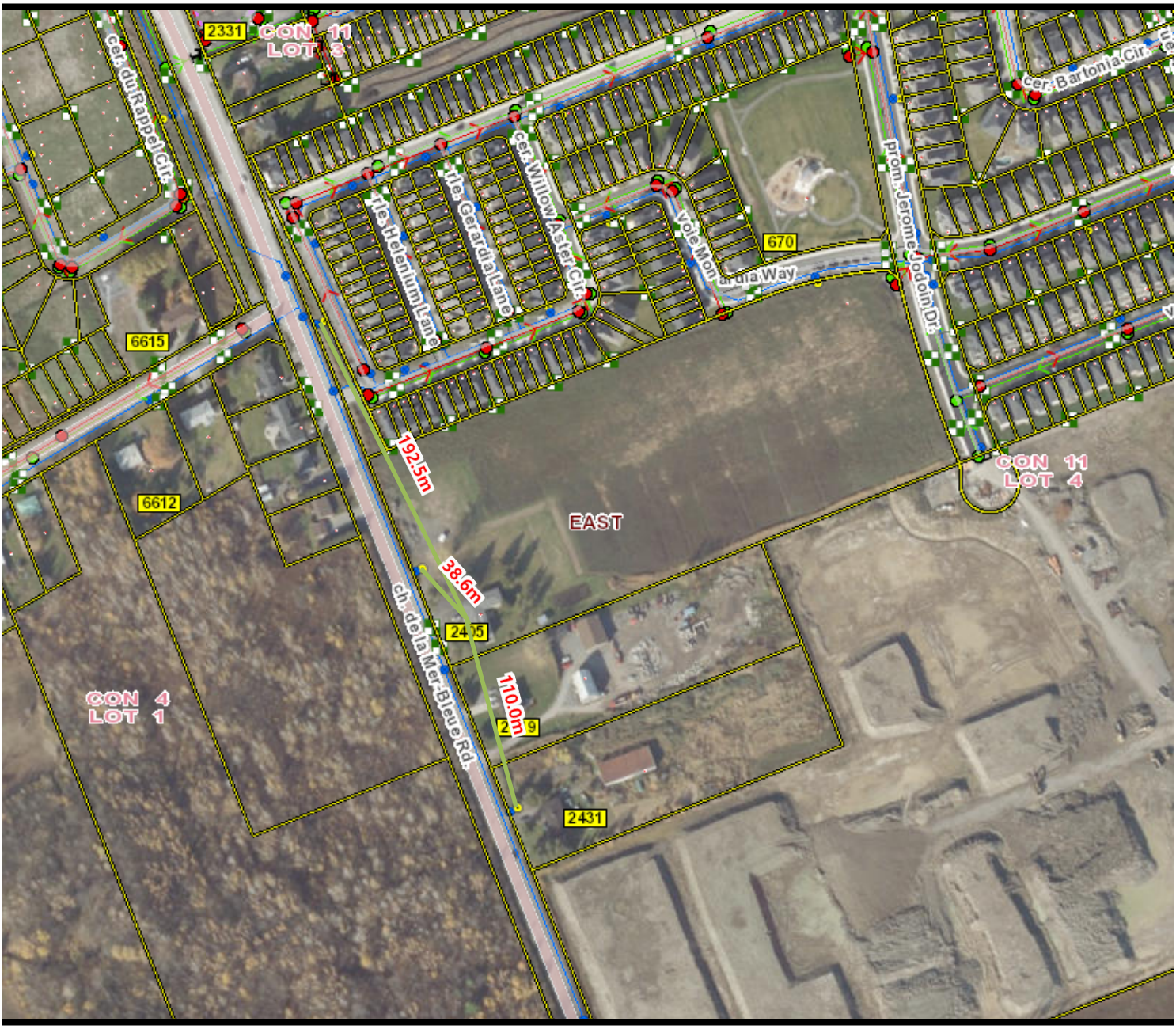
Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$		
=	0.040	m	
=	40	mm	
Proposed pipe diameter (d) =	**50**	mm	(to be confirmed with hydraulic pressure analysis)
=	**2**	Inches	

Fire Flow Calculations

LRL File No. 240462
Project: Prop. High School - ESP Orleans South
Location: Mer Bleue Road, Ottawa
Date: January 31, 2025
Method: Fire Underwriter's Survey (FUS)
Prepared by: K. Herold

Step	Task	Term	Options	Multiplier	Choose:	Value	Unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Non-combustible constructio	**0.8**		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area (A)								
2	Total area					**10,311**	m^2	
3	Obtain fire flow before reductions	Required fire flow (rounded to nearest 1000)	Fire Flow = 220 x C x $A^{0.5}$				L/min	**18,000**
Reductions or surcharge due to factors affecting burning								
4	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-25%	Combustible	**0%**	L/min	**18,000**
			Limited combustible	-15%				
			Combustible	0%				
			Free burning	15%				
			Rapid burning	25%				
5	Choose reduction for sprinklers	Sprinkler reduction	Full automatic sprinklers	-30%	True	**-30%**	L/min	**12,600**
			Water supply is standard for both the system and fire department hose lines	-10%	False	**0%**		
			Fully supervised system	-10%	False	**0%**		
6	Choose separation	Exposure distance between units	North side	30m+	0%		L/min	**12,600**
			East side	30m+	0%			
			South side	30m+	0%			
			West side	30m+	0%	**0%**		
Net required fire flow								
7	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 1000)					L/min	**13,000**
		Minimum required fire flow rate					L/s	**216.7**
		Required duration of fire flow					hr	**2.5**

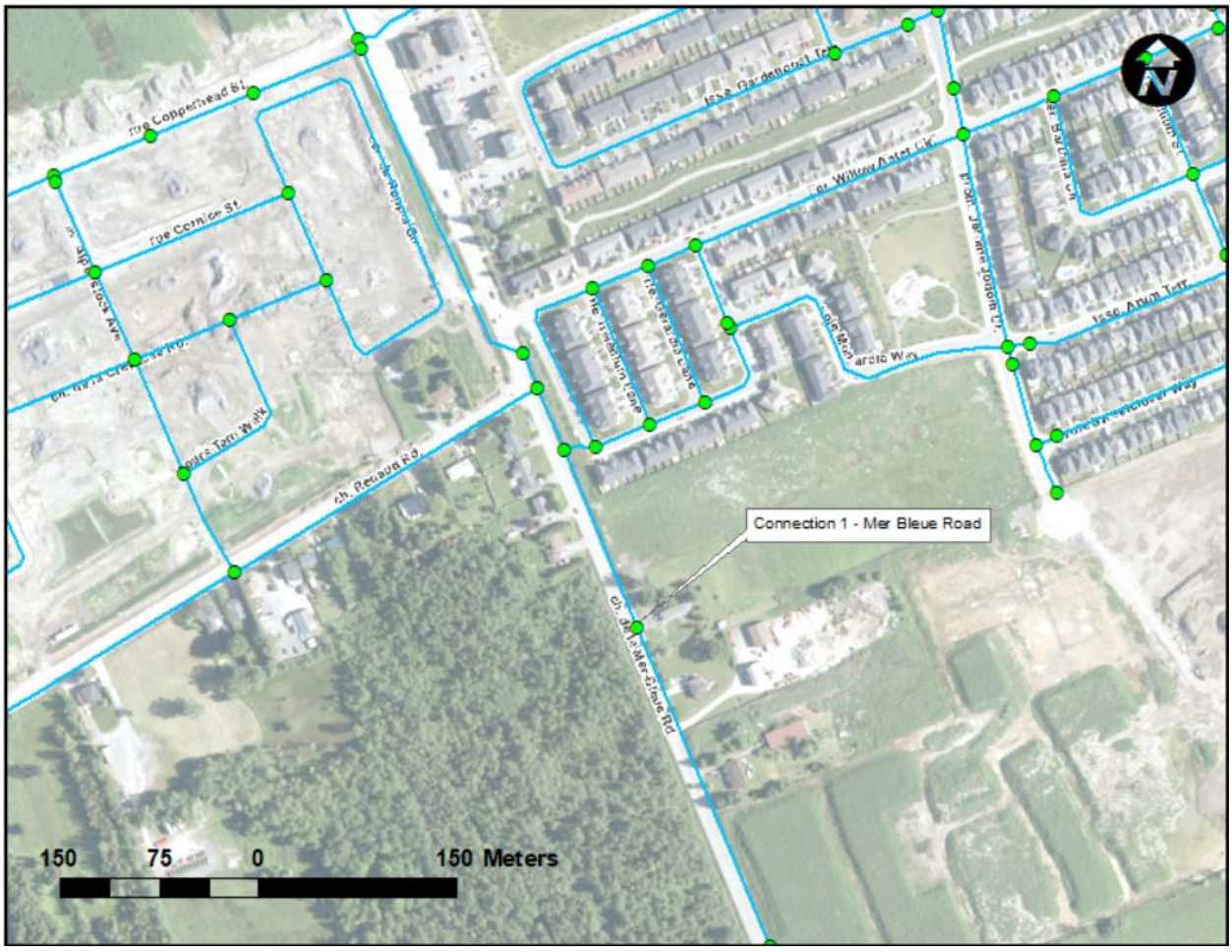

2331
CON 11
LOT 3
cer. du Rappel Cir.
Ile Helenium Lane
Ile Gerardia Lane
cer. Willow Aster Cir.
voie Mon
ardia Way
670
prom. Jerome Jodoin Dr.
cer. Bartonia Cir.
6615
6612
192.5m
38.6m
110.0m
EAST
CON 11
LOT 4
ch. de la Mer Bleue Rd.
CON 4
LOT 1
2431

Boundary Conditions
2409 Mer Bleue

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	50	0.84
Maximum Daily Demand	75	1.26
Peak Hour	136	2.26
Fire Flow Demand #1	13,000	216.67

Location



Results

Connection 1 – Mer Bleue Road

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.5	61.6
Peak Hour	126.6	56.0
Max Day plus Fire Flow #1	125.4	54.3

[1] Ground Elevation = 87.2 m

Notes

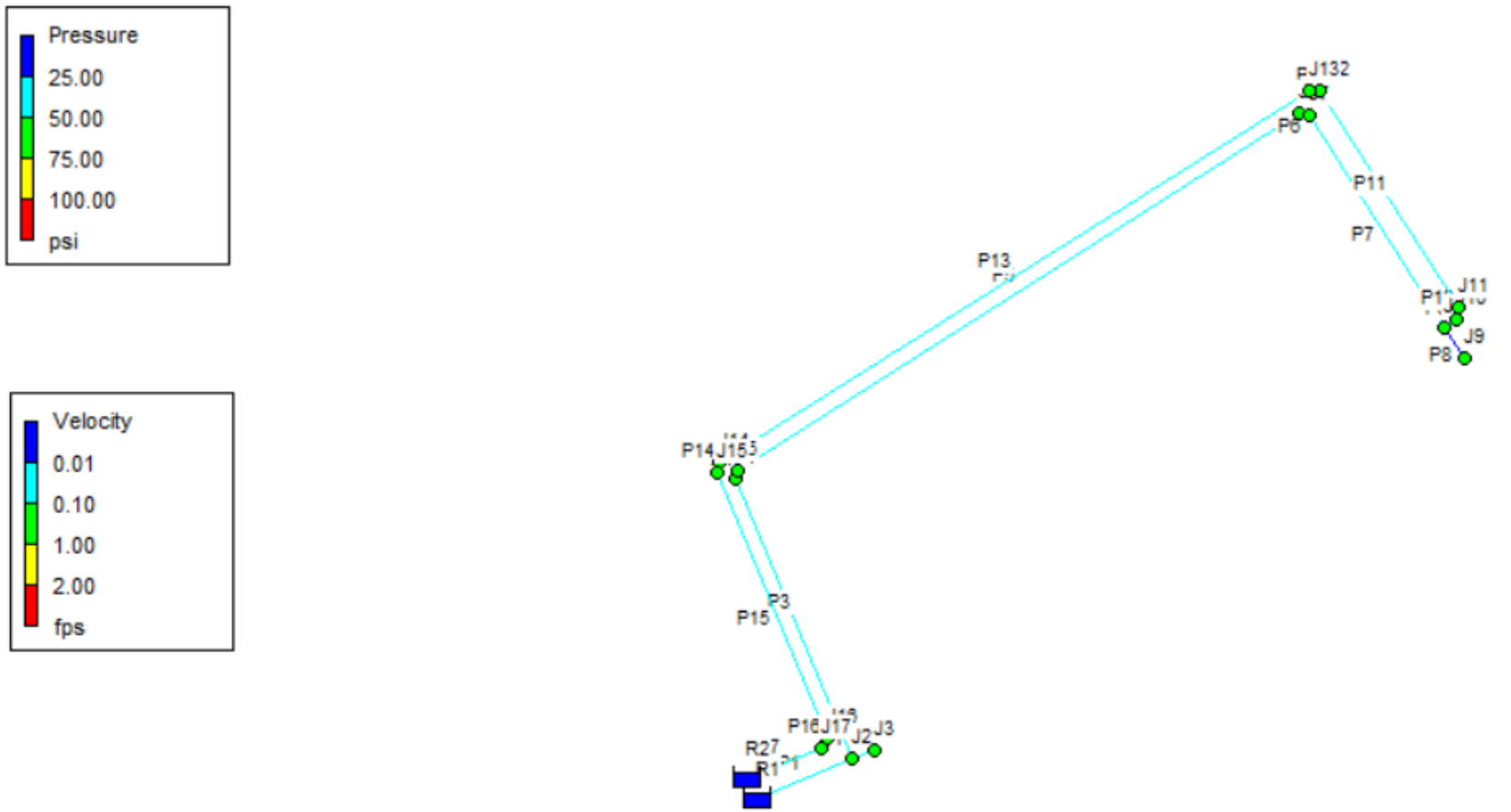
1. Any connection to a watermain 400 mm or larger should be approved by DWS as per the Water Design Guidelines Section 2.4 Review by Drinking Water Services

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

SUMMARY OF HYDRAULIC MODELING RESULTS

Scenario 1: Avg Day



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*********************************************************************
*                          E P A N E T                              *
*                    Hydraulic and Water Quality                    *
*                    Analysis for Pipe Networks                     *
*                         Version 2.2                               *
*********************************************************************
```

Input File: 240462_Hydraulic Analysis_Avg Day_Rev.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R1	J2	55.10	8
P2	J2	J3	12.46	8
P3	J2	J4	136.78	8
P4	J4	J5	4.92	8
P5	J5	J6	299.14	8
P6	J6	J7	4.59	8
P7	J7	J8	112.83	8
P8	J8	J9	16.4	6
P9	J8	J10	6.56	8
P10	J10	J11	4.59	8
P11	J11	J12	116.77	8
P12	J12	J13	4.59	8
P13	J13	J14	314.55	8
P14	J14	J15	5.25	8
P15	J15	J16	129.23	8
P16	J16	J17	4.59	8
P17	J17	R2	45.26	8

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J2	0.00	428.04	60.73	0.00
J3	13.30	428.04	60.61	0.00
J4	0.00	428.04	60.91	0.00
J5	0.00	428.04	60.89	0.00
J6	0.00	428.04	61.00	0.00
J7	0.00	428.04	60.97	0.00
J8	0.00	428.04	60.87	0.00
J9	0.00	428.04	60.93	0.00
J10	0.00	428.04	60.89	0.00
J11	0.00	428.04	60.90	0.00
J12	0.00	428.04	61.06	0.00
J13	0.00	428.04	61.07	0.00
J14	0.00	428.04	61.10	0.00
J15	0.00	428.04	61.14	0.00

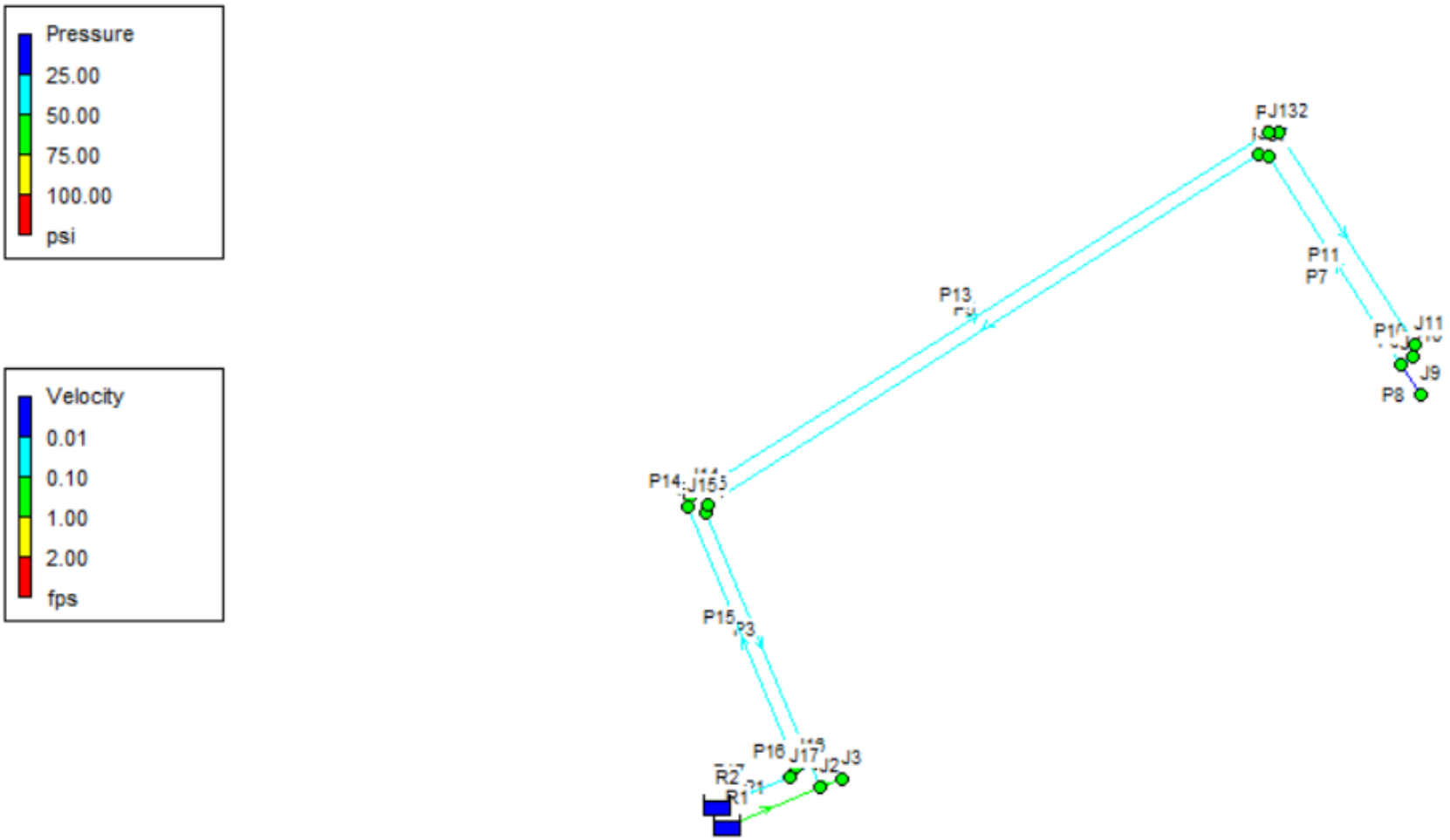
Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J16	0.00	428.04	60.90	0.00	
J17	0.00	428.04	60.94	0.00	
R1	-11.17	428.04	0.00	0.00	Reservoir
R2	-2.13	428.04	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	11.17	0.07	0.00	Open
P2	13.30	0.08	0.00	Open
P3	-2.13	0.01	0.00	Open
P4	-2.13	0.01	0.00	Open
P5	-2.13	0.01	0.00	Open
P6	-2.13	0.01	0.00	Open
P7	-2.13	0.01	0.00	Open
P8	0.00	0.00	0.00	Open
P9	-2.13	0.01	0.00	Open
P10	-2.13	0.01	0.00	Open
P11	-2.13	0.01	0.00	Open
P12	-2.13	0.01	0.00	Open
P13	-2.13	0.01	0.00	Open
P14	-2.13	0.01	0.00	Open
P15	-2.13	0.01	0.00	Open
P16	-2.13	0.01	0.00	Open
P17	-2.13	0.01	0.00	Open

Scenario 2: Peak Hour



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*********************************************************************
*                          E P A N E T                              *
*                    Hydraulic and Water Quality                    *
*                    Analysis for Pipe Networks                     *
*                          Version 2.2                              *
*********************************************************************
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Input File: 240462_Hydraulic Analysis_Peak Hour_Rev.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R1	J2	55.10	8
P2	J2	J3	12.46	8
P3	J2	J4	136.78	8
P4	J4	J5	4.92	8
P5	J5	J6	299.14	8
P6	J6	J7	4.59	8
P7	J7	J8	112.83	8
P8	J8	J9	16.4	6
P9	J8	J10	6.56	8
P10	J10	J11	4.59	8
P11	J12	J11	116.77	8
P12	J13	J12	4.59	8
P13	J14	J13	314.55	8
P14	J15	J14	5.25	6
P15	J16	J15	129.23	8
P16	J17	J16	4.59	8
P17	R2	J17	45.26	8

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J2	0.00	428.04	60.73	0.00
J3	35.89	428.04	60.61	0.00
J4	0.00	428.04	60.91	0.00
J5	0.00	428.04	60.89	0.00
J6	0.00	428.04	61.00	0.00
J7	0.00	428.04	60.97	0.00
J8	0.00	428.04	60.87	0.00
J9	0.00	428.04	60.93	0.00
J10	0.00	428.04	60.89	0.00
J11	0.00	428.04	60.90	0.00
J12	0.00	428.04	61.06	0.00
J13	0.00	428.04	61.07	0.00
J14	0.00	428.04	61.10	0.00
J15	0.00	428.04	61.14	0.00

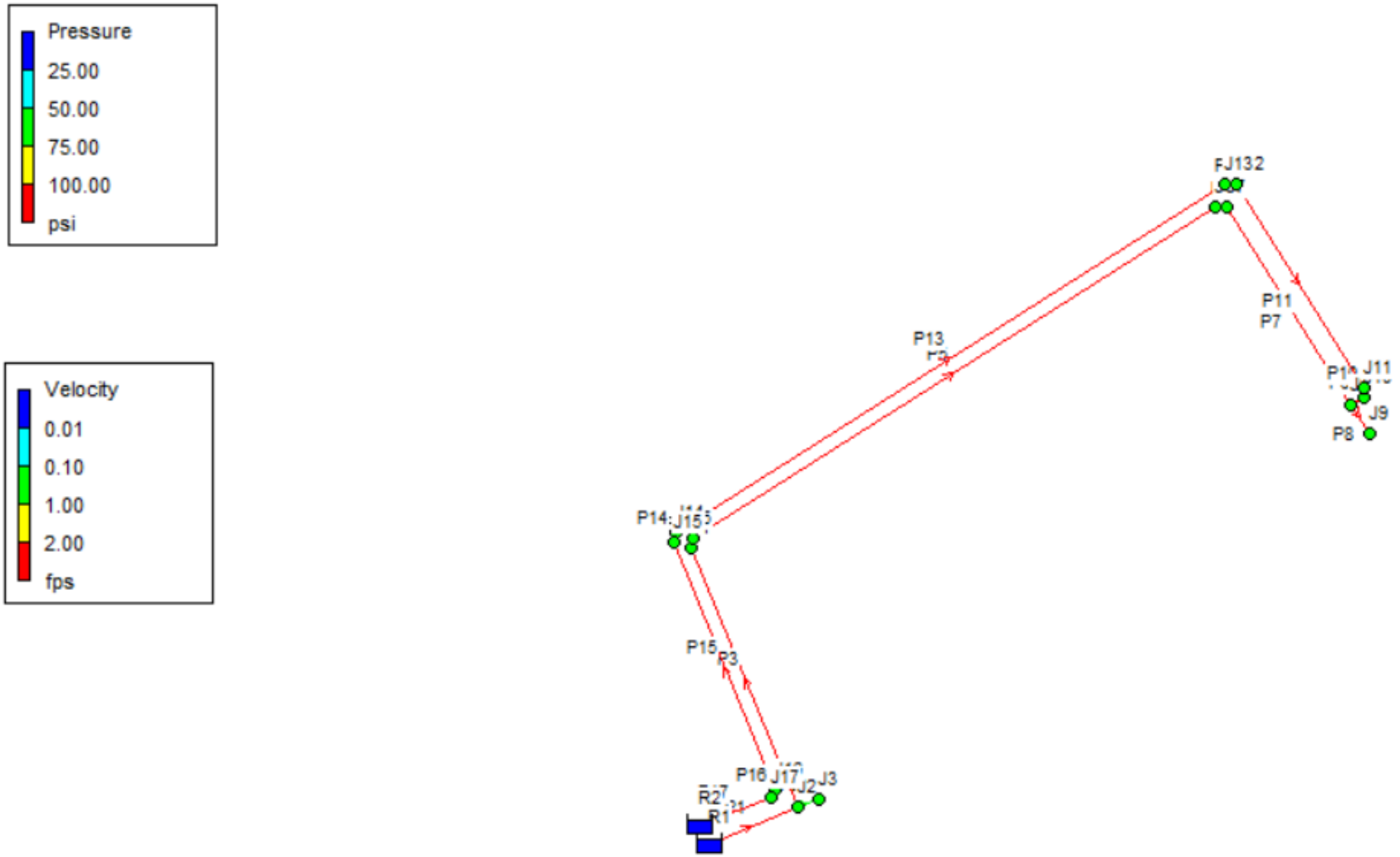
Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J16	0.00	428.04	60.90	0.00	
J17	0.00	428.04	60.94	0.00	
R1	-30.19	428.04	0.00	0.00	Reservoir
R2	-5.70	428.04	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	30.19	0.19	0.02	Open
P2	35.89	0.23	0.03	Open
P3	-5.70	0.04	0.00	Open
P4	-5.70	0.04	0.00	Open
P5	-5.70	0.04	0.00	Open
P6	-5.70	0.04	0.00	Open
P7	-5.70	0.04	0.00	Open
P8	0.00	0.00	0.00	Open
P9	-5.70	0.04	0.00	Open
P10	-5.70	0.04	0.01	Open
P11	5.70	0.04	0.00	Open
P12	5.70	0.04	0.00	Open
P13	5.70	0.04	0.00	Open
P14	5.70	0.06	0.01	Open
P15	5.70	0.04	0.00	Open
P16	5.70	0.04	0.00	Open
P17	5.70	0.04	0.00	Open

Scenario 3: Max Day + Fire Flow



```
*********************************************************************
*                          E P A N E T                              *
*                    Hydraulic and Water Quality                    *
*                    Analysis for Pipe Networks                     *
*                         Version 2.2                               *
*********************************************************************
```

Input File: 240462_Hydraulic Analysis_Max Day + Fire Flow_Rev.net

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
P1	R1	J2	55.10	8
P2	J2	J3	12.46	8
P3	J2	J4	136.78	8
P4	J4	J5	4.92	8
P5	J5	J6	299.14	8
P6	J6	J7	4.59	8
P7	J7	J8	112.83	8
P8	J8	J9	16.4	6
P9	J8	J10	6.56	8
P10	J10	J11	4.59	8
P11	J12	J11	116.77	8
P12	J13	J12	4.59	8
P13	J14	J13	314.55	8
P14	J15	J14	5.25	8
P15	J16	J15	129.23	8
P16	J17	J16	4.59	8
P17	R2	J17	45.26	8

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
J2	0.00	427.49	60.49	0.00
J3	19.94	427.49	60.38	0.00
J4	0.00	426.19	60.11	0.00
J5	0.00	426.14	60.06	0.00
J6	0.00	423.29	58.94	0.00
J7	0.00	423.24	58.89	0.00
J8	0.00	422.17	58.33	0.00
J9	1505.78	419.91	57.40	0.00
J10	0.00	422.23	58.37	0.00
J11	0.00	422.27	58.40	0.00
J12	0.00	423.36	59.03	0.00
J13	0.00	423.40	59.06	0.00
J14	0.00	426.33	60.36	0.00
J15	0.00	426.37	60.42	0.00

Node Results: (continued)

Node ID	Demand GPM	Head ft	Pressure psi	Quality	
J16	0.00	427.58	60.70	0.00	
J17	0.00	427.62	60.76	0.00	
R1	-777.82	428.04	0.00	0.00	Reservoir
R2	-747.90	428.04	0.00	0.00	Reservoir

Link Results:

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Status
P1	777.82	4.96	10.00	Open
P2	19.94	0.13	0.01	Open
P3	757.88	4.84	9.53	Open
P4	757.88	4.84	9.53	Open
P5	757.88	4.84	9.53	Open
P6	757.88	4.84	9.53	Open
P7	757.88	4.84	9.53	Open
P8	1505.78	17.09	137.99	Open
P9	-747.90	4.77	9.29	Open
P10	-747.90	4.77	9.30	Open
P11	747.90	4.77	9.30	Open
P12	747.90	4.77	9.29	Open
P13	747.90	4.77	9.30	Open
P14	747.90	4.77	9.29	Open
P15	747.90	4.77	9.30	Open
P16	747.90	4.77	9.30	Open
P17	747.90	4.77	9.30	Open

APPENDIX C

Wastewater Collection Calculations

LRL Associates Ltd.

Sanitary Sewer Design Sheet

LRL File No.: 240462
Project: ESP Orleans South
Location: 209 Mer-Bleue Rd, Ottawa
Designed: K. Herold
Checked: M. Basnet
Date: January 31, 2025
DWG. Reference: C401

Sanitary Design Parameters

Commercial & Institutional Flow = 28000 L/ha/day
Light Industrial Flow = 35000 L/ha/day
Heavy Industrial Flow = 55000 L/ha/day
Maximum Residential Peak Factor = 4.0
Commercial & Institutional Peak Factor = 1.5
Average Daily Flow = 280 L/p/day
Industrial Peak Factor = as per Appendix 4-B
Extraneous Flow = 0.33 L/s/ha

Pipe Design Parameters

Maximum Velocity = 3.00 m/s
Minimum Velocity = 0.60 m/s
Manning's n = 0.013

LOCATION			RESIDENTIAL						COMMERCIAL		INDUSTRIAL			INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW, Q	PIPE						
STREET	FROM	TO	AREA	POP.	ACCU. AREA	ACCU. POP.	PEAK FACT.	PEAK FLOW	AREA	ACCU. AREA	AREA	ACCU. AREA	PEAK FACT.	AREA	ACCU. AREA	PEAK FLOW	TOTAL AREA	ACCU. AREA	INFILT. FLOW		LENGTH	DIA.	SLOPE	MATERIAL	CAP. Q(FULL)	VEL. V(FULL)	RATIO Q /QFULL
			(Ha)		(Ha)			(L/s)	(Ha)	(Ha)		(Ha)		(Ha)	(Ha)	(L/s)	(Ha)	(Ha)	(L/s)	(L/s)	(m)	(mm)	(%)		(L/s)	(m/s)	
	BLDG	SANMH204																			13.0	200	1.00%	PVC	32.80	1.04	0.18
	SANMH204	SANMH203																			63.2	200	1.00%	PVC	32.80	1.04	0.18
	SANMH203	SANMH202												3.313	3.313	4.97	3.313	3.313	1.09	6.06	63.7	200	1.00%	PVC	32.80	1.04	0.18
	SANMH202	SANMH201																			50.6	200	1.00%	PVC	32.80	1.04	0.18
	SANMH201	SANMH102																			11.9	200	1.00%	PVC	32.80	1.04	0.18

Notes: Existing inverts and slopes are estimated. They are to be confirmed on-site.

APPENDIX D

Stormwater Management Calculations

LRL Associates Ltd.
Storm Watershed Summary

LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
Designed: K.Herold
Checked: M.Basnet
Dwg Reference: C701, C702

Pre-Development Catchments

Catchment	C = 0.20	C = 0.80	C = 0.90	Total Area (ha)	Combined C
ECA-01 (uncontrolled)	2.472	0.488	0.353	3.313	0.36
Total	**2.472**	**0.488**	**0.353**	**3.313**	**0.36**

Post-Development Catchments

Catchment	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C	
CA-01 (controlled)	0.098	0.000	0.008	0.106	0.25	
CA-02 (controlled)	0.064	0.000	0.121	0.185	0.66	*factoring in future parking lot paving
CA-03 (controlled)	0.042	0.000	0.131	0.173	0.73	*factoring in future parking lot paving
CA-04 (controlled)	0.013	0.000	0.174	0.187	0.85	*factoring in future parking lot paving
CA-05 (controlled)	0.081	0.000	0.132	0.213	0.63	& auditorium expansion
CA-06 (controlled)	0.047	0.000	0.161	0.208	0.74	
CA-07 (controlled)	0.000	0.000	0.435	0.435	0.90	
CA-08 (controlled)	0.171	0.000	0.026	0.197	0.29	*factoring in future portable
CA-09 (controlled)	0.131	0.000	0.087	0.218	0.48	*factoring in future portables
CA-10 (controlled)	0.052	0.000	0.158	0.210	0.73	*factoring in future auditorium
CA-11 (controlled)	0.145	0.000	0.070	0.215	0.43	*factoring in future portable
CA-12 (controlled)	0.027	0.000	0.238	0.265	0.83	*factoring in future classroom expansion
CA-13 (controlled)	0.068	0.000	0.114	0.182	0.64	
CA-14 (controlled)	0.044	0.000	0.105	0.149	0.69	
CA-15 (uncontrolled)	0.294	0.000	0.076	0.370	0.34	
Total	**1.277**	**0.000**	**2.036**	**3.313**	**0.63**	

LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
Designed: K.Herold
Checked: M.Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

STORM - 100 YEAR

Pre-Development Release Rate

Area (High School + Future Site)* =	4.518	ha	*as per Design Brief for Summerside West -
100 Year Allowable Release Rate* =	731.00	L/s	Phase 2 Mer Bleue (as prepared by DESL)
Area (High School Site) =	**3.313**	**ha**	Proposed high school site development will be
100 Year Allowable Release Rate =	**536.03**	**L/s**	controlled to this release rate
Area (Future Site) =	1.205	ha	Future site development allowable release rate
100 Year Allowable Release Rate =	194.97	L/s	(not considered for this site development, but drainage easement provided in site design)

Runoff Equation

Q = 2.78CIA (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) = $A / (T_d + C)^B$
A = Area (ha)
T_d = Time of duration (min)

IDF Curve Equations

I_{100} = $1735.688 / (Td + 6.014)^{0.820}$ A = 1735.688 B = 0.820 C = 6.014

C =	0.36	(max of 0.5 as per City Guidelines)
I_{100} =	178.6	mm/hr
T_d =	10	min
A =	3.313	ha
Calculated 100 Year Allowable Release Rate =	592.04	L/s
Design Brief 100 Year Allowable Release Rate =	**536.03**	L/s

As the Design Brief's 100y ARR is more conservative, it will be used for the following SWM calculations

Post-development Stormwater Management

Total Site Area =	**3.313**	**ha**	**∑R =**	**0.63**	**0.79**
CA-01 (controlled)	0.106	ha	R =	0.25	0.32
CA-02 (controlled)	0.185	ha	R =	0.66	0.82
CA-03 (controlled)	0.173	ha	R =	0.73	0.91
CA-04 (controlled)	0.187	ha	R =	0.85	1.00
CA-05 (controlled)	0.213	ha	R =	0.63	0.79
CA-06 (controlled)	0.208	ha	R =	0.74	0.93
CA-08 (controlled)	0.197	ha	R =	0.29	0.37
CA-09 (controlled)	0.218	ha	R =	0.48	0.60
CA-10 (controlled)	0.210	ha	R =	0.73	0.91
CA-11 (controlled)	0.215	ha	R =	0.43	0.53
CA-12 (controlled)	0.265	ha	R =	0.83	1.00
CA-13 (controlled)	0.182	ha	R =	0.64	0.80
CA-14 (controlled)	0.149	ha	R =	0.69	0.87
Total (ICD controlled)	**2.508**	**ha**	**R =**	**0.63**	**0.78**
CA-07 (controlled)	0.435	ha	R =	0.90	1.00
Total (Roof controlled)	**0.435**	**ha**	**R =**	**0.90**	**1.00**
CA-15 (uncontrolled)	0.370	ha	R =	0.34	0.43
Total (uncontrolled)	**0.370**	**ha**	**R =**	**0.34**	**0.43**
Total (Controlled+Uncontrolled)	**3.313**	**ha**	**R =**	**0.63**	**0.79**

LRL
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LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
Designed: K.Herold
Checked: M.Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

100 Year Post-development Stormwater Management (Rooftop CA-07)
Sample Calculation (Rooftop Subcatchment Area CA-07A)

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Required Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.56	16.23	9.18	0.94	0.00	0.94
15	142.89	12.99	10.84	0.94	0.00	0.94
20	119.95	10.90	11.96	0.94	0.00	0.94
25	103.85	9.44	12.75	0.94	0.00	0.94
30	91.87	8.35	13.34	0.94	0.00	0.94
35	82.58	7.51	13.79	0.94	0.00	0.94
40	75.15	6.83	14.14	0.94	0.00	0.94
45	69.05	6.28	14.41	0.94	0.00	0.94
50	63.95	5.81	14.62	0.94	0.00	0.94
55	59.62	5.42	14.78	0.94	0.00	0.94
60	55.89	5.08	14.91	0.94	0.00	0.94
70	49.79	4.53	15.06	0.94	0.00	0.94
80	44.99	4.09	15.12	0.94	0.00	0.94
90	41.11	3.74	15.11	0.94	0.00	0.94
100	37.90	3.45	15.03	0.94	0.00	0.94
110	35.20	3.20	14.92	0.94	0.00	0.94
120	32.89	2.99	14.76	0.94	0.00	0.94

100 Year Post-development Stormwater Management (Rooftop CA-07)
Sample Calculation (Rooftop Subcatchment Area CA-07Q)

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Required Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.56	9.18	4.75	1.26	0.00	1.26
15	142.89	7.35	5.48	1.26	0.00	1.26
20	119.95	6.17	5.89	1.26	0.00	1.26
25	103.85	5.34	6.12	1.26	0.00	1.26
30	91.87	4.72	6.24	1.26	0.00	1.26
35	82.58	4.25	6.27	1.26	0.00	1.26
40	75.15	3.86	6.25	1.26	0.00	1.26
45	69.05	3.55	6.19	1.26	0.00	1.26
50	63.95	3.29	6.09	1.26	0.00	1.26
55	59.62	3.07	5.96	1.26	0.00	1.26
60	55.89	2.87	5.81	1.26	0.00	1.26
70	49.79	2.56	5.46	1.26	0.00	1.26
80	44.99	2.31	5.06	1.26	0.00	1.26
90	41.11	2.11	4.61	1.26	0.00	1.26
100	37.90	1.95	4.14	1.26	0.00	1.26
110	35.20	1.81	3.63	1.26	0.00	1.26
120	32.89	1.69	3.11	1.26	0.00	1.26

Summary of Roof Storage

Select water depth (h) =	0.150	m	*An Emergency overflow scupper is provided above this height.
Flow per drain=	0.63	L/s	*Watts RD-100-A-ADJ (closed weir opening)
Flow per drain=	0.94	L/s	*Watts RD-100-A-ADJ (1/4 weir opening exposed)
No. of drain =	23		*21 @ closed weir, 2 @ 1/4 open weir
Total flow from roof =	15.11	L/s	
Total roof area (A) =	4350	m^2	
Total effective* roof area (A) =	3668	m^2	*roof area affected by ponding

For the given controlled release rate, the required roof storage ≤ available roof storage

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LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
Designed: K.Herold
Checked: M.Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

100yr Available Roof Storage Calculation:

Catchment	Roof Catchment Area (m2)	Effective Roof Catchment Area* (m2)	Depth (m)	# Roof Drains	Weir Opening Exposure	Required Volume (m3)	Effective Available Volume (m3)	Total Flow (L/s)
CA-07A	388	327	0.15	1	1/4 open	15.1	16.4	0.94
CA-07B	388	327	0.15	1	1/4 open	15.1	16.4	0.94
CA-07C	241	203	0.15	1	closed	9.2	10.2	0.63
CA-07D	230	194	0.15	1	closed	8.6	9.7	0.63
CA-07E	52	44	0.15	1	closed	1.0	2.2	0.63
CA-07F	187	158	0.15	2	closed	5.0	7.9	1.26
CA-07G	162	137	0.15	1	closed	5.4	6.9	0.63
CA-07H	203	171	0.15	1	closed	7.3	8.6	0.63
CA-07I	267	225	0.15	1	closed	10.5	11.3	0.63
CA-07J	65	55	0.15	1	closed	1.4	2.8	0.63
CA-07K	58	49	0.15	1	closed	1.2	2.5	0.63
CA-07L	296	250	0.15	1	closed	12.0	12.5	0.63
CA-07M	415	350	0.15	2	closed	15.1	17.5	1.26
CA-07N	283	239	0.15	2	closed	9.0	12.0	1.26
CA-07O	440	371	0.15	2	closed	16.3	18.6	1.26
CA-07P	454	383	0.15	2	closed	17.0	19.2	1.26
CA-07Q	219	185	0.15	2	closed	6.3	9.3	1.26
CA-07	**4350**	**3668**		**23**		**155.5**	**183.4**	**15.11**

*effective roof area estimated at ±85%, as per architectural roof plan

100 Year Post-development Stormwater Management (Overland, not including rooftop)

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.56	973.61	320.17	440.00	78.93	518.93
15	142.89	779.15	305.23	440.00	63.16	503.16
20	119.95	654.04	256.85	440.00	53.02	493.02
25	103.85	566.24	189.36	440.00	45.90	485.90
30	91.87	500.92	109.66	440.00	40.61	480.61
35	82.58	450.27	21.57	440.00	36.50	476.50
40	75.15	409.74	0.00	440.00	33.22	473.22
45	69.05	376.51	0.00	440.00	30.52	470.52
50	63.95	348.72	0.00	440.00	28.27	468.27
55	59.62	325.11	0.00	440.00	26.35	466.35
60	55.89	304.77	0.00	440.00	24.71	464.71
65	52.65	287.06	0.00	440.00	23.27	463.27
70	49.79	271.48	0.00	440.00	22.01	462.01
75	47.26	257.67	0.00	440.00	20.89	460.89
80	44.99	245.32	0.00	440.00	19.89	459.89
85	42.95	234.21	0.00	440.00	18.99	458.99
90	41.11	224.16	0.00	440.00	18.17	458.17
95	39.43	215.02	0.00	440.00	17.43	457.43
100	37.90	206.67	0.00	440.00	16.75	456.75
105	36.50	199.01	0.00	440.00	16.13	456.13
110	35.20	191.95	0.00	440.00	15.56	455.56
115	34.01	185.42	0.00	440.00	15.03	455.03
120	32.89	179.36	0.00	440.00	14.54	454.54

*371mm ICD to control 100year storm to 440.00 L/s

100 Year Post-development Stormwater Management (Overland, not including rooftop)
w/ 50% peak allowable release rate for u/g storage release rate fluctuations

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.56	973.61	452.17	220.00	78.93	298.93
15	142.89	779.15	503.23	220.00	63.16	283.16
20	119.95	654.04	520.85	220.00	53.02	273.02
25	103.85	566.24	519.36	220.00	45.90	265.90
30	91.87	500.92	505.66	220.00	40.61	260.61
35	82.58	450.27	483.57	220.00	36.50	256.50
40	75.15	409.74	455.37	220.00	33.22	253.22
45	69.05	376.51	422.57	220.00	30.52	250.52
50	63.95	348.72	386.15	220.00	28.27	248.27
55	59.62	325.11	346.85	220.00	26.35	246.35
60	55.89	304.77	305.18	220.00	24.71	244.71
65	52.65	287.06	261.54	220.00	23.27	243.27
70	49.79	271.48	216.23	220.00	22.01	242.01
75	47.26	257.67	169.50	220.00	20.89	240.89
80	44.99	245.32	121.53	220.00	19.89	239.89
85	42.95	234.21	72.48	220.00	18.99	238.99
90	41.11	224.16	22.48	220.00	18.17	238.17
95	39.43	215.02	0.00	220.00	17.43	237.43
100	37.90	206.67	0.00	220.00	16.75	236.75
105	36.50	199.01	0.00	220.00	16.13	236.13
110	35.20	191.95	0.00	220.00	15.56	235.56
115	34.01	185.42	0.00	220.00	15.03	235.03
120	32.89	179.36	0.00	220.00	14.54	234.54

LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
Designed: K.Herold
Checked: M.Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

Stormwater Management Summary

100yr Allowable Release Rate	536.03	L/s
Rooftop Controlled Release Rate	15.11	L/s
Overland Controlled Release Rate	440.00	L/s
Overland Uncontrolled Release Rate	78.93	L/s
Total Combined Release Rate	**534.04**	**L/s**

On-site Stormwater Storage Requirements

Rooftop Storage Required	155.53	m^3
Rooftop Storage Provided =	**183.40**	**m^3**
Site Storage Required	520.85	m^3
Overland Storage Provided	209.87	m^3
Underground Storage Provided	322.88	m^3
Total Site Storage Provided	**532.75**	**m^3**

Overland Storage Summary

Structure	Depth (m)	Storage (m3)
CBMH15	0.15	8.90
CBMH14	0.20	13.92
CBMH13	0.20	56.65
CBMH12	0.15	15.39
CBMH10	0.10	5.04
CBMH09	0.10	4.10
CBMH07	0.25	31.99
CBMH06	0.30	48.17
CB05	0.15	7.40
CBMH04	0.20	13.51
CBMH03	0.10	2.20
CBMH02	0.10	2.60
Total		**209.87**

LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
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Checked: M.Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

STORM - 5 YEAR

Runoff Equation

Q = 2.78CIA (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) = $A / (T_d + C)^B$
A = Area (ha)
T_d = Time of duration (min)

IDF Curve Equations

$I_5 = 998.071 / (Td + 6.053)^{0.814}$ A = 998.071 B = 0.814 C = 6.053

C =	0.36	(max of 0.5 as per City Guidelines)
I_{100} =	104.2	mm/hr
T_d =	10	min
A =	3.313	ha
Calculated 5 Year Allowable Release Rate =	**345.47**	L/s

Pre-Development Release Rate

Area (High School Site) = 3.313 ha
5 Year Allowable Release Rate = 345.47 L/s

Proposed high school site development will be controlled to this release rate

Post-development Stormwater Management

Total Site Area =	**3.313**	**ha**	**∑R =**	**0.63**	**0.79**
CA-01 (controlled)	0.106	ha	R =	0.25	0.32
CA-02 (controlled)	0.185	ha	R =	0.66	0.82
CA-03 (controlled)	0.173	ha	R =	0.73	0.91
CA-04 (controlled)	0.187	ha	R =	0.85	1.00
CA-05 (controlled)	0.213	ha	R =	0.63	0.79
CA-06 (controlled)	0.208	ha	R =	0.74	0.93
CA-08 (controlled)	0.197	ha	R =	0.29	0.37
CA-09 (controlled)	0.218	ha	R =	0.48	0.60
CA-10 (controlled)	0.210	ha	R =	0.73	0.91
CA-11 (controlled)	0.215	ha	R =	0.43	0.53
CA-12 (controlled)	0.265	ha	R =	0.83	1.00
CA-13 (controlled)	0.182	ha	R =	0.64	0.80
CA-14 (controlled)	0.149	ha	R =	0.69	0.87
Total (ICD controlled)	**2.508**	**ha**	**R =**	**0.63**	**0.78**
CA-07 (controlled)	0.435	ha	R =	0.90	1.00
Total (Roof controlled)	**0.435**	**ha**	**R =**	**0.90**	**1.00**
CA-15 (uncontrolled)	0.370	ha	R =	0.34	0.43
Total (uncontrolled)	**0.370**	**ha**	**R =**	**0.34**	**0.43**
Total (Controlled+Uncontrolled)	**3.313**	**ha**	**R =**	**0.63**	**0.79**

5 Year Post-development Stormwater Management (Rooftop CA-07)
Sample Calculation (Rooftop Subcatchment Area CA-07A)

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Required Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	104.19	8.52	4.66	0.76	0.00	0.76
15	83.56	6.84	5.47	0.76	0.00	0.76
20	70.25	5.75	5.99	0.76	0.00	0.76
25	60.90	4.98	6.33	0.76	0.00	0.76
30	53.93	4.41	6.57	0.76	0.00	0.76
35	48.52	3.97	6.74	0.76	0.00	0.76
40	44.18	3.61	6.85	0.76	0.00	0.76
45	40.63	3.32	6.92	0.76	0.00	0.76
50	37.65	3.08	6.96	0.76	0.00	0.76
55	35.12	2.87	6.97	0.76	0.00	0.76
60	32.94	2.70	6.97	0.76	0.00	0.76
70	29.37	2.40	6.90	0.76	0.00	0.76
80	26.56	2.17	6.78	0.76	0.00	0.76
90	24.29	1.99	6.63	0.76	0.00	0.76
100	22.41	1.83	6.44	0.76	0.00	0.76
110	20.82	1.70	6.23	0.76	0.00	0.76
120	19.47	1.59	6.00	0.76	0.00	0.76

LRL
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LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
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Checked: M.Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

5 Year Post-development Stormwater Management (Rooftop CA-07)
Sample Calculation (Rooftop Subcatchment Area CA-07Q)

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Required Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	104.19	4.82	2.14	1.26	0.00	1.26
15	83.56	3.87	2.35	1.26	0.00	1.26
20	70.25	3.25	2.39	1.26	0.00	1.26
25	60.90	2.82	2.34	1.26	0.00	1.26
30	53.93	2.50	2.23	1.26	0.00	1.26
35	48.52	2.25	2.07	1.26	0.00	1.26
40	44.18	2.05	1.88	1.26	0.00	1.26
45	40.63	1.88	1.68	1.26	0.00	1.26
50	37.65	1.74	1.45	1.26	0.00	1.26
55	35.12	1.63	1.21	1.26	0.00	1.26
60	32.94	1.52	0.95	1.26	0.00	1.26
70	29.37	1.36	0.42	1.26	0.00	1.26
80	26.56	1.23	0.00	1.26	0.00	1.26
90	24.29	1.12	0.00	1.26	0.00	1.26
100	22.41	1.04	0.00	1.26	0.00	1.26
110	20.82	0.96	0.00	1.26	0.00	1.26
120	19.47	0.90	0.00	1.26	0.00	1.26

Summary of Roof Storage

Select water depth (h) =	0.090	m	*An Emergency overflow scupper is provided above this height.
Flow per drain=	0.63	L/s	*Watts RD-100-A-ADJ (closed weir opening)
Flow per drain=	0.76	L/s	*Watts RD-100-A-ADJ (1/4 weir opening exposed)
No. of drain =	23		*21 @ closed weir, 2 @ 1/4 open weir
Total flow from roof =	14.75	L/s	
Total roof area (A) =	4350	m^2	
Total effective* roof area (A) =	3668	m^2	*roof area affected by ponding

For the given controlled release rate, the required roof storage ≤ available roof storage

5yr Available Roof Storage Calculation:

Catchment	Roof Catchment Area (m2)	Effective Roof Catchment Area* (m2)	Depth (m)	# Roof Drains	Weir Opening Exposure	Required Volume (m3)	Effective Available Volume (m3)	Total Flow (L/s)
CA-07A	388	327	0.09	1	1/4 open	7.0	9.8	0.76
CA-07B	388	327	0.09	1	1/4 open	7.0	9.8	0.76
CA-07C	241	203	0.09	1	closed	3.8	6.1	0.63
CA-07D	230	194	0.09	1	closed	3.5	5.8	0.63
CA-07E	52	44	0.09	1	closed	0.4	1.3	0.63
CA-07F	187	158	0.09	2	closed	1.8	4.7	1.26
CA-07G	162	137	0.09	1	closed	2.2	4.1	0.63
CA-07H	203	171	0.09	1	closed	2.9	5.1	0.63
CA-07I	267	225	0.09	1	closed	4.4	6.8	0.63
CA-07J	65	55	0.09	1	closed	0.5	1.7	0.63
CA-07K	58	49	0.09	1	closed	0.4	1.5	0.63
CA-07L	296	250	0.09	1	closed	5.0	7.5	0.63
CA-07M	415	350	0.09	2	closed	6.1	10.5	1.26
CA-07N	283	239	0.09	2	closed	3.5	7.2	1.26
CA-07O	440	371	0.09	2	closed	6.6	11.1	1.26
CA-07P	454	383	0.09	2	closed	7.0	11.5	1.26
CA-07Q	219	185	0.09	2	closed	2.4	5.6	1.26
CA-07	**4350**	**3668**		**23**		**64.5**	**110.0**	**14.75**

*effective roof area estimated at ±85%, as per architectural roof plan

5 Year Post-development Stormwater Management (Overland, not including rooftop)

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	104.19	454.50	104.70	280.00	46.06	326.06
15	83.56	364.48	76.04	280.00	36.93	316.93
20	70.25	306.44	31.73	280.00	31.05	311.05
25	60.90	265.63	0.00	280.00	26.92	306.92
30	53.93	235.24	0.00	280.00	23.84	303.84
35	48.52	211.64	0.00	280.00	21.45	301.45
40	44.18	192.74	0.00	280.00	19.53	299.53
45	40.63	177.23	0.00	280.00	17.96	297.96
50	37.65	164.25	0.00	280.00	16.64	296.64
55	35.12	153.21	0.00	280.00	15.53	295.53
60	32.94	143.70	0.00	280.00	14.56	294.56
65	31.04	135.42	0.00	280.00	13.72	293.72
70	29.37	128.12	0.00	280.00	12.98	292.98
75	27.89	121.65	0.00	280.00	12.33	292.33
80	26.56	115.87	0.00	280.00	11.74	291.74
85	25.37	110.66	0.00	280.00	11.21	291.21
90	24.29	105.95	0.00	280.00	10.74	290.74
95	23.31	101.66	0.00	280.00	10.30	290.30
100	22.41	97.74	0.00	280.00	9.90	289.90
105	21.58	94.14	0.00	280.00	9.54	289.54
110	20.82	90.83	0.00	280.00	9.20	289.20
115	20.12	87.76	0.00	280.00	8.89	288.89
120	19.47	84.92	0.00	280.00	8.61	288.61

*371mm ICD to control 5year storm to 280.00 L/s

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LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
Designed: K.Herold
Checked: M.Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

5 Year Post-development Stormwater Management (Overland, not including rooftop)
w/ 50% peak allowable release rate for u/g storage release rate fluctuations

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	104.19	454.50	188.70	140.00	46.06	186.06
15	83.56	364.48	202.04	140.00	36.93	176.93
20	70.25	306.44	199.73	140.00	31.05	171.05
25	60.90	265.63	188.45	140.00	26.92	166.92
30	53.93	235.24	171.43	140.00	23.84	163.84
35	48.52	211.64	150.44	140.00	21.45	161.45
40	44.18	192.74	126.57	140.00	19.53	159.53
45	40.63	177.23	100.51	140.00	17.96	157.96
50	37.65	164.25	72.74	140.00	16.64	156.64
55	35.12	153.21	43.60	140.00	15.53	155.53
60	32.94	143.70	13.33	140.00	14.56	154.56
65	31.04	135.42	0.00	140.00	13.72	153.72
70	29.37	128.12	0.00	140.00	12.98	152.98
75	27.89	121.65	0.00	140.00	12.33	152.33
80	26.56	115.87	0.00	140.00	11.74	151.74
85	25.37	110.66	0.00	140.00	11.21	151.21
90	24.29	105.95	0.00	140.00	10.74	150.74
95	23.31	101.66	0.00	140.00	10.30	150.30
100	22.41	97.74	0.00	140.00	9.90	149.90
105	21.58	94.14	0.00	140.00	9.54	149.54
110	20.82	90.83	0.00	140.00	9.20	149.20
115	20.12	87.76	0.00	140.00	8.89	148.89
120	19.47	84.92	0.00	140.00	8.61	148.61

LRL File No. 240462
Project: ESP Orleans South
Location: 2405 / 2419 Mer Bleue Road
Date: January 31, 2025
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Drawing Ref.: C601

Stormwater Management Design Sheet

Stormwater Management Summary

5yr Allowable Release Rate	345.47	L/s
Rooftop Controlled Release Rate	14.75	L/s
Overland Controlled Release Rate	280.00	L/s
Overland Uncontrolled Release Rate	46.06	L/s
Total Combined Release Rate	**340.81**	**L/s**

On-site Stormwater Storage Requirements

Rooftop Storage Required	64.50	m^3
Rooftop Storage Provided =	**110.04**	**m^3**
Site Storage Required	202.04	m^3
Overland Storage Provided	0.00	m^3
Underground Storage Provided	235.01	m^3
Total Site Storage Provided	**235.01**	**m^3**

LRL Associates Ltd.

Storm Sewer Design Sheet

LRL File No. 240462-01
Project: ESP Orleans South
Location: 2405 Mer-Bleue Rd
Date: January 31st, 2025
Designed: K. Herold
Checked: M. Basnet
Dwg. Ref.: C401,C702

Rational Method

Q = 2.78CIA
Q = Peak flow (L/s)
A = Drainage area (ha)
C = Runoff coefficient
I = Rainfall intensity (mm/hr)

Runoff coefficient (C)

Grass = 0.2
Gravel = 0.8
Asphalt / rooftop = 0.9

IDF curve

Ottawa Macdonald-Cartier International Airport
Storm event: 5 Years

Intensity equation:

$I_5 = 998.071 / (Td + 6.053)^{0.814}$ (mm/hr)

Pipe Design Parameters

Minimum velocity = 0.80 m/s
Manning's "n" = 0.013

LOCATION			AREA (ha)			FLOW						STORM SEWER							
WATERSHED / STREET	From MH	To MH	C = 0.20	C = 0.80	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc.	Rainfall Intensity	Peak Flow (Q)	Controlled Flow (Q)	Pipe Dia.	Type	Slope	Length	Capacity Full (Q_{FULL})	Velocity Full	Time of Flow	Ratio Q/Q_{FULL}
								(min)	(mm/hr)	(L/s)	(L/s)	(mm)		(%)	(m)	(L/s)	(m/s)	(min)	
CA-07	Roof	MH08	0.000	0.000	0.435	1.09	1.09	10.00	104.19		21.60	250	PVC	0.432%	150.7	39.09	0.80	3.15	0.55
FUT. SITE*	MH08	MH01								216.57		600	PVC	0.34%	20.8	358.03	1.27	0.27	0.60
CA-06	CBMH07	CBMH06	0.047	0.000	0.161	0.43	0.43	13.15	90.04	38.62		300	PVC	0.25%	34.9	48.35	0.68	0.85	0.80
CA-05	CBMH06	CBMH04	0.081	0.000	0.132	0.38	0.80	14.00	86.92	69.90		375	PVC	0.34%	47.2	102.23	0.93	0.85	0.68
CA-04	CB05	CBMH04	0.013	0.000	0.174	0.44	0.44	10.00	104.19	46.11		300	PVC	0.34%	34.7	56.39	0.80	0.73	0.82
CA-03	CBMH04	CBMH03	0.042	0.000	0.131	0.35	1.60	14.85	84.03	134.28		450	PVC	0.40%	33.4	180.32	1.13	0.49	0.74
CA-02	CBMH03	CBMH02	0.064	0.000	0.121	0.34	1.94	15.35	82.46	159.66		Stormtech chamber proposed between CBMH03 & CBMH02							
CA-14	CBMH17	CBMH16	0.044	0.000	0.105	0.29	0.29	10.00	104.19	29.92		300	PVC	0.34%	51.8	56.39	0.80	1.08	0.53
CA-13	CBMH16	CBMH15	0.068	0.000	0.114	0.32	0.61	11.08	98.80	60.29		375	PVC	0.25%	52.1	87.67	0.79	1.09	0.69
CA-12	CBMH15	CBMH14	0.027	0.000	0.238	0.61	1.22	12.18	93.95	114.68		450	PVC	0.25%	37.2	142.55	0.90	0.69	0.80
CA-11	CBMH14	CBMH12	0.145	0.000	0.070	0.26	1.48	12.87	91.14	134.57		450	PVC	0.34%	31.2	166.24	1.05	0.50	0.81

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Stormwater Management
Orifice Plate Design Sheet

Orifice Equation

Q = 0.61 * A * sqrt (2 * g * H)

Where;
Q = release rate (in m3/s)
0.61 = coefficient
A = area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = head above CL of orifice (m)

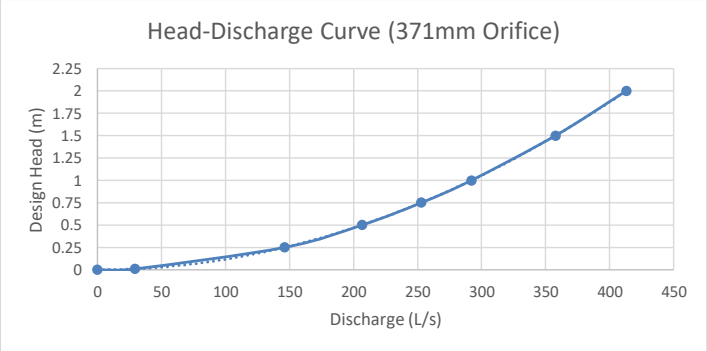
Orifice Plate Diameter Design

Storm - 100 year

Allowable Release Rate = 441.99 L/s
Controlled Release Rate = 440.00 L/s

Q (m3/s) =	0.4400
g (9.81m/s2) =	9.81
A (m2) =	0.10808
H (m) =	2.27

100yr STM Design Head = 2.27 m



Storm - 5 year

Allowable Release Rate = 284.66 L/s
Controlled Release Rate = 280.00 L/s

Q (m3/s) =	0.280
g (9.81m/s2) =	9.81
A (m2) =	0.10808
H (m) =	0.92

5yr STM Design Head = 0.92 m

SWM Design Parameters

Orifice Plate Ø (m)	0.371
Host Pipe Invert	84.64
Head above C/L Orifice	84.83
100y High Water Level	87.10
100y Design Head	2.27
5y High Water Level	85.75
5y Design Head	0.92

User Inputs

Chamber Model:	MC-4500
Outlet Control Structure:	Yes
Project Name:	240462-01.ES-POrleans
Engineer:	undefined undefined
Project Location:	Ontario
Measurement Type:	Metric
Required Storage Volume:	310.00 cubic meters.
Stone Porosity:	40%
Stone Foundation Depth:	229 mm.
Stone Above Chambers:	305 mm.
Design Constraint Dimensions:	(30.01 m. x 30.01 m.)

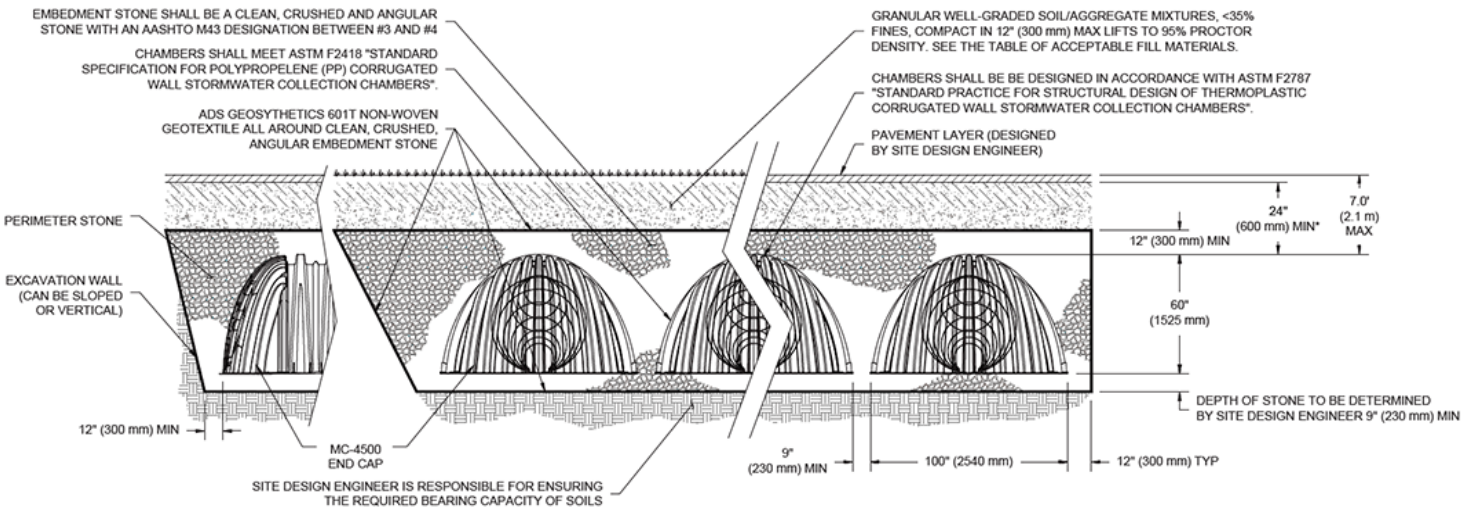
Results

System Volume and Bed Size

Installed Storage Volume:	322.88 cubic meters.
Storage Volume Per Chamber:	3.02 cubic meters.
Number Of Chambers Required:	62
Number Of End Caps Required:	6
Chamber Rows:	3
Maximum Length:	29.30 m.
Maximum Width:	8.69 m.
Approx. Bed Size Required:	251.12 square meters.
Average Cover Over Chambers:	N/A .

System Components

Amount Of Stone Required:	323 cubic meters
Volume Of Excavation (Not Including Fill):	517 cubic meters
Total Non-woven Geotextile Required:	791 square meters
Woven Geotextile Required (excluding Isolator Row):	49 square meters
Woven Geotextile Required (Isolator Row):	176 square meters
Total Woven Geotextile Required:	225 square meters
Impervious Liner Required:	0 square meters



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 30" (750 mm).

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

Advanced Drainage Systems, Inc.

ADS SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

240462-01.ESPORLEANS

OTTAWA, ON, CANADA

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 75 mm (3").
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
10. MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 230 mm (9") SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 300 mm (12") INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE; AASHTO M43 #3, 357, 4, 467, 5, 56, OR 57.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 300 mm (12") BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

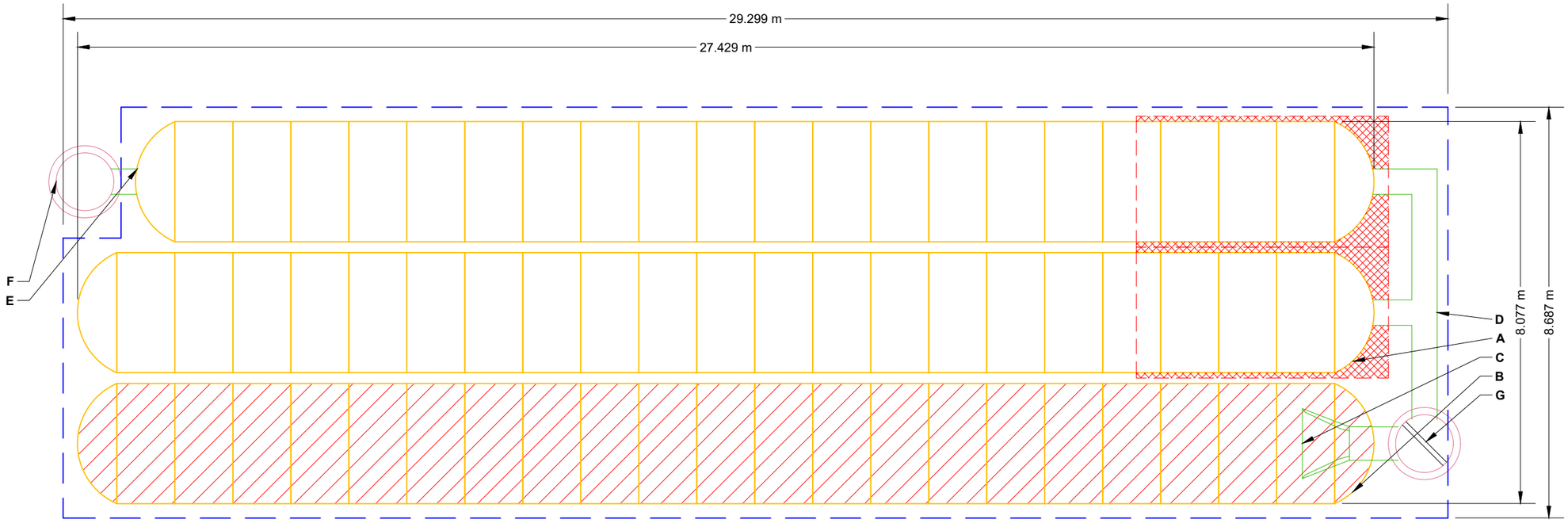
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT		CONCEPTUAL ELEVATIONS:	
62	STORMTECH MC-4500 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	3.886
6	STORMTECH MC-4500 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	2.515
305	STONE ABOVE (mm)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	2.362
229	STONE BELOW (mm)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	2.362
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	2.362
322.9	INSTALLED SYSTEM VOLUME (m^3) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	2.057
		TOP OF MC-4500 CHAMBER:	1.753
		600 mm ISOLATOR ROW PLUS INVERT:	0.286
		450 mm x 450 mm BOTTOM MANIFOLD INVERT:	0.279
251.1	SYSTEM AREA (m^2)	450 mm BOTTOM CONNECTION INVERT:	0.279
76.0	SYSTEM PERIMETER (m)	BOTTOM OF MC-4500 CHAMBER:	0.229
		BOTTOM OF STONE:	0.000

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	450 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500IEPP18B / TYP OF ALL 450 mm BOTTOM CONNECTIONS	50 mm	
PREFABRICATED END CAP	B	600 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500IEPP24B / TYP OF ALL 600 mm BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	57 mm	
FLAMP	C	INSTALL FLAMP ON 600 mm ACCESS PIPE / PART#: MCFLAMP		
MANIFOLD	D	450 mm x 450 mm BOTTOM MANIFOLD, ADS N-12	50 mm	
PIPE CONNECTION	E	450 mm BOTTOM CONNECTION	50 mm	
CONCRETE STRUCTURE	F	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		113 L/s OUT
CONCRETE STRUCTURE W/WEIR	G	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		311 L/s IN



ISOLATOR ROW PLUS
(SEE DETAIL)

PLACE MINIMUM 5.334 m OF ADSPLUS125 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- **NOT FOR CONSTRUCTION**: THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

240462-01.ESPORLEANS
OTTAWA, ON, CANADA
DATE: 01/31/2025 | DRAWN: UU | CHECKED: N/A
PROJECT #:

DESCRIPTION	CHK	DRW	DATE

StormTech®
Chamber System
1-800-821-6710 | WWW.STORMTECH.COM

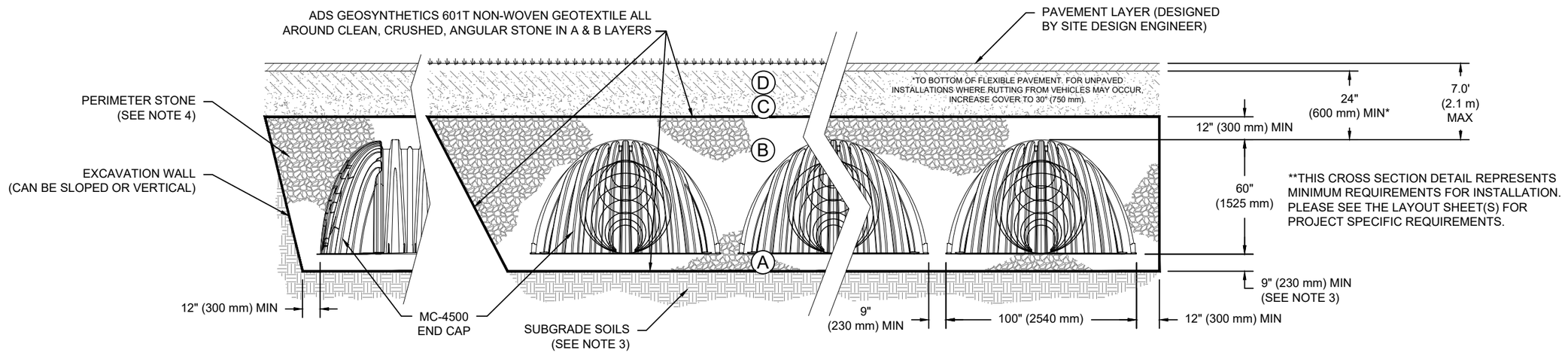
ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SCALE = 1 : 100

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

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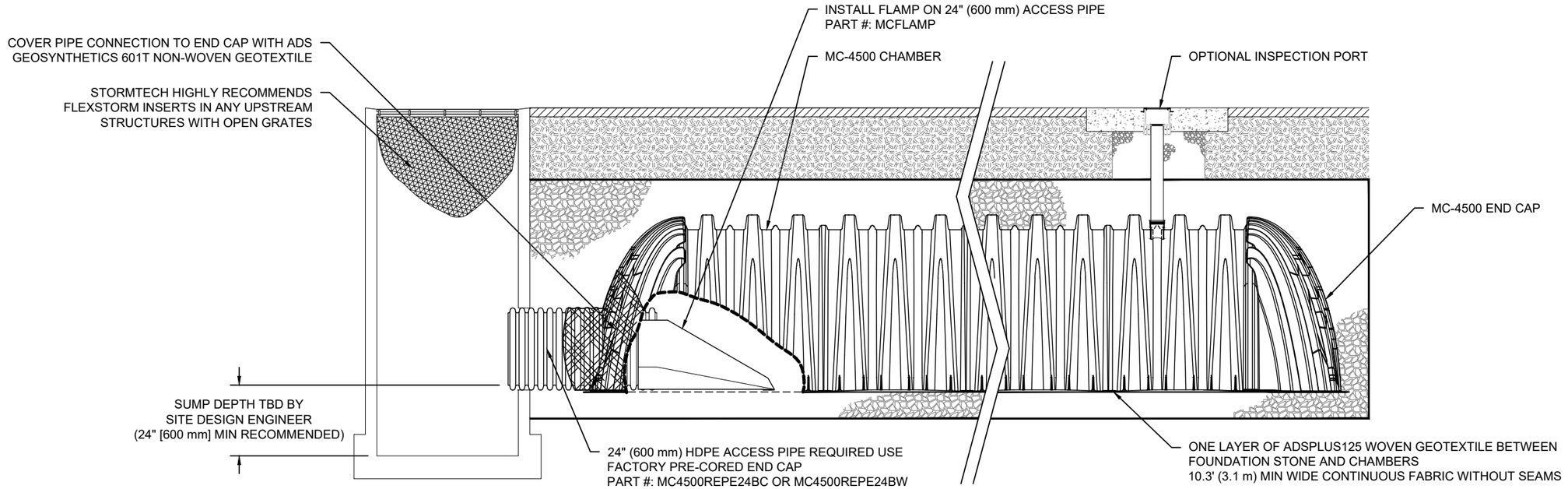

MC-4500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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DATE: 01/31/2025 | DRAWN: UU | CHECKED: N/A
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StormTech®
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ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
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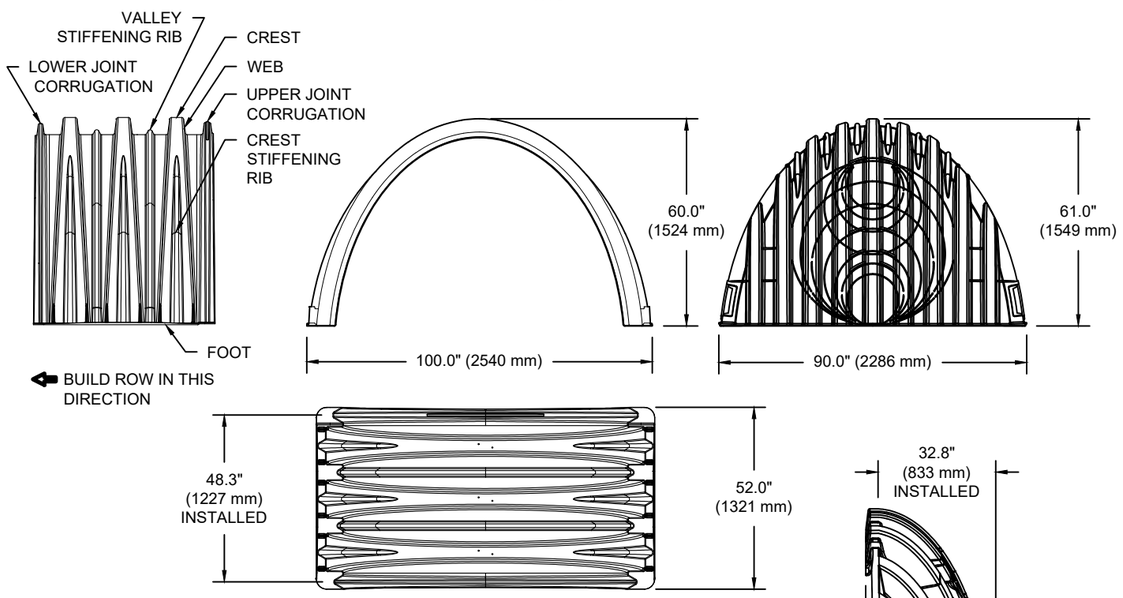
MC-4500 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT (NOMINAL)	125.0 lbs.	(56.7 kg)

NOMINAL END CAP SPECIFICATIONS

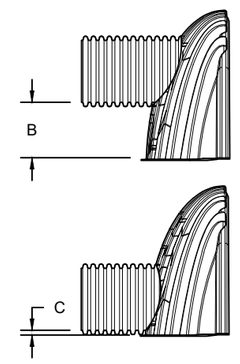
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC4500IEPP06B		---	0.86" (22 mm)
MC4500IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC4500IEPP08B		---	1.01" (26 mm)
MC4500IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC4500IEPP10B		---	1.33" (34 mm)
MC4500IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC4500IEPP12B		---	1.55" (39 mm)
MC4500IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC4500IEPP15B		---	1.70" (43 mm)
MC4500IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC4500IEPP18TW			
MC4500IEPP18B		---	1.97" (50 mm)
MC4500IEPP18BW			
MC4500IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC4500IEPP24TW			
MC4500IEPP24B		---	2.26" (57 mm)
MC4500IEPP24BW			
MC4500IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC4500IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC4500IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

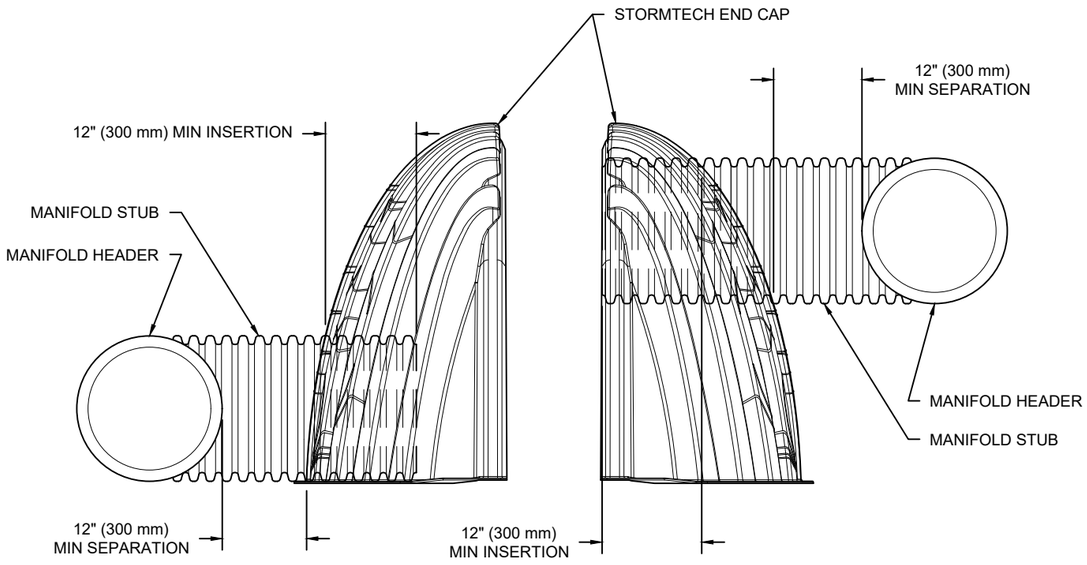
NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

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StormTech® Chamber System

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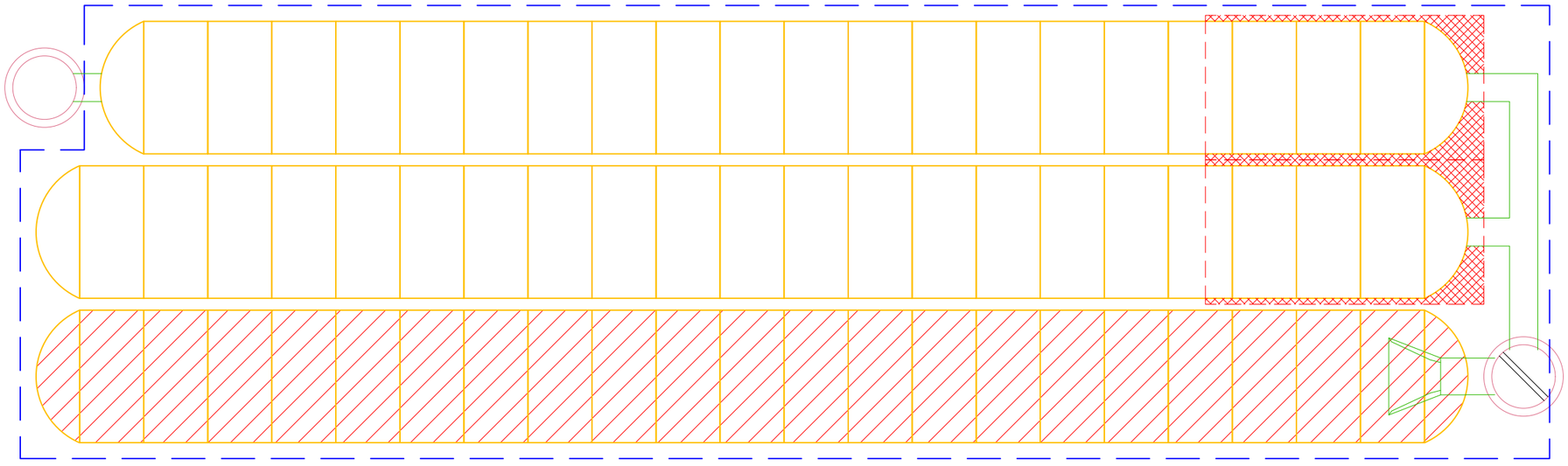


WATTS®	Adjustable Accutrol Weir Tag: _____	Adjustable Flow Control for Roof Drains

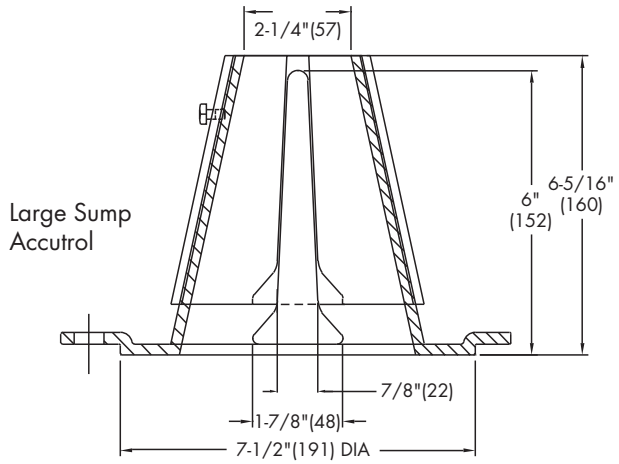
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

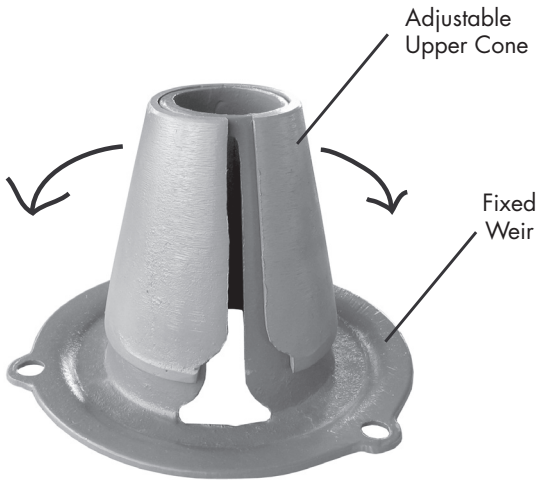
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____

Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

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APPENDIX E

Civil Engineering Drawings

NOUVELLE ECOLE ESP ORLEANS SUD
2405/2419 MER-BLEUE ROAD, ORLEANS

REVISION 01

KEY PLAN (N.T.S.)

DRAWING INDEX	
TITLE PAGE	
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2405 / 2419 MER-BLEUE ROAD, OTTAWA
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LICENSED PROFESSIONAL ENGINEER
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2025/01/31
PROVINCE OF ONTARIO
NOT AUTHENTIC UNLESS SIGNED AND DATED

GENERAL NOTES

1. ALL WORKS MATERIALS SHALL CONFIRM TO THE LAST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTORS SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION , TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION, ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTORS TO CONFIRM UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT CONTRACTORS EXPENSE.
4. ANY AREA BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE. RELOCATING OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DETECTED BY THE ENGINEER AT THE EXPENSE OF DEVELOPERS.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 'OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS'. THE GENERAL CONTRACTORS SHALL BE DEEMED TO BE THE 'CONTRACTOR' AS DEFINED IN THE ACT.
6. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
7. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
8. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
9. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
10. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT.
11. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
12. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
14. ALL PIPE/CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
15. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
16. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING/REMOVAL.
17. DRAWINGS SHALL BE READ ON CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
18. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ON SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
19. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE 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.

THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM THEIR CONSTRUCTION OPERATIONS HAS POTENTIAL TO CAUSE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER, AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN MANNER THAT STRICTLY MEETS THE REQUIREMENT OF ALL APPLICABLE LEGISLATION AND REGULATIONS.

AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THEIR OPERATIONS, AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF ENTERING ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA.

THE CONTRACTOR ACKNOWLEDGES THAT NO ONE MEASURE IS LIKELY TO BE 100% EFFECTIVELY FOR EROSION PROTECTION AND CONTROLLING SEDIMENT RUNOFF AND DISCHARGES FROM THE SITE. THEREFORE, WHERE NECESSARY THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES ARRANGED IN SUCH MANNER AS TO MITIGATE SEDIMENT RELEASE FROM THE CONSTRUCTION OPERATIONS AND ACHIEVE SPECIFIC MAXIMUM PERMITTED CRITERIA WHERE APPLICABLE. SUGGESTED ON-SITE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING METHODS: SEDIMENT PONDS, FILTER BAGS, PUMP FILTERS, SETTLING TANKS, SILT FENCE, STRAW BALES, FILTER CLOTHS, CATCH BASIN FILTERS, CHECK DAMS AND/OR OTHER RECOGNIZED TECHNOLOGIES AND METHOD AVAILABLE AT THE TIME OF CONSTRUCTION. SPECIFIC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF OPSS 577 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIME WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY HIM AT THE MOMENT'S NOTICE.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR SIX COPIES OF A DETAILED EROSION AND SEDIMENT CONTROL PLAN (ESCP). THE ESCP WILL CONSIST OF WRITTEN DESCRIPTION AND DETAILED DRAWINGS INDICATING THE ON-SITE ACTIVITIES AND MEASURES TO BE USED TO CONTROL EROSION AND SEDIMENT MOVEMENT FOR EACH STEP OF THE WORK.

CONTRACTOR'S RESPONSIBILITIES

THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTOR, IN THE WORKING ARE ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES.

THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO THE SEWER WATERCOURSE AND AVOIDS DAMAGE TO CONTROL MEASURES. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH REQUIREMENTS FRO EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CONTRACT ADMINISTRATOR ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO EITHER THE WATERCOURSE OR THE STORM SEWER SYSTEM. FAILURE TO REPORT WILL BE CONSTITUTE A BRACH OF THIS SPECIFICATION AND THE CONTRACTOR MAY ALSO BE SUBJECT TO THE PENALTIES IMPOSED BY THE APPLICABLE REGULATORY AGENCY. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.

THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS THE ENTRY OF ANY EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, INTO ANY WATERCOURSE, AND PREVENTS THE RELEASE OF ANY SEDIMENT OR DEBRIS INTO ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WORKING AREA AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL

WHERE, IN THE OPINION OF EITHER THE CONTRACT ADMINISTRATOR OR A REGULATORY AGENCY, ANY OF THE TERMS SPECIFIED HEREIN HAVE NOT BEEN COMPLIED WITH OR PERFORMED IN A SUITABLE MANNER, OR TAT ALL, THE CONTRACTOR ADMINISTRATOR OR A REGULATORY AGENCY HAS THE RIGHT TO IMMEDIATELY WITHDRAW ITS PERMISSION TO CONTINUE THE WORK BUT MAY RENEW ITS PERMISSION UPON BEING SATISFIED THAT THE DEFAULTS OR DEFICIENCIES IN THE PERFORMANCE OF THIS SPECIFICATION BY THE CONTRACTOR HAVE BEEN REMEDIED.

SPILL CONTROL NOTES

1. ALL CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED, MAINTAINED, AND STORED NO LESS THAN 30 METRES FROM WATERCOURSE, STEAMS, CREEKS, WOODLOTS, AND ANY ENVIRONMENTALLY SENSITIVE AREAS, OR AS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT.
3. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT, THE CONTRACTOR SHALL:
   - 3.1. IMMEDIATELY NOTIFY APPROPRIATE FEDERAL, PROVINCIAL, AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES, AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS, ETC.
   - 3.2. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES TO MITIGATE AGAINST ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT.
   - 3.3. RESTORE THE AFFECTED AREA TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.

MUD MAT NOTES

1. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.
2. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY.
3. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADS BY SHOVELING OR SWEEPING AND DISPOSED OR PROPERLY IN A CONTROLLED SEDIMENT DISPOSAL AREA.

SITE GRADING NOTES

1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER EROSION CONTROL PLAN.
2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. SC1.1 PROVISION SHALL BE MADE OR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1.4. ALL CURBS, CONCRETE ISLANDS, AND SIDEWALKS SHOWN O THIS DRAWING ARE TO BR PRICED IN SITE WORKS PORTION OF THE CONTRACT.
5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010 AND OPSS 310.
6. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 300MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 300MM LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR BACKFILLING.
9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF REQUIRED BY THE MUNICIPALITY.
10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT PAINT.
11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
13. SIDEWALKS TO BE 13MM & BEVELED AT 2:1 OR 6MM WITH NO BEVEL REQUIRED BELOW THE FINISHED FLOOR SLAB ELEVATION AT ENTRANCES REQUIRED TO BE BARRIER-FREE, UNLESS OTHERWISE NOTED. ALL IN ACCORDANCE WITH OBC 3.8.1.3 & OTTAWA ACCESSIBILITY DESIGN STANDARDS.
14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

ROADWORK SPECIFICATIONS

15. ROADWORK TO BE COMPLETED IN ACCORDANCE WITH GEOTECHNICAL REPORT.
16. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND STOCK PILLED ON SITE AS DIRECTED BY THE MUNICIPAL AUTHORITY.
17. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'A', TYPE II COMPACTED IN MAXIMUM 300MM LIFTS.
18. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO MINIMUM OF 100% STANDARD PROCTOR DENSITY MAXIMUM DRY DENSITY (SPMDD).
19. CONCRETE RAMP C/W TACTILE WALKING SURFACE INDICATORS COMPONENT AS PER OPSD 310.039. TACTILE WALKING SURFACE INDICATORS TO BE INSTALLED AT ALL RAMPS. MATERIAL TO BE POLYMER COMPOSITE, COLOR GREY.

SANITARY, FOUNDATION DRAIN, STORM SEWER AND WATERMAIN NOTES

GENERAL

1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
2. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING S8. THE SEALS SHOULD BE AT LEAST 1.5M LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPATIBLE BROWN SILTY CLAY PLACED IN MAXIMUM 225MM LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT 60M INTERVALS IN THE SERVICE TRENCHES.
3. SERVICES TO BUILDING TO BE TERMINATED 1.0M FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
4. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY. A MINIMUM OF 300MM AROUND STRUCTURES.
5. "MODULOC" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
6. SAFETY PLATFORMS SHALL BE PER OPSD 404.02.
7. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01, IF APPLICABLE.
8. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDING IN A FORMAT ACCEPTABLE TO ENGINEER. ALL SEWER ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.
9. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT.

SANITARY

10. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD). AND SPECIFICATIONS (OPSS).
11. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, IPEX 'RING-TITE' (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST AMENDMENT, UNLESS SPECIFIED OTHERWISE.
12. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
13. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' BEDDING, UNLESS SPECIFIED OTHERWISE.
14. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.
15. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHED PER OPSD 701.021.
16. 100MM THICK HIGH-DENSITY GRADE 'A' POLYSTYRENE INSULATION TO BE INSTALLED IN ACCORDANCE WITH CITY STD W22 WHERE INDICATED ON DRAWING SSP-1.

STORM

17. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER GASKETS AS PER CSA A257.3, OR LATEST AMENDMENT.
18. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
19. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
20. CATCH BASIN SHALL BE IN ACCORDANCE WITH OPSD 705.010.
21. CATCH BASIN LEADS SHALL BE IN 200MM DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
22. ALL CATCH BASINS SHALL HAVE 600MM SUMPS, UNLESS SPECIFIED OTHERWISE.
23. ALL CATCH BASIN LEAD INVERTS TO BE 1.5M BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
24. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED , THE CONTRACTOR IS REQUIRED TO PROVIDE AND SHALL BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
25. ALL ROAD AND PARKING LOT CATCH BASINS TO BE INSTALLED WITH ORTHOGONALLY PLACED SUBDRAINS IN ACCORDANCE WITH DETAIL. PERFORATED SUBDRAIN FOR ROAD AND PARKING LOT CATCH BASIN SHALL BE INSTALLED PER CITY STD R1 UNLESS OTHERWISE NOTED.
26. RIP-RAP TREATMENT SEWER AND CULVERT OUTLETS PER OPSD 810.010.
27. ALL STORM SEWER/ CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE.
28. ALL STORM MANHOLES WITH PIPE LESS THAN 900MM IN DIAMETER SHALL BE CONSTRUCTED WITH A 300MM SUMP.

WATERMAIN

29. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
30. ALL PVC WATERMAINS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
31. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17. UNLESS SPECIFIED OTHERWISE. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
32. ALL PVC WATERMAINS, SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W.36.
33. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD W25.5 AND W25.6.
34. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.
35. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6.
36. THRUST BLOCKING OF WATERMAINS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
37. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
38. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25,2 AND W25, RESPECTIVELY.
39. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4M.
40. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.5M PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING TO ENSURE THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.
41. ALL WATERMAINS SHALL HAVE A MINIMUM COVER OR 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.
42. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
43. FIRE HYDRANT INSTALLATION AS PER STD DWG W19, ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10M ABOVE PROPOSED FINISHED GRADE AT HYDRANT; FIRE HYDRANT LOCATION AS PER STD DWG W18.
44. BUILDING SERVICE TO BE CAPPED 1.0M OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12M BACK FROM STUB.
45. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
46. ALL WATERMAINS SHALL BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL CHLORINATED WATER TO BE DISCHARGED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
47. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50MM BLOW OFF UNLESS OTHERWISE NOTED.

Conseil des écoles publiques de l'Est de l'Ontario

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

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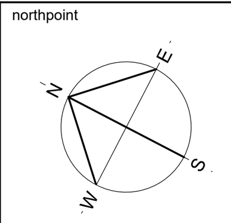

professional stamp

LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2025/01/31 PROVINCE OF ONTARIO

project title

NOUVELLE ÉCOLE
ESP ORLEANS-SUD
2405 / 2419 RUE MER-BLEUE

Orleans Ontario

drawing title

GENERAL NOTES

date	2025-01-31	job. no.	240462
scale	1:500		
drawn	KH	drawing no.	C001
approved	MB		
plot date	2025-01-31		

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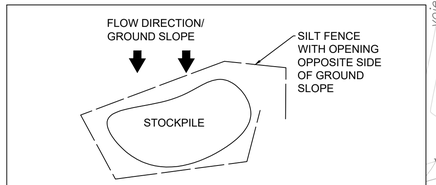
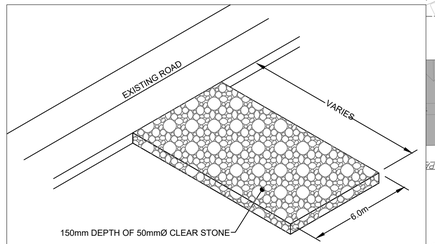


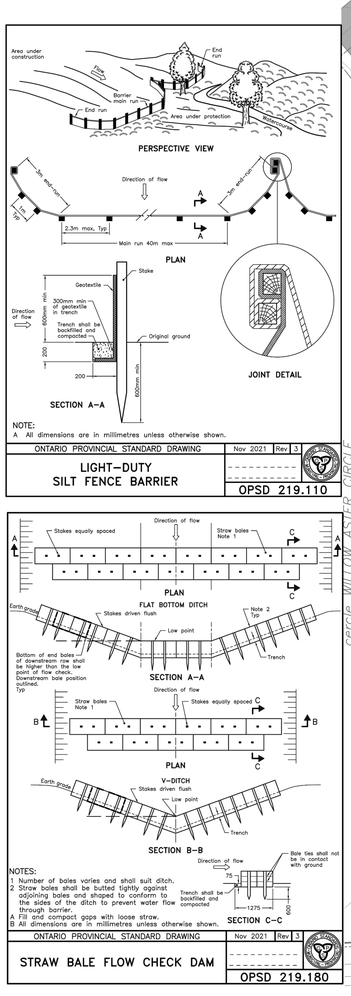
STOCKPILE EROSION PROTECTION

N.T.S.



MUD MAT - CONSTRUCTION ACCESS

NTS

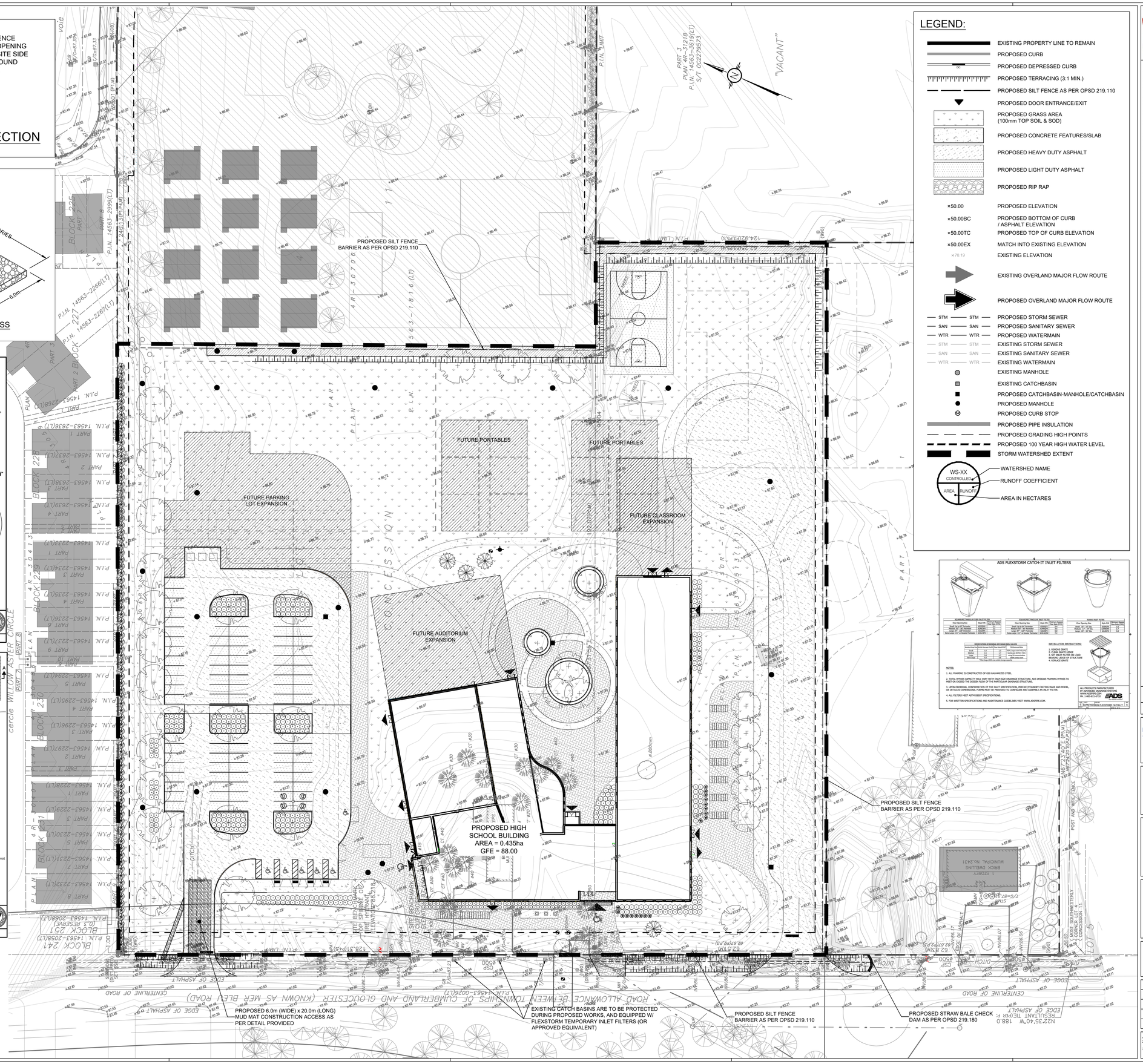


NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110

NOTES:
1 Number of bales varies and shall suit ditch.
2 Straw bales shall be butted tightly against adjoining bales and shaped to conform to the sides of the ditch to prevent water flow concentration through barrier.
A Fill and compact gaps with loose straw.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
STRAW BALE FLOW CHECK DAM		OPSD 219.180



LEGEND:

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- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
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- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
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- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- EXISTING OVERLAND MAJOR FLOW ROUTE
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- STM / SAN / WTR — PROPOSED STORM SEWER / SANITARY SEWER / WATERMAIN
- STM / SAN / WTR — EXISTING STORM SEWER / SANITARY SEWER / WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED GRADING HIGH POINTS
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- STORM WATERSHED EXTENT

WS-XX / CONTROLLED / AREA / RUNOFF
- WATERSHED NAME
- RUNOFF COEFFICIENT
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Conseil des écoles publiques de l'Est de l'Ontario

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northpoint

professional stamp
LICENSED PROFESSIONAL ENGINEER
M. BAGNEY
100501995
2025/01/31
PROVINCE OF ONTARIO

project title
NOUVELLE ÉCOLE ESP ORLEANS-SUD
2405 / 2419 RUE MER-BLEUE
Orleans Ontario

drawing title
EROSION & SEDIMENT CONTROL PLAN

date 2025-01-31	job. no. 240462
scale 1:500	
drawn KH	drawing no. C101
approved MB	
plot date 2025-01-31	

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PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm) AUTOMOBILE PARKING	THICKNESS (mm) TRUCK ROUTE (HEAVY TRAFFIC)
SURFACE	HL 3 A/C (PG 58-34)	80	100
BASECOURSE	OPSS GRANULAR "A"	150	150
SUBBASE	OPSS GRANULAR "B" TYPE II	300	450

NOTE:
IN PREPARATION FOR PAVEMENT CONSTRUCTION AT THIS SITE, ANY SURFICIAL OR NEAR SURFACE/SUBGRADE LEVEL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIALS SHOULD BE REMOVED FROM THE PROPOSED PAVED AREAS. THE EXPOSED SUBGRADE SHOULD BE INSPECTED AND APPROVED BY GEOTECHNICAL PERSONNEL AND ANY SOFT AREAS EVIDENT SHOULD BE SUBEXCAVATED AND REPLACED WITH SUITABLE EARTH BORROW APPROVED BY THE GEOTECHNICAL ENGINEER. THE SUBGRADE SHOULD BE SHAPED AND CROWNED TO PROMOTE DRAINAGE OF THE SITE DRAINAGE STRUCTURES. FOLLOWING APPROVAL OF THE PREPARATION OF THE SUBGRADE, THE PAVEMENT GRANULARS MAY BE PLACED.

PAVEMENT STRUCTURE RECOMMENDATIONS AS PER RECOMMENDATION FROM THE GEOTECHINCAL INVESTIGATION "PROPOSED SCHOOL DEVELOPMENT 2405 & 2419 MER BLEUE ROAD" AS PREPARED BY GEMTEC, DATED MAY 3, 2018.

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- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA / RUNOFF — WATERSHED NAME, RUNOFF COEFFICIENT, AREA IN HECTARES

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION AS PROVIDED BY CALLON DIETZ INCORPORATED LAND SURVEYORS PLAN NO. X-3811 DATED AUGUST 15, 2024.

BEARING NOTE

BEARINGS ARE MTM GRID, DERIVED FROM THE NORTHERLY LIMIT OF PART 1 PLAN 4R-30706, HAVING A GRID BEARING OF N67°18'30"E

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999968.

ELEVATION NOTE

ELEVATIONS SHOWN HEREON ARE GEODETIC (CGVD-1928:1978) AND ARE DERIVED FROM THE CANNET VRS NETWORK STATION OTTAWA ELEVATION=95.230.

CONTOURS ARE TO 0.5 METRES

METRIC

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

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professional stamp
LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 PROVINCE OF ONTARIO

project title
NOUVELLE ÉCOLE ESP ORLEANS-SUD 2405 / 2419 RUE MER-BLEUE
Orleans Ontario

drawing title
GRADING & DRAINAGE PLAN

date	2025-01-31	job. no.	240462
scale	1:500		
drawn	KH	drawing no.	C301
approved	MB		
plot date	2025-01-31		

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Orifice Plate Diameter Design

Storm - 100 year
Allowable Release Rate = 441.99 L/s
Controlled Release Rate = 440.00 L/s
Q (m3/s) = 0.4400
g (9.81m/s2) = 9.81
A (m2) = 0.10808

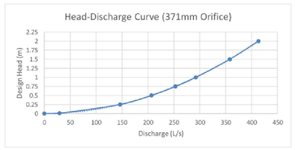
H (m) =	2.27

100yr STM Design Head = 2.27 m

Storm - 5 year
Allowable Release Rate = 284.66 L/s
Controlled Release Rate = 280.00 L/s
Q (m3/s) = 0.280
g (9.81m/s2) = 9.81
A (m2) = 0.10808

H (m) =	0.92

5yr STM Design Head = 0.92 m



SWM Design Parameters

Orifice Plate ⌀ (m)	0.371
Host Pipe Invert	84.64
Head above C/L Orifice	84.83
100y High Water Level	87.10
100y Design Head	2.27
5y High Water Level	85.75
5y Design Head	0.92

DATA FOR THE TEMP CB, STMH1, SANMH102 & SANMH103 AS PER SERVICING PLAN C04 FOR ECOLE ELEMENTAIRE PUBLIQUE ORLEANS SUD (675 MONARDIA WAY) PREPARED BY WSP, DATED MAY 2024

TO BE REMOVED
EXISTING SANMH103
T/G = 87.10
INV E = 83.88

PROP 23.1m - 900mmØ PVC SDR35 @ 0.34% SLOPE W/ INSULATION

PROP STM MH01 MAINTENANCE HOLE
T/G = 87.20
N INV = 84.56
W INV = 84.62
S INV = 85.41

EXISTING SANMH102
T/G = 87.78
INV E = 83.83
~~INV W = 83.88~~
NEW W INV = 83.86

PROP CBMH02
T/G = 87.00
W INV = 84.67
S INV = 84.70
E INV = 84.64
W/ 371mm ORIFICE PLATE ICD
100Y REL. RATE = 440.00 L/S
DESIGN HEAD = 2.27m

SAN-STM PIPE CROSS
SAN OBV = 84.10
STM INV = 84.48

PROP 20.8m - 600mmØ PVC SDR35 @ 0.34% SLOPE W/ INSULATION

PROP MH08
T/G = 87.00
N INV = 85.48
SW INV = 85.54
S INV AVAILABLE FOR FUTURE SITE DRAINAGE CONNECTION

EXISTING STMMH1
(1800mmØ)
T/G = 87.60
INV E = 83.98
~~INV SW = 84.13~~
NEW S INV = 84.46

PROP 42.6m - 525mmØ PVC SDR35 @ 0.20% SLOPE W/ INSULATION

PROP CBMH11
T/G = 87.00
N INV = 84.79
S INV = 84.82

PROP 48.0m - 525mmØ PVC SDR35 @ 0.20% SLOPE W/ INSULATION

PROP CBMH12
T/G = 87.00
N INV = 84.92
W INV = 84.98
S INV = 84.95

PROP 31.2m - 450mmØ PVC SDR35 @ 0.34% SLOPE W/ INSULATION

PROP CBMH14
T/G = 86.95
N INV = 85.06
SW INV = 85.09

PROP 11.9m - 200mmØ SAN PVC SDR-28 @ 1.0% SLOPE

TO BE REMOVED
EXISTING TEMP CBMH (1800mmØ)
C/W DICB GRATE
T/G = 85.70
INV NE = 84.17 C/W ICD

PROP 37.2m - 450mmØ PVC SDR35 @ 0.20% SLOPE W/ INSULATION

PROP 68.7m - 300mmØ PVC SDR35 @ 0.34% SLOPE W/ INSULATION

PROP SAN MH201
T/G = 87.53
E INV = 83.98
W INV = 84.03

PROP 70.1m - 250mmØ PVC SDR35 @ 0.432% SLOPE W/ INSULATION

PROPOSED PRIVATE FIRE HYDRANT AS PER CITY STANDARD DWG W19

PROPOSED VALVE & VALVE BOX AS PER CITY STANDARD DWG W24

PROP 9.8m - 750mmØ PVC SDR35 @ 0.25% SLOPE W/ INSULATION

PROPOSED STORMTECH UNDERGROUND STORMWATER CHAMBERS

FUTURE PORTABLES

FUTURE PORTABLES

FUTURE PARKING LOT EXPANSION

FUTURE CLASSROOM EXPANSION

PROP CBMH15
T/G = 86.90
NE INV = 85.17
W INV = 85.20

PROP 50.6m - 200mmØ SAN PVC SDR-28 @ 1.0% SLOPE

PROP CBMH03
T/G = 87.00
E INV = 84.69
W INV = 84.72

PROP CB05
T/G = 86.95
N INV = 85.03

PROP CB13
T/G = 87.35
E INV = 85.21

PROP 34.7m - 300mmØ PVC SDR35 @ 0.34% SLOPE W/ INSULATION

PROP. TEE W/ THRUST BLOCK AS PER CITY STND DETAILS W25.3 & W25.4

PROP SAN MH202
T/G = 87.50
E INV = 84.54
W INV = 84.57

PROP. 5.0m - 250mmØ PVC DR-18 CLASS 150 WATER SERVICE TO BE BURIED MIN. 2.4m BELOW GRADE

PROP 33.4m - 450mmØ PVC SDR35 @ 0.40% SLOPE W/ INSULATION

PROP MH09
T/G = 87.15
NE INV = 85.84
SW INV = 85.87

PROP. MAIN LINE
170.3m - 250mmØ PVC DR-18 CLASS 150 WATER SERVICE TO BE BURIED MIN. 2.4m BELOW GRADE

PROP CBMH16
T/G = 86.90
E INV = 85.33
W INV = 85.36

PROP. LOOP LINE
192.3m - 250mmØ PVC DR-18 CLASS 150 WATER SERVICE TO BE BURIED MIN. 2.4m BELOW GRADE

PROP CBMH04
T/G = 86.90
E INV = 84.85
W INV = 84.88
S INV = 84.91

PROP 47.2m - 375mmØ PVC SDR35 @ 0.34% SLOPE W/ INSULATION

PROP 70.1m - 250mmØ PVC SDR35 @ 0.432% SLOPE W/ INSULATION

PROP 63.7m - 200mmØ SAN PVC SDR-28 @ 1.0% SLOPE W/ INSULATION

PROP 51.8m - 300mmØ PVC SDR35 @ 0.34% SLOPE W/ INSULATION

PROP CBMH06
T/G = 86.80
E INV = 85.04
W INV = 85.10

PROP 34.8m - 300mmØ PVC SDR35 @ 0.25% SLOPE W/ INSULATION

PROP CBMH17
T/G = 86.90
E INV = 85.54

PROP 10.5m - 250mmØ PVC SDR35 @ 0.432% SLOPE W/ INSULATION

PROP. SIAMESE CONNECTION (TYP.)

PROPOSED HIGH SCHOOL BUILDING
AREA = 0.435ha
GFE = 88.00

PROP CBMH07
T/G = 86.85
N INV = 85.19
SW INV = 85.25

PROP MH10
T/G = 87.55
NE INV = 86.17
S INV = 86.23

PROP. DOM. WATER CONN. TO BE MINIMUM 2.4m BELOW SURFACE

PROP SAN MH203
T/G = 87.40
E INV = 85.20
SW INV = 85.26

PROP 63.2m - 200mmØ SAN PVC SDR-28 @ 1.0% SLOPE W/ INSULATION

PROP STM CONN.
INV AT BLDG = 86.22

PROP SAN CONN.
INV AT BLDG = 86.10

PROP. 4.1m - 150mmØ PVC DR-18 CLASS 150 WATER SERVICE TO BE BURIED MIN. 2.4m BELOW GRADE

PROP. TEE FITTING 1 W/ THRUST BLOCK AS PER CITY STND DETAILS W25.3 & W25.4

PROP SAN MH204
T/G = 87.50
NE INV = 85.89
S INV = 85.95

PROP. 16.6m - 250mmØ PVC DR-18 CLASS 150 WATER SERVICE TO BE BURIED MIN. 2.4m BELOW GRADE

PROP EMERG. SPILLOVER POINT
ELEV = 87.10

PROP 13.0m - 200mmØ SAN PVC SDR-28 @ 1.0% SLOPE

PROP. 15.0m - 525mmØ HDPE 320KPA CULVERT W/ FROST TREATMENT AS PER OPSD 803.030. RIP-RAP AT INLET AND OUTLET AS PER OPSD 810.010

PROPOSED VALVE & VALVE BOX AS PER CITY STANDARD DWG W24

PROP ELBOWS W/ THRUST BLOCKS AS PER CITY STND DETAILS W25.3 & W25.4

LOOP LINE WATER CONNECTION AS PER CITY OF OTTAWA STANDARD

PROPOSED VALVE & VALVE BOX AS PER CITY STANDARD DWG W24

MAIN LINE WATER CONNECTION AS PER CITY OF OTTAWA STANDARD

EXISTING CULVERT TO BE REMOVED. PROP. 15.0m - 525mmØ HDPE 320KPA CULVERT W/ FROST TREATMENT AS PER OPSD 803.030. RIP-RAP AT INLET AND OUTLET AS PER OPSD 810.010

DITCH TO BE REGRADED AS PROPOSED.

EXISTING CULVERT TO BE REMOVED. DITCH TO BE REGRADED AS PROPOSED.

CONTRACTOR TO EXTEND EXISTING 500mm CSP CULVERT BY 12.0m. RIP-RAP ATOUTLET AS PER OPSD 810.010

Proposed Watermain Table

Location	Station	Min. Obv	Grade	Notes
Main Line				
Connection to City WM	0+000.0	Match Ex WM OBV	87.50	
Valve & Valve Box	0+012.5	85.18	87.58	
Tee Fitting 1*	0+016.8	85.37	87.77	*branches into domestic line & fire protection line
Main Line - Domestic Branch				
Connection to BLDG	0+020.6	85.45	87.85	
Main Line - Fire Hydrant Branch				
Elbow Fitting 1	0+058.5	85.24	87.64	
Elbow Fitting 2	0+060.0	85.26	87.66	
Elbow Fitting 3	0+151.2	85.18	87.58	
Elbow Fitting 4	0+152.6	85.20	87.60	
Tee Fitting 2*	0+187.0	85.27	87.67	*converging main line and loop line
Valve & Valve Box	0+189.5	85.25	87.65	
Private Hydrant	0+192.0	85.23	87.63	
Loop Line				
Connection to City WM	0+000.0	Match Ex WM OBV	87.50	
Valve & Valve Box	0+012.5	85.17	87.57	
Elbow Fitting 5	0+013.8	85.22	87.62	*branches into domestic line & fire protection line
Elbow Fitting 6	0+015.2	85.25	87.65	
Elbow Fitting 7	0+054.6	85.08	87.48	
Elbow Fitting 8	0+056.2	85.11	87.51	
Elbow Fitting 9	0+152.1	85.13	87.53	
Elbow Fitting 10	0+153.5	85.14	87.54	
Elbow Fitting 11	0+189.1	85.25	87.65	
Elbow Fitting 12	0+190.5	85.26	87.66	
Tee Fitting 2*	0+192.5	85.27	87.67	*converging main line and loop line

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- EXISTING OVERLAND MAJOR FLOW ROUTE
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED GRADING HIGH POINTS
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA / RUNOFF — WATERSHED NAME, RUNOFF COEFFICIENT, AREA IN HECTARES

NOT FOR CONSTRUCTION TENDER OR PERMIT

Conseil des écoles publiques de l'Est de l'Ontario

USE AND INTERPRETATION OF DRAWING(S)

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE, NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, SPECIFICATIONS, ADDENDA, AND ALL MODIFICATIONS AND CLARIFICATIONS ISSUED SUBSEQUENT TO AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE OR SHE HAS REVIEWED AND APPROVED THE DRAWINGS, THE CONTRACTOR CONFIRMS THAT HE WAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIES THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID BY THE CONTRACTOR SHALL CONSTITUTE REPRESENTATION TO THE CONTRARY, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND INCLUDED IN THE PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME ALL RESPONSIBILITY FOR THE EFFECT OF SUCH CHANGES ON THE WORK OF LRL AND THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENCE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM ANY DEVIATION FROM PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO ABIDE AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

no.	date	revision / issue	by
1	JAN 31, 2025	ISSUED FOR SITE PLAN CONTROL & FOUNDATION PERMIT	KH

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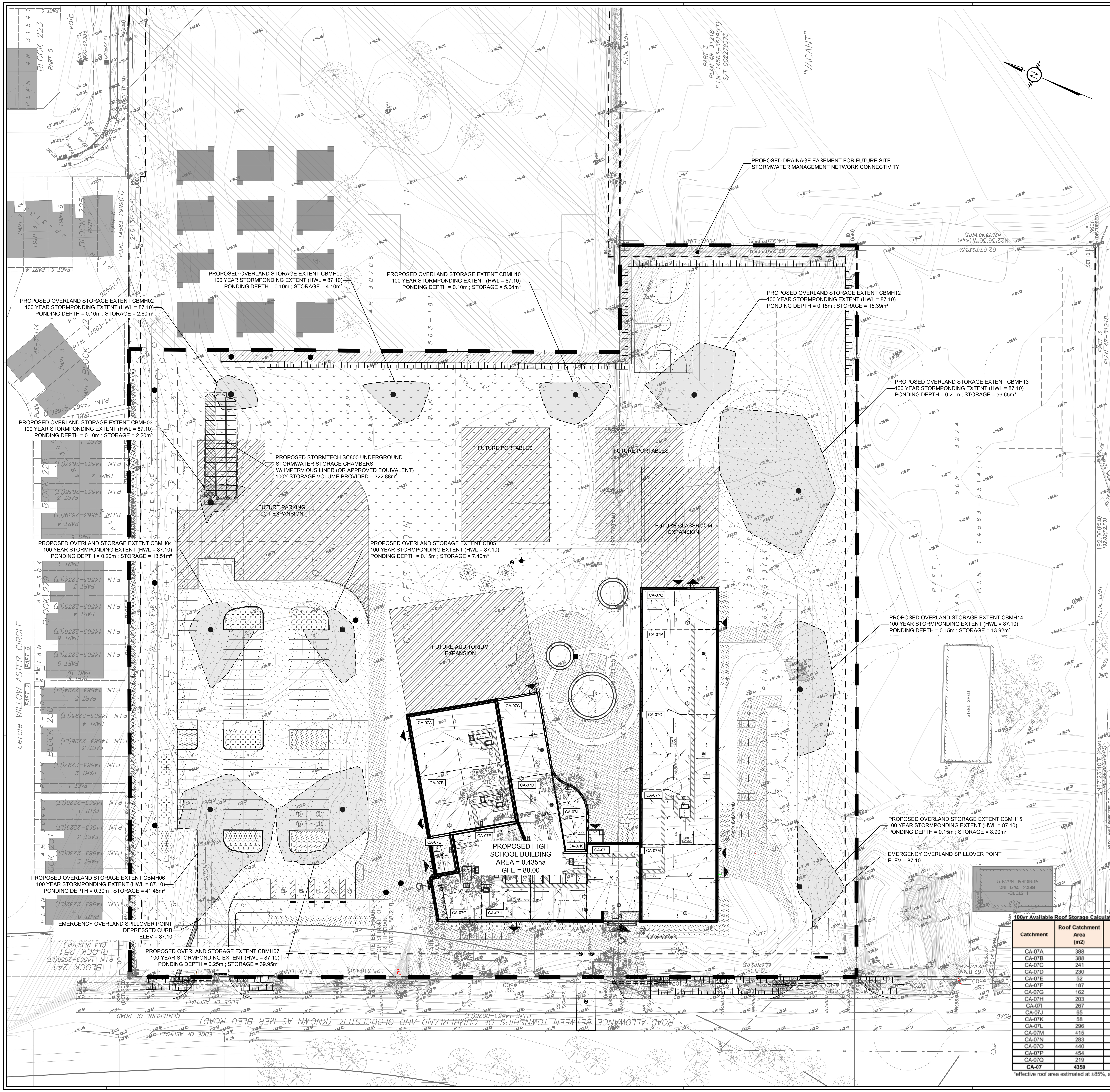
PROVINCE OF ONTARIO

project title
NOUVELLE ÉCOLE
ESP ORLEANS-SUD
2405 / 2419 RUE MER-BLEUE
Orleans Ontario

drawing title
SERVICING PLAN

date	2025-01-31
scale	1:500
drawn	KH
approved	MB
plot date	2025-01-31
job. no.	240462
drawing no.	C401

1. DO NOT SCALE FROM THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL



PROPOSED DRAINAGE EASEMENT FOR FUTURE SITE STORMWATER MANAGEMENT NETWORK CONNECTIVITY
PROPOSED OVERLAND STORAGE EXTENT CBMH09 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.10m ; STORAGE = 4.10m³
PROPOSED OVERLAND STORAGE EXTENT CBMH10 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.10m ; STORAGE = 5.04m³
PROPOSED OVERLAND STORAGE EXTENT CBMH02 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.10m ; STORAGE = 2.60m³
PROPOSED OVERLAND STORAGE EXTENT CBMH12 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.15m ; STORAGE = 15.39m³
PROPOSED OVERLAND STORAGE EXTENT CBMH13 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.20m ; STORAGE = 56.65m³
PROPOSED OVERLAND STORAGE EXTENT CBMH03 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.10m ; STORAGE = 2.20m³
PROPOSED STORMTECH SC800 UNDERGROUND STORMWATER STORAGE CHAMBERS W/ IMPERVIOUS LINER (OR APPROVED EQUIVALENT) 100Y STORAGE VOLUME PROVIDED = 322.88m³
FUTURE PORTABLES
FUTURE PORTABLES
FUTURE PARKING LOT EXPANSION
FUTURE CLASSROOM EXPANSION
PROPOSED OVERLAND STORAGE EXTENT CBMH04 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.20m ; STORAGE = 13.51m³
PROPOSED OVERLAND STORAGE EXTENT CB05 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.15m ; STORAGE = 7.40m³
PROPOSED OVERLAND STORAGE EXTENT CBMH14 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.15m ; STORAGE = 13.92m³
FUTURE AUDITORIUM EXPANSION
PROPOSED HIGH SCHOOL BUILDING
AREA = 0.435ha
GFE = 88.00
PROPOSED OVERLAND STORAGE EXTENT CBMH15 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.15m ; STORAGE = 8.90m³
EMERGENCY OVERLAND SPILLOVER POINT ELEV = 87.10
PROPOSED OVERLAND STORAGE EXTENT CBMH06 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.30m ; STORAGE = 41.48m³
EMERGENCY OVERLAND SPILLOVER POINT DEPRESSED CURB ELEV = 87.10
PROPOSED OVERLAND STORAGE EXTENT CBMH07 100 YEAR STORMPONDING EXTENT (HWL = 87.10) PONDING DEPTH = 0.25m ; STORAGE = 39.95m³
STEEL SHED
"VACANT"
"VACANT"
cercle WILLOW ASTER CIRCLE
ROAD ALLOWANCE BETWEEN TOWNSHIPS OF CUMBERLAND AND GLOUCESTER (KNOWN AS MER BLEU ROAD)

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- EXISTING OVERLAND MAJOR FLOW ROUTE
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- STM PROPOSED STORM SEWER
- SAN PROPOSED SANITARY SEWER
- WTR PROPOSED WATERMAIN
- STM EXISTING STORM SEWER
- SAN EXISTING SANITARY SEWER
- WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED GRADING HIGH POINTS
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX WATERSHED NAME
- CONTROLLED / RUNOFF: RUNOFF COEFFICIENT
- AREA: AREA IN HECTARES

Orifice Plate Diameter Design

Storm - 100 year

Allowable Release Rate = 441.99 L/s
Controlled Release Rate = 440.00 L/s
Q (m3/s) = 0.4400
g (9.81m/s2) = 9.81
A (m2) = 0.10808

H (m) = 2.27

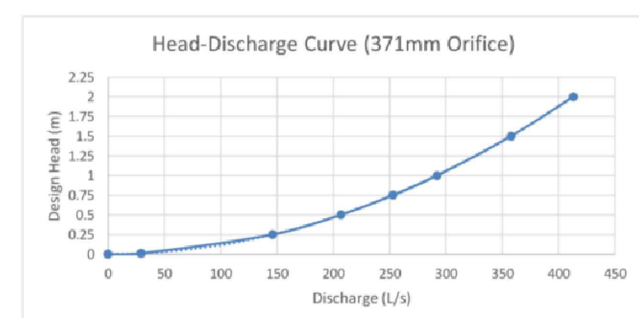
100yr STM Design Head = 2.27 m

Storm - 5 year

Allowable Release Rate = 284.66 L/s
Controlled Release Rate = 280.00 L/s
Q (m3/s) = 0.280
g (9.81m/s2) = 9.81
A (m2) = 0.10808

H (m) = 0.92

5yr STM Design Head = 0.92 m



SWM Design Parameters

Orifice Plate Ø (m)	0.371
Host Pipe Invert	84.64
Head above C/L Orifice	84.83
100y High Water Level	87.10
100y Design Head	2.27
5y High Water Level	85.75
5y Design Head	0.92

100yr Available Roof Storage Calculation:

Catchment	Roof Catchment Area (m2)	Effective Roof Catchment Area* (m2)	Depth (m)	# Roof Drains	Weir Opening Exposure	Required Volume (m3)	Effective Available Volume (m3)	Total Flow (L/s)
CA-07A	388	327	0.15	1	1/4 open	15.1	16.4	0.94
CA-07B	388	327	0.15	1	1/4 open	15.1	16.4	0.94
CA-07C	241	203	0.15	1	closed	9.2	10.2	0.63
CA-07D	230	194	0.15	1	closed	8.6	9.7	0.63
CA-07E	52	44	0.15	1	closed	1.0	2.2	0.63
CA-07F	187	158	0.15	2	closed	5.0	7.9	1.26
CA-07G	162	137	0.15	1	closed	5.4	6.9	0.63
CA-07H	203	171	0.15	1	closed	7.3	8.6	0.63
CA-07I	267	225	0.15	1	closed	10.5	11.3	0.63
CA-07J	65	55	0.15	1	closed	1.4	2.8	0.63
CA-07K	58	49	0.15	1	closed	1.2	2.5	0.63
CA-07L	296	250	0.15	1	closed	12.0	12.5	0.63
CA-07M	415	350	0.15	2	closed	15.1	17.5	1.26
CA-07N	283	239	0.15	2	closed	9.0	12.0	1.26
CA-07O	440	371	0.15	2	closed	16.3	18.6	1.26
CA-07P	454	383	0.15	2	closed	17.0	19.2	1.26
CA-07Q	219	185	0.15	2	closed	6.3	9.3	1.26
CA-07	**4350**	**3668**		**23**		**155.5**	**183.4**	**15.11**

*effective roof area estimated at ±85%, as per architectural roof plan

Conseil des écoles publiques de l'Est de l'Ontario

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CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

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NOT FOR CONSTRUCTION TENDER OR PERMIT

no.	date	revision / issue	by
1	JAN 31, 2025	ISSUED FOR SITE PLAN CONTROL & FOUNDATION PERMIT	KH

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professional stamp
LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/31
PROVINCE OF ONTARIO

project title

NOUVELLE ÉCOLE
ESP ORLEANS-SUD
2405 / 2419 RUE MER-BLEUE

Orleans Ontario

drawing title

STORMWATER MANAGEMENT PLAN

date	2025-01-31	job. no.	240462
scale	1:500		
drawn	KH	drawing no.	C601
approved	MB		
plot date	2025-01-31		

1. DO NOT SCALE FROM THIS DRAWING
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
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- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- EXISTING OVERLAND MAJOR FLOW ROUTE
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- STM / STM PROPOSED STORM SEWER
- SAN / SAN PROPOSED SANITARY SEWER
- WTR / WTR PROPOSED WATERMAIN
- STM / STM EXISTING STORM SEWER
- SAN / SAN EXISTING SANITARY SEWER
- WTR / WTR EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED GRADING HIGH POINTS
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX / CONTROLLED / AREA / RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

ECA-01
UNCONTROLLED
3.313 | 0.36

SEGMENT OF LOT NOT ACCURATELY PORTRAYED IN TOPO. SHOULD BE A CONSIDERABLE AMOUNT OF ASPHALT, GRAVEL AND ROOF SURFACE SHOWN ON-SITE
(SWM CALCULATED BASED ON GOOGLE MAPS LATEST SITE PHOTO)

SITE BENCHMARK 4
SW RAIL OF FIRE HYDRANT
ELEVATION 88.218

SITE BENCHMARK 2
CUT CROSS
ELEVATION 87.449

STEEL SHED

1 STOREY BRICK DWELLING MUNICIPAL No.2431

"VACANT"

ROAD ALLOWANCE BETWEEN TOWNSHIPS OF CUMBERLAND AND GLOUCESTER (KNOWN AS MER BLEU ROAD)
PLN 14563-0026(LT)

CENTERLINE OF ROAD
EDGE OF ASPHALT

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USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY; WHAT IS REQUIRED BY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT CLEARLY AND COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

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UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS RESPONSIBLE, MAKE CHANGES OR PERMITS TO BE MADE AND CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY GRC ASSOCIATES LTD. (GRC) WITHOUT OBTAINING GRC'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST GRC AND TO RELEASE GRC FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD GRC HARMLESS FROM ANY DAMAGE, LIABILITY OR COST (INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENCE) ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING CHANGES OR PERMITTING ANY CHANGES TO BE MADE TO GRC'S DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF GRC, AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH GRC AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

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2405 / 2419 RUE MER-BLEUE
Orleans Ontario

drawing title
PRE-DEVELOPMENT WATERSHED PLAN

date	2025-01-31	job. no.	240462
scale	1:500		
drawn	KH	drawing no.	C701
approved	MB		
plot date	2025-01-31		

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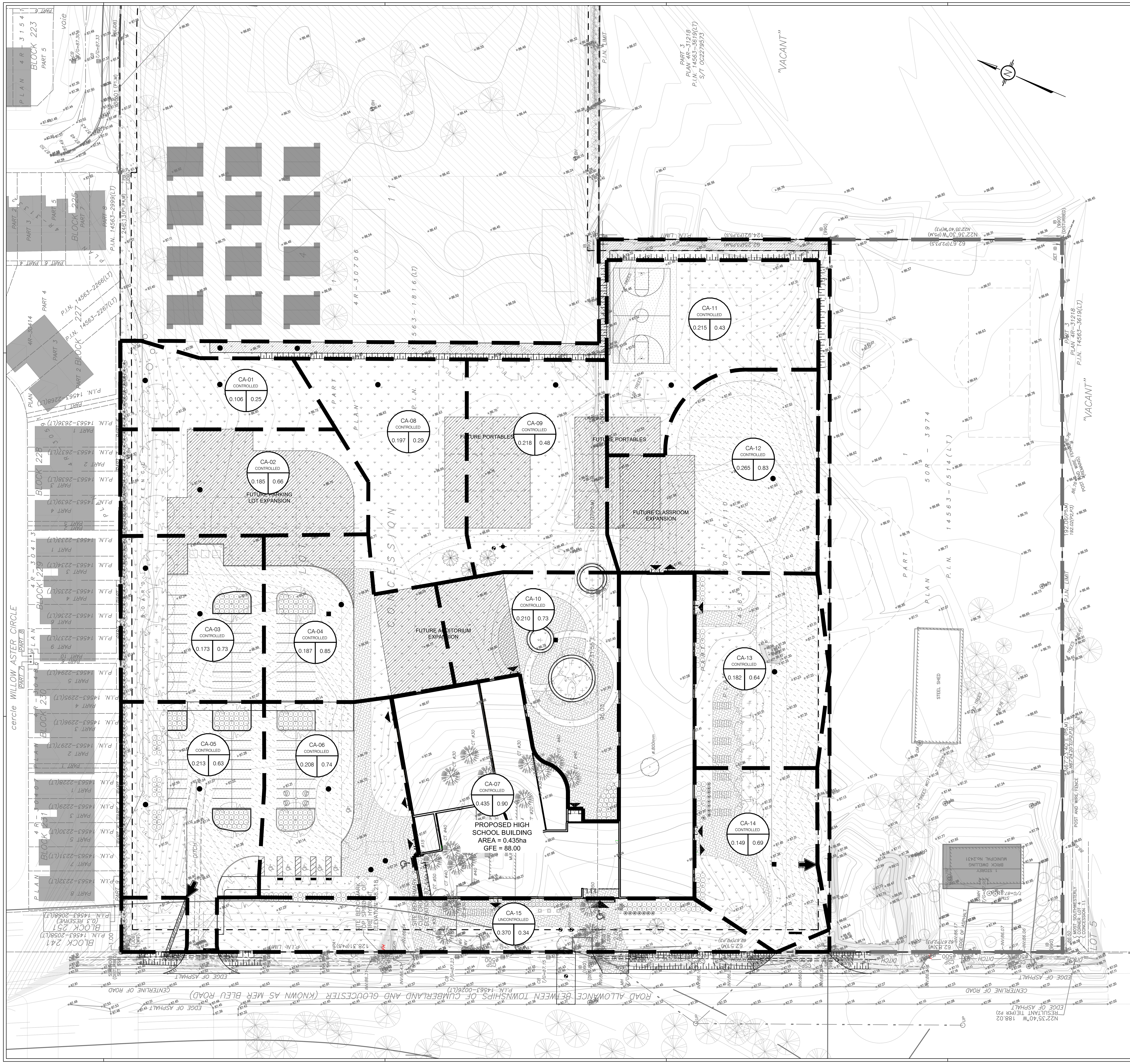

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1	JAN 31, 2025	ISSUED FOR SITE PLAN CONTROL & FOUNDATION PERMIT	KH

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professional stamp: LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2025/01/31 PROVINCE OF ONTARIO

project title

NOUVELLE ÉCOLE
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2405 / 2419 RUE MER-BLEUE

Orleans Ontario

drawing title

POST-DEVELOPMENT WATERSHED PLAN

date	2025-01-31	job. no.	240462
scale	1:500		
drawn	KH	drawing no.	C702
approved	MB		
plot date	2025-01-31		

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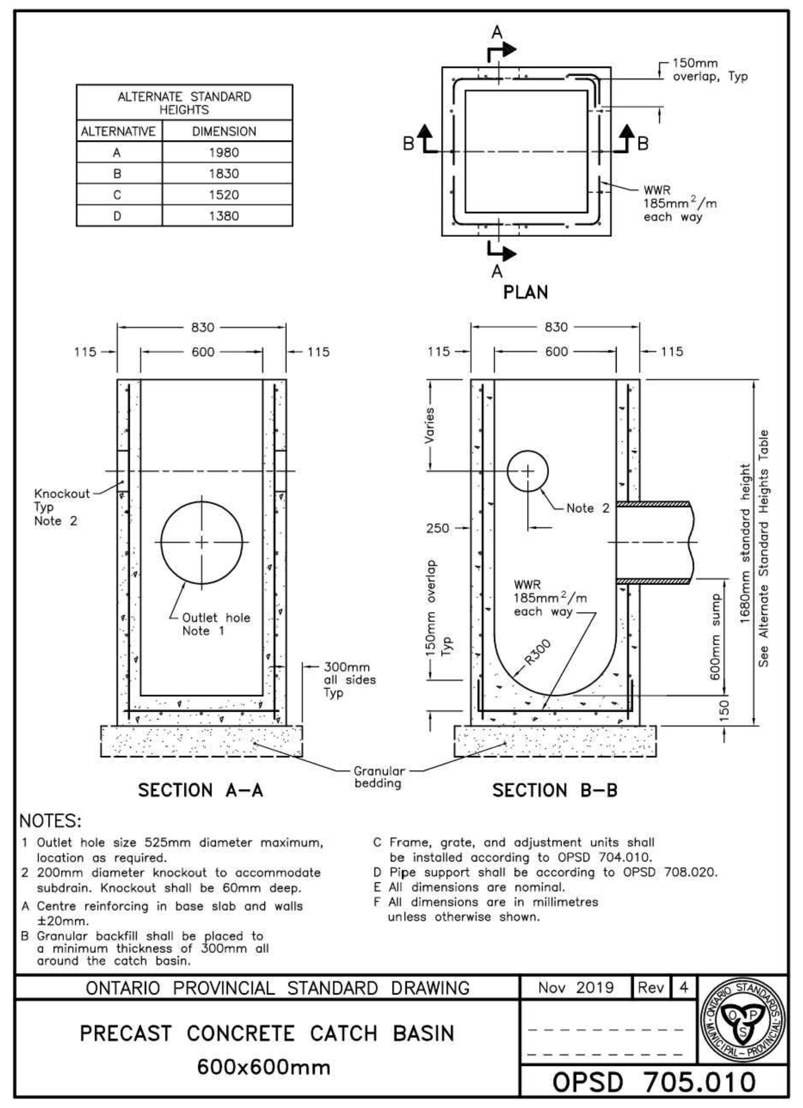
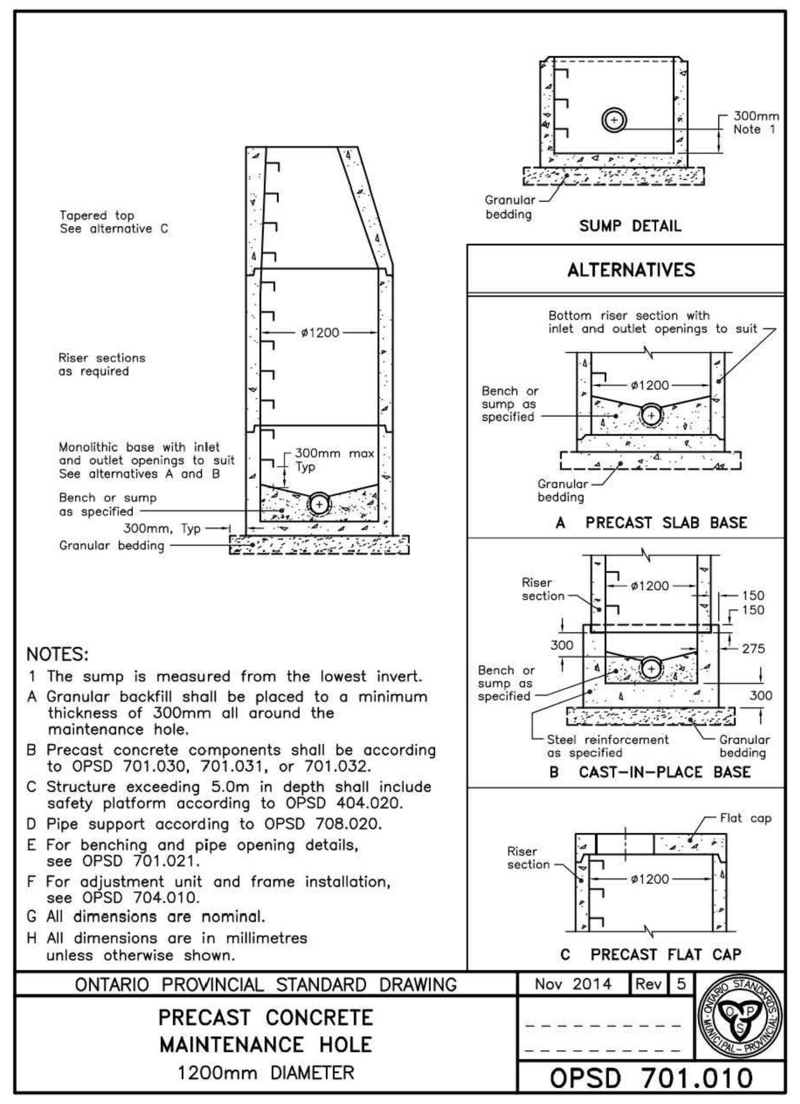
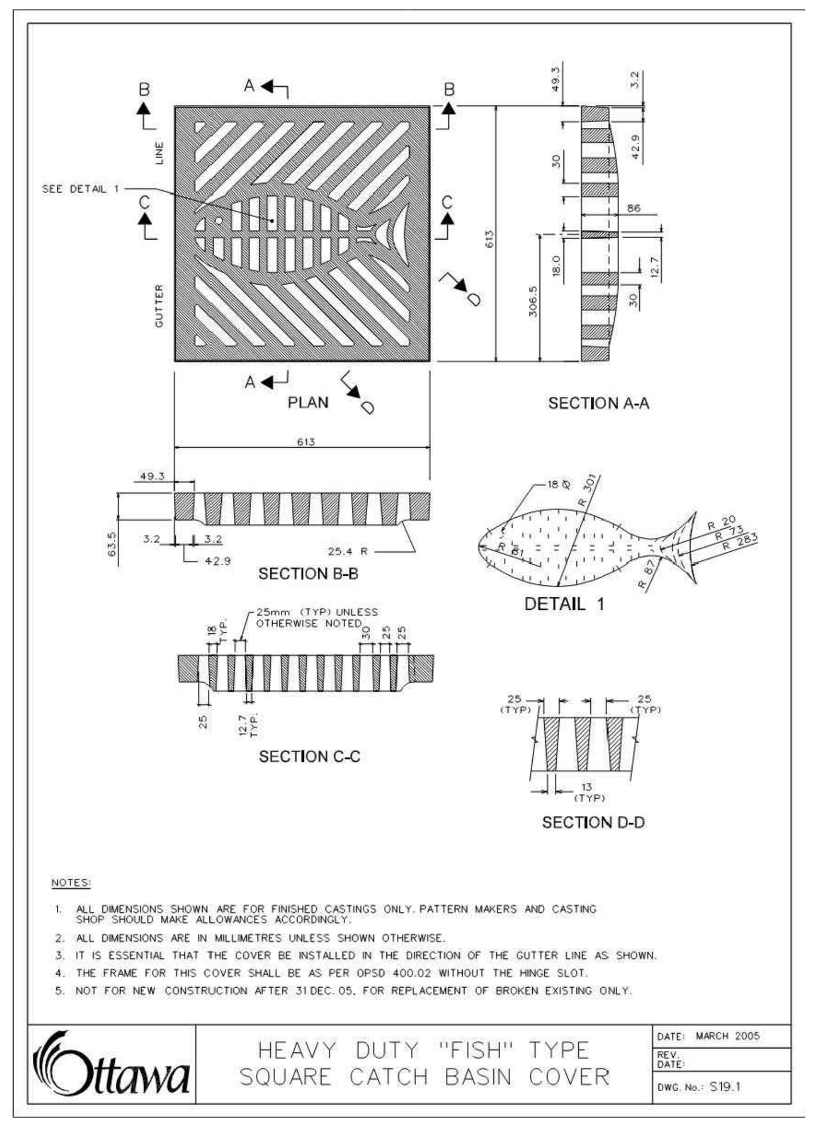
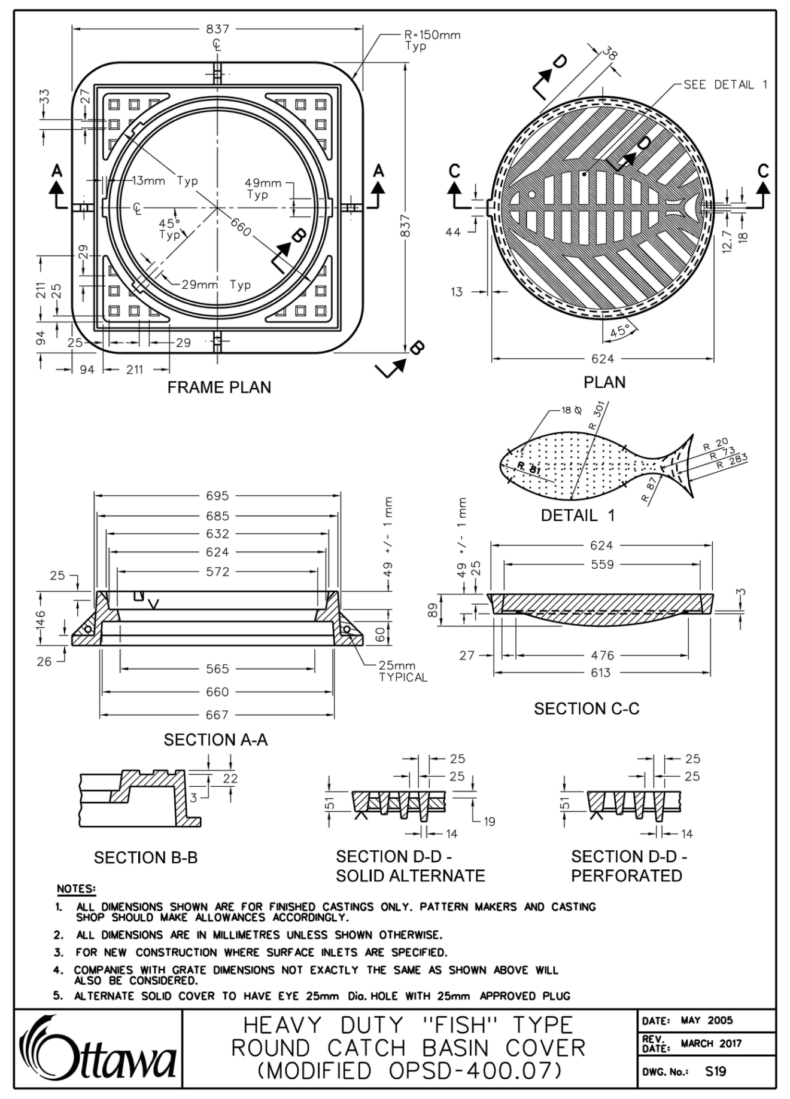
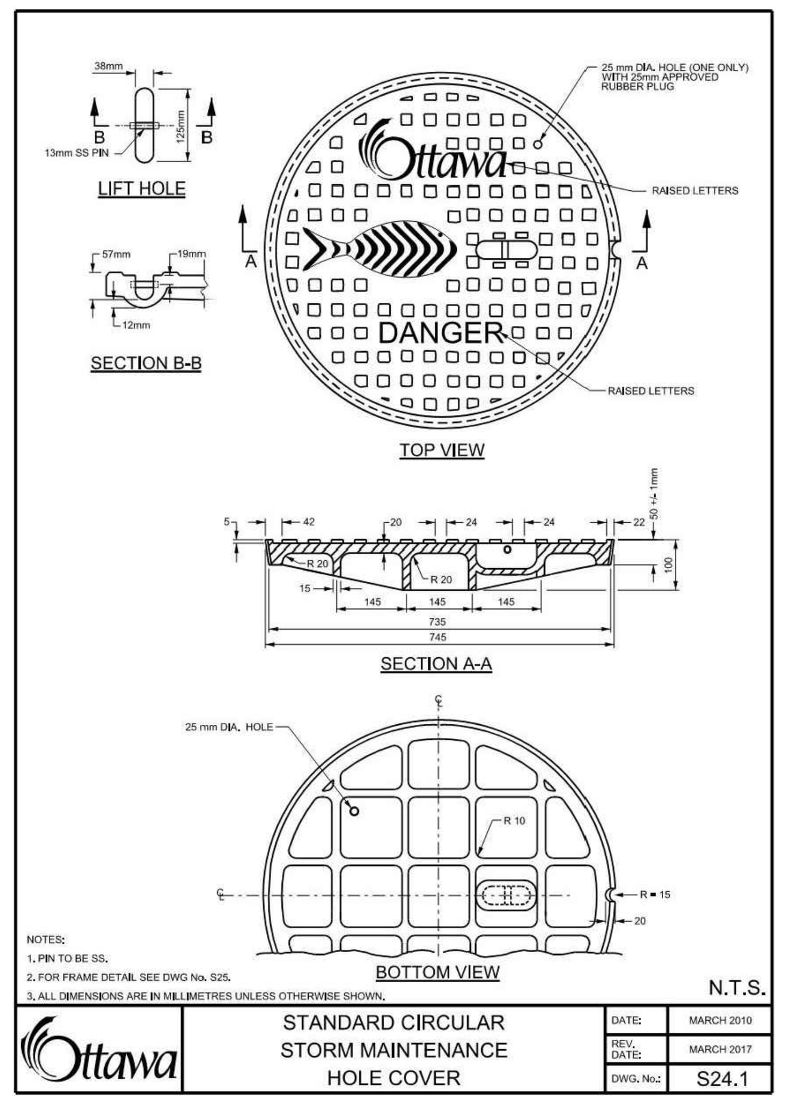
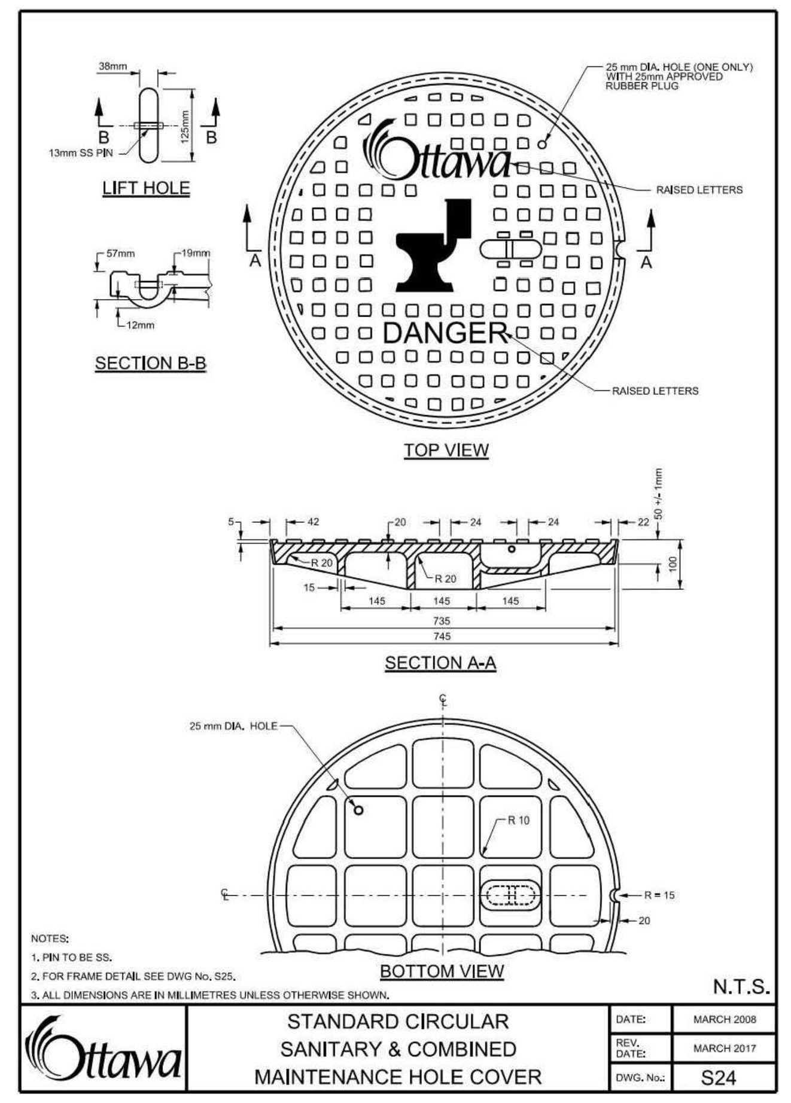


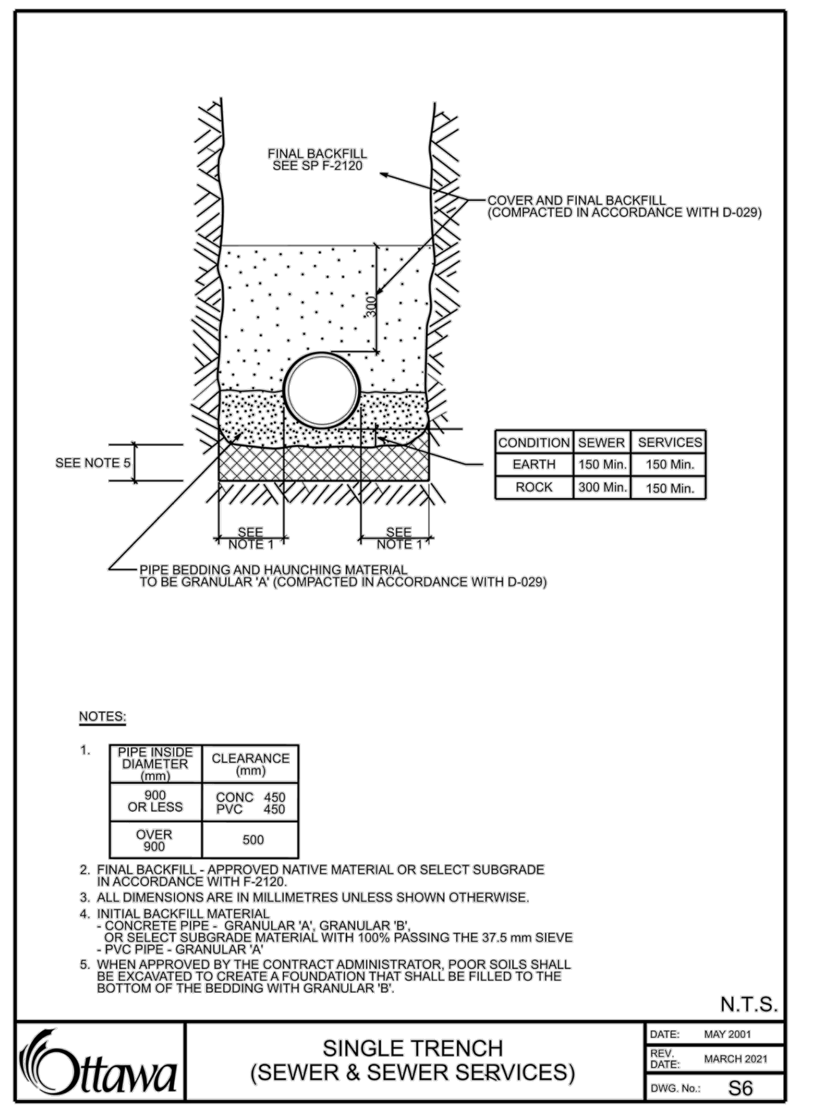


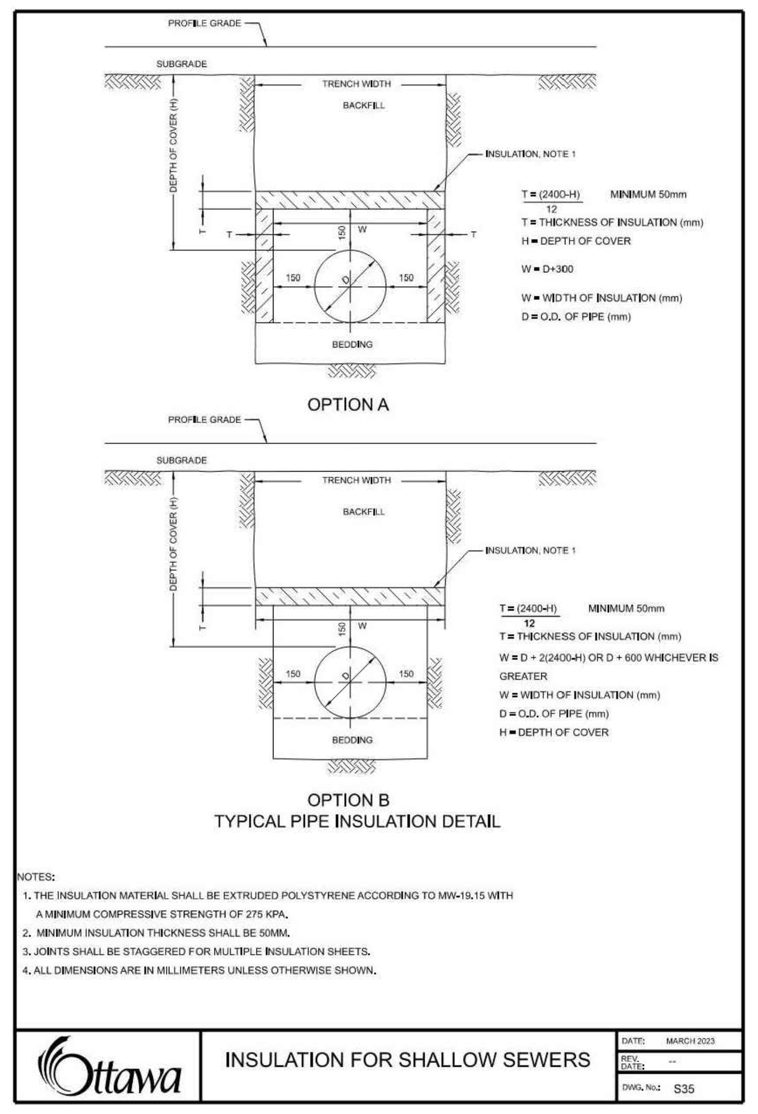


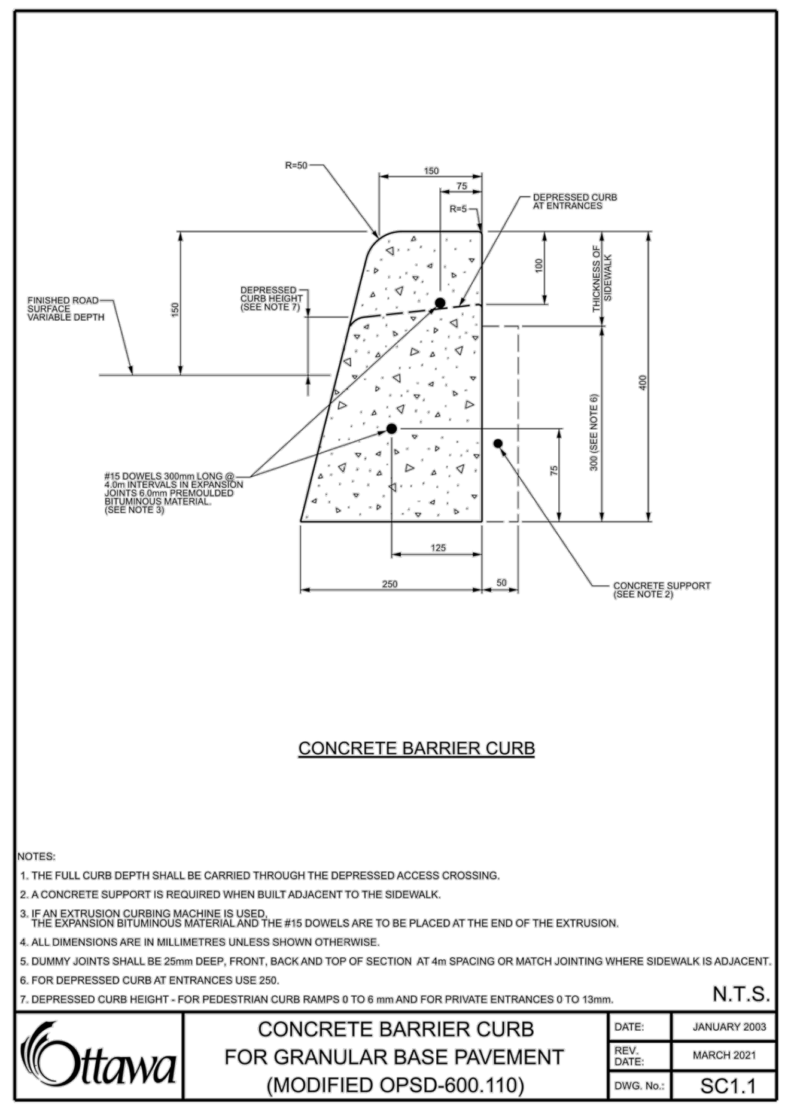


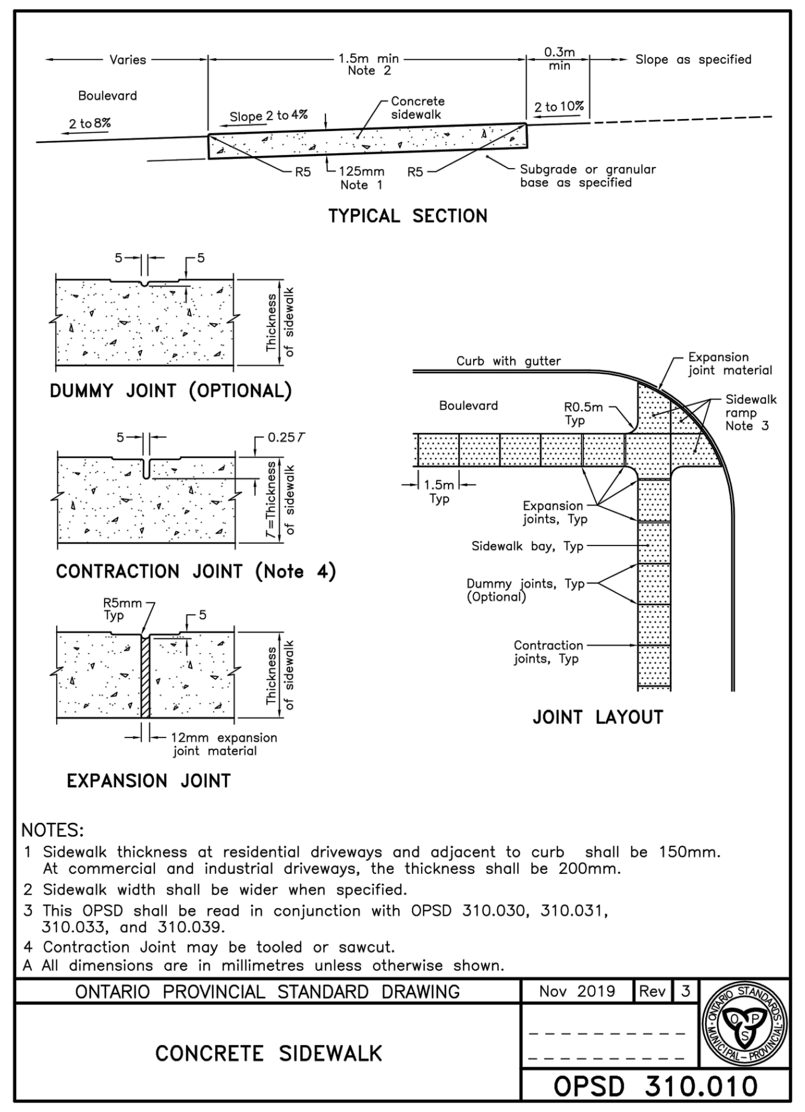


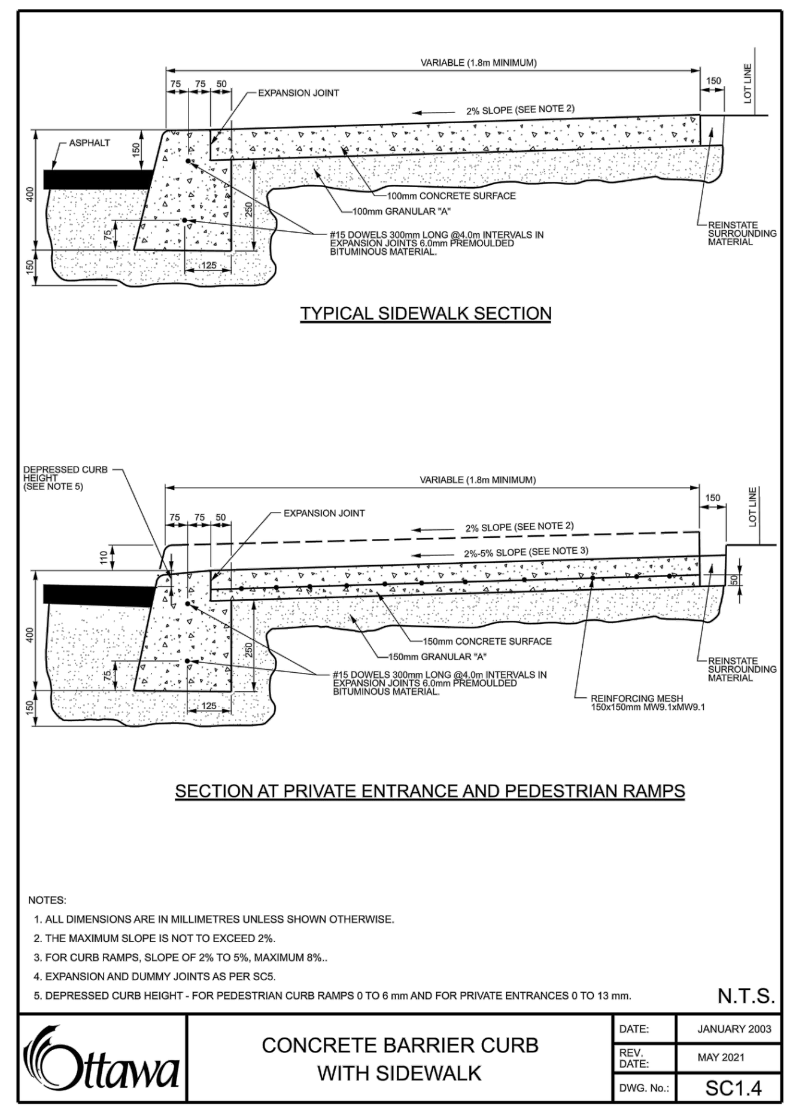


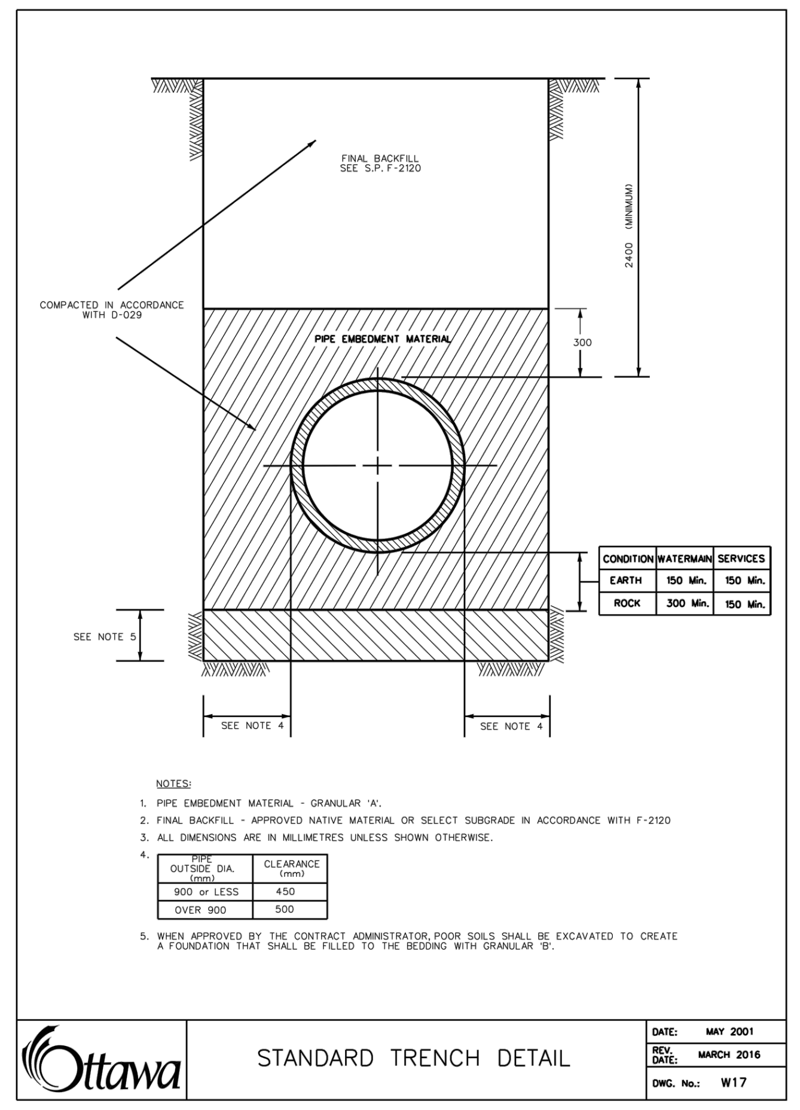


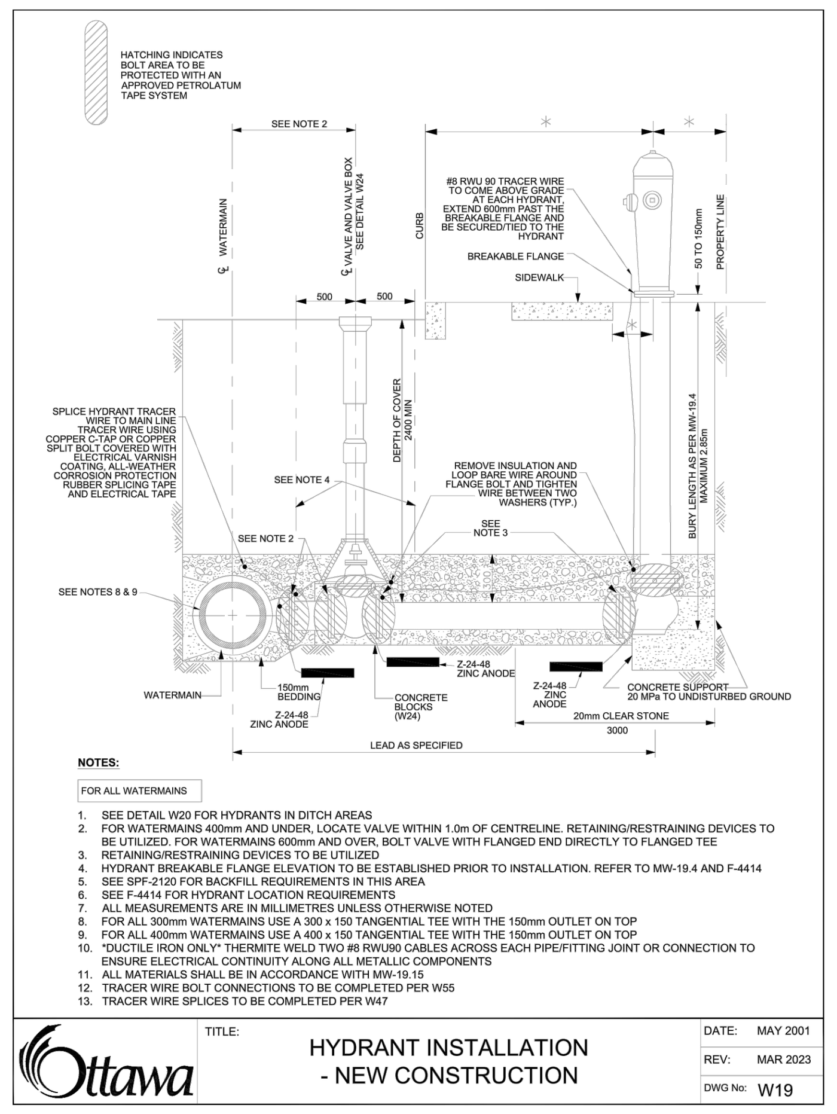


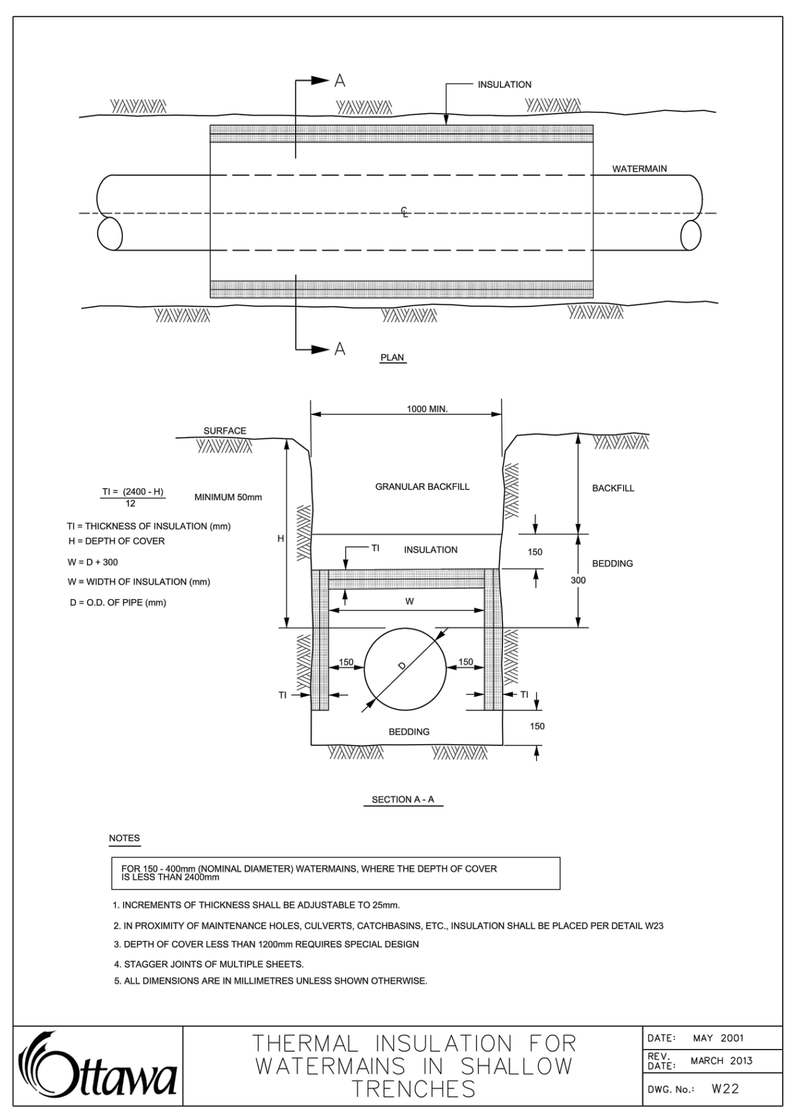


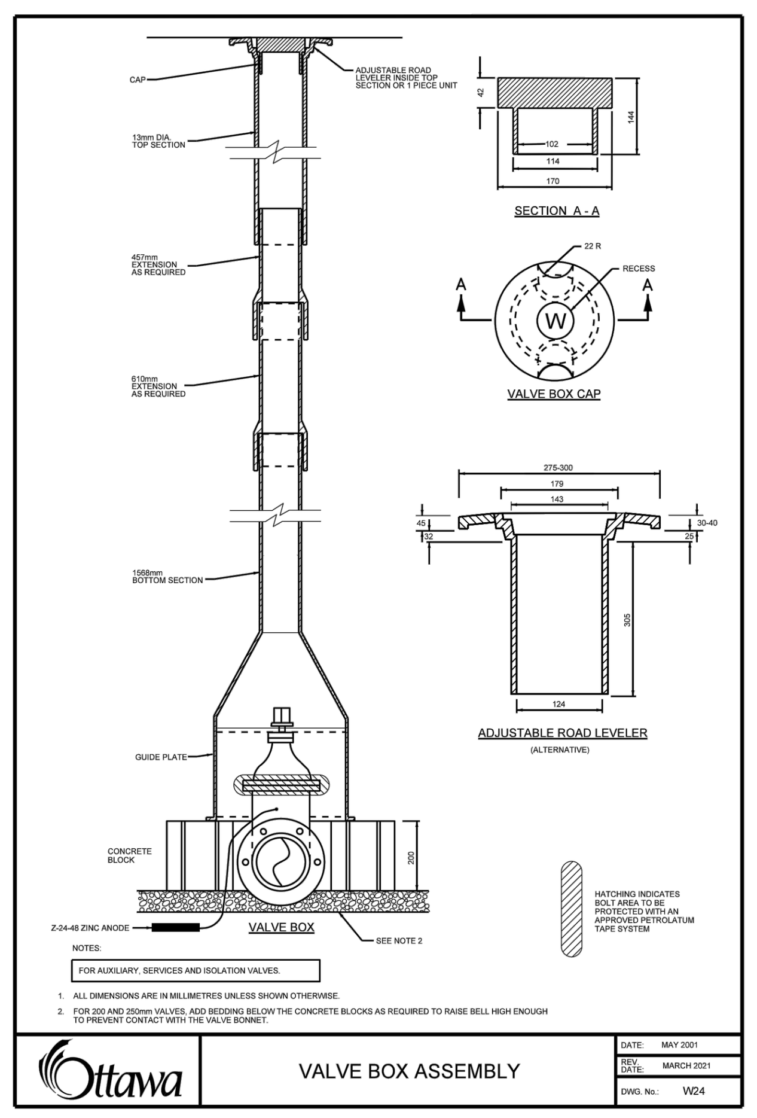


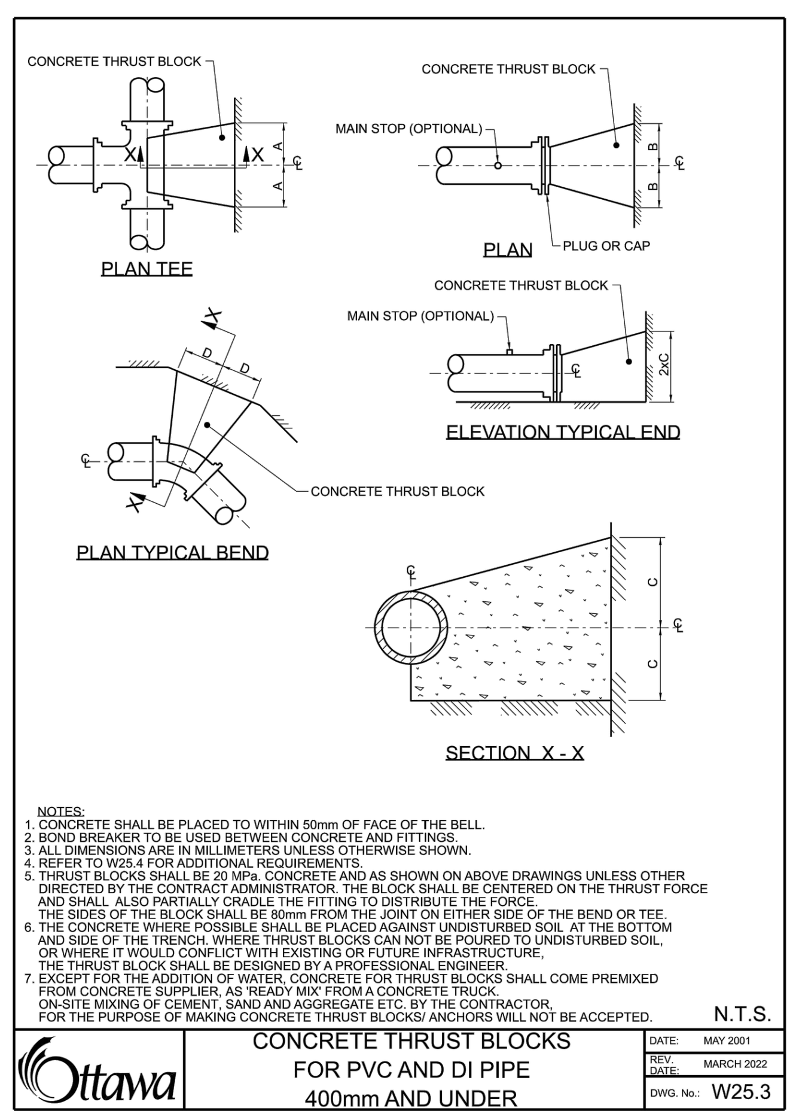


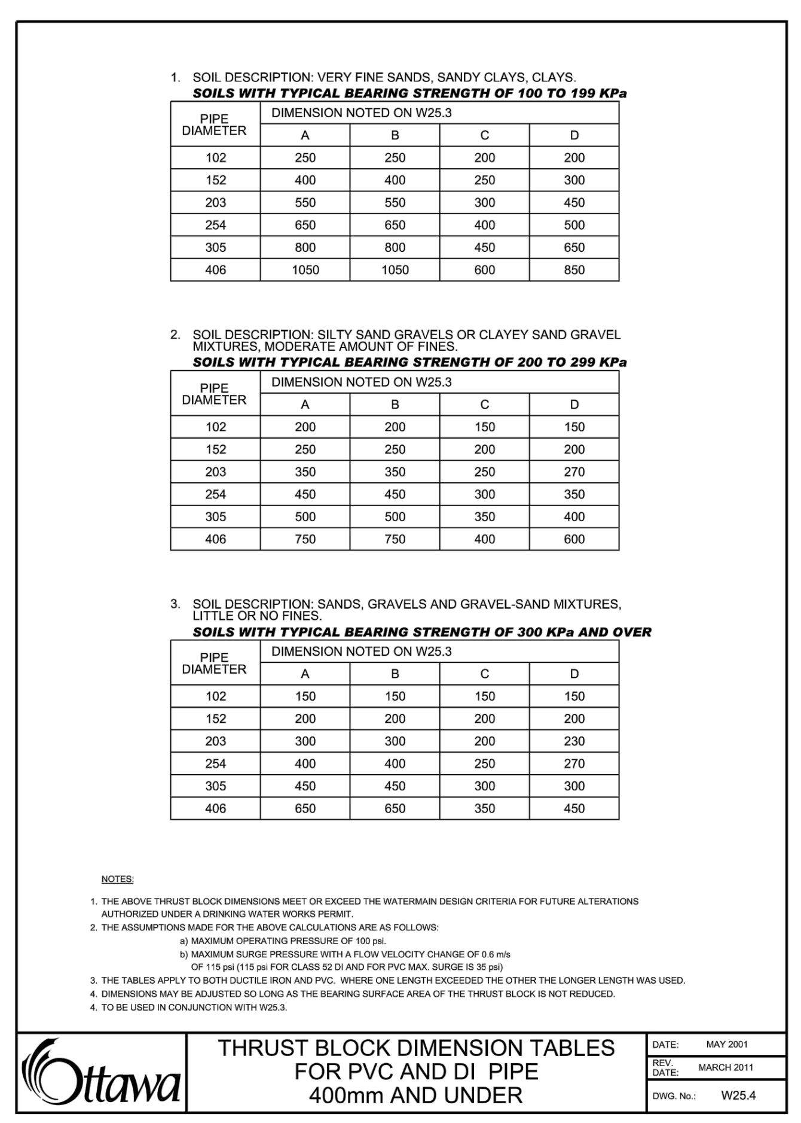












1. SOIL DESCRIPTION: VERY FINE SANDS, SANDY CLAYS, CLAYS. SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 199 KPa

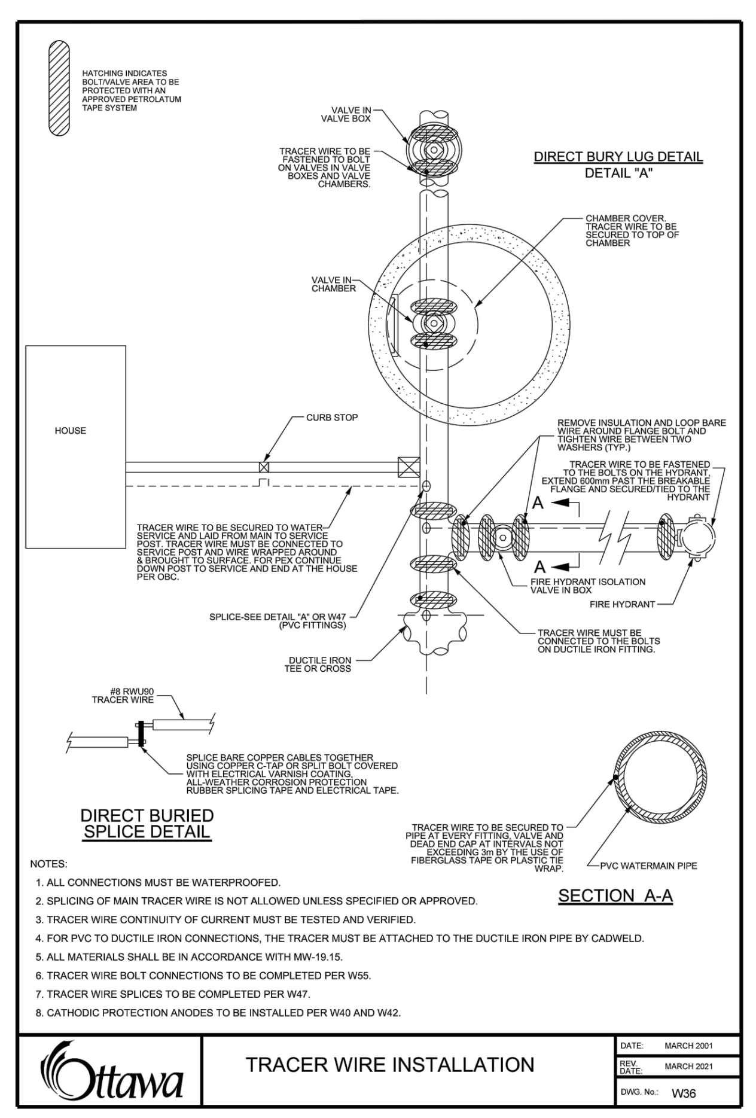
PIPE DIAMETER	A	B	C	D
	DIMENSION NOTED ON W25.3			
102	250	250	200	200
152	400	400	250	300
203	550	550	300	450
254	650	650	400	500
305	800	800	450	650
406	1050	1050	600	850

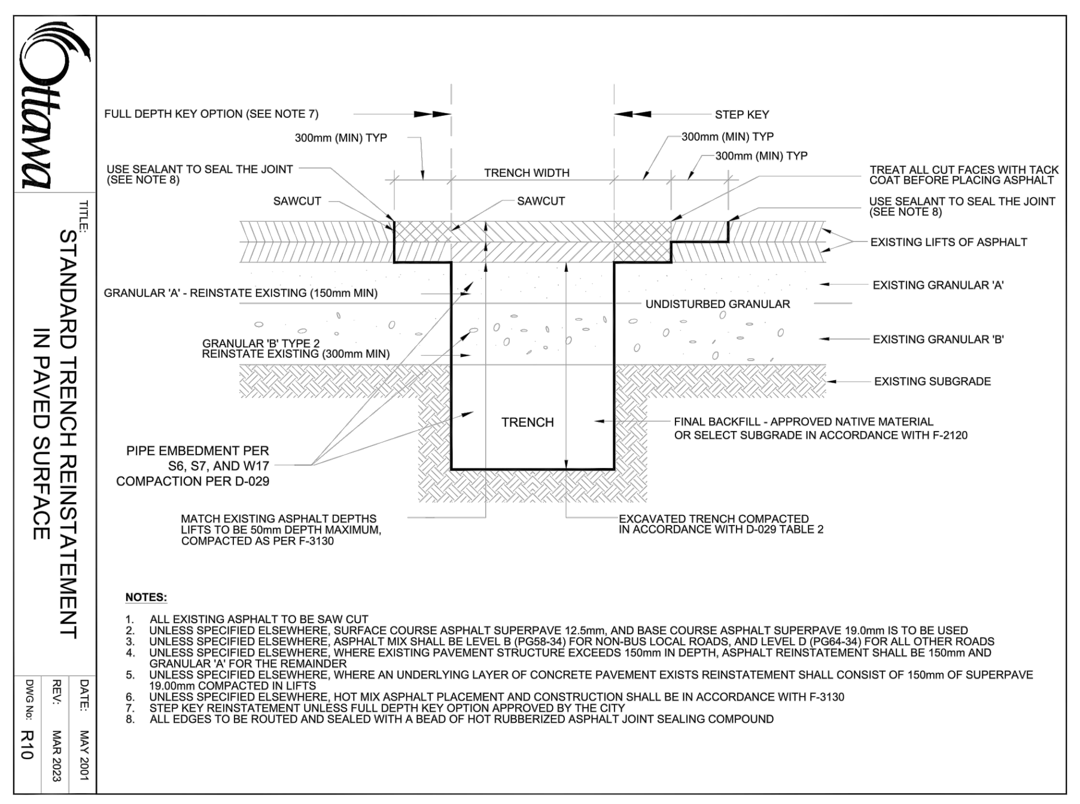
2. SOIL DESCRIPTION: SILTY SAND GRAVELS OR CLAYEY SAND GRAVEL MIXTURES, MODERATE AMOUNT OF FINES. SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 299 KPa

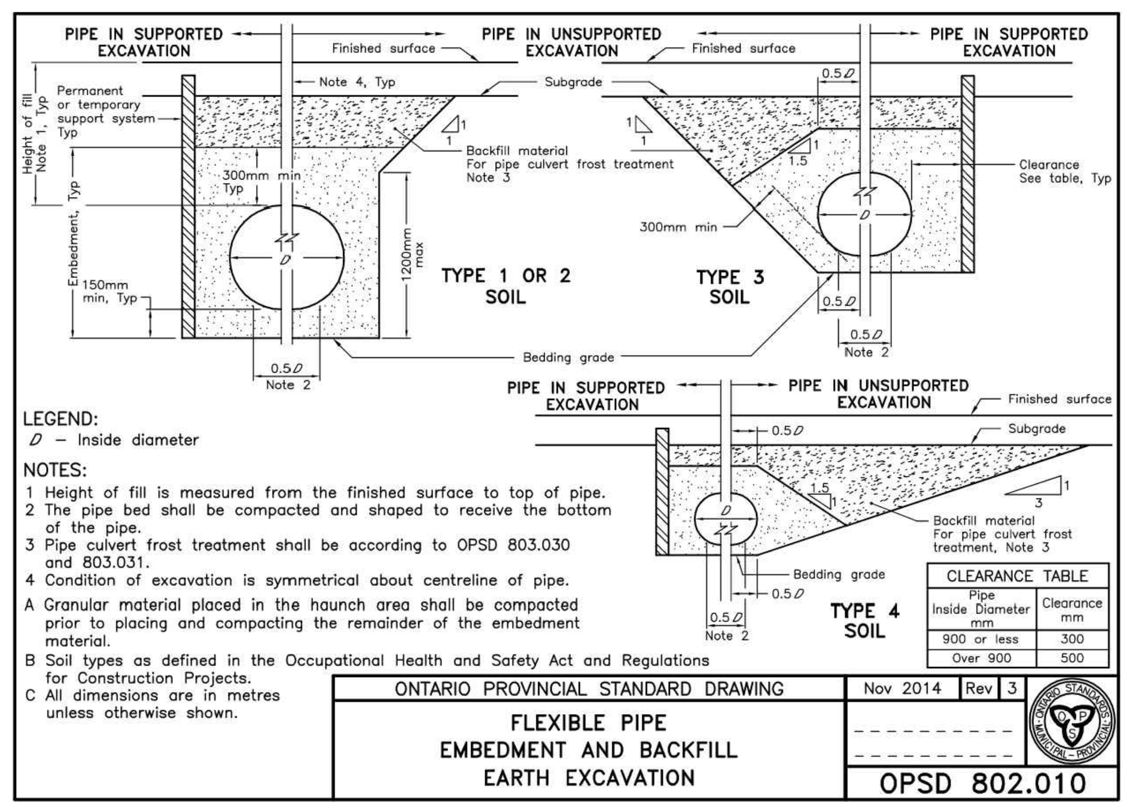
PIPE DIAMETER	A	B	C	D
	DIMENSION NOTED ON W25.3			
102	200	200	150	150
152	250	250	200	200
203	350	350	250	270
254	450	450	300	350
305	500	500	350	400
406	750	750	400	600

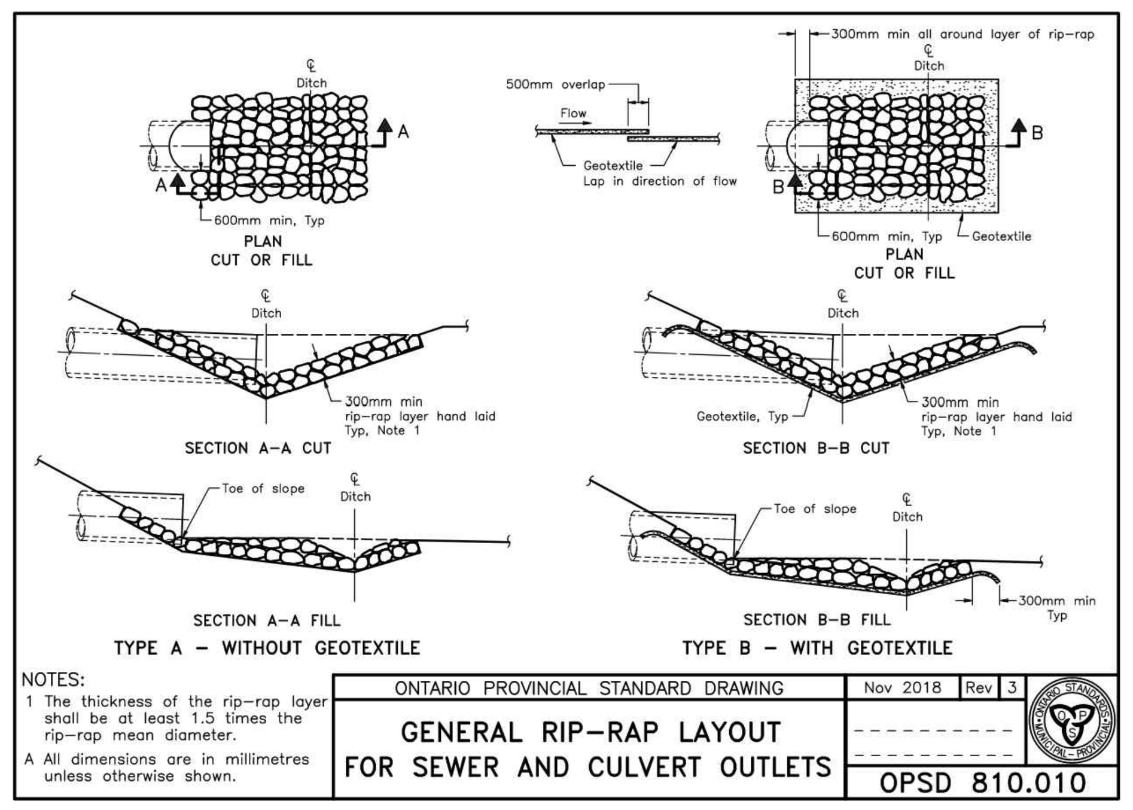
3. SOIL DESCRIPTION: SANDS, GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES. SOILS WITH TYPICAL BEARING STRENGTH OF 300 KPa AND OVER

PIPE DIAMETER	A	B	C	D
	DIMENSION NOTED ON W25.3			
102	150	150	150	150
152	200	200	200	200
203	300	300	200	230
254	400	400	250	270
305	450	450	300	300
406	650	650	350	450









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USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

NOT FOR CONSTRUCTION TENDER OR PERMIT

no.	date	revision / issue	by
1	JAN 31, 2025	ISSUED FOR SITE PLAN CONTROL & FOUNDATION PERMIT	KH

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A PROVENCHER_ROY COMPANY
47 Clarence Street, Suite 401
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consultant
LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road Ottawa, ON, K1J 9G2
www.lrl.ca (613) 842-3434

northpoint

professional stamp

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/31
PROVINCE OF ONTARIO

project title

NOUVELLE ÉCOLE
ESP ORLEANS-SUD
2405 / 2419 RUE MER-BLEUE

Orleans Ontario

drawing title

CONSTRUCTION DETAILS

date	2025-01-31	job. no.	240462
scale	1:500		
drawn	KH	drawing no.	C901
approved	MB		
plot date	2025-01-31		

1. DO NOT SCALE FROM THIS DRAWING
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL

APPENDIX F

Proposed Site Plan
Legal Survey
As-builts

1 CONTEXT PLAN
A001 1 : 2500

Conseil des écoles publiques de l'Est de l'Ontario

ISSUED FOR COORDINATION.
2025-01-10

no.	date	revision / issue	by

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A PROVENCHER_ROY COMPANY
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info@grcarchitects.com
www.grcarchitects.com

consultant

northpoint

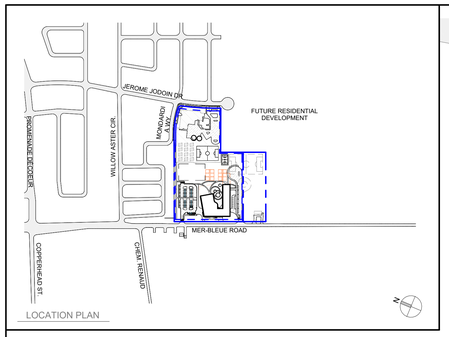
professional stamp

project title
PROPOSED HIGH SCHOOL - ÉSP ORLEANS SUD
Barrhaven Ontario

drawing title
CONTEXT PLAN

date	NOV 05, 2024	job. no.	3024
scale	1 : 2500		
drawn	Author	drawing no.	A001
approved	Checker		
plot date	2025-01-10 5:04:32 PM		

1. DO NOT SCALE FROM THIS DRAWING.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL



1 A002 PROPOSED SITE PLAN (EXISTING MER-BLEUE ROAD)
1 : 500

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT GRADE, FLOOR ELEVATIONS AND PROPERTY LINE DIMENSIONS (SHOWN IN METERS).
2. ALL LEGAL SURVEY INFORMATION OBTAINED FROM SURVEY PLANS PREPARED BY : CALLON DIETZ INC., DATED AUGUST 8TH, 2024.
3. REFER TO LANDSCAPE DRAWINGS FOR SIDEWALK, CONCRETE CURBS, SOFT/HARD LANDSCAPING, AND PAVEMENT MATERIAL PATTERN LAYOUT
4. REFER TO CIVIL DRAWING FOR CATCH BASINS, MANHOLES, SITE SERVICES, SITE GRADING, SURFACE DRAINAGE, ROAD WORK, PAVEMENT, SIDEWALK AND CONCRETE CURBS.
5. ELEVATIONS SHOWN ARE REFERRED TO GEODETIC DATUM.
6. ALL PARKING SPACES TO HAVE 100mm WIDE PAINTED LINES ON ASPHALT, INCLUDING ACCESSIBLE PARKING SPACE LOGO AND ELECTRIC CAR CHARGING LOGO AS ILLUSTRATED.

FULL COURT BASKETBALL

- ALL GAME LINES FOR FULL COURT BASKETBALL TO BE PAINTED WHITE, UNLESS NOTED OTHERWISE
- LANE SPACE MARKS & NEUTRAL ZONE MARKS TO BE PAINTED A CONTRASTING COLOR TO THE BOUNDING LINES
- ALL GAME LINES FOR BASKETBALL TO BE 50mm WIDE, UNLESS NOTED OTHERWISE.

SITE PLAN LEGEND

	PROPERTY LINE
	BUILDING SETBACK
	NEW CHAIN LINK FENCE
	MAIN ENTRANCE
	SECONDARY ENTRANCE
	EXIT ONLY
	VEHICULAR DIRECTION
	BARRIER FREE PARKING STALL
	BICYCLE LANE
	PROPOSED SHRUBS & PERENNIALS, SEE LANDSCAPE
	PROPOSED TREE, SEE LANDSCAPE
	EXISTING TREE TO REMAIN, SEE LANDSCAPE
UP	EXISTING UTILITY POLE
FH	FIRE HYDRANT, SEE CIVIL
FH.EX	EXISTING FIRE HYDRANT
FP	NEW FLAG POLE C/W CONCRETE BASE, SEE DETAIL 2/A004.
DC	DEPRESSED CURB WITH TACTILE INDICATOR
CB	CATCH BASIN, SEE CIVIL
CB	EXISTING CATCH BASIN
B	NEW GALVANIZED STEEL BOLLARDS, PAINTED. SEE DETAIL 1/A004.
LP	NEW LIGHT POST C/W CONCRETE BASE, SEE DETAIL 6/A004. REFER TO ELECTRICAL.
LP	EXISTING LIGHT POST
TS	NEW SCHOOL TITLE SIGNAGE, SEE DETAIL 3/A004. REFER TO ELECTRICAL.
MH	EXISTING MANHOLE

SITE PLAN LEGEND - HATCH PATTERN

	PROPOSED PRECAST CONCRETE PAVERS, REFER TO LANDSCAPE DRAWINGS
	PROPOSED PERMEABLE PAVERS, REFER TO LANDSCAPE DRAWINGS
	PROPOSED CONCRETE, REFER TO LANDSCAPE DRAWINGS
	PROPOSED MULCH, REFER TO LANDSCAPE DRAWINGS
	PROPOSED HEAVY DUTY ASPHALT, REFER TO CIVIL DRAWINGS
	PROPOSED LIGHT DUTY ASPHALT, REFER TO CIVIL DRAWINGS
	EXISTING ASPHALT

PROJECT NAME: **REPEAT HIGHSCHOOL STUDY - ORLEANS**

OWNER: CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO (CEPEO)
2445 ST-LAURENT BLVD,
OTTAWA, ON K1G 6C3
T: 613 742-8960

ARCHITECT: GRC ARCHITECTS
401-47 CLARENCE STREET,
OTTAWA, ON K1N 9K1
T: 613 241 8203 F: 613 241 4180

LEGAL DESCRIPTION	PART OF LOT 4 CONCESSION 11 (GEOGRAPHIC TOWNSHIP OF CUMBERLAND) PIN: 14563-1816(LT) & 14563-0513(LT) & 14563-0514(LT)	
ADDRESS	2405 & 2419, MER-BLEUE ROAD OTTAWA, ON K4A 3V1	
AREA OF SITE	52 457m²	(564 642ft²)
GROSS FLOOR AREA:	7,873m²	(84 746ft²)
GROUND FLOOR AREA:	4,287m²	(46 142ft²)
SECOND FLOOR AREA:	1,949m²	(20 981ft²)
THIRD FLOOR AREA:	1,637m²	(17 622ft²)
LOT COVERAGE:	6.66%	

ZONING PROVISION	REQUIRED	PROVIDED
PARKING, QUEUING AND LOADING PROVISIONS:		
PARKING RATES	93 Spaces (3/Classroom x [31 Classrooms]) Table 101, Row N80 (Subject to 2017-303)	*88 Standard Spaces* *2 Type A' Accessible Spaces* *3 Type B' Accessible Spaces* **93 Total Spaces**
PARKING SPACE DIMENSIONS	106.(1) (a): min 2.6m width (b): 5.2m length	2.6m width 5.2m length
AISLE & DRIVEWAY	107.(1) (a)(i): 6.0m driveway lane 107.(1) (c)(i): 6.7m aisle width	6.0m driveway >6.7m aisle width
LOCATION OF PARKING	N/A	yes
LANDSCAPING	110.(1) (a),(b): min. 15% of parking lot Table 110 (a), (b): 3m buffer width	>15% TBD
REFUSE COLLECTION	110.(3) (a): min. 9m from lot line abutting (b) public street (c) min.3m from other lot line screened from view	yes yes waste stored below grade screened with soft landscaping
BICYCLE PARKING RATES	Table 111A(d): 1 space per 100m² 78.73 spaces reuired	80 spaces
LOCATION OF BICYCLE SPACES	111.(3),(4),(6),(7),(9)	yes
BICYCLE SPACE DIMENSIONS	Table 111B(a): 0.6m x 1.8m 111.(9) 1.5m access aisle	0.6m x 1.8m 1.5m access aisle
LOADING SPACE RATES	Table 113A(a): 1 space	1 space
LOADING SPACE DIMENSIONS	Table 113B(a)(i): 6.0m driveway width Table 113B(b)(i): 5.0m access width Table 113B(c): 3.5m min width Table 113B(d)(ii): 7.0m min length Table 113B(f):	>6.0m driveway width 7.5m access width 3.5m width 7.0m length yes
ZONING PROVISIONS:	INSTITUTIONAL ZONE I1A[2530]R3Z , Schedule 1/1A - Area D(Rural)	
ZONE REGULATIONS	Table 170A (a): 15m min lot width (b): 400m² min lot area (c): 6m front yard setback (Along Mer-Bleue Rd) (d): 7.5m rear yard setback (e): 3m side yard setback (f): 4.5m corner side yard setback (g): 20m max or 4 storeys building height	190.85 m 52 457m² >6m setback >7.5m setback >3m setback >4.5m setback 13m max height

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NOT FOR CONSTRUCTION

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2025-01-10

no.	date	revision / issue	by

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consultant

northpoint

professional stamp

project title
PROPOSED HIGH SCHOOL - ÉSP ORLEANS SUD
Barrhaven Ontario

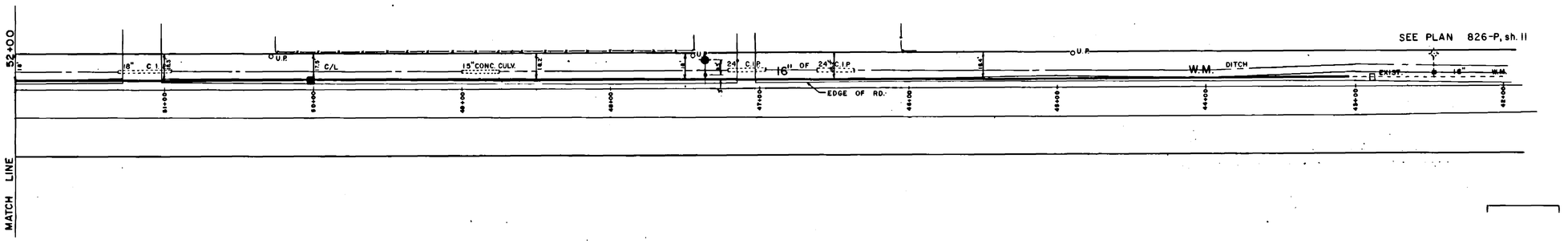
drawing title
PROPOSED SITE PLAN

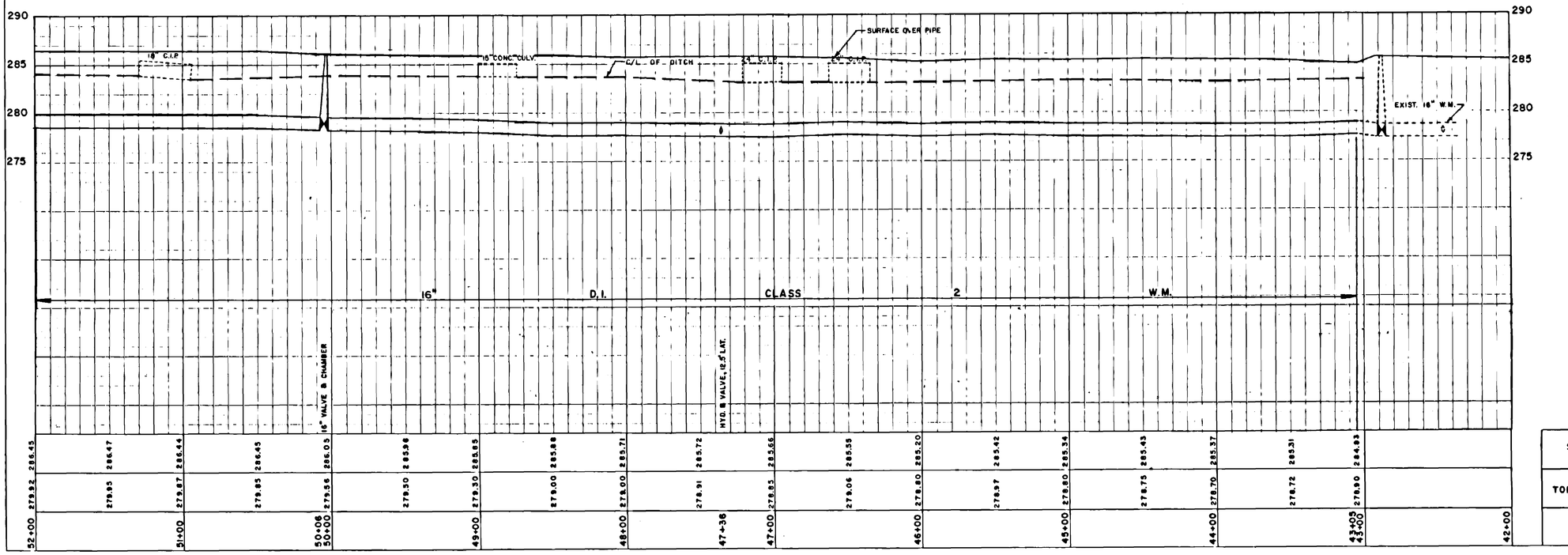
date	NOV 05, 2024	job. no.	3024
scale	As indicated		
drawn	DH	drawing no.	A002
approved	CJ/PD		
plot date	2025-01-10 5:01:45 PM		

1. DO NOT SCALE FROM THIS DRAWING
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES
3. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FOLLOWING DRAWINGS: STRUCTURAL, MECHANICAL, ELECTRICAL

CHAMPLAIN ST.

CHEMIN MER BLEUE ROAD





NOTES

1. ALL UNDERGROUND UTILITIES ARE APPROXIMATE. CONTRACTOR IS REQUIRED TO NOTIFY THE UTILITY COMPANIES BEFORE EXCAVATING.

DATE	DESCRIPTION REVISIONS	S. A. O. BY	P.R. BY
30 MAR. '76	"AS BUILT" PER FIELD BOOK NO. 494		

REGIONAL MUNICIPALITY OF OTTAWA-CARLETON
WORKS DEPARTMENT

16" W.M. IN

CHEMIN MER BLEUE ROAD

FROM STA. 43+07 to 52+00

W. E. Bruin	A. Hanna P.Eng.	DESIGN BY S.P.B.	PLAN HOR. 1"=40' VER. 1"=8'
W. L. KEAY	F. E. AYERS	DRAWN BY MB	DATE JULY, 1975
		CHECKED BY	467
			843-P SHEET 8 OF 12

6525

TOPOGRAPHIC PLAN OF SURVEY
OF PART OF
LOT 4
CONCESSION 11
GEOGRAPHIC TOWNSHIP OF CUMBERLAND
CITY OF OTTAWA

SCALE 1:500

GEORGE N. BRACKEN
ONTARIO LAND SURVEYOR

20 15 10 5 0 10 20
(SCALE IN METRES)

LEGEND:

□	DENOTES	SURVEY MONUMENT SET
■	"	SURVEY MONUMENT FOUND
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
PB	"	PLASTIC BAR
M	"	MEASURED
S	"	SET
CP	"	CONCRETE PIN
OU	"	ORIGIN UNKNOWN
BH	"	BOREHOLE
BOLL	"	BOLLARD
BPED	"	BELL PEDESTAL
CB	"	CATCH BASIN
DI	"	DITCH INLET
FH	"	FIRE HYDRANT TOP OF SPINDLE
LS	"	LAMP STANDARD
MH	"	MANHOLE
MW	"	MONITORING WELL
SMH	"	STORM MANHOLE
SNMH	"	SANITARY MANHOLE
SN	"	MISCELLANEOUS STREET SIGN
T/G	"	TOP OF GRATE
UP	"	UTILITY POLE
WV	"	WATER VALVE
P1	"	PLAN 4M-1580
P2	"	PLAN 50R-3974
P3	"	PLAN 50R-6110
P4	"	PLAN 4R-30706
P5	"	PLAN 4R-31218
AOG	"	ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
JDB	"	J. D. BARNES LIMITED
990	"	PAYETTE, HIMMA, DELORME LTD.
DEC #10	"	DECIDUOUS TREE 0.1m. DIAMETER
CON #20	"	CONIFEROUS TREE 0.2m. DIAMETER

SITE BENCHMARKS

SITE BENCHMARK 1 IS THE TOP SPINDLE OF A FIRE HYDRANT (SHOWN ON PLAN)
ELEVATION 88.664m.

SITE BENCHMARK 2 IS THE CUT CROSS (SHOWN ON PLAN)
ELEVATION 87.449m.

SITE BENCHMARK 3 IS THE CUT CROSS (SHOWN ON PLAN)
ELEVATION 87.965m.

SITE BENCHMARK 4 IS THE TOP SPINDLE OF A FIRE HYDRANT (SHOWN ON PLAN)
ELEVATION 88.218m.

BEARING NOTE

BEARINGS ARE MTM GRID, DERIVED FROM THE NORTHERLY LIMIT OF PART 1 PLAN 4R-30706, HAVING A GRID BEARING OF N67°18'30"E

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999968.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:
(1) THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
(2) THE SURVEY WAS COMPLETED ON THE 12TH DAY OF AUGUST, 2024

August 15, 2024
DATE

GEORGE N. BRACKEN
ONTARIO LAND SURVEYOR

AREA

AREA=6.45 Ha (15.94 Acres)

ELEVATION NOTE

ELEVATIONS SHOWN HEREON ARE GEODETIC (CGVD-1928:1978) AND ARE DERIVED FROM THE CANNET VRS NETWORK STATION OTTAWA
ELEVATION=95.230.

CONTOURS ARE TO 0.5 METRES

METRIC

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

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-81967.

O:\Projects\2024\24-26499 CEPEO - 3 Schools\Drawings\Orleans\24-26499 ORLEANS C3D TOPO.dwg August 15, 2024

Callon Dietz INCORPORATED
ONTARIO LAND SURVEYORS
CARLETON PLACE LONDON NORTH BAY
requests@callondietz.com callondietz.com

ISO 9001 REGISTERED

SURVEY BY: CB	DRAWN BY: DK	FILE No: 24-26499	PLAN No: X-3811

APPENDIX G

Elementary School Grading & Servicing Plans (WSP)

GENERAL

1. DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND LANDSCAPE DRAWINGS.
2. ALL SERVICES, MATERIALS, CONSTRUCTION METHODS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND REGULATIONS OF THE: CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS, ONTARIO PROVINCIAL SPECIFICATION STANDARD SPECIFICATION (OPSS) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD), UNLESS OTHERWISE SPECIFIED, TO THE SATISFACTION OF THE CITY AND THE CONSULTANT.
3. THE POSITION OF EXISTING POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES, STRUCTURES AND APPURTENANCES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SATISFY HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM DURING THE COURSE OF CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES REQUIRED BY THE DEVELOPMENT OF SUBJECT LANDS IS TO BE UNDERTAKEN AT CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR MUST NOTIFY ALL EXISTING UTILITY COMPANY OFFICIALS FIVE (5) BUSINESS DAYS PRIOR TO START OF CONSTRUCTION AND HAVE ALL EXISTING UTILITIES AND SERVICES LOCATED IN THE FIELD OR EXPOSED PRIOR TO THE START OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO HYDRO, BELL, CABLE TV, AND CONSUMERS GAS LINES.
5. ALL TRENCHING AND EXCAVATIONS TO BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS. ALL INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. REFER TO ARCHITECTS PLANS FOR BUILDING DIMENSIONS, ELEVATIONS, LAYOUT AND REMOVALS. REFER TO LANDSCAPE PLAN FOR LANDSCAPED DETAILS AND OTHER RELEVANT INFORMATION. ALL INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7. TOPOGRAPHIC SURVEY COMPLETED AND PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. DATED MAY 2, 2023 . CONTRACTOR TO VERIFY IN THE FIELD PRIOR TO CONSTRUCTION OF ANY WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
8. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS. VERIFY THAT JOB BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED.
9. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE OR DRAIN OUTLETS ARE PROVIDED.
10. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
11. ALL DISTURBED AREAS OUTSIDE PROPOSED GRADING LIMITS TO BE RESTORED TO ORIGINAL ELEVATIONS AND CONDITIONS UNLESS OTHERWISE SPECIFIED. EXISTING PARKING LOT SHALL BE RE-ASPHALTED AT EXISTING GRADES EXCEPT AS NOTED TO EVEN OUT GRADES. ALL RESTORATION SHALL BE COMPLETED WITH THE GEOTECHNICAL REQUIREMENTS FOR BACKFILL AND COMPACTION.
12. ABUTTING PROPERTY GRADES TO BE MATCHED.
13. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION, INCLUDING WATER PERMIT AND ROAD CUT PERMIT.
14. MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
15. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
16. AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
17. PRIOR TO CONSTRUCTION, A GEOTECHNICAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO IS TO INSPECT ALL SUB-SURFACES FOR FOOTINGS, SERVICES AND PAVEMENT STRUCTURES.
18. CONTRACTOR TO OBTAIN POST-CONSTRUCTION TOPOGRAPHIC SURVEY PERFORMED BY CERTIFIED OLS OR P.ENG. CONFIRMING COMPLIANCE WITH DESIGN GRADING AND SERVICING. SURVEY IS TO INCLUDE LOCATION AND INVERTS FOR BURIED UTILITIES.
19. PROVIDE CCTV INSPECTION REPORT FOR ALL SEWERS AND CATCHBASIN LEADS 200MM DIAMETER AND LARGER. REPEAT CCTV INSPECTION FOLLOWING RECTIFICATION OF ANY DEFICIENCIES.
20. REPORT REFERENCES
    - 20.1. SERVICING AND SWM REPORT FOR CEPEO ES, PREPARED BY WSP CANADA INC. PROJECT NO. 221-06227-00, JUNE 30, 2023.
    - 20.2. GEOTECHNICAL INVESTIGATION REPORT - PROPOSED AVALON III ELEMENTARY SCHOOL, PREPARED BY PATERSON GROUP, PROJ. NO.PG6715-1, JULY 10, 2023.
    - 20.3. STORMWATER MANAGEMENT REPORT FOR SUMMERSIDE WEST PHASES 2 AND 3, PREPARED BY JFSA, JFSA REF NO. 1102-13, APRIL 2016, UPDATED JULY 2016
    - 20.4. DESIGN BRIEF FOR SUMMERSIDE WEST - PHASE 2 MER BLEUE ROAD, PREPARED BY DSEL, PROJ NO. 15-808, APRIL 29, 2016.

PARKING LOT AND WORK IN PUBLIC RIGHTS OF WAY

1. CONTRACTOR TO REINSTATE ROAD CUTS AS PER CITY OF OTTAWA DETAIL R10.
2. GEOTECHNICAL INVESTIGATION REPORT - PROPOSED AVALON III ELEMENTARY SCHOOL, PREPARED BY PATERSON GROUP, PROJ. NO.PG6715-1, JULY 10, 2023.
3. CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.
4. FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL REPORT REQUIREMENTS.
5. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR B MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF GRANULAR B MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
6. GRANULAR A MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR B PLACEMENT.
7. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR A MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF GRANULAR A MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
8. ASPHALT MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR A PLACEMENT.
9. CONTRACTOR TO SUPPLY, PLACE AND COMPACT ASPHALT MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF ASPHALT MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
10. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE CONSULTANT WITH VERIFICATION PRIOR TO PLACEMENT.
11. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED OF AT AN APPROVED DUMP SITE. SHOULD THE CONTRACTOR DISCOVER ANY HAZARDOUS MATERIAL, CONTRACTOR IS TO NOTIFY CONSULTANT. CONSULTANT TO DETERMINE APPROPRIATE DISPOSAL METHOD/LOCATION.
12. PAVEMENT STRUCTURE (MATERIAL TYPES AND THICKNESS) TO BE AS SPECIFIED IN THE GEOTECHNICAL REPORT.

TEMPORARY BENCHMARKS		
TBM#	ELEV.	DESCRIPTION
1	88.26	TOP OF SPINDLE ON EXISTING FIRE HYDRANT IN FRONT OF 2405 MER BLEUE ROAD
2	88.73	TOP OF SPINDLE ON EXISTING FIRE HYDRANT ON SOUTH SIDE OF MONARDIA WAY

STORM SEWERS AND STRUCTURES

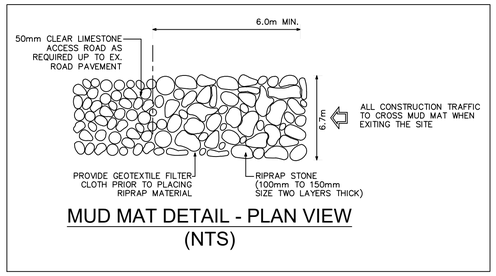
1. ALL STORM SEWER MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW STORM SEWERS, SERVICES AND CB LEADS.
2. STORM SEWERS 450mm DIAMETER AND SMALLER SHALL BE PVC SDR-35, WITH RUBBER GASKET PER CSA A-257.3.
3. STORM SEWER LARGER THAN 450mm SHALL BE REINFORCED CONCRETE CLASS 100D.
4. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL S6.
5. ALL STORM MANHOLES TO BE AS PER STORM STRUCTURE TABLE.
6. ANY NEW OR EXISTING STORM SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR APPROVED BY THE ENGINEER.
7. ALL CATCHBASIN LEADS TO BE MINIMUM 200mm DIAMETER AT MINIMUM 1.0% SLOPE UNLESS OTHERWISE SPECIFIED.
8. STORM CATCHBASINS AS PER OPSD 705.010 AND FRAME/COVER AS PER CITY STANDARD DRAWINGS S19. STORM CBMH'S AS INDICATED IN TABLE WITH SUMP, ADJUSTMENT SECTIONS SHALL BE AS PER OPSD 704.010.
9. INSTALLATION OF FLOW CONTROL ICD'S TO BE VERIFIED BY QUALITY VERIFICATION ENGINEER RETAINED BY CONTRACTOR.
10. PROVIDE BACKWATER VALVE ON FOUNDATION DRAIN, STORM DISCHARGE, AND OVERFLOW DISCHARGE PER S14
11. ALL CATCHBASINS EXCLUDING LANDSCAPE CATCHBASINS TO HAVE 150 MMØ PERFORATED PIPE FOR 3.0M ON ALL AVAILABLE SIDES AT AN ELEVATION OF 300mm BELOW SUBGRADE LEVEL AS PER CITY OF OTTAWA STANDARD DRAWING 'R1'
12. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING NO. S8, THE SEALS SHOULD BE AT LEAST 1.5m LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL AT NO MORE THAN 60m INTERVALS IN THE SERVICE TRENCHES. REFER TO GEOTECHNICAL INVESTIGATION REPORT FOR DETAILS.

SANITARY SEWER AND STRUCTURES

1. ALL SANITARY SEWER, SANITARY SEWER APPURTENANCES AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW SANITARY PIPING.
2. SANITARY SEWER PIPE SIZE 150mm DIAMETER AND GREATER TO BE PVC SDR-35 (UNLESS SPECIFIED OTHERWISE) WITH RUBBER GASKET TYPE JOINTS IN CONFORMANCE WITH CSA B-182.2,3,4.
3. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL S6.
4. ALL SANITARY MANHOLES 1200mm IN DIAMETER TO BE AS PER OPSD 701.01. FRAME AND COVER TO BE AS PER CITY OF OTTAWA STANDARD S25 AND S24.
5. MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES AS PER THE OPSD 701.021
6. ANY SANITARY SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR APPROVED BY THE ENGINEER.
7. PROVIDE BACKWATER VALVE FOR BUILDING SANITARY SERVICES PER S14.1

WATERMAIN

1. ALL WATERMAIN AND WATERMAIN APPURTANANCES, MATERIALS, CONSTRUCTION AND TESTING METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA AND MINISTRY OF ENVIRONMENT STANDARDS AND SPECIFICATIONS.
2. ALL WATERMAIN 300mm DIAMETER AND SMALLER TO BE POLY VINYL CHLORIDE (PVC) CLASS 150 DR 18 MEETING AWWA SPECIFICATION C900.
3. ALL WATERMAIN TO BE INSTALLED AT MINIMUM COVER OF 2.4m BELOW FINISHED GRADE. WHERE WATERMAINS CROSS OVER OTHER UTILITIES, A MINIMUM 0.30m CLEARANCE SHALL BE MAINTAINED; WHERE WATERMAINS CROSS UNDER OTHER UTILITIES, A MINIMUM 0.50m CLEARANCE SHALL BE MAINTAINED. WHERE THE MINIMUM SEPARATION CANNOT BE ACHIEVED, THE WATERMAIN SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARDS W25 AND W25.2. WHERE 2.4m MINIMUM DEPTH CANNOT BE ACHIEVED, THERMAL INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STANDARD W22. WHERE A WATERMAIN IS IN CLOSE PROXIMITY TO AN OPEN STRUCTURE, THERMAL INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STANDARD W23.
4. CONCRETE THRUST BLOCKS AND MECHANICAL RESTRAINTS ARE TO BE INSTALLED AT ALL TEES, BENDS, HYDRANTS, REDUCERS, ENDS OF MAINS AND CONNECTIONS 100mm AND LARGER, IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS W25.3 & W25.4.
5. CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS AS PER CITY OF OTTAWA STANDARD W40 & W42.
6. ALL VALVES AND VALVE BOXES AND CHAMBERS, HYDRANTS, AND HYDRANT VALVES AND ASSEMBLES SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARD
7. FIRE HYDRANT LOCATION AND INSTALLATION AS PER CITY OF OTTAWA STANDARD W18 & W19. CONTRACTOR TO PROVIDE FLOW TEST AND PAINTING OF NEW HYDRANT IN ACCORDANCE WITH CITY STANDARDS.
8. IF WATER MAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.



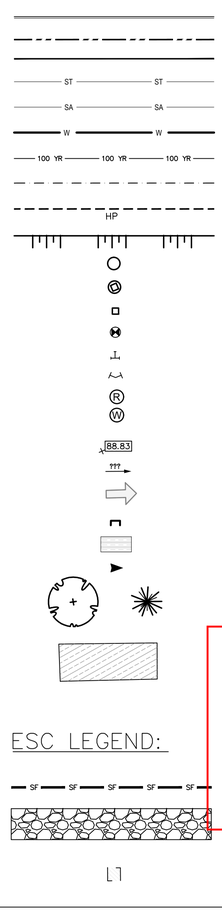
MUD MAT DETAIL - PLAN VIEW
(NTS)

EROSION AND SEDIMENT CONTROL

** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES. **

1. PRIOR TO START OF CONSTRUCTION:
   - 1.1. INSTALL SILT FENCE IN LOCATION SHOWN.
   - 1.2. INSTALL FILTER FABRIC OR SILT SACK FILTERS IN ALL THE CATCHBASINS AND MANHOLES TO REMAIN DURING CONSTRUCTION WITHIN THE SITE.
   - 1.3. INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
   - 1.4. INSTALL MUD MAT AT CONSTRUCTION ENTRANCES.
2. DURING CONSTRUCTION:
   - 2.1. MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE AND IMPACTS TO EXISTING GRADING.
   - 2.2. PERIMETER VEGETATION TO REMAIN IN PLACE UNTIL PERMANENT STORM WATER MANAGEMENT IS IN PLACE. OTHERWISE, IMMEDIATELY INSTALL SILT FENCE WHEN THE EXISTING SITE IS DISTURBED AT THE PERIMETER.
   - 2.3. PROTECT DISTURBED AREAS FROM OVERLAND FLOW BY PROVIDING TEMPORARY SWALES TO THE SATISFACTION OF THE FIELD ENGINEER. TIE-IN TEMPORARY SWALE TO EXISTING CB'S AS REQUIRED.
   - 2.4. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
   - 2.5. INSPECT SILT FENCES, FILTER FABRIC FILTERS AND CATCH BASIN SUMPS WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
   - 2.6. DOWNSTREAM STORM INFRASTRUCTURE SHALL BE PROTECTED FROM UNFILTERED RUNOFF DURING ON-SITE STORM INFRASTRUCTURE DEMOLITION.
   - 2.7. DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.
   - 2.8. EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
   - 2.9. DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
   - 2.10. CONTROL WIND-BLOWN DUST OFF SITE BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED AND TO THE SATISFACTION OF THE ENGINEER).
   - 2.11. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.
   - 2.12. CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AS REQUIRED.
   - 2.13. DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
   - 2.14. ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
   - 2.15. TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
   - 2.16. ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
   - 2.17. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE 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.

PROPOSED LEGEND:

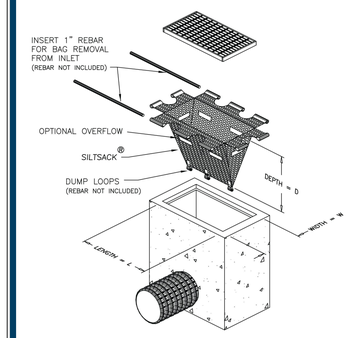


- PROPOSED CURB
- PROPOSED PROPERTY LINE
- PROPOSED PAINT LINE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED 100YR POND LIMIT
- PROPOSED 100YR+20% DEPTH POND LIMIT
- PROPOSED HIGH POINT LINE
- PROPOSED TERRACING LINE
- PROPOSED STM/SAN MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED WATER VALVE BOX
- PROPOSED WATER TEE CONNECTION
- PROPOSED 45° ELBOW
- PROPOSED REMOTE METER
- PROPOSED METER
- PROPOSED ELEVATION
- PROPOSED SLOPE
- PROPOSED FLOW DIRECTION
- PROPOSED SEWER STUB
- PROPOSED CLAY SEAL
- PROPOSED DRAINAGE FLOW DIRECTION
- PROPOSED TREES
- PROPOSED ROAD REINSTATEMENT
- SILT FENCE
- MUD MAT
- SILT SACK

JOHN SEVIGNY C.E.T.
MANAGER (A), DEVELOPMENT REVIEW EAST
PLANNING, DEVELOPMENT & BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA

APPROVED
By sevignyjo at 10:39 am, Sep 05, 2024

Typical Siltsack® Construction - Type B



Recommended Pavement Structure - LIGHT DUTY	
Thickness (mm)	Material Description
50	**Wear Course** - HL-3 or Superpave 12.5 Asphaltic Concrete
150	**BASE** - OPSS Granular A Crushed Stone
300	**SUBBASE** - OPSS Granular B Type II
SUBGRADE - Either fill, in-situ soil, or OPSS Granular B Type I or II material placed over fill or in-situ soil.	

Recommended Pavement Structure - HEAVY DUTY	
Thickness (mm)	Material Description
40	**Wear Course** - Superpave 12.5 Asphaltic Concrete
50	**Binder Course** - Superpave 19.0 Asphaltic Concrete
150	**BASE** - OPSS Granular A Crushed Stone
450	**SUBBASE** - OPSS Granular B Type II
SUBGRADE - Either fill, in-situ soil, or OPSS Granular B Type I or II material placed over fill or in-situ soil.	

Recommended Pavement Structure - Brick/Stone Pathways	
Thickness (mm)	Material Description
Specified by Others	**Wear Course** - Interlocking Stones/Brick pavers
25-40	**Leveling Course** - Stone Dust or Sand
450	**SUBBASE** - OPSS Granular A
SUBGRADE - Either fill, in-situ soil, or OPSS Granular B Type I or II material placed over fill or in-situ soil.	

EXISTING LEGEND:

- EXISTING BOUNDARY
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN
- EXISTING WATER VALVE BOX
- EXISTING FIRE HYDRANT
- EXISTING FLOW DIRECTION
- 88.82 EXISTING ELEVATION
- TBM #2 EXISTING TEMPORARY BENCHMARK

DRAINAGE AREA LEGEND:

- DRAINAGE BOUNDARY LINE
- S-102 CONTROLLED / 0.088 / 0.63 DRAINAGE AREA SYMBOL

PRE-DEVELOPMENT DRAINAGE AREA LEGEND:

- PRE-DRAINAGE BOUNDARY LINE
- P3 / 0.132 / 0.25 DRAINAGE AREA SYMBOL
- EXISTING FLOW DIRECTION

Conseil des écoles publiques de l'Est de l'Ontario

ISSUE NO.	REV. NO.	DATE YYMMDD	ISSUE
8	0	2024/05/09	ISSUED FOR RESUBMISSION TO CITY AND ADDENDUM
7	0	2024/04/23	ISSUED FOR TENDER
6	0	2024/01/17	ISSUED FOR SITE PLAN CONTROL
5	0	2023/11/24	ISSUED FOR SITE PLAN CONTROL
4	0	2023/11/17	ISSUED FOR COORDINATION
3	0	2023/09/28	ISSUED FOR BUILDING PERMIT

TRUE NORTH | PLAN NORTH

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2024/05/09
PROVINCE OF ONTARIO

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#19154

STORM STRUCTURE AND ICD DATA TABLE														
STRUCTURE ID	AREA ID	SIZE	STRUCTURE	COVER	TOP OF GRADE	INVERT				DIAMETER (mm)	TYPE	HEAD (m)	FLOW (l/s)	ICD TYPE
						INLET	INLET	INLET	OUTLET					
675 MONARDIA WAY														
STMH1		1800mm DIA	OPSD 701.012	S24.1	87.60			84.130	83.980	1050	CONC. CL 100-D			
STMH3	S5	1800mm DIA	OPSD 701.012	S24.1	87.65		85.540	83.800	83.770	1050	CONC. CL 100-D			
CBMH5	S3	1200mm DIA.	OPSD 701.010	S28.1	87.40			85.100	85.000	300	PVC SDR-35			
CBMH106	S6	1200mm DIA.	OPSD 701.010	S28.1	87.43			85.920	85.820	300	PVC SDR-35			
CBMH107	S7	1200mm DIA.	OPSD 701.010	S28.1	87.49			85.730	85.700	300	PVC SDR-35			
CBMH108	S18	1200mm DIA.	OPSD 701.010	S28.1	87.65		86.000	86.000	85.820	450	CONC. CL 100-D			
CBMH105	S16	1800mm DIA	OPSD 701.012	S28.1	87.46		85.640	85.510	85.490	450	CONC. CL 100-D			
STMH104	S15	1200mm DIA.	OPSD 701.010	S24.1	87.74	85.370	85.470	85.370	85.220	450	CONC. CL 100-D			
STMH103	S10	1200mm DIA.	OPSD 701.010	S24.1	87.60			84.960	84.900	450	CONC. CL 100-D	2.59	155	Plug Type 215mm
CBMH102	S14	1200mm DIA.	OPSD 701.010	S28.1	87.25			84.760	84.730	450	CONC. CL 100-D			
CBMH101A	S13	1200mm DIA.	OPSD 701.010	S28.1	87.16			84.540	84.510	450	CONC. CL 100-D			
STMH101	S13	1200mm DIA.	OPSD 701.010	S24.1	87.49		85.340	84.460	84.430	450	CONC. CL 100-D			
CB1	S19	600X600mm	OPSD 705.010	S19.1	87.43				86.220	200	PVC SDR-35			
CB2	S17	600X600mm	OPSD 705.010	S19.1	87.59				85.890	200	PVC SDR-35			
CB3	S10	600X600mm	OPSD 705.010	S19.1	87.36				85.660	200	PVC SDR-35			
CB4	S15	600X600mm	OPSD 705.010	S19.1	87.52				85.820	200	PVC SDR-35			
CB7	S9	600X600mm	OPSD 705.010	S19.1	87.33				85.630	200	PVC SDR-35			
CB9	S8	600X600mm	OPSD 705.010	S19.1	87.38				85.770	300	PVC SDR-35			
CB16	S11	600X600mm	OPSD 705.010	S19.1	87.40				85.700	200	PVC SDR-35			
CB17	S5	600X600mm	OPSD 705.010	S19.1	87.38				85.680	200	PVC SDR-35			
CB18	S2	600X600mm	OPSD 705.010	S19.1	87.55				85.850	200	PVC SDR-35			
CB19	S4	600X600mm	OPSD 705.010	S19.1	87.44				85.740	200	PVC SDR-35			
TCB22	S18	300mm DIA.	S30	S30	87.65				86.380	250	HDPE			
TCB23	S18	300mm DIA.	S30	S30	87.95				86.270	250	HDPE			
TCB24	S18	300mm DIA.	S30	S30	87.65				86.160	250	HDPE			
TCB25	S18	300mm DIA.	S30	S30	85.65				86.160	250	HDPE			
TCB26	S18	300mm DIA.	S30	S30	87.65				86.550	250	HDPE			
TCB27	S18	300mm DIA.	S30	S30	87.65				86.380	250	HDPE			
TCB28	S18	300mm DIA.	S30	S30	87.95				86.270	250	HDPE			
TEMP CBMH		1800mm DIA	OPSD 701.012	OPSD 403.010	85.70				84.170	900	CONC. CL 100-D	1.25	731	Plug Type 560mm

Post Development Storm Drainage Area Table								
Catchment Area	Total (ha)	Grass 0.2	Gravel 0.4	Asphalt 0.9	Outlet Structure	Ponding Area (m2)	Ponding Depth	Ponding Volume
1	0.239			0.239				
2	0.051			0.051	CB18			
3	0.110	0.090		0.020	CBMH5			
4	0.048	0.048			CB19			
5	0.034	0.024		0.010	CB17			
6	0.108	0.077		0.031	CBMH106	280.0	0.170	15.87
7	0.138			0.138	CBMH107	161.0	0.11	5.90
8	0.081	0.031		0.050	CB9	367.0	0.22	26.91
9	0.109			0.109	CB7	762.0	0.27	68.58
10	0.154	0.019		0.135	CB3	460.0	0.240	36.80
11	0.089	0.069		0.020	CB16			0.00
12	0.025	0.010		0.016				0.00
13	0.044	0.044			CBMH101A			0.00
14	0.033	0.033			CBMH102			0.00
15	0.071	0.057	0.001	0.013	CB4	70.0	0.080	1.87
16	0.060	0.004		0.056	CBMH105	80.0	0.140	3.73
17	0.075	0.056	0.0113	0.008	CB2			0.00
18	0.319	0.319			CBMH108			0.00
19	0.099	0.071		0.029	CB1	156.0	0.170	8.84
20	0.074	0.074						
21	0.049	0.049						
Total	2.008	1.072		0.924		2336.000		168.503

SAN STRUCTURE TABLE								
STRUCTURE ID	TOP OF GRATE ELEVATION	INVERT				DESCRIPTION		
		INLET	INLET	INLET	OUTLET	SIZE	OPSD	COVER
SAMH100	87.50			85.110	84.640	1200mm DIA.	OPSD-701.010	S24
SAMH101	87.50			83.410	83.380	1200mm DIA.	OPSD-701.010	S24
SAMH102	87.78			83.860	83.830	1200mm DIA.	OPSD-701.010	S24
SAMH103	87.10				83.880	1200mm DIA.	OPSD-701.010	S24

PIPE CROSSING TABLE								
		Invert	Obvert			Invert	Obvert	
1	1050mmØ CONC STM	83.810	84.877	0.383	Clearance Under	85.260	85.460	200mmØ W/M
2	200mmØ PVC SAN	85.151	85.351	0.250	Clearance Above	84.451	84.901	450mmØ CONC STM
3	200mmØ W/M	84.950	85.150	0.210	Clearance Above	84.290	84.740	450mmØ CONC STM
4	200mmØ SAN	83.260	83.460	0.850	Clearance Under	84.310	84.760	450mmØ CONC STM
5	200mmØ W/M	85.200	85.400	1.710	Clearance Above	83.290	83.490	200mmØ SAN
6	200mmØ SAN	83.420	83.620	1.980	Clearance Under	85.600	85.800	200mmØ PVC CB Lead
7	200mmØ SAN	83.410	83.610	1.650	Clearance Under	85.260	85.460	200mmØ W/M
8	200mmØ SAN	83.530	83.730	1.990	Clearance Under	85.720	85.920	200mmØ PVC CB Lead
9	200mmØ SAN	83.550	83.750	1.750	Clearance Under	85.500	85.700	200mmØ PVC CB Lead
10	200mmØ SAN	83.650	83.850	1.120	Clearance Under	84.970	85.270	300mmØ PVC STM

WATERMAIN SCHEDULE					
STATION	DESCRIPTION	FINISHED GRADE	TOP OF WATERMAIN	AS-BUILT WATERMAIN	COVER
200mm W/M Service					
10+000	Connect to Ex. 200mm W/M WITH 200x200 Tee	87.570		85.170	2.400
10+006.6	200mm V&VB	87.800	85.400		2.400
10+008.7	Crossing 1050mmØ CONC STM	87.750	85.460		2.290
10+011.7	Crossing 200mmØ PVC SAN	87.750	85.460		2.290
10+019.7	200mm W/M Stub (School)	87.750	85.600		2.150
20+000	Connect to Ex. 200mm W/M WITH 300x200 Tee	87.460		85.060	2.400
20+015.8	200mm V&VB	87.550	85.150		2.400
20+019.7	Crossing 450mmØ CONC STM	87.550	85.150		2.400
20+029.3	Crossing 200mmØ PVC SAN	87.800	85.400		2.400
20+063	45 deg. horizontal bend	87.680	85.280		2.400
20+065	45 deg. horizontal bend	87.720	85.320		2.400
20+066.0	200mm W/M Stub (School)	87.750	85.600		2.150

JOHN SEVIGNY C.E.T.
MANAGER (A), DEVELOPMENT REVIEW EAST
PLANNING, DEVELOPMENT & BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA

APPROVED
By sevignyjo at 10:39 am, Sep 05, 2024

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TRUE NORTH | PLAN NORTH

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
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2024/05/09
PROVINCE OF ONTARIO

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DRAWING TITLE/TITRE DU DESSIN
SERVICING TABLES

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DEPARTMENT, CITY OF OTTAWA

5m 2 0 5 10m
SCALE: 1:300

NEW TWO STOREY ELEMENTARY SCHOOL

GROUND FLOOR GEODETIC ELEVATION: 88.00

FUTURE ADDITION

SOCCER FIELD

BUS LAY-BY AREA

BUS LAY-BY AREA

VOIE MONARDIA WAY

PROMENADE JERROME

JODOIN DRIVE

6.0M SETBACK

7.5M SETBACK

DROP-OFF

APPROXIMATE LIMITS OF ROADWAY REINSTATEMENT (PER CITY STANDARD R10).

TEMP CBMH

TIE INTO PROPOSED SWALE WITH MAX 3:1 SLOPE

TIE INTO EXISTING GROUND AT PROPERTY LINE WITH MAX 3:1 SLOPE

100 YR PONDING LIMIT @ 87.60m

STMH1 STMH3 STMH101 STMH103 STMH104

SAMH102 SAMH103 SAMH101 SAMH100

CB1 CB2 CB4 CB7 CB9 CB16 CB17 CB18 CB19 CB23 CB24 CB3

CBMH5 CBMH101A CBMH102 CBMH105 CBMH106 CBMH107 CBMH108

TCB26 TCB27 TCB28

CICB

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CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS

TRUE NORTH | PLAN NORTH

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DRAWING TITLE/TITRE DU DESSIN
GRADING PLAN

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#19154

SCALE: 1:300

5m 2 0 5 10m

TEMP CBMH (1800mmø) C/W DICB GRATE T/G = 85.70m INV = 84.17m C/W ICD

8.0m – 900mmø CONC. @ 0.50%

STMH1 (1800mmø) T/G = 87.60m INV E = 83.98m INV W = 84.13m

SEWER IN SUPPORTED EXCAVATION WILL BE REQUIRED FOR STORM SEWER FROM STMH 1 TO STMH3 AS PER OPSD 802.010 AND CITY OF OTTAWA STANDARD DETAIL S6. LIMIT OF EXCAVATION TO BE MINIMUM 1.5m FROM THE EXISTING FENCE TO THE NORTH.

No. 639, 2 Storey Brick & Vinyl Sided Dwelling

CONNECTION TO EX. 200mm W/M WITH 200X200 TEE BY CITY FORCES

200mmø V&VB

WATER SERVICE TO BE LOCALLY ADJUSTED PER CITY STD. W25.2 AND INSULATED ALONG THE LENGTH OF THE WATER SERVICE (WHERE COVER IS LESS THAN 2.4m) PER CITY STD. W22.

STMH3 (1800mmø) T/G = 87.65m INV E = 83.77m INV W = 83.80m INV S = 85.54m

SAMH101 T/G = 87.50m INV E = 83.38m INV W = 83.41m

117.1m – 1050mm CONC @ 0.15%

BUS LAY-BY AREA

BUS LAY-BY

VOIE MONARDIA WAY

INV.=84.65

INV.=84.70

INV.=84.70

37.1m – 1050mm CONC @ 0.15%

36.4m – 200mm PVC SAN @ 0.35%

CONNECT TO EX. STMH ADJUST T/G TO 87.54m INV E = 83.56m (EX.) INV W = 83.71m (NEW) INV S = 84.27m (NEW)

SAMH102 T/G = 87.78m INV E = 83.83m INV W = 83.86m

4.5m – 200mm PVC SAN @ 0.35%

SAMH103 T/G = 87.10m INV E = 83.88m

30.0m – 200mmø CB LEAD @ 2.00%

CB16 T/G = 87.40m INV = 85.70m

CBMH5 T/G = 87.40m INV N = 85.00m INV W = 85.10m

118.6m – 200mm PVC SAN @ 0.35%

7.4m – 300mm PVC @ 0.50%

6.0M SETBACK

3.6m – 200mmø CB LEAD @ 2.00%

CB19 T/G = 87.44m INV = 85.74m

6.5m – 200mmø CB LEAD @2.00%

CB17 T/G = 87.38m INV = 85.68m

16.0m – 450mm CONC @ 1.00%

200mmø V&VB

CONNECTION TO EX. 300mm W/M WITH 200X300 TEE BY CITY FORCES

CONNECT TO BUILDING WATER SERVICE (SEE MECHANICAL DWG FOR CONTINUATION). TOP OF W/M – 85.60m

CONNECT BUILDING ROOF DRAIN AND FOUNDATION DRAIN AT INV = 85.40m (REFER TO ARCHITECTURAL AND MECHANICAL DRAWING FOR CONTINUATION)

CONNECT TO EX. SAMH ADJUST T/G TO 87.58m INV E = 83.22m (EX.) INV S = 84.39m (NEW) INV W = 83.25m (NEW)

19.4m – 200mmø CB LEAD @ 2.00%

CB18 T/G = 87.55m INV = 85.85m

FUTURE ADDITION

NEW TWO STOREY ELEMENTARY SCHOOL

GROUND FLOOR GEODETIC ELEVATION: 88.00

6.0m – 300mm PVC @ 1.00%

12.6m – 200mm PVC SAN @ 2.00%

CB1 T/G = 87.43m INV S = 86.22m

30.0m – 200mmø CB LEAD @ 1.00% C/W INSULATION

CBMH106 T/G = 87.43m INV E = 85.82m INV W = 85.92m

CBMH107 T/G = 87.49m INV W = 85.73m INV S = 85.70m

38.6m – 300mm PVC @ 0.50% C/W INSULATION

CONNECT BUILDING SANITARY SERVICE AT INV = 85.21m

5.1m – 200mm PVC SAN @ 1.00%

CBMH101A T/G = 87.16m INV N = 84.51m INV S = 84.54m

STMH101 T/G = 87.49m INV N = 84.43m INV W = 85.34m INV S = 84.46m

SAMH100 T/G = 87.50m INV N = 84.64m INV W = 85.11m

8.7m – 450mm CONC @ 0.60%

31.9m – 450mm CONC @ 0.60%

TCB23 T/G = 87.95m INV = 86.27m

TCB22 T/G = 87.65m INV = 86.38m

21.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

TCB24 T/G = 87.65m INV = 86.16m

21.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

CB2 T/G = 87.59m INV = 85.89m

40.4m – 300mm PVC @ 0.80%

RELOCATE EX.CICB T/G = 87.31m INV = 85.61m

CBMH102 T/G = 87.25m INV N = 84.73m INV S = 84.76m

1.4m – 200mmø CB LEAD @ 2.00%

31.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

200mmø NON–PERFORATED SUBDRAIN

19.1 – 200mmø CB LEAD @ 1.00%

31.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

200mmø NON–PERFORATED SUBDRAIN

CB4 T/G = 87.52m INV = 85.82m

6.6m – 200mmø CB LEAD @ 1.00%

23.1m – 450mm CONC @ 0.60%

CBMH108 T/G = 87.65m INV N = 86.00m INV E = 85.82m INV S = 86.00m

INV.=85.70

23.5m – 450mmø CONC @ 0.50%

INV.=85.19

STMH103 T/G = 87.60m INV N = 84.90m INV W = 84.96m C/W ICD

30.8m – 450mmø CONC @ 0.50% C/W INSULATION

CBMH105 (1800mmø) T/G = 87.46m INV E = 85.49m INV W = 85.51m INV S = 85.64m

STMH104 T/G = 87.74m INV N = 85.37m INV S = 85.47m INV E = 85.22m INV W = 85.37m

43.4m – 450mm CONC @ 0.60%

INV.=85.34

15.9m – 200mmø CB LEAD @ 2.00%

TCB26 T/G = 87.65m INV = 86.55m

31.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

31.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

21.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

21.0m–250mmø HDPE PERFORATED SMOOTH INNER WALL PIPE WITH FILTER SOCK

26.5m – 300mm PVC @ 0.50% C/W INSULATION

20.2m – 200mmø CB LEAD @ 1.00%

CB9 T/G = 87.38m INV = 85.77m

CB7 T/G = 87.33m INV S = 85.63m

CB3 T/G = 87.36m INV = 85.66m

TCB25 T/G = 87.65m INV = 86.16m

7.5M SETBACK

TCB27 T/G = 87.65m INV = 86.38m

TCB28 T/G = 87.95m INV = 86.27m

JOHN SEVIGNY C.E.T.
MANAGER (A), DEVELOPMENT REVIEW EAST
PLANNING, DEVELOPMENT & BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA

APPROVED
By sevignyjo at 10:39 am, Sep 05, 2024

PROMENADE JEROME

JODOIN DRIVE

EXISTING FIRE HYDRANT

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TRUE NORTH

PLAN NORTH

LICENSED PROFESSIONAL ENGINEER
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100230568
2024/05/09
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SERVICING PLAN

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JOHN SEVIGNY C.E.T.
MANAGER (A), DEVELOPMENT REVIEW EAST
PLANNING, DEVELOPMENT & BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA

SCALE: 1:300

NEW TWO STOREY
ELEMENTARY SCHOOL
GROUND FLOOR GEODETIC ELEVATION: 88.00

BUS LAY-BY AREA

FUTURE ADDITION

PROMENADE JEROME

JODOIN DRIVE

7.5M SETBACK

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STORM DRAINAGE
AREA PLAN

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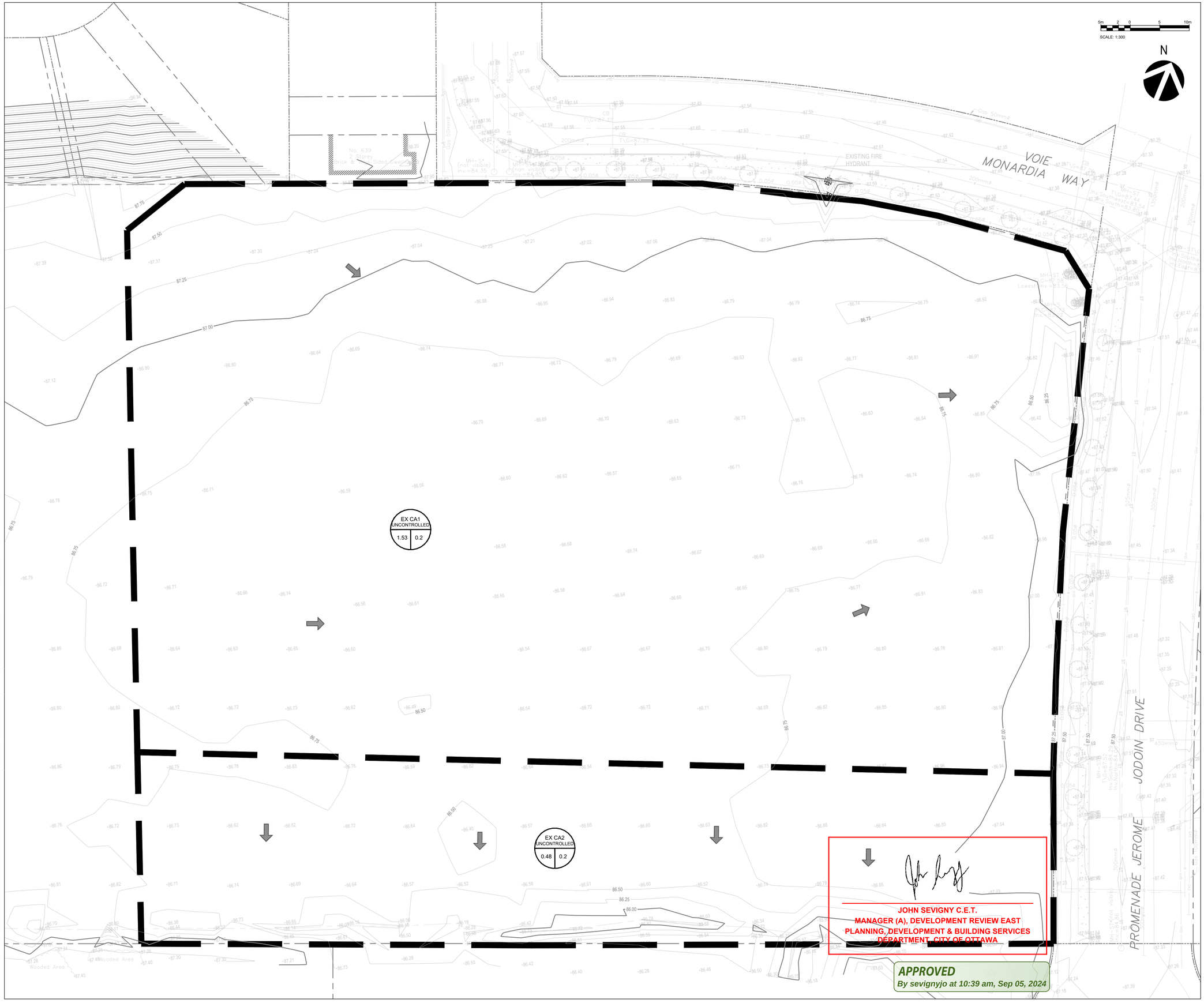

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PRE-DEVELOPMENT DRAINAGE AREA PLAN

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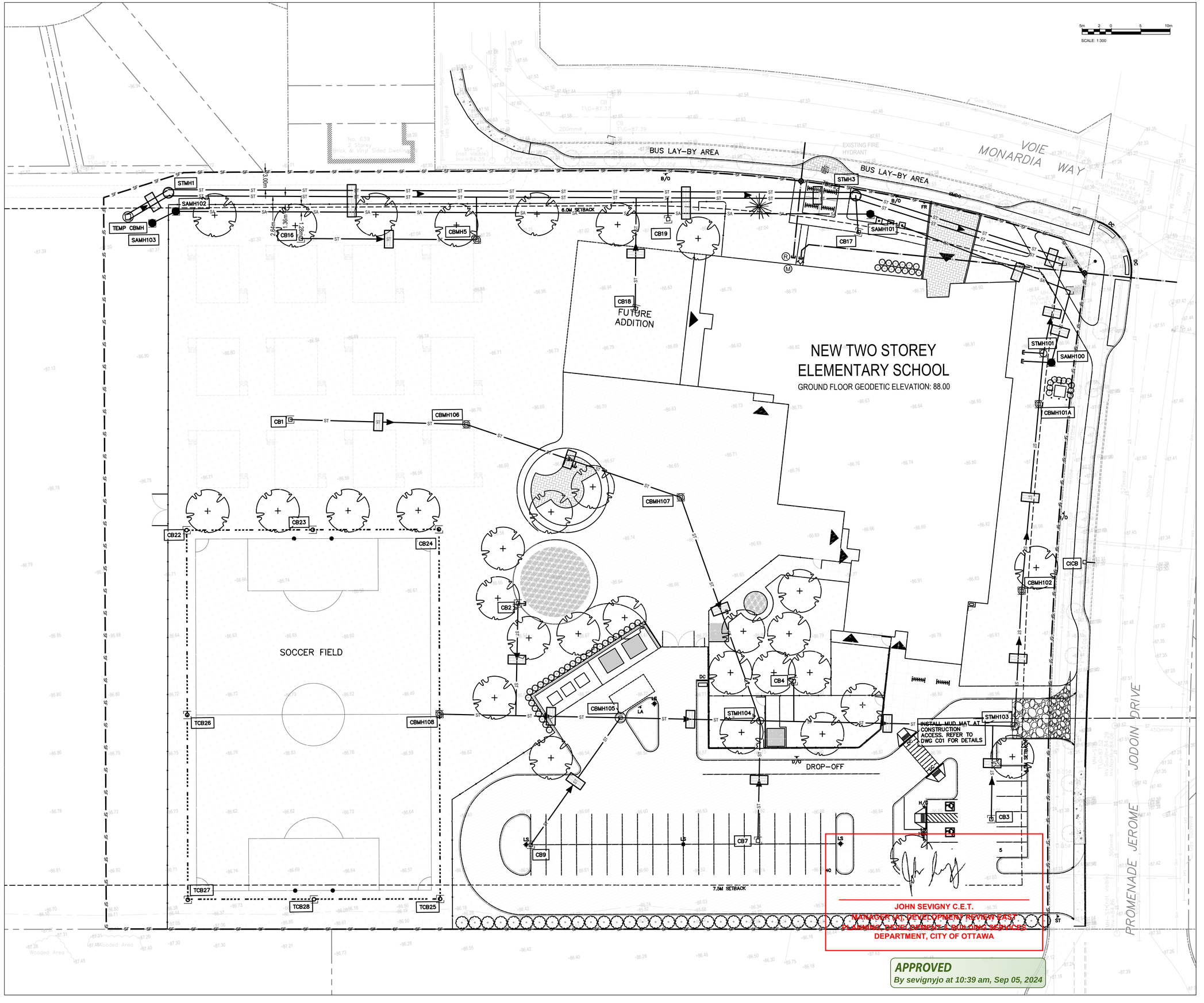

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EROSION AND SEDIMENT CONTROL PLAN

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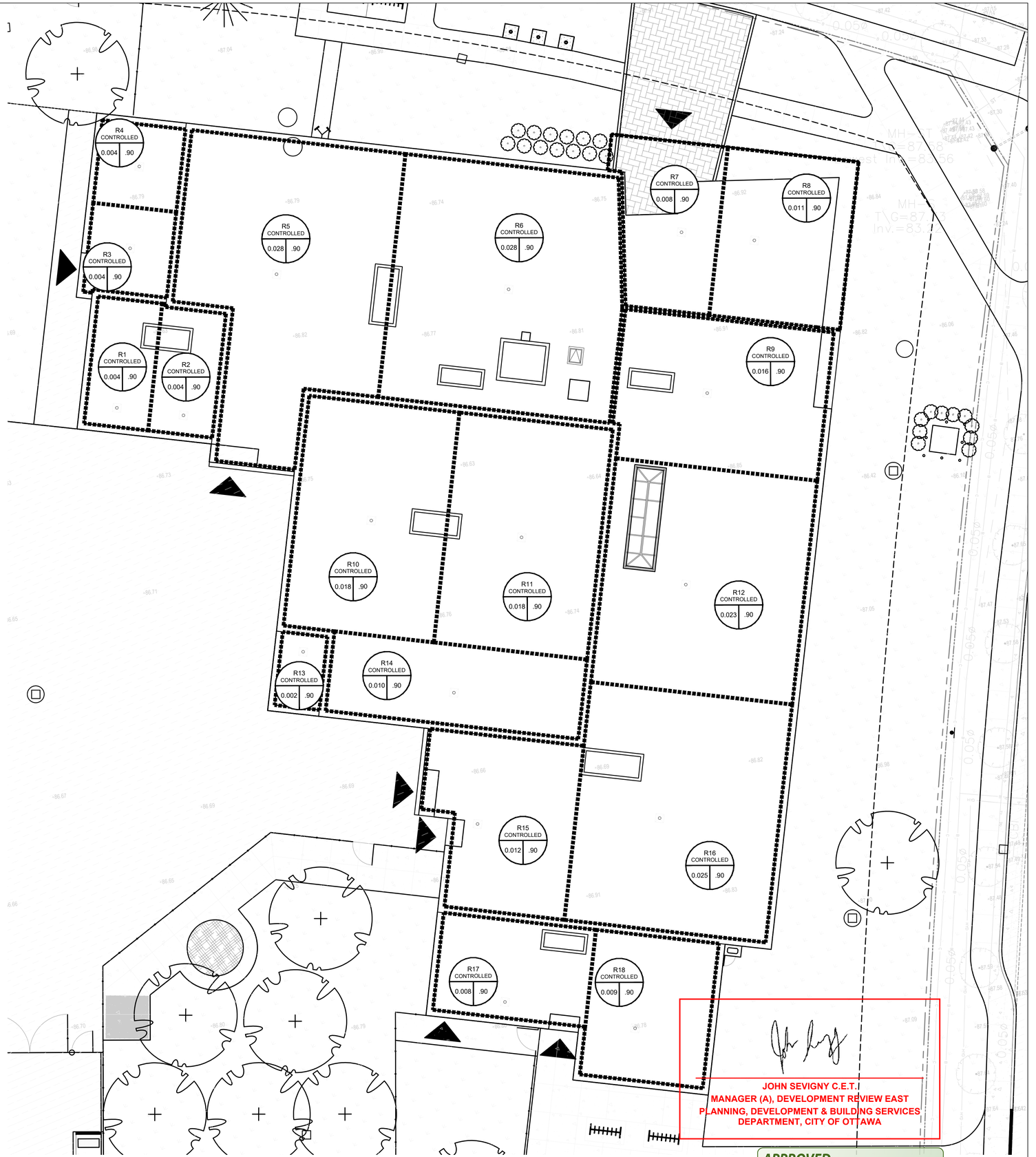
#19154

Roof Drain	Area (m^2)	Depth (m)	Theoretical Rooftop Storage Volume (m^3)	Storage Volume (m^3)	Max Flow Rate (L/s)
1	41.6	0.05	0.7	0.6	0.32
2	40.7	0.05	0.7	0.5	0.32
3	36.6	0.06	0.7	0.6	0.66
4	35.3	0.06	0.7	0.6	0.66
5	276.6	0.15	13.8	11.1	0.95
6	282.0	0.15	14.1	11.3	0.95
7	84.2	0.11	3.1	2.5	0.82
8	112.3	0.11	4.1	3.3	0.82
9	157.0	0.15	7.9	6.3	0.95
10	177.0	0.15	8.9	7.1	0.95
11	180.5	0.15	9.0	7.2	0.95
12	230.8	0.15	11.5	9.2	0.95
13	16.8	0.075	0.4	0.3	0.71
14	102.8	0.15	5.1	4.1	0.95
15	120.6	0.14	5.6	4.5	0.91
16	245.3	0.15	12.3	9.8	0.95
17	75.8	0.11	2.8	2.2	0.82
18	91.0	0.13	3.9	3.2	0.88
Total	**2306.9**			**84.3**	**14.52**

ROOF DRAIN PER WATTS ADJUSTABLE FLOW CONTROL
FOR ROOF DRAINS OR APPROVED EQUIVALENT.

5m 2 0 5 10m
SCALE: 1:300



WATTS | Adjustable Accutrol Weir Tag: _____ | Adjustable Flow Control for Roof Drains

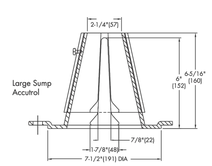
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.



1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____
Job Location _____ Contractor's P.O. No. _____
Engineer _____ Representative _____

USA: Tel: (800) 338-2581 • Fax: (828) 248-3929 • Watts.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • Watts.ca
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WATTS *A Watts Water Technologies Company*

ES-WD-RD-ACCUTROLADJ-CAN 1615

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7	0	2024/04/23	ISSUED FOR TENDER
6	0	2024/01/17	ISSUED FOR SITE PLAN CONTROL
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4	0	2023/11/17	ISSUED FOR COORDINATION
3	0	2023/09/28	ISSUED FOR BUILDING PERMIT

TRUE NORTH PLAN NORTH

LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2024/05/09
PROVINCE OF ONTARIO

EDWARD J. CUHACI & ASSOCIATES ARCHITECTS Inc.
171 Slater St, Suite 100, Ottawa, Ontario, K1P 5H7
Fax: (613) 236-1944 Telephone: (613) 236-7135 E-mail: info@cuhaci.com

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DRAWING TITLE/TITRE DU DESSIN
ROOF DRAINAGE
AREA PLAN

JOHN SEVIGNY C.E.T.
MANAGER (A), DEVELOPMENT REVIEW EAST
PLANNING, DEVELOPMENT & BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA

APPROVED
By sevignyjo at 10:39 am, Sep 05, 2024

		PROJ. No	ISSUE No	REV. No
SCALE ECHELLE	1:150	0003850-9668	8	0
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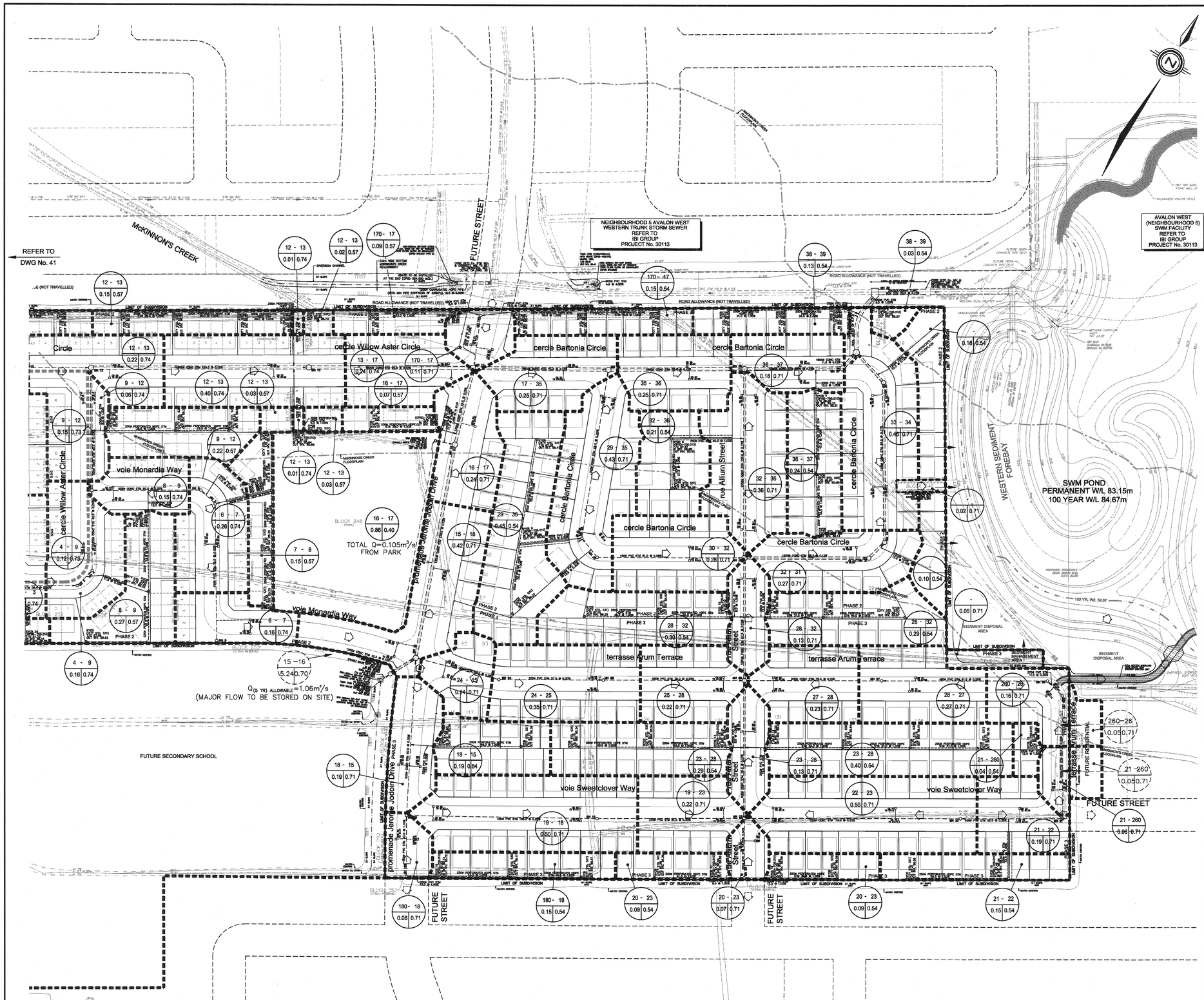
CHECKED BY VERIFIE PAR	DY	**C08**		
DATE	MAY 2024	ACAD FILE/FICHIER: 0003850-9668 C01-8.dwg		

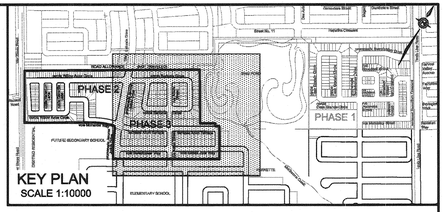
D07-12-23-0102

#19154

APPENDIX H

DESIGN BRIEF SUMMERSIDE WEST – PHASE 2 MER-BLEUE ROAD (DSEL)





LEGEND

- STORM DRAINAGE BOUNDARY
- SUB-DRAINAGE BOUNDARY
- UPSTREAM MH TO DOWNSTREAM MH — 43 - 44
- AREA IN HECTARES — 0.37 | 0.51
- RUNOFF COEFFICIENT
- EXTERNAL 2.78AC = — 2.78AC=14.40
- EXTERNAL TIME OF CONCENTRATION — TC=14.5 MIN
- EXTERNAL BLENDED RUNOFF COEFFICIENT — C= 0.70
- UPSTREAM MH TO DOWNSTREAM MH — 21 - 23
- AREA IN OTHER PHASES IN HECTARES — 0.28 | 0.78
- RUNOFF COEFFICIENT
- STREET CATCHBASIN & LEAD
- MAINTENANCE HOLE — MH202
- CURB INLET CATCHBASIN & LEAD
- CATCHBASIN/ MAINTENANCE HOLE — CBMH201
- INTERCONNECTED CATCH BASIN & LEADS
- CAP
- OVERLAND FLOW DIRECTION
- EXTERNAL OVERLAND FLOW DIRECTION

REVIEWED BY DEVELOPMENT REVIEW BRANCH
SIGNED
DATE SEPT 19, 2016
PLAN NUMBER 17133

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY J.D. BARNES LIMITED,
PROJECT No. 8-10-989-02. SURVEY DATED JANUARY 30, 2015 &
PROJECT No. 8-10-989-02. SURVEY DATED DECEMBER 18, 2015.
PROJECT No. 8-10-989-02. SURVEY DATED APRIL 26, 2016.

LEGAL INFORMATION

CALCULATED M-PLAN PROVIDED BY J.D. BARNES LIMITED,
PROJECT No. 8-10-989-00 (PHASE 2), DATED JULY 24, 2016.

4th SUBMISSION 16-08-10

BENCH MARK No. 01919680229 ELEVATION = 86.120 m

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE NCC BENCH MARK No. 01919680229 HAVING A PUBLISHED ELEVATION OF 86.120 METRES.

TOWNSHIP: CUMBERLAND

CONCRETE MONUMENT ON THE EAST SIDE OF MER BLEUE ROAD, 0.15KM NORTH OF ROAD INTERSECTION WITH NAVAN ROAD.

No.	DATE	BY	DESCRIPTION
4.	16-08-10	Z.L.	4th SUBMISSION
3.	16-07-29	Z.L.	3rd SUBMISSION
2.	16-07-13	Z.L.	2nd SUBMISSION
1.	16-04-29	Z.L.	1st SUBMISSION

Ottawa CITY OF OTTAWA

PROJECT No. 15-808

LICENSED PROFESSIONAL ENGINEER
Z. LI
16-08-10
PROVINCE OF ONTARIO

STORM DRAINAGE PLAN

© DSEL

MATTAMY (MER BLEUE) LIMITED

SUMMERSIDE WEST
PHASES 2 & 3

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david schaeffer engineering ltd
120 Iber Road, Unit 103
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Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

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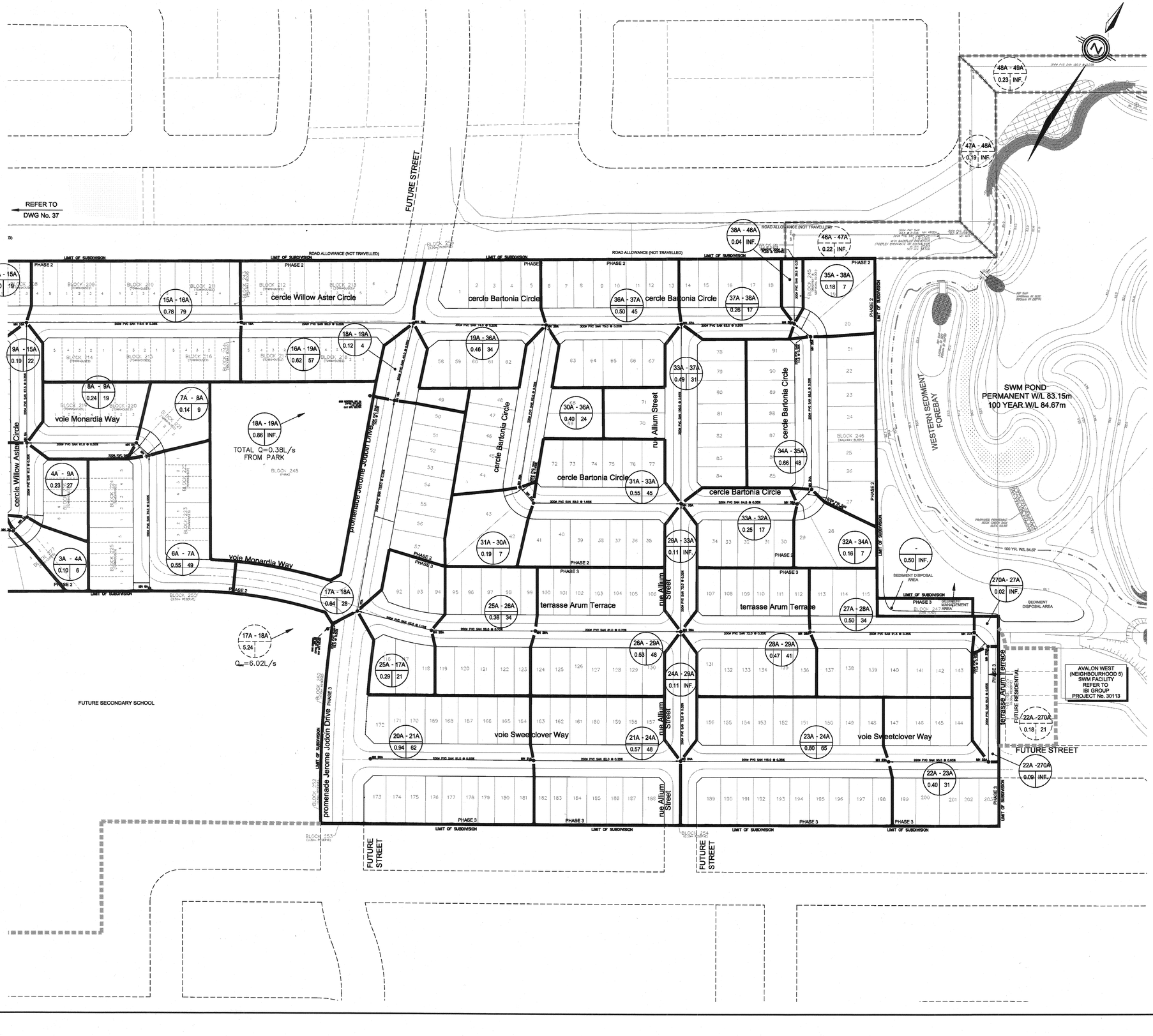
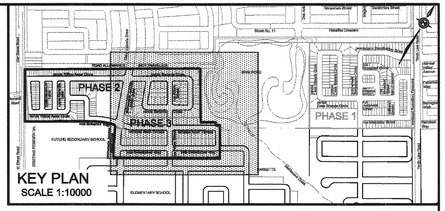
DESIGNED BY:	C.M.	CHECKED BY:	Z.L.		42
SCALE:	1:1000	DATE:	APRIL 2016		

CITY FILE No. D07-16-14-0011PH2 CITY PLAN No. 17133





LEGEND

- SANITARY DRAINAGE BOUNDARY
- EXTERNAL SANITARY DRAINAGE BOUNDARY
- UPSTREAM MH TO DOWNSTREAM MH — AREA IN HECTARES — POPULATION (43A - 44A / 0.78 / 61)
- UPSTREAM MH TO DOWNSTREAM MH — AREA IN OTHER PHASES IN HECTARES — POPULATION (43A - 44A / 0.78 / 61)
- MAINTENANCE HOLE (200mmø SAN MH202A)
- CAP

REVIEWED BY DEVELOPMENT REVIEW BRANCH
SIGNED
DATE SEPT 19, 2016
PLAN NUMBER 17133

TOPOGRAPHIC INFORMATION

TOPOGRAPHIC INFORMATION PROVIDED BY J.D. BARNES LIMITED,
PROJECT No. 8-10-989-02. SURVEY DATED JANUARY 30, 2015 &
PROJECT No. 8-10-989-02. SURVEY DATED DECEMBER 18, 2015.
PROJECT No. 8-10-989-02. SURVEY DATED APRIL 26, 2016.

LEGAL INFORMATION

CALCULATED M-PLAN PROVIDED BY J.D. BARNES LIMITED,
PROJECT No. 8-10-989-00 (PHASE 2), DATED JULY 24, 2016.

4th SUBMISSION 16-08-10

BENCH MARK No. 01919680229 ELEVATION = 86.120 m

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TOWNSHIP: CUMBERLAND

CONCRETE MONUMENT ON THE EAST SIDE OF MER BLEUE ROAD, 0.15KM NORTH OF ROAD INTERSECTION WITH NAVAN ROAD.

No.	DATE	BY	DESCRIPTION
4.	16-08-10	Z.L.	4th SUBMISSION
3.	16-07-29	Z.L.	3rd SUBMISSION
2.	16-07-13	Z.L.	2nd SUBMISSION
1.	16-04-29	Z.L.	1st SUBMISSION

CITY OF OTTAWA

PROFESSIONAL ENGINEER — Z. LI — 16-08-10 — PROVINCE OF ONTARIO

PROJECT No. 15-808

SANITARY DRAINAGE PLAN

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MATTAMY (MER BLEUE) LIMITED

SUMMERSIDE WEST
PHASES 2 & 3

DSEL
david schaeffer engineering ltd
120 Iber Road, Unit 103
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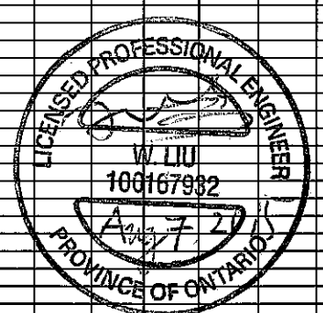
SCALE:	1:1000	DATE:	APRIL 2016		

CITY FILE No. D07-16-14-0011PH2 CITY PLAN No. 17133

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION						COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA Nominal (mm)	DIA Actual (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL. (FULL) (m/s)
cercle Casa Grande Circle																											
	24A	25A	0.91	21	71.4	0.91	71.4	4.00	1.16								0.91	0.91	0.255	1.42	119.5	200	200	0.65	26.44	0.05	0.84
	25A	26A	0.23	3	10.2	1.14	81.6	4.00	1.32								0.23	1.14	0.319	1.64	13.0	200	200	0.40	20.74	0.08	0.66
	26A	27A	0.43	10	34.0	1.57	115.6	4.00	1.87								0.43	1.57	0.440	2.31	71.5	200	200	0.40	20.74	0.11	0.66
	27A	28A	0.56	13	44.2	2.13	159.8	4.00	2.59								0.56	2.13	0.596	3.19	72.0	200	200	0.40	20.74	0.15	0.66
	28A	29A	0.17	2	6.8	2.30	166.6	4.00	2.70								0.17	2.30	0.644	3.34	12.5	200	200	0.40	20.74	0.16	0.66
	29A	33A	0.11	2	6.8	2.41	173.4	4.00	2.81								0.11	2.41	0.675	3.49	29.0	200	200	1.20	35.93	0.10	1.14
To BLOCK 166 (Servicing & Walkway BLOCK) , Pipe 33A - 52A						2.41	173.4																				
	30A	31A	0.89	23	78.2	0.89	78.2	4.00	1.27								0.89	0.89	0.249	1.52	113.5	200	200	1.10	34.40	0.04	1.09
	31A	32A	0.16	2	6.8	1.05	85.0	4.00	1.38								0.16	1.05	0.294	1.67	13.0	200	200	1.50	40.17	0.04	1.28
	32A	33A	0.10	2	6.8	1.15	91.8	4.00	1.49								0.10	1.15	0.322	1.81	25.5	200	200	2.00	46.38	0.04	1.48
To BLOCK 166 (Servicing & Walkway BLOCK) , Pipe 33A - 52A						1.15	91.8																				
BLOCK 166 (Servicing & Walkway BLOCK)																											
Contribution From cercle Casa Grande Circle, Pipe 29A - 33A						2.41	173.4										2.41	2.41									
Contribution From cercle Casa Grande Circle, Pipe 32A - 33A						1.15	91.8										1.15	3.56									
	33A	52A	0.04	0	0.0	3.60	265.2	4.00	4.30								0.04	3.60	1.008	5.31	42.0	200	200	0.40	20.74	0.26	0.66
To ROAD ALLOWANCE (TRUNK), Pipe 52A - 53A						3.60	265.2																				
croissant Sweetfern Crescent																											
	6A	9A	0.34	16	43.2	0.34	43.2	4.00	0.70								0.34	0.34	0.095	0.80	70.5	200	200	0.65	26.44	0.03	0.84
To rue Mandalay Street, Pipe 9A - 10A						0.34	43.2																				
	1A	7A	0.24	12	32.4	0.24	32.4	4.00	0.53								0.24	0.24	0.067	0.60	86.5	200	200	1.00	32.80	0.02	1.04
	7A	8A	0.05	1	2.7	0.29	35.1	4.00	0.57								0.05	0.29	0.081	0.65	11.0	200	200	1.00	32.80	0.02	1.04
To rue Mandalay Street, Pipe 8A - 9A						0.29	35.1																				
	1A	2A	0.10	5	13.5	0.10	13.5	4.00	0.22								0.10	0.10	0.028	0.25	38.0	200	200	1.00	32.80	0.01	1.04
	2A	3A	0.06	1	2.7	0.16	16.2	4.00	0.26								0.06	0.16	0.045	0.31	11.0	200	200	1.00	32.80	0.01	1.04
	3A	4A	0.12	4	10.8	0.28	27.0	4.00	0.44								0.12	0.28	0.078	0.52	28.5	200	200	1.00	32.80	0.02	1.04
	4A	5A	0.18	4	10.8	0.46	37.8	4.00	0.61								0.18	0.46	0.129	0.74	11.0	200	200	1.00	32.80	0.02	1.04
	5A	6A	0.32	15	40.5	0.78	78.3	4.00	1.27								0.32	0.78	0.218	1.49	62.0	200	200	0.90	31.12	0.05	0.99
To rue Astervale Street, Pipe 6A - 13A						0.78	78.3																				
rue Mandalay Street																											
Contribution From croissant Sweetfern Crescent, Pipe 7A - 8A						0.29	35.1										0.29	0.29									
	8A	9A	0.18	6	16.2	0.47	51.3	4.00	0.83								0.18	0.47	0.132	0.96	36.5	200	200	1.50	40.17	0.02	1.28
Contribution From croissant Sweetfern Crescent, Pipe 6A - 9A						0.34	43.2										0.34	0.81									
			0.03	1	2.7												0.03	0.84									
	9A	10A	0.34	9	30.6	1.18	127.8	4.00	2.07								0.34	1.18	0.330	2.40	67.5	200	200	0.40	20.74	0.12	0.66
	10A	11A	0.43	11	37.4	1.61	165.2	4.00	2.68								0.43	1.61	0.451	3.13	66.5	200	200	0.40	20.74	0.15	0.66
To promenade Sweetvalley Drive, Pipe 11A - 150A						1.61	165.2																				



DESIGN PARAMETERS

Average Daily Flow =	350	l/p/day	Industrial Peak Factor =	as per MOE Graph	
Commercial/Institution Flow =	50000	L/ha/da	Extraneous Flow =	0.280	L/s/ha
Industrial Flow =	35000	L/ha/da	Minimum Velocity =	0.60	m/s
Max Res. Peak Factor =	4.00		Manning's n =	0.013	
Commercial/Institution/Park Peak Factor =	1.50		Townhouse coeff=	2.7	
Park Average Flow =	9300	L/ha/da	Single house coeff=	3.4	

Designed: K.M.

Checked: Z.L.

Dwg. Reference: Sanitary Drainage Plan, Dwgs. No. 35 and 36

PROJECT: **SUMMERSIDE WEST PHASE 1**

LOCATION: **City of Ottawa**

File Ref: 12-609 | Date: August, 2015 | Sheet No. 1 of 3

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION						COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA Nominal (mm)	DIA Actual (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL. (FULL) (m/s)
rue Astervale Street																											
Contribution From croissant Sweetfern Crescent, Pipe 5A - 6A						0.78	78.3										0.78	0.78									
	6A	13A	0.20	5	13.5	0.98	91.8	4.00	1.49								0.20	0.98	0.274	1.76	69.0	200	200	0.40	20.74	0.08	0.66
Contribution From rue Broadleaf Street, Pipe 12A - 13A						0.33	27.0										0.33	1.31									
	13A	15A	0.31	13	35.1	1.62	153.9	4.00	2.49								0.31	1.62	0.454	2.94	64.0	200	200	0.40	20.74	0.14	0.66
To promenade Sweetvalley Drive , Pipe 15A - 17A						1.62	153.9																				
rue Maroma Street																											
	16A	17A	0.21	12	32.4	0.21	32.4	4.00	0.53								0.21	0.21	0.059	0.59	51.0	200	200	0.65	26.44	0.02	0.84
To promenade Sweetvalley Drive , Pipe 17A - 18A						0.21	32.4																				
rue Broadleaf Street																											
	12A	14A	0.12	3	8.1	0.12	8.1	4.00	0.13								0.12	0.12	0.034	0.16	11.0	200	200	1.00	32.80	0.00	1.04
	14A	18A	0.32	13	35.1	0.44	43.2	4.00	0.70								0.32	0.44	0.123	0.82	55.5	200	200	1.00	32.80	0.03	1.04
To promenade Sweetvalley Drive , Pipe 18A - 19A						0.44	43.2																				
	12A	13A	0.33	10	27.0	0.33	27.0	4.00	0.44								0.33	0.33	0.092	0.53	62.5	200	200	1.60	41.49	0.01	1.32
To rue Astervale Street, Pipe 13A - 15A						0.33	27.0																				
promenade Sweetvalley Drive																											
	20A	21A	0.40	8	27.2	0.40	27.2	4.00	0.44								0.40	0.40	0.112	0.55	36.0	200	200	0.65	26.44	0.02	0.84
	21A	22A	0.44	9	30.6	0.84	57.8	4.00	0.94								0.44	0.84	0.235	1.18	53.0	200	200	0.40	20.74	0.06	0.66
	22A	23A	0.62	16	54.4	1.46	112.2	4.00	1.82								0.62	1.46	0.409	2.23	85.5	200	200	0.60	25.41	0.09	0.81
To BLOCK 168 (Servicing & Walkway BLOCK) , Pipe 23A - 53A						1.46	112.2																				
Contribution From South Area						15.57	1108.0										15.57	15.57									
	110A	11A	0.06	0	0.0	15.63	1108.0	3.77	16.92								0.06	15.63	4.376	21.30	33.5	375	375	0.30	96.03	0.22	0.87
Contribution From rue Mandalay Street, Pipe 10A - 11A						1.61	165.2										1.61	17.24									
	11A	150A	0.03	0	0.0	17.27	1273.2	3.73	19.24								0.03	17.27	4.836	24.08	21.0	375	375	0.30	96.03	0.25	0.87
Contribution from BLOCK 163 (PARK)																				5.00	Block 163 (Park) Splash Pad 5.0 L/s Flow Allowance						
San Control MH 1A		150A												1.19	1.19	0.19	1.19	1.19	0.333	5.52	11.0	200	200	1.00	32.80	0.17	1.04
	150A	15A	0.08	0	0.0	17.35	1273.2	3.73	19.24						1.19	0.19	0.08	18.54	5.191	29.62	49.5	375	375	0.30	96.03	0.31	0.87
Contribution From rue Astervale Street, Pipe 13A - 15A						1.62	153.9										1.62	20.16									
	15A	17A	0.09	1	3.4	19.06	1430.5	3.69	21.38						1.19	0.19	0.09	20.25	5.670	32.24	45.0	375	375	0.30	96.03	0.34	0.87
Contribution From rue Maroma Street, Pipe 16A - 17A						0.21	32.4										0.21	20.46									
	17A	18A	0.19	5	17.0	19.46	1479.9	3.68	22.06						1.19	0.19	0.19	20.65	5.782	33.03	45.0	375	375	0.30	96.03	0.34	0.87

DESIGN PARAMETERS

Average Daily Flow =	350 l/p/day	Industrial Peak Factor =	as per MOE Graph
Commercial/Institution Flow =	50000 L/ha/da	Extraneous Flow =	0.280 L/s/ha
Industrial Flow =	35000 L/ha/da	Minimum Velocity =	0.60 m/s
Max Res. Peak Factor =	4.00	Manning's n =	0.013
Commercial/Institution/Park Peak Factor =	1.50	Townhouse coeff=	2.7
Park Average Flow =	9300 L/ha/da	Single house coeff=	3.4

Designed: K.M.

Checked: Z.L.

Dwg. Reference: Sanitary Drainage Plan, Dwgs. No. 35 and 36

PROJECT: **SUMMERSIDE WEST PHASE 1**

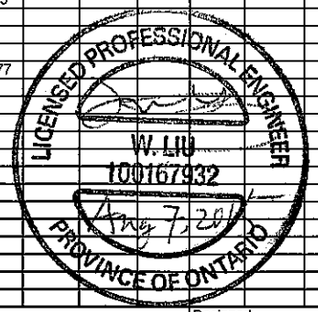
LOCATION: **City of Ottawa**

File Ref: 12-609 | Date: August, 2015 | Sheet No. 2 of 3

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION			RESIDENTIAL AREA AND POPULATION							COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET	FROM M.H.	TO M.H.	AREA (ha)	UNITS	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA Nominal (mm)	DIA Actual (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL. (FULL) (m/s)
Contribution From rue Broadleaf Street, Pipe 14A - 18A						0.44	43.2										0.44	21.09									
	18A	19A	0.33	6	20.4	20.23	1543.5	3.67	22.95						1.19	0.19	0.33	21.42	5.998	34.14	61.5	375	375	0.30	96.03	0.36	0.87
	19A	23A	0.11	1	3.4	20.34	1546.9	3.67	23.00						1.19	0.19	0.11	21.53	6.028	34.22	11.0	375	375	0.30	96.03	0.36	0.87
To BLOCK 168 (Servicing & Walkway BLOCK) , Pipe 23A - 53A						20.34	1546.9								1.19												
BLOCK 168 (Servicing & Walkway BLOCK)																											
Contribution From promenade Sweetvalley Drive, Pipe 22A - 23A						1.46	112.2										1.46	1.46									
Contribution From promenade Sweetvalley Drive, Pipe 19A - 23A						20.34	1546.9								1.19	0.19	21.53	22.99									
	23A	53A	0.04	0	0.0	21.84	1659.1	3.65	24.53						1.19	0.19	0.04	23.03	6.448	36.17	42.0	375	375	0.30	96.03	0.38	0.87
To ROAD ALLOWANCE (TRUNK), Pipe 53A - 54A						21.84	1659.1								1.19												
TRUNK																											
Contribution From FUTURE RESIDENTIAL AREA						9.70	679.0										9.70	9.70									
						10.55	950.0										10.55	20.25									
	Plug	46A	0.00	0	0.0	20.25	1629.0	3.65	24.09								0.00	20.25	5.670	29.76	13.0	300	300	0.20	43.25	0.69	0.61
	46A	47A	0.22	0	0.0	20.47	1629.0	3.65	24.09								0.22	20.47	5.732	29.82	102.0	300	300	0.20	43.25	0.69	0.61
	47A	48A	0.19	0	0.0	20.66	1629.0	3.65	24.09								0.19	20.66	5.785	29.88	93.5	300	300	0.20	43.25	0.69	0.61
	48A	49A	0.15	0	0.0	20.81	1629.0	3.65	24.09								0.15	20.81	5.827	29.92	78.0	300	300	0.20	43.25	0.69	0.61
	49A	50A	0.24	0	0.0	21.05	1629.0	3.65	24.09								0.24	21.05	5.894	29.98	120.0	300	300	0.20	43.25	0.69	0.61
	50A	51A	0.20	0	0.0	21.25	1629.0	3.65	24.09								0.20	21.25	5.950	30.04	98.5	300	300	0.20	43.25	0.69	0.61
	51A	510A	0.02	0	0.0	21.27	1629.0	2.00	13.20								0.02	21.27	5.956	19.16	13.0	300	300	0.20	43.25	0.44	0.61
	510A	52A	0.20	0	0.0	21.47	1629.0	3.65	24.09								0.20	21.47	6.012	30.10	101.0	300	300	0.20	43.246	0.70	0.61
Contribution From BLOCK 166 (Servicing & Walkway), Pipe 33A - 52A						3.60	265.2										3.60	25.07									
	52A	53A	0.22	0	0.0	25.29	1894.2	3.60	27.62								0.22	25.29	7.081	34.70	110.0	375	375	0.20	78.410	0.44	0.71
Contribution From BLOCK 168 (Servicing & Walkway), Pipe 23A - 53A						21.84	1659.1								1.19		23.03	48.32									
	53A	54A	0.21	0	0.0	47.34	3553.3	3.38	48.65						1.19	0.19	0.21	48.53	13.588	67.43	105.5	450	450	0.20	127.503	0.53	0.80
	54A	55A	0.18	0	0.0	47.52	3553.3	3.38	48.65						1.19	0.19	0.18	48.71	13.639	67.48	101.0	450	450	0.20	127.503	0.53	0.80
Contribution From Existing Alavon South						98.22	6997.0										98.22	146.93									
Contribution From AREA 10 (TENTH LINE)						117.93	10240.0										117.93	264.86									
Contribution From URBAN EXPANSION AREA						26.60	1785.0										26.60	291.46									
	55A	Ex. 10128	0.00	0	0.0	290.27	22575.3	2.60	237.77						1.19	0.19	0.00	291.46	81.609	324.57	19.0	675	675	0.50	594.386	0.55	1.66
To PUMPING STATION, Pipe Ex. 10128 - Pumping Station						290.27	22575.3								1.19												



DESIGN PARAMETERS

Average Daily Flow =	350	l/p/day	Industrial Peak Factor = as per MOE Graph		
Commercial/Institution Flow =	50000	L/ha/da	Extraneous Flow =	0.280	L/s/ha
Industrial Flow =	35000	L/ha/da	Minimum Velocity =	0.60	m/s
Max Res. Peak Factor =	4.00		Manning's n =	0.013	
Commercial/institution/Park Peak Factor =	1.50		Townhouse coeff=	2.7	
Park Average Flow =	9300	L/ha/da	Single house coeff=	3.4	

Designed: K.M.

Checked: Z.L.

Dwg. Reference: Sanitary Drainage Plan, Dwgs. No. 35 and 36

PROJECT: **SUMMERSIDE WEST PHASE 1**

LOCATION: **City of Ottawa**

File Ref: 12-609 | Date: August, 2015 | Sheet No. 3 of 3

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STORM SEWER DESIGN SHEET
MER BLEUE Urban Expansion Area
MSS Preferred Concept
CITY OF OTTAWA
Owners Group

LOCATION				AREA (Ha)												RATIONAL DESIGN FLOW												SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.30	C= 0.40	C= 0.54	C= 0.57	C= 0.70	C= 0.71	C= 0.73	C= 0.74	C= 0.70	C= 0.76	C= 0.80	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr 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) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	(%)
OUTLET #4: New Central SWM Pond (North)																																				
MER BLEUE ROAD	4000A/B	MH4000	MH4001										0.40	1.46		3.86	3.86	13.67	0.78	14.45	65.10	88.12	150.76	251.47				251.47	626.37	44.75	900			0.11	0.954	374.90	59.85%
		MH4001	MH4002													0.00	3.86	14.45	0.77	15.22	63.09	85.37	146.02	243.73				243.73	626.37	43.86	900			0.11	0.954	382.64	61.09%
		MH4002	MH4010													0.00	3.86	15.22	0.79	16.01	61.26	82.86	141.69	236.64				236.64	626.37	45.49	900			0.11	0.954	389.73	62.22%
	4010	MH4010	MH4011										0.52			1.01	4.88	16.01	0.70	16.71	59.47	80.42	137.48	289.94				289.94	775.41	42.33	975			0.11	1.006	485.47	62.61%
		MH4011	MH4012													0.00	4.88	16.71	1.51	18.22	58.00	78.40	133.99	282.73				282.73	775.41	91.15	975			0.11	1.006	492.68	63.54%
	4110	MH4110	MH4111										0.92			1.79	1.79	10.00	1.79	11.79	76.81	104.19	178.56	137.51				137.51	239.68	88.06	600			0.14	0.821	102.17	42.63%
		MH4111	MH4112													0.00	1.79	11.79	0.14	11.93	70.56	95.61	163.72	126.33				126.33	239.68	6.82	600			0.14	0.821	113.35	47.29%
		MH4112	MH4113													0.00	1.79	11.93	0.77	12.69	70.13	95.01	162.68	125.55				125.55	239.68	37.74	600			0.14	0.821	114.13	47.62%
		MH4113	MH4121													0.00	1.79	12.69	0.84	13.53	67.81	91.84	157.20	121.41				121.41	239.68	41.15	600			0.14	0.821	118.27	49.34%
	4120	MH4120	MH4121										0.79			1.54	1.54	10.00	2.39	12.39	76.81	104.19	178.56	118.08				118.08	93.27	117.46	375			0.26	0.818	-24.81	-26.60%
	4121	MH4121	MH4131										0.31			0.60	3.93	13.53	1.44	14.97	65.48	88.64	151.67	257.39				257.39	496.66	77.96	825			0.11	0.900	239.27	48.18%
	4130	MH4130	MH4131										0.78			1.52	1.52	10.00	2.40	12.40	76.81	104.19	178.56	116.58				116.58	93.27	117.68	375			0.26	0.818	-23.31	-25.00%
	4132	MH4132	MH4131										0.12			0.23	0.23	10.00	1.45	11.45	76.81	104.19	178.56	17.94				17.94	93.27	71.02	375			0.26	0.818	75.33	80.77%
	4131	MH4131	MH4140										0.33			0.64	6.32	14.97	1.19	16.16	61.84	83.65	143.06	391.09				391.09	775.41	72.00	975			0.11	1.006	384.32	49.56%
	4100	MH4100	MH4101										0.10			0.19	0.19	10.00	1.19	11.19	76.81	104.19	178.56	14.95				14.95	496.66	64.10	825			0.11	0.900	481.72	96.99%
	4107	MH4107	MH4101										0.40			0.78	0.78	10.00	1.67	11.67	76.81	104.19	178.56	59.79				59.79	93.27	82.00	375			0.26	0.818	33.48	35.90%
	4101	MH4101	MH4102										1.16			2.26	3.23	11.67	0.80	12.47	70.94	96.13	164.61	229.15				229.15	496.66	43.26	825			0.11	0.900	267.52	53.86%
		MH4102	MH4103													0.00	3.23	12.47	0.90	13.37	68.46	92.73	158.73	221.15				221.15	496.66	48.72	825			0.11	0.900	275.51	55.47%
		MH4103	MH4104													0.00	3.23	13.37	0.99	14.37	65.89	89.21	152.65	212.86				212.86	496.66	53.73	825			0.11	0.900	283.81	57.14%
		MH4104	MH4105													0.00	3.23	14.37	0.63	15.00	63.30	85.65	146.51	204.48				204.48	496.66	33.89	825			0.11	0.900	292.19	58.83%
		MH4105	MH4106													0.00	3.23	15.00	0.86	15.85	61.78	83.57	142.91	199.56				199.56	496.66	46.18	825			0.11	0.900	297.11	59.82%
		MH4106	MH4140													0.00	3.23	15.85	1.69	17.54	59.83	80.90	138.32	193.27				193.27	496.66	91.06	825			0.11	0.900	303.40	61.09%
		MH4140	MH4012													0.00	9.55	17.54	0.19	17.73	56.36	76.16	130.14	538.53				538.53	944.84	12.08	1050			0.11	1.057	406.31	43.00%
		MH4012	MH4020													0.00	14.43	17.73	1.08	18.81	56.00	75.67	129.28	808.05				808.05	1,846.76	80.96	1350			0.11	1.250	1038.71	56.24%
	4200	MH4200	MH4201										0.80			1.56	1.56	10.00	2.08	12.08	76.81	104.19	178.56	119.57				119.57	385.20	105.31	750			0.11	0.845	265.63	68.96%
	4201	MH4201	MH4202										1.06			2.06	3.62	12.08	2.13	14.21	69.65	94.36	161.56	252.11				252.11	385.20	107.95	750			0.11	0.845	133.09	34.55%
		MH4202	MH4204													0.00	3.62	14.21	1.44	15.64	63.70	86.21	147.47	230.57				230.57	496.66	77.56	825			0.11	0.900	266.09	53.58%
		MH4204	MH4220													0.00	3.62	15.64	0.38	16.02	60.29	81.53	139.40	218.21				218.21	496.66	20.27	825			0.11	0.900	278.45	56.06%
	4212	MH4212	MH4213										0.99			1.93	1.93	10.00	0.73	10.73	76.81	104.19	178.56	147.97				147.97	303.78	35.90	675			0.12	0.822	155.81	51.29%
		MH4213	MH4220													0.00	1.93	10.73	0.53	11.26	74.12	100.50	172.17	142.79				142.79	303.78	26.26	675			0.12	0.822	160.98	52.99%
SCHOOL	4221	MH4221	MH4220												2.54	5.65	5.65	13.00	0.35	13.35	66.93	90.63	155.11	378.08				378.08	626.37	20.00	900			0.11	0.954	248.29	39.64%
	4220	MH4220	MH4222										1.01			1.97	13.16	16.02	0.83	16.85	59.46	80.40	137.45	782.54				782.54	1,348.97	57.40	1200			0.11	1.155	566.43	41.99%
		MH4222	MH4223													0.00	13.16	16.85	0.48	17.32	57.73	78.03	133.35	759.69				759.69	1,348.97	32.99	1200			0.11	1.155	589.28	43.68%
		MH4223	MH4224													0.00	13.16	17.32	0.54	17.87	56.78	76.73	131.12	747.22				747.22	1,348.97	37.75	1200			0.11	1.155	601.75	44.61%
		MH4224	MH4020													0.00	13.16	17.87	1.22	19.09	55.73	75.31	128.66	733.50				733.50	1,348.97	84.51	1200			0.11	1.155	615.48	45.63%
	4020	MH4020	MH4021										0.92			1.79	29.38	19.09	1.11	20.20	53.55	72.32	123.52	1,573.28				1,573.28	3,153.62	95.11	1650			0.11	1.429	1580.34	50.11%
		MH4021	MH4022													0.00	29.38	20.20	1.11	21.31	51.72	69.82	119.21	1,519.50				1,519.50	3,153.62	95.12	1650			0.11	1.429	1634.12	51.82%
PARK	4332	MH4023	MH4022		2.04											1.70	1.70	13.33	0.38	13.71	66.01	89.37	152.93	112.31				112.31	184.99	19.00	525			0.17	0.828	72.68	39.29%
	4022	MH4022	MH4024										0.89			1.73	32.81	21.31	0.83	22.14	50.02	67.51	115.23	1,641.40				1,641.40	3,153.62	71.11	1650			0.11	1.429	1512.23	47.95%
		MH4024	MH4025													0.00	32.81	22.14	0.85	22.99	48.83	65.89	112.44	1,602.37				1,602.37	3,153.62	72.87	1650			0.11	1.429	1551.26	49.19%
	4025	MH4025	MH4026										1.07			2.08	34.90	22.99	0.52	23.50	47.68	64.31	109.73	1,663.73				1,663.73	3,153.62	44.40	1650			0.11	1.429	1489.89	47.24%
		MH4026	MH4030													0.00	34.90	23.50	0.66	24.16	47.00	63.39	108.15	1,640.19				1,640.19	3,153.62	56.54	1650			0.11	1.429	1513.43	47.99%
	4030	MH4030	MH4031										1.13			2.20	37.10	24.16	0.51	24.68	46.17	62.27	106.20	1,712.81				1,712.81	3,153.62	44.06	1650			0.11	1.429	1440.82	45.69%
		MH4031	MH4032													0.00	37.10	24.68	0.57	25.25	45.55	61.42	104.74	1,689.67				1,689.67	3,153.62	49.23	1650			0.11	1.429	1463.95	46.42%
		MH4032	MH4040													0.00	37.10	25.25	0.67	25.92	44.87	60.50	103.16	1,664.64				1,664.64	3,977.22	60.53	1800			0.11	1.514	2312.58	58.15%
	4400	MH4400	MH4401										1.93			3.76	3.76	10.00	1.24	11.24	76.81	104.19	178.56	288.46				288.46	496.66	67.15	825			0.11	0.900	208.20	41.92%
		MH4401	MH4402													0.00	3.76	11.24	0.23	11.47	72.34	98.05	167.94	271.69				271.69	496.66	12.40	825			0.11	0.900	224.98	45.30%
		MH4402	MH4403													0.00	3.76	11.47	1.58	13.05	71.58	97.01	166.13	268.83				268.83	496.66	85.28	825			0.11	0.900	227.84	45.87%
		MH4403	MH4404													0.00	3.76	13.05	1.58	14.63	66.78	90.43	154.76	250.82				250.82	496.66	85.28	825			0.11	0.900	245.84	49.50%
	4404	MH4404	MH4405										2.20			4.28	8.04	14.63	1.54	16.17	62.65	84.77	144.98	503.53				503.53	775.41	92.82	975			0.11	1.006	271.88	35.06%
		MH4405	MH4406													0.00	8.04	16.17	0.69	16.86	59.14	79.96	136.69	475.30				475.30	775.41	41.72	975			0.11	1.006	300.11	38.70%
		MH4406	MH4407													0.00	8.04	16.86	0.50	17.36	57.70	77.99	133.29	463.73				463.73	775.41	29.92	975			0.11	1.006	311.68	40.20%
		MH4407	MH4408													0.00	8.04	17.36	0.72	18.08	56.71	76.65	130.97	455.81				455.81	775.41	43.43	975			0.11	1.006	319.60	41.22%
		MH4408	MH4440													0.00	8.04	18.08	0.60	18.68	55.35	74.78	127.76	444.84				444.84	775.41	36.52	975			0.11	1.006	330.57	42.63%

SANITARY SEWER CALCULATION SHEET

Manning's n=0.013

LOCATION				RESIDENTIAL AREA AND POPULATION						COMM		INSTIT		PARK		C+I+I	INFILTRATION				PIPE						
STREET		FROM M.H.	TO M.H.	AREA (ha)	POP.	CUMULATIVE AREA (ha)	CUMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	TOTAL AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	TOTAL FLOW (l/s)	DIST (m)	DIA (mm)	SLOPE (%)	CAP. (FULL) (l/s)	RATIO Q act/Q cap	VEL. (FULL) (m/s)	VEL. (ACT.) (m/s)
TRUNK 2																											
				0.30	33	0.30	33			0.21	0.21						0.51	0.51									
				0.42	47	0.72	80				0.21						0.42	0.93									
				0.13	15	0.85	95				0.21						0.13	1.06									
				0.31	35	1.16	130				0.21						0.31	1.37									
		550A	551A	1.19	131	2.35	261	3.28	2.78		0.21					0.10	1.19	2.56	0.84	3.72	90.0	200	0.35	19.40	0.19	0.62	0.47
				0.42	47	2.77	308				0.21						0.42	2.98									
				1.04	115	3.81	423				0.21						1.04	4.02									
		551A	552A	0.12	14	3.93	437	3.20	4.54		0.21					0.10	0.12	4.14	1.37	6.00	51.5	200	0.35	19.40	0.31	0.62	0.54
				0.19	21	4.12	458				0.21						0.19	4.33									
				0.66	73	4.78	531				0.21						0.66	4.99									
		552A	553A	1.04	115	5.82	646	3.13	6.56		0.21					0.10	1.04	6.03	1.99	8.65	79.5	250	0.25	29.73	0.29	0.61	0.52
				1.42	157	7.24	803				0.21						1.42	7.45									
		553A	567A	0.10	11	7.34	814	3.08	8.14		0.21					0.10	0.10	7.55	2.49	10.73	40.5	250	0.25	29.73	0.36	0.61	0.56
				0.20	22	7.54	836	2.00	5.42	3.62	3.83						3.82	11.37									
		567A	571A	1.56	172	9.10	1008	3.04	9.92		3.83					1.86	1.56	12.93	4.27	16.05	86.0	300	0.20	43.25	0.37	0.61	0.57
				0.51	34	9.61	1042				3.83						0.51	13.44									
		571A	572A	1.36	150	10.97	1192	3.00	11.59		3.83	2.60	2.60			3.13	3.96	17.40	5.74	20.46	115.0	300	0.20	43.25	0.47	0.61	0.60
		572A	573A	0.64	42	11.61	1234	2.99	11.96		3.83		2.60	1.87	1.87	3.43	2.51	19.91	6.57	21.96	115.0	300	0.20	43.25	0.51	0.61	0.61
		573A	588A	0.65	43	12.26	1277	2.98	12.35		3.83		2.60		1.87	3.43	0.65	20.56	6.78	22.56	115.0	300	0.20	43.25	0.52	0.61	0.62
TRUNK 2 (BY OTHERS)				0.54	60	12.80	1337				3.83		2.60		1.87		0.54	21.10									
		588A	589A	6.80	442	19.60	1779	2.90	16.72		3.83		2.60		1.87	3.43	6.80	27.90	9.21	29.35	59.5	300	0.20	43.25	0.68	0.61	0.66
		589A	590A	1.45	95	21.05	1874	2.89	17.53		3.83		2.60		1.87	3.43	1.45	29.35	9.69	30.64	49.5	375	0.15	67.91	0.45	0.61	0.60
		590A (B.O.)	591A (B.O.)	0.66	43	21.71	1917	2.88	17.89		3.83		2.60		1.87	3.43	0.66	30.01	9.90	31.22	79.0	375	0.15	67.91	0.46	0.61	0.60
		591A (B.O.)	592A (B.O.)	0.37	25	22.08	1942	2.88	18.10		3.83		2.60		1.87	3.43	0.37	30.38	10.03	31.56	48.0	375	0.15	67.91	0.46	0.61	0.60
				0.30	20	22.38	1962				3.83		2.60	6.31	8.18		6.61	36.99									
		592A (B.O.)	593A (B.O.)	12.50	813	34.88	2775	2.78	24.97		3.83		2.60		8.18	4.45	12.50	49.49	16.33	45.75	75.0	450	0.12	98.76	0.46	0.62	0.61
				0.14	10	35.02	2785				3.83		2.60		8.18		0.14	49.63									
				0.81	53	35.83	2838				3.83		2.60		8.18		0.81	50.44									
		593A (B.O.)	594A (B.O.)	1.94	127	37.77	2965	2.76	26.50		3.83		2.60		8.18	4.45	1.94	52.38	17.29	48.23	36.5	450	0.12	98.76	0.49	0.62	0.62
		594A	595A	0.12	8	37.89	2973	2.76	26.56		3.83		2.60		8.18	4.45	0.12	52.50	17.33	48.33	71.0	450	0.12	98.76	0.49	0.62	0.62
				0.68	45	38.57	3018				3.83		2.60	0.59	8.77		1.27	53.77									
				0.72	47	39.29	3065				3.83		2.60		8.77		0.72	54.49									
				1.23	80	40.52	3145				3.83		2.60		8.77		1.23	55.72									
				1.42	93	41.94	3238				3.83		2.60		8.77		1.42	57.14									
		595A (B.O.)	596A (B.O.)	2.73	178	44.67	3416	2.72	30.06		3.83		2.60		8.77	4.54	2.73	59.87	19.76	54.36	109.5	450	0.12	98.76	0.55	0.62	0.63
		596A (B.O.)	597A (B.O.)	0.26	17	44.93	3433	2.71	30.19		3.83		2.60		8.77	4.54	0.26	60.13	19.84	54.57	36.0	450	0.12	98.76	0.55	0.62	0.64
		597A (B.O.)	598A (B.O.)	0.48	32	45.41	3465	2.71	30.44		3.83		2.60		8.77	4.54	0.48	60.61	20.00	54.98	72.5	450	0.12	98.76	0.56	0.62	0.64
				0.10	7	45.51	3472				3.83		2.60		8.77		0.10	60.71									
		598A (B.O.)	599A (B.O.)	0.89	58	46.40	3530	2.71	30.95		3.83		2.60		8.77	4.54	0.89	61.60	20.33	55.82	58.0	675	0.10	265.82	0.21	0.74	0.59
		599A (B.O.)	600A (B.O.)	0.02	2	46.42	3532	2.70	30.96		3.83		2.60		8.77	4.54	0.02	61.62	20.33	55.84	10.5	675	0.10	265.82	0.21	0.74	0.59
		600A (B.O.)	601A (B.O.)	1.87	122	48.29	3654	2.69	31.91		3.83		2.60		8.77	4.54	1.87	63.49	20.95	57.40	114.0	675	0.10	265.82	0.22	0.74	0.59
		601A (B.O.)	8000A (B.O.)			48.29	3654	2.69	31.91		3.83		2.60		8.77	4.54	0.00	63.49	20.95	57.40	81.5	675	0.10	265.82	0.22	0.74	0.59
TRUNK 4 (BY OTHERS)																											
Contribution from Pump Station (via Forcemain)																		Fixed Flow =		147.37							
		8000A (B.O.)	8001A (B.O.)	3.17	349	51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	3.17	66.66	22.00	208.50	111.50	750	0.10	352.05	0.59	0.80	0.83
		8001A (B.O.)	8002A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	111.50	750	0.10	352.05	0.59	0.80	0.83
		8002A (B.O.)	8003A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	111.50	750	0.10	352.05	0.59	0.80	0.83
		8003A (B.O.)	8004A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	111.50	750	0.10	352.05	0.59	0.80	0.83
		8004A (B.O.)	8005A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	111.50	750	0.10	352.05	0.59	0.80	0.83
		8005A (B.O.)	8006A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	111.50	750	0.10	352.05	0.59	0.80	0.83
		8006A (B.O.)	8007A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	117.98	750	0.10	352.05	0.59	0.80	0.83
		8007A (B.O.)	514A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	370.07	750	0.10	352.05	0.59	0.80	0.83
		514A (B.O.)	8008A (B.O.)			51.46	4003	2.67	34.59		3.83		2.60		8.77	4.54	0.00	66.66	22.00	208.50	81.06	750	0.10	352.05	0.59	0.80	0.83
						51.46	4003											66.66		208.50							
TRUNK 1B																											
		403A	404A	0.50	55	0.50	55	3.44	0.61								0.50	0.50	0.17	0.78	118.0	200	0.34	19.12	0.04	0.61	0.29
		404A	405A	0.11	13	0.61	68	3.43	0.76								0.11	0.61	0.20	0.96	62.0	200	0.34	19.12	0.05	0.61	0.31
		405A	406A	0.04	5	0.65	73	3.42	0.81								0.04	0.65	0.21	1.02	11.0	200	0.34	19.12	0.05	0.61	0.32
		406A	412A	0.45	50	1.10	123	3.37	1.35								0.45	1.10	0.36	1.71	108.0	200	0.34	19.12	0.09	0.61	0.37
				1.99	219	3.09	342										1.99	3.09									
		412A	413A	0.31	21	3.40	363	3.23	3.80								0.31	3.40	1.12	4.93	71.0	200	0.34	19.12	0.26	0.61	0.51
		413A	428A	1.48	97	4.88	460	3.19	4.76								1.48	4.88	1.61	6.37	76.0	200	0.34	19.12	0.33	0.61	0.55
		428A	*Ex. 110A*	4.73	308	9.61	768	3.10	7.71					0.46	0.46	0.07	5.19	10.07	3.32	11.10	38.5	200	0.34	19.12	0.58	0.61	0.63
		Ex. 110A	*Ex. 11A*	0.06		9.67	768	3.10	7.71						0.46	0.07	0.06	10.13	3.34	11.12	*33.5*	*375*	*0.30*	96.03	0.12	0.87	0.57
						9.67	768											10.13		11.12							

DESIGN PARAMETERS

Park Flow =	9300	L/ha/day	Industrial Peak Factor = as per MOE Graph	
Average Daily Flow =	280	L/p/day	Extraneous Flow =	0.330 L/s/ha
Comm/Inst Flow =	28000	L/ha/day	Minimum Velocity =	0.600 m/s
Industrial Flow =	35000	L/ha/day	Manning's n = (Conc)	0.013 (Pvc) 0.013
Max Res. Peak Factor =	4.00		Townhouse coeff=	110 PPHa
Commercial/Inst./Park Peak Factor =	1.50		Single house coeff=	65 PPHa

Designed: P.P

Checked: C.M.K.

Dwg. Reference: Sanitary Servicing Plan, Figure No. 4

PROJECT: **Summerside West Phases 4, 5 & 6**

LOCATION: **City of Ottawa**

File Ref: 15-766

Date: November, 2018

Sheet No. 1 of 1

766_San5.xlsx

The sanitary flows from the park (Block 247) can be estimated based on the information contained in City of Ottawa Sewer Design Guidelines, Appendix 4-A - Daily Sewage Flow For Various Establishments. The amount of people estimated for this park is 75 people/acre and the estimated flow is 50 L/s/day. This calculates to be a peak flow of 9300 L/ha/day. For the park block with an area of 0.80 ha, the peak population flow is 0.35 L/s when applying a peaking factor of 1.5. An allowance of 5.0 L/s has been provided should the City want to incorporate a splash pad in the park. The sanitary drainage area plans and design sheets for Summerside West – Phase 1 are enclosed in ***Appendix C***.

A sanitary trunk was designed and constructed with Phase 1 through the existing SWM facility block to service Phase 2.

4.2.1 External Flows

There is a future school block southwest of Phase 2, which is serviced through the site. The flows are estimated as follows:

- Area = 5.61 ha
- Institutional average flow = 50,000 L/ha/day
- Institutional peak factor = 1.5
- Peak population flow = 4.87 L/s
- Peak infiltratrion flow = 1.57 L/s
- Total peak flow from future school block = 6.44 L/s

Refer to the sanitary drainage area plans and design sheets, enclosed in ***Appendix C***.

4.2.2 Design Flows

The peak sanitary flows from Summerside West – Phase 2 are as follows:

- Residential peak flow = 22.89 L/s;
- Park peak flow = 5.35 L/s (includes splash pad allowance); and
- School peak flow = 6.44 L/s

The total estimated sanitary peak flow from Summerside West – Phase 2 is 34.68 L/s. There is sufficient capacity in the downstream sanitary sewers and Tenth Line Road pump station.

4.2.3 Sanitary Overflow

Please note that the sanitary hydraulic grade line (HGL) was evaluated for pump station failure in accordance with the ***Sanitary Overflow Analysis for the Bisson Lands / Mer Bleue Road (Sanitary Overflow Analysis)*** by DSEL and JFSA dated August 2015.

- The design includes sanitary servicing for a school block, which is located south west of Phase 2. This deviates from the ***Bisson MSS*** as this south west corner was anticipated to be residential future lands.

- A new sanitary overflow has been added to the Avalon West SWM Pond to provide HGL protection for the Phase 2 lands.

- The peak flow from Summerside West, Phase 2 is calculated to be 34.68 L/s, which is in general conformance with the ***Bisson MSS*** estimate of 29.74 L/s. The additional flows can be attributed to the inclusion of the school block through the Phase 2 lands.

4.4 Wastewater Servicing Conclusion

Summerside West - Phase 2 outlets to the existing Tenth Line Road Pump Station via a trunk sewer which extends across the pond block and the Untraveled Road Allowance.

The sanitary sewers have been designed in accordance with City of Ottawa standards. The sanitary design generally conforms to the ***Bisson MSS*** with the exception being the sanitary servicing for the school block in the southwest corner, which was expected to be future residential. The sanitary sewers in Phase 1 were designed to accept flows from Summerside West – Phase 2.

The MOECC approved capacity of the Tenth Line Pump Station and downstream sewer system will support Summerside West – Phase 2.

5.0 STORMWATER CONVEYANCE

5.1 Existing Conditions

Summerside West – Phase 2 is located within the McKinnon's Creek Watershed and is subject to regulations of the South Nation Conservation (SNC).

Further details of the existing conditions of the overall site are contained in the ***Bisson MSS*** and ***Bisson ESMP***.

There is an existing interim SWM facility at the location of the ultimate SWM facility, on a block dedicated to the City of Ottawa by Mattamy Homes. The ultimate SWM facility is approved and currently under construction.

5.2 Minor System

Summerside West – Phase 2 will be serviced by a conventional storm sewer system which will be designed in accordance with City of Ottawa standards. The storm sewers

are sized using a 5-year return frequency and City of Ottawa IDF curves. The storm sewers outlet to the Avalon West (N5) SWM facility, which is currently under construction.

The inlet to the pond is depicted on ***Figure 5***.

Table 7 summarizes the relevant ***City Standards*** employed in the design of the proposed storm sewer system referred to as the minor system.

Table 7: Storm Sewer Design Criteria

Design Parameter	Value
Intensity Duration Frequency Curve (IDF) 5-year storm event. A = 998.071 B = 6.053 C = 0.814	$i = \frac{A}{(t_c + B)^C}$
Initial Time of Concentration	10 minutes
Rational Method	$Q = CiA$
Runoff coefficient for paved and roof areas	0.9
Runoff coefficient for landscaped areas	0.2
Storm sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} AR^{2/3} S^{1/2}$
Minimum Sewer Size	250 mm diameter
Minimum Manning's 'n'	0.013
Service Lateral Size	100 mm dia PVC SDR 28 with a minimum slope of 1.0%
Minimum Depth of Cover	2.0 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.8 m/s
Maximum Full Flowing Velocity	3.0 m/s
Extracted from Sections 5 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012.	

The paved area and grassed area runoff coefficients of 0.9 and 0.2 were used to calculate average runoff coefficients that were applied across the site. The runoff coefficient calculations are enclosed in ***Appendix E*** for reference. The runoff calculations have been completed for Summerside West – Phase 2 to determine the average for each lot type.

The storm system has been designed with capacity to service the school block, which is 5.61 ha in size. The service is restricted to the 5-year flow in the storm system and the major system is designed to be controlled on-site, in conformance with the Avalon West SWM Facility design.

The storm drainage area plan and storm sewer design sheet are enclosed in ***Appendix F*** for reference. The peak flow based on the Rational Method from the trunk sewer to the SWM Facility is 2889 L/s.

Inlet control devices (ICDs) will be employed to ensure that storm flows entering the minor system are limited to the 5-year peak storm flow. A detailed hydraulic grade line (HGL) analysis has been completed and underside of footing elevations have been set at a minimum of 0.30 m above the 100-year HGL elevation. The HGL results are presented in the ***Stormwater Management Report for Summerside West Phase 2*** (J.F. Sabourin and Associates, April 2016).

It is noted that based on the Rational Method storm design sheets in ***Appendix F***, that some of the storm pipes are oversized for the 5-year storm. These storm sewers were oversized based on recommendations from JFSA to try to keep the HGL flat. This situation has occurred due to the pond level and the presence of submerged pipes.

5.2.1 McKinnon's Creek Diversion

As described in the ***Bisson MSS*** and ***Bisson ESMP***, McKinnon's Creek currently bisects the Summerside West Lands and there is flood plain associated as illustrated in the City of Ottawa's Zoning By-law. This section of McKinnon's Creek previously conveyed a 103.4 ha area, west of Mer Bleue Road, which was known as "Area 1". Ultimately, based on past studies, Area 1 will be diverted from the McKinnon's Creek watershed to the Mud Creek watershed. In the interim, McKinnon's Creek will be diverted along the Untraveled Road Allowance, discharging to the existing Western Trunk Sewer to the Avalon West (N5) SWM Pond. It has been confirmed that there is capacity in the Avalon West SWM Pond for the Area 1 flows.

Past studies have been completed to update regulatory floodplain levels, including a diversion of flows west of Mer Bleue Road (Area 1) from the McKinnon's Creek watershed to the Mud Creek watershed.

The details are of the plans to divert McKinnon's Creek are shown on the following drawings, which are enclosed in ***Appendix G***:

- Sheet 34 – Erosion and Sediment Control Plan Stage 1 (DSEL, Rev 1, 16-04-29); and
- Sheet 36 – Erosion and Sediment Control Plan Details (DSEL, Rev 1, 16-04-29)

As shown on Sheet 34, McKinnon's Creek will remain from Mer Bleue through the Minto Lands to the Untraveled Road Allowance (Existing McKinnon's Creek M-1). As previously noted, Minto and their consultants will have to confirm how the flows will be conveyed through or around the future Neighbourhood 5 development. McKinnon's

Creek cannot be completely redirected through the Untraveled Road Allowance due to presence of existing homes fronting Mer Bleue.

McKinnon's Creek will be redirected at the Untraveled Road Allowance via cut-off swales (Cut-Off Swale M-2 and Cut-Off Swale M-3) and discharge to a 1500 mm diameter culvert.

Flows captured are captured based on the existing ditches described above. It is proposed that Existing Ditch G-2 is conveyed across the construction access road via a culvert. The flows from Existing Ditch G-2 and G-1 converge and are conveyed to the Untraveled Road Allowance and discharge to a 1500 mm diameter culvert, which then discharges to the existing Western Storm Trunk at MH 690 to the Avalon West SWM Facility.

Refer to ***Appendix G*** for peak design flow and capacity calculations for the diversion ditches and proposed culvert. The peak 100-year flow to ditches M-2 and M-3 (McKinnon's Creek Realignment) is 5.288 m^3/s. The proposed ditches are 3.0 m wide, 1.5 m deep with 3:1 side slopes. The slope ranges from 0.38% to 0.43% providing capacities of 5.306 m^3/s and 5.368 m^3/s. This indicates that there is capacity in diversion channel M-2 and M-3 for the 100-year peak design flow.

The peak 5- year flows to the ditches to the north, along Gerry Lalonde Drive, are all conveyed through the existing and proposed ditches, which converge with the McKinnon's Creek diversion. Please refer to ***Appendix G*** for peak design flow and capacity calculations for existing ditches G-1, G-2, regraded ditch G-3 and proposed ditches G-4, G-5 and G-6.

The 1500 mm diameter CSP culvert has been designed conservatively to convey the 100-year peak flow from McKinnon's Creek. The capacity of the 1500 mm diameter pipe at 2.50% slope is 6054 L/s, which has capacity to convey the 100-year peak flow of 5288 L/s. Please refer to ***Appendix G*** for the Rational Method calculation sheet for the culvert.

5.2.2 Temporary Flow Controls

As per City of Ottawa Sewer Design Guidelines, temporary flow controls are required for both the sanitary and storm sewer during construction.

Temporary circular vertical orifices are proposed at the outlets of the storm MH 38 and sanitary MH 38A during construction. The details of the temporary flow controls for MH 38 and 38A are provided on Sheet 26 – Plan and Profile of Block 244. The details of the temporary flow controls for MH. The temporary flow control calculation sheets are enclosed in ***Appendix H*** for reference.

Before the temporary orifice controls are removed, the inlet control devices must be installed and certified in individual subdivision catch basins as per the approved design. The temporary orifice controls must be removed before any upstream homes are occupied.

5.3 Stormwater Management Design Criteria

5.3.1 Quality Control Targets

As established in the ***Bisson MSS*** (DSEL, November 2014), stormwater management (SWM) criteria have been established on the basis of aquatic habitat protection and the sensitivity of receiving watercourses. Based on the recommendations of background studies, post development stormwater runoff will generally be required to meet the following objectives:

- SWM facilities tributary to McKinnon's Creek are to be designed to provide an 'Enhanced' Level of Protection or 80% total suspended solids (TSS) removal in accordance with the MOE Stormwater Management Planning and Design Manual (March, 2003).

5.3.2 Quantity Control Targets

Based on recommendations of background studies, post development stormwater runoff will generally be required to meet the following objectives:

- Flow control is required in McKinnon's Creek at "Point C" as per the Avalon West (Neighbourhood 5) SWM Facility Design (south of Wall Road at the McKinnon's Creek sub-watershed boundary.

5.4 Stormwater Management

The stormwater management design is further detailed in the ***Stormwater Management Report for Summerside West Phase 2*** report by J.F. Sabourin and Associates, April 2016).

The Avalon West (Neighbourhood 5) Stormwater Management Facility has been designed by IBI Group. Refer to the **Avalon *West (Neighbourhood 5), Stormwater Management Facility Design*** by IBI Group, October 2013. The subsequent ***Update to Avalon West Stormwater Management Facility Design Report: Proposed Mattamy Bisson Lands*** by IBI Group, November 2014 established that the facility is sufficiently sized to service all of Summerside West, including the Phase 2 lands.

The modelling of the SWM facility and associated drainage area was updated by IBI Group in April 2016. Among other changes, IBI Group reduced the 103.4 ha rural area to 14.43 ha to reflect the future diversion of a portion of the drainage area to Mud Creek;

however, the DSEL engineering submission package estimates a more conservative reduction to 22.73 ha and the model was revised accordingly for the present study. It is expected, based on current approval status, that the external flows will be reduced prior to the completion of Summerside West – Phase 2.

The full update to the Avalon West SWM Facility Modeling is described in the ***Phase 2 SWM Report.***

5.4.1 Quality Control Analysis

As described in the ***Phase 2 SWM Report***, there is capacity in the Avalon West (N5) SWM Facility for Summerside West – Phase 2. It has been demonstrated that the Avalon West (N5) SWM facility adheres to the 2003 MOE SWM Design Guidelines and meets the design objectives, including quality and quantity control objectives for Summerside West – Phase 2.

As noted in the ***Phase 2 SWM Report,*** the overall urban lands (including Summerside West) tributary to the Avalon West (N5) SWM Facility is 214.18 ha at 58% imperviousness. For the purposes of calculating required quality control volumes, 103.4 ha of undeveloped Area 1 (rural area which will ultimately be developed and redirected to the Mud Creek watershed) and the 11.96 ha pond block were excluded.

The required permanent pool and active quality control volumes required to provide enhanced protection (80% long term total suspended solids removal) for this area are 33,626 m^3 and 8,593 m^3, respectively.

As per the November 2014 *Avalon West Report Update*, the proposed facility provides sufficient permanent pool and active quality control volumes of 110,786 m^3 and 23,213 m^3, respectively. Further characteristics of the Avalon West (N5) SWM Facility are detailed ***Avalon West Report***.

During the course of detailed design of the proposed development, it was determined that the proposed 15.95 ha Summerside West – Phase 2 development has an average imperviousness of 54%.

5.4.2 Quantity Control Analysis

As noted in the ***Bisson MSS*** (DSEL, November 2014), the future post-development peak flows on McKinnon's Creek should be controlled to pre-development peak flows at Control Point C.

Refer to the ***Phase 2 SWM Report*** for a complete quantity control analysis. A comparison of the flows on McKinnon's Creek under pre-development, interim and post –development conditions is presented in ***Table 8***.