Jp2g Consultants Inc.
ENGINEERS • PLANNERS • PROJECT MANAGERS
1150 Morrison Drive, Suite 410, Ottawa, ON K2H 8S9
T 613-828-7800, F 613-828-2600, www.jp2g.com

1150 Morrison Drive, Suite 410
Ottawa, ON, K2H 8S9
T.613.828.7800 F.613.828.2600
Project No. 2141686A

Site Servicing and Stormwater Management Report

New Findlay Creek School Rev 1

4140 Kelly Farm Drive, Ottawa, Ontario

Prepared for

City of Ottawa
Infrastructure Services and Community Sustainability
110 Laurier Ave. West, 4th floor, Mail Code 01-14
Ottawa, Ontario, K1P 1J1

Rev 1 SUBMISSION October 07, 2022

Table of Contents

1 Introduction

Jp2g Consultants Inc. was retained by PRTY Architects Inc. to complete a Site Servicing and Stormwater Management Report suitable for the City of Ottawa Site Plan Control Application, for the Ottawa Catholic School Board development located at the corner of Kelly Farm Dr. and Bradwell Way intersection Ottawa, ON.

The site is approximately **2.94 ha** in size and is bound by Kelly Farm Dr. and Bradwell Way on the north and west property limits respectively. The proposed development includes the construction of a new one-storey school with no basement, and associated parking and landscaped areas. Roof area is approximately **4,721 m^2**.

A Pre-Consultation meeting was held with City of Ottawa staff on June 16, 2022, to determine the project constraints and requirements. The following report details the site servicing & stormwater management calculations used for capacity, water quantity and quality control in accordance with the City of Ottawa's requirements.

1.1 Design Drawings

The following reference civil design drawings are included.

- C1 – Site Servicing Plan
- C2 – Site Grading, Erosion and Sedimentation Control
- C3 – Details
- Figure 1 – Pre-Development Storm Drainage Areas
- Figure 2 – Post-Development Storm Drainage Areas
- Figure 3 – Fire Hydrant Coverage Area

2 Objective

This study will outline the servicing requirements for the development and identify the impact of the development on the existing municipal services, including water, storm and sanitary.

The stormwater management plan is to control post-development peak flows to pre-determined levels, and detain onsite, stormwater up to and including the 100-year storm event with a 20% increase of rainfall intensity without affecting adjacent lands, and to provide clean runoff to minimize pollution of the downstream receiving watercourse.

3 Stormwater Management

3.1 Pre-Development Conditions

The existing site is in an undeveloped parcel bounded by residential developments on north and west sides and existing school plot on east side. A **750mm** storm sewer stub connecting to an existing manhole is constructed on Bradwell Way at the west side of the site.

3.2 Allowable Release Rate

The stormwater management design criteria for this site was defined in the pre-consultation meeting, The site allowable release rate is 70 L/s/ha accordingly a post-development allowable release rate of **$Q_{allowable}$ = 206 l/s** was determined, see attached **Appendix E**.

3.3 Post-Development Conditions

The proposed site development includes a new school building, asphalt parking, hard surface walkways and landscaped areas. Site storm drainage will be conveyed through the existing 750mm dia. storm sewer. The storm sewer in excess of the allowable release rate is detained on site for storms up to the 1:100-year return and no surface ponding for 5years event in paved areas.

The site development area is approximately 2.94 ha with a post-development average weighted run-off coefficient of **C = 0.37** and **C = 0.43** for the 5-year and 100-year storm events, respectively. Refer to calculations in **Appendix B**. Stormwater management techniques are required to reduce peak flows from the area, given that post-development peak flows will exceed the pre-allocated allowable release rate of **206 l/s**.

3.4 Storm Sewer Pipe Design

Pipe diameter sizing was based on the **5-year** storm event, in accordance with City requirements. Under 5-year conditions, the storm sewers are not in surcharged conditions (i.e., flow/capacity <100%).

3.5 Stormwater Quality Control

Based on the pre-consultation meeting, no additional stormwater quality control is required for this site. We understand that the existing storm sewer system is treated downstream for quality control by the existing Findlay Creek stormwater management facility to an enhanced level of service (80% TSS removal).

3.6 Stormwater Quantity Control

Post-development peak flows will be controlled on the building's roof, in the proposed parking area and in the school yard by installing flow restrictors at the outlet of storm structures CBMH-1, CBMH-3, CBMH-4 and CBMH-5, limiting the outlet discharge for all structures and overland flow to **161.3 l/s**.

Table 1: Allowable Release Rate Breakdown

ID	Description	Flows	
		5-Year Event	100-Year Event
	Allowable Release Rate (Section 3.2)	**206 L/s**	**206 L/s**
1.2.1	Uncontrolled overland surface flow	**21.9 L/s**	**44.5 L/s**
1.2.2	Net-allowable release rate	**184 L/s**	**161.5 L/s***

* Note: Must be controlled to net-allowable 100-year.

To meet the net-allowable release rate for storm sewers, post-development flows will be controlled on the building's roof, in the proposed parking area and in the school yard. The total resulting peak controlled flow is **161.2 L/s** for both the **5-year and 100-year**. which is almost equal to the net-allowable release rate. Please Refer to **Appendix B** for full calculations.

The maximum ponding depth in parking lots will be less than 350mm for the 100-year + 20% event. The maximum ponding limits generated from the ICD's are indicated on drawing **C2 – Grading Plan**. In the event the capacity of this system is exceeded, emergency runoff will overflow onto Bradwell Way Road from the southwest corner and from the parking lot entrance as shown on drawing **C2**. Flow will also be detained on the school roof by installing parabolic weirs, (Watts Drainage Adjustable Flow Control for Roof Drains, or equivalent approved product), at the 21 proposed roof drains limiting the total flow from the roof to **39.69 L/s**. Each flow control roof drain will restrict flow to **1.89 L/s** Refer **to Appendix G product data sheets.**

4 Sanitary Servicing

A new **200mm** sanitary sewer will connect to an existing **250mm** sanitary sewer stub out at a **4.30%** slope connecting to the existing sanitary manhole on Bradwell Way Road and will convey sanitary flows from the new building. Refer to drawing **C1 – Site Servicing Plan**.
Peak sanitary flow for the site is calculated to be **2.40 l/s**. The new **200mm** sanitary sewers at **0.7%** slope will have a full flow capacity of **27.4 l/s**. The full flow capacities indicate it is sufficient to handle the new development sanitary flows. The sanitary demand was calculated based on the *City of Ottawa Sewer Design Guidelines 2012* and *Technical Bulletins 2018.* Refer to **Appendix C** for full calculations.

5 Water

The school facility requires more than 50 m^3 per day therefore twining of the water connection is proposed from the existing 203mm watermain on Bradwell Way Road. to supply the building and the future private fire hydrant on site.

5.1 Domestic Water Demand

The water demand for the new school is calculated based on Table 4.2 of the *City of Ottawa Design Guidelines for Water Distribution*.

Design Criteria:

- Building and Portables ultimate buildout occupancy = 1024 persons (staff and students)
- Average Daily Demand: 70 l/student/day x 1024 occupancy / 24 hrs/day x 3600 = 0.83 l/s (71.68 m3/day)
- Maximum Day Factor (Institutional) = 1.5
- Maximum Hour Factor (Institutional) = 1.8
- Maximum Daily Demand: 0.83 l/s x 1.5 = 1.25 l/s
- Maximum Hour Demand: 1.25 l/s x 1.8 = 2.25 l/s

5.2 Fire Flow Demand

There are five (5) fire hydrants along the frontage of the property and one future proposed private fire hydrant which will provide fire protection to the site (building and future portables). Three (3) along Bradwell Way Road and another two (2) along Kelly Farm Drive. The new building will be equipped with an automatic sprinkler system. Based on the Fire Underwriters Survey Method, the fire flow demand for the new school is calculated to be:

Fire Flow Demand: **100 l/s** (Refer to Appendix D – Fire Flow Calculations).

The above water demand calculation requirements were provided to the City of Ottawa for the hydraulic analysis of the boundary conditions at the proposed school location. The following boundary conditions included in Appendix H were returned:

Connection - Bradwell Way Road.
Maximum HGL = 147.3 m Head / 75.2 psi Pressure
Peak Hour = 145.6 m Head / 72.8 psi Pressure
Max Day + Fire = 144.7 m Head / 71.5 psi Pressure

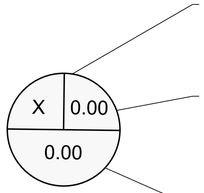
As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.). The maximum HGL 75.2 psi is considered relatively close to the 80 psi requirements in a static scenario and therefore it is recommended to install a pressure reducing valve inside the building downstream of the meter.

Prepared By:

Ali Sammour, M.Eng., P.Eng., PMP
Manager Civil Engineering
Jp2g Consultants Inc.
Email: alis@jp2g.com
613 828 7800
1150 Morrison Drive, Suite 410Ottawa, Ontario, K2H 8S9

Appendix A - Drawings and Figures

LEGEND



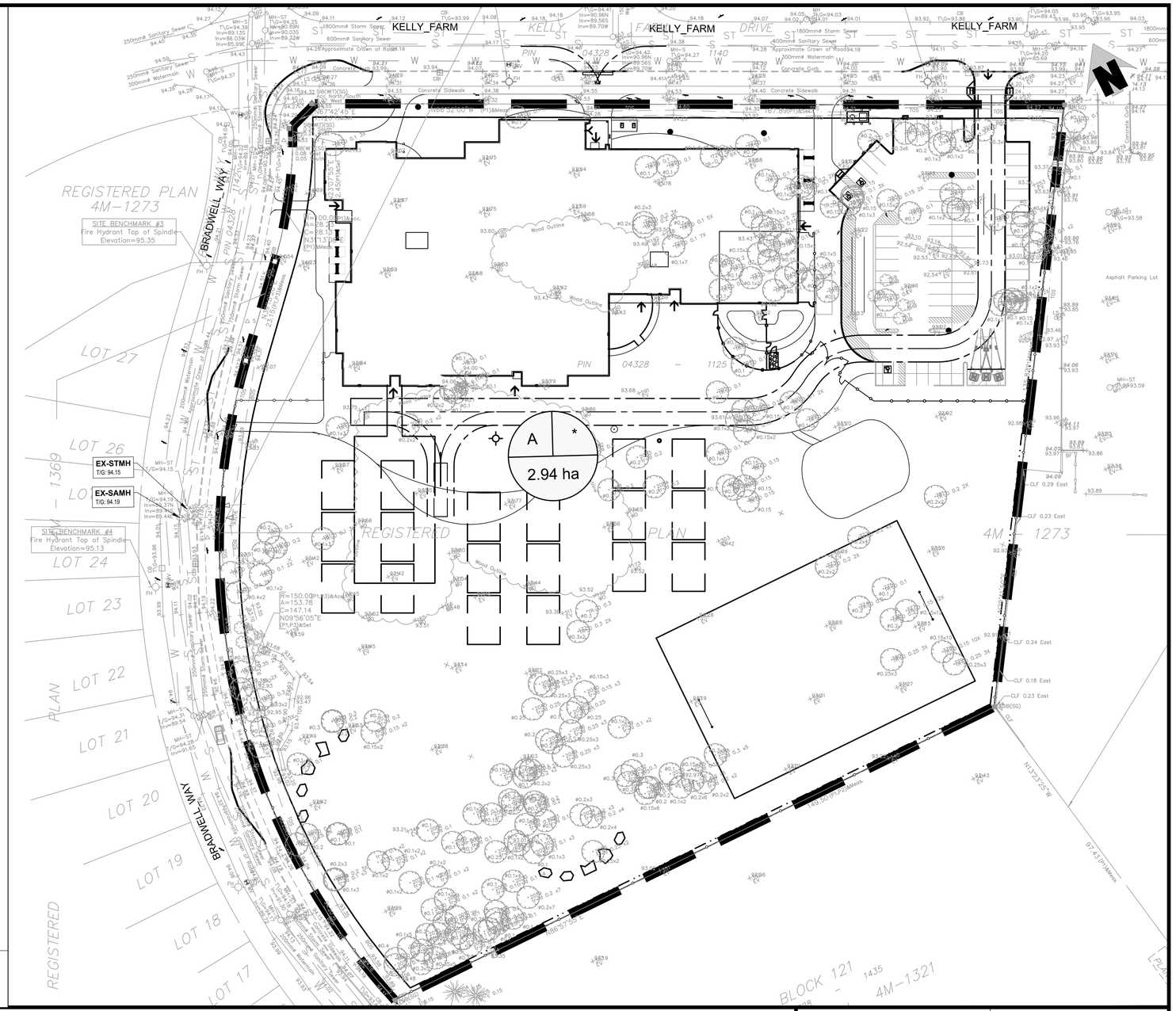
DRAINAGE AREA ID

WEIGHTED RUNOFF COEFFICIENT

DRAINAGE AREA HECTARES

DRAINAGE AREA LIMIT

* ALLOWABLE RELEASE RATE = 70l/s /ha x 2.94 ha = 205.8 l/s .
REFER TO PRE-CONSULTING MEETING NOTES : JUNE 16th,2022 .



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ENGINEERS · PLANNERS · PROJECT MANAGERS

12 INTERNATIONAL DRIVE, PEMBROKE, ON
Phone: (613)735-2507, Fax:(613)735-4513

1150 MORRISON DRIVE, SUITE 410, OTTAWA, ON
Phone: (613)828-7800, Fax: (613)828-2600

OCSB FINDLAY CREEK ELEMENTARY SCHOOL

4140 Kelly Farm, ONTARIO

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FIGURE 1 PRE-DEVELOPMENT DRAINAGE AREAS

DESIGNED: AS		PROJECT No.: 20-1095C
DRAFTED: RI		REVISION DATE:
CHECKED: AS	APPROVED: AS	REVISION No.: 1
SCALE: 1:1000		

DWG NAME: \\JP2GDATA\PROJECT DATA\1-MULTIDISCIPLINE\2020\20-1095C - OCSB_ FINDLAY CREEK SCHOOL\05 DRAWINGS\1 ONGOING\20_1095C_NFCES_SITE_PLAN_CONTROL_REV_1.DWG LAYOUT: FIG.1_PRE_DEVELOPMENT_AREA SAVED ON October 7, 2022

45m RADIUS - FIRE
HYDRANT COVERAGE

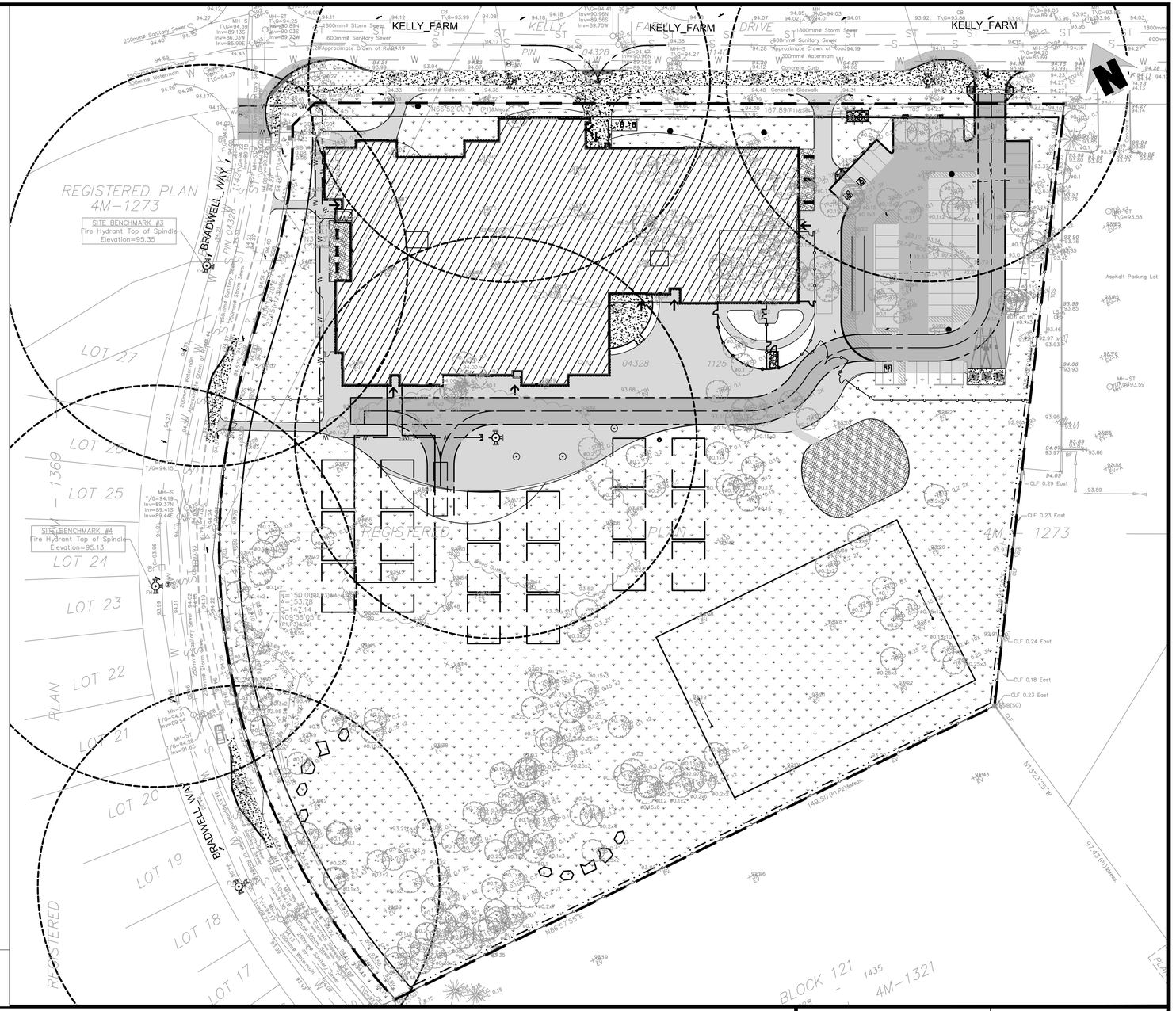

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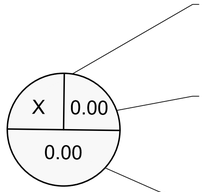
FIGURE 3 FIRE HYDRANT COVERAGE AREA

DESIGNED: AS		PROJECT No.: 20-1095C
DRAFTED: RI		REVISION DATE:
CHECKED: AS	APPROVED: AS	REVISION No.: 1
SCALE: 1:1000		

DWG NAME: \\JP2GDATA\PROJECT DATA\1-MULTIDISCIPLINE\2020\20-1095C - OCSB_ FINDLAY CREEK SCHOOL\05 DRAWINGS\1 ONGOING\20_1095C_NFCES_SITE_PLAN_CONTROL_REV_1.DWG LAYOUT: FIG.3_HYDRANT SAVED ON October 7, 2022

LEGEND



DRAINAGE AREA ID

WEIGHTED RUNOFF COEFFICIENT

DRAINAGE AREA HECTARES

DRAINAGE AREA LIMIT

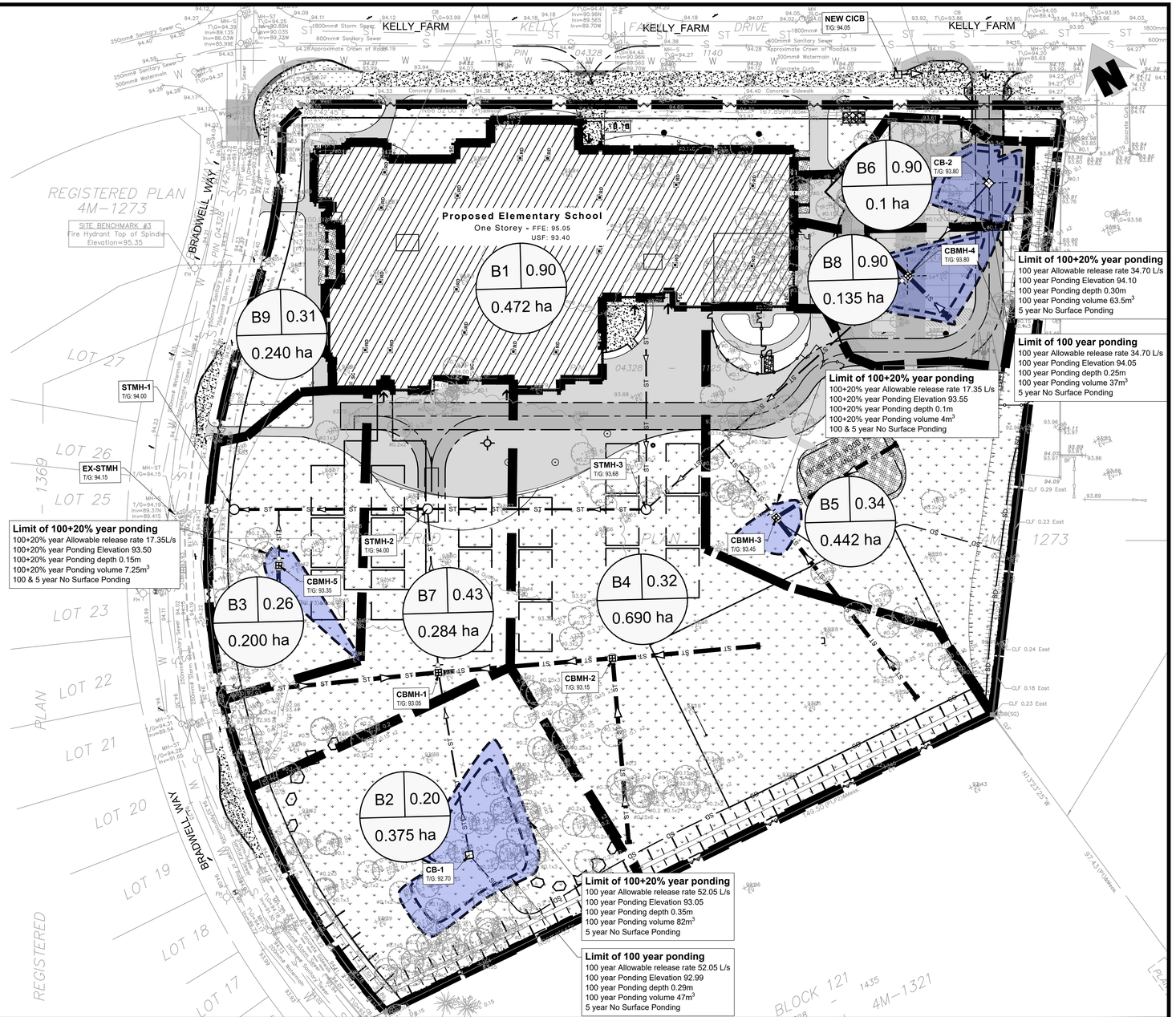


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FIGURE 2 POST-DEVELOPMENT DRAINAGE AREAS

DESIGNED: AS			PROJECT No.: 20-1095C
DRAFTED: RI			REVISION DATE:
CHECKED: AS	APPROVED: AS		REVISION No.: 1
SCALE: 1:1000			

DWG NAME: \\JP2GDATA\PROJECT DATA\1-MULTIDISCIPLINE\2020\20-1095C - OCSB_ FINDLAY CREEK SCHOOL\05 DRAWINGS\1 ONGOING\20_1095C_NFCES_SITE_PLAN_CONTROL_REV_1.DWG LAYOUT: FIG.2_POST_DEVELOPMENT_AREA SAVED ON October 7, 2022

LEGEND

- PROPERTY LINE
- EXISTING BUILDING
- DEPRESSED CURB
- BREAK OF SLOPE - NEW
- NEW FENCE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- NEW SANITARY SEWER
- NEW STORM SEWER
- NEW WATERMAIN
- NEW SILT FENCE
- SWALE
- BERM
- NEW LIGHT DUTY ASPHALT
- NEW HEAVY DUTY ASPHALT
- NEW CONCRETE SIDEWALK
- NEW GRASS
- NEW REINFORCED GRASS
- NEW INSULATION
- MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT AS PER CITY SPECS
- NEW GRAVEL
- NEW MULCH
- SEE SHEET NUMBER "C3"
- EX–CB EXISTING CATCHBASIN
- EX–MH EXISTING MANHOLES
- CB-# NEW CATCHBASIN
- CICB NEW CURB INLET CATCHBASIN
- CBMH-# NEW CATCHBASIN MANHOLE
- SAMH-# NEW SANITARY MANHOLE
- STMH-# NEW STORM MANHOLE
- WV NEW WATER VALVE
- NEW INLET CONTROL DEVICE
- RD NEW ROOF DRAIN
- SC NEW SCUPPER
- NEW SIAMESE CONNECTION

GENERAL NOTES

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6. CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.

DRAWING NOTES

01 SUPPLY AND INSTALL NEW 2x150mm Ø PVC DR18 WATER MAIN SERVICE, MINIMUM 2.4m COVER, OTHERWISE PROVIDE HL40 THERMAL INSULATION IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING W22. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR A WATER PERMIT FROM THE CITY OF OTTAWA FOR INSPECTION, DISINFECTION (CHLORINATION) AND TESTING. COORDINATE NEW WATER SERVICE CONNECTION WITH MECHANICAL PLANS.

02 INSTALLATION OF NEW SERVICE CONNECTION TEE 2x150mm Ø PVC TO EXISTING MUNICIPAL WATERMAIN TO BE COMPLETED BY CITY OF OTTAWA FORCES. EXCAVATION, BACKFILL AND RE-INSTATEMENT BY CONTRACTOR.

03 EXISTING SANITARY STUB APPROXIMATE INVERT: 90.05 INVERTS TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE UNDERGROUND UTILITY LOCATES BY DAYLIGHTING PRIOR TO CONSTRUCTION.SHOULD THERE BE ANY DISCREPANCY OF EXISTING TOPOGRAPHIC INFORMATION. CONTRACTOR TO INFORM CONSULTANT ACCORDINGLY.

04 INSTALL FOUR WAY 3.0m LONG 100mm Ø PERFORATED SUBDRAIN WRAPPED IN GEOTEXTILE SOCK EXTENDING FROM CB/CBMH AT PAVEMENT SUBGRADE LEVEL. PROVIDE WATERTIGHT CONNECTION.

05 SUPPLY AND INSTALL NEW 150mm WATER VALVE AT PROPERTY LINE. VALVEBOX ASSEMBLY AS PER CITY OF OTTAWA STANDARD DETAIL DRAWING W24 AND W50.

06 SUPPLY AND INSTALL WATTS ROOF DRAIN CONTROLS TO BE INSTALLED ON ROOF DRAINS. MAXIMUM DISCHARGE 39.69 l/s TOTAL. MAXIMUM ROOF PONDING DEPTH 0.15m. REFER TO MECHANICAL FOR SPECIFIC WEIR SETTINGS. 5-YEAR PONDING VOLUME: 53m³. 100 YEAR PONDING VOLUME: 146m³.

07 NEW TRANSFORMER AND BOLLARDS .

08 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-4 OUTLET. MAXIMUM DISCHARGE 34.7 l/s AT 2.15m HEAD AND ORIFICE DIAMETER AT 106mm.

09 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-1 OUTLET. MAXIMUM DISCHARGE 52.05 l/s AT 1.49m HEAD AND ORIFICE DIAMETER AT 142mm.

10 EXISTING STORM STUB APPROXIMATE INVERT: 91.02 INVERTS TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE UNDERGROUND UTILITY LOCATES BY DAYLIGHTING PRIOR TO CONSTRUCTION.

11 INSTALL NEW STORM MANHOLE , STMH-1 AND 600mm Ø STORM SEWER PIPE TO CONNECT THE EXISTING 750MM Ø STUB. PROVIDE WATERTIGHT CONNECTION.

12 INSTALL NEW SANITARY MANHOLE SAMH-1 AND 200MM Ø SAINTARY SEWER PIPE TO CONNECT THE EXISTING 250MM Ø STUB. PROVIDE WATERTIGHT CONNECTION.

13 PROVIDE 100mm HIGH LOAD RIGID INSULATION PLACED WITHIN SUBGRADE. INSULATION SHALL BE 2.0m WIDE ABOVE PIPE WHERE INDICATED.

14 CONNECT STORM SEWER TO BUILDING AT INVERT 92.25.

15 CONNECT SANITARY SEWER TO BUILDING AT INVERT 92.25.

16 NEW PERIMETER FOUNDATION DRAINAGE (REFER TO ARCHITECTURAL) TO BE CONNECTED TO THE NEW STORM SEWER.

17 RAISE EXISTING VALVE LEVEL TO NEW CURB LEVEL .

18 SUPPLY AND INSTALL NEW 250mm Ø PERFORATED DRAIN PIPE c/w FILTER SOCK AS PER CITY DETAIL S9. CONNECT SUBDRAIN TO CBMH-3. PROVIDE WATERTIGHT CONNECTION.

19 SUPPLY AND INSTALL NEW 150mm Ø PERFORATED DRAIN PIPE c/w FILTER SOCK. CONNECT PLAY AREA SUBDRAIN TO CB-1. PROVIDE WATERTIGHT CONNECTION.

20 ALL WATERMAIN SHALL BE PROVIDED WITH TRACER WIRE AS PER CITY OF OTTAWA STANDARD DETAILS AND SPECIFICATIONS.

21 INSTALL UNDERGROUND CAP WITH METAL BOX FOR CONNECTION TO THE FUTURE FIRE HYDRANT VALVE.

22 SUPPLY AND INSTALL NEW 900mmØ HDPE STORMWATER STORAGE PIPE COMPLETE WITH NEW 900mmØ CAP.

23 NEW SIAMESE CONNECTION.

24 SUPPLY AND INSTALL BACKFLOW VALVES ON SANITARY AND STORM BUILDING CONNECTION AS PER CITY OF OTTAWA REQUIREMENT. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR PROFLEX PROCO 790 DUCK BILL TYPE AS FOLLOWS:

- SANITARY BACKWATER VALVE, 8" SIZE (200mm).
- STORM BACKWATER VALVE, 12" SIZE (300mm).
- VALVE CLAMP LOCATIONS AT DISCHARGE.

25 NEW MONITORING MANHOLE.

26 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-3 OUTLET. MAXIMUM DISCHARGE 17.35 l/s AT 0.82m HEAD AND ORIFICE DIAMETER AT 95mm.

27 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-5 OUTLET. MAXIMUM DISCHARGE 17.35 l/s AT 0.78m HEAD AND ORIFICE DIAMETER AT 96mm.

28 CONTRACTOR TO CONFIRM INVERTS IN EXISTING STORM MANHOLE AS FOLLOWS:

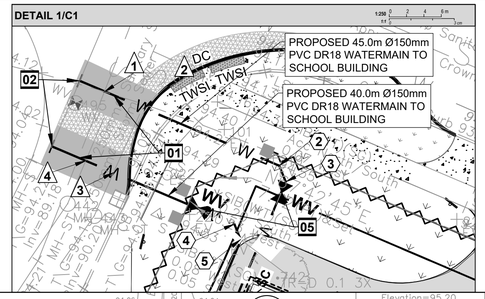
- S = 90.87, N = 90.43, E-STUB-OUT = 90.45

CONTRACTOR TO CONFIRM THE STORM STUB-OUT SLOPE AT 1% CONNECTING TO STMH-1 AT INVERT 90.60. SHOULD THESE BE ANY DISCREPANCY OF EXISTING TOPOGRAPHIC INFORMATION. CONTRACTOR TO INFORM CONSULTANT ACCORDINGLY.

29 SUBDRAINS SHOULD BE INSTALLED ON THE SIDES OF THE ACCESS ROAD AND PARKING AREA. SEE GEOTECHNICAL NOTES AND REFER TO GEOTECHNICAL REPORT.

30 RELOCATE AND ROTATE EXISTING CICB, MODIFY TO RECEIVE NEW STORM SEWER FROM NEW CICB.

DETAIL 1/C1



A C1 DETAIL
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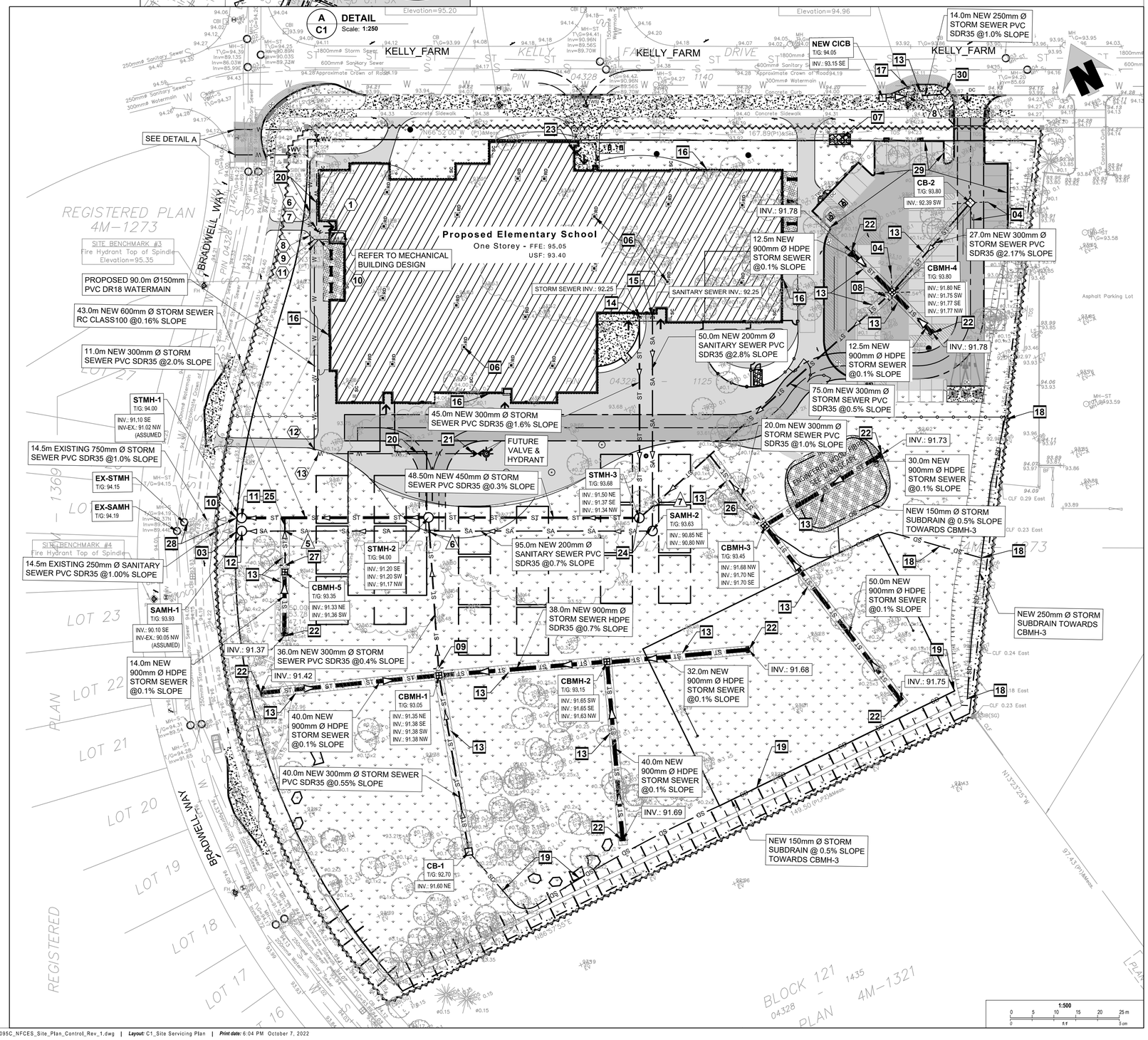

OTTAWA CATHOLIC SCHOOL BOARD

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1150 Morrison Drive, Suite 410, Ottawa, ONT.
Phone: (613) 828-7800 Fax: (613) 828-2600
Jp2g No.: 20-1095C

No.	Description	YYYY-MM-DD
1	ISSUED FOR SITE PLAN CONTROL REV-1	2022-10-07

LICENSED PROFESSIONAL ENGINEER L. A. SAMMOUR 100227665 October 7, 2022 PROVINCE OF ONTARIO

Client

PYE & RICHARDS - TEMPRANO & YOUNG ARCHITECTS INC.
824 Meath St. Suite 200 613. 724. 7700
Ottawa, ON K1Z 6E8 info@prty.ca

Project

OCSB Findlay Creek Elementary School

4140 Kelly Farm Drive, Ottawa, Ontario

Drawing Title

Site Servicing Plan

Project No.	Drawing No.
Scale: As shown	**C1**
Drawn By: R.I.	
Checked: A.S.	
Date	Revision No.

XXX-XX-XX-XXXX

#XXXXX

LEGEND

- PROPERTY LINE
- EXISTING BUILDING
- BREAK OF SLOPE - NEW
- NEW FENCE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- NEW SANITARY SEWER
- NEW STORM SEWER
- NEW WATERMAIN
- SWALE
- BERM
- NEW LIGHT DUTY ASPHALT
- NEW HEAVY DUTY ASPHALT
- NEW CONCRETE SIDEWALK
- NEW GRASS
- NEW REINFORCED GRASS
- MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT AS PER CITY SPECS
- NEW GRAVEL
- NEW MULCH
- NEW SILT FENCE
- DEPRESSED CURB
- EX—CB EXISTING CATCHBASIN
- EX—MH EXISTING MANHOLES
- CB-# NEW CATCHBASIN
- CICB NEW CURB INLET CATCHBASIN
- CBMH-# NEW CATCHBASIN MANHOLE
- SAMH-# NEW SANITARY MANHOLE
- STMH-# NEW STORM MANHOLE
- WV NEW WATER VALVE
- T NEW TRANSFORMER PAD
- +54.83 EXISTING GRADE
- +56.12 NEW GRADE
- 2.0% NEW SLOPE
- OVERLAND FLOW ROUTE
- +TC TOP OF CURB
- +BC BOTTOM OF CURB
- NEW SIAMESE CONNECTION

GENERAL NOTES

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DRAWING NOTES

01 INSTALL SILT FENCE IN ACCORDANCE WITH OPSD 219.130.

02 MATCH EXISTING GRADES AT PROPERTY LINE AND LIMITS OF WORK.

03 REINSTATE PAVEMENT TO MATCH EXISTING ROAD PAVEMENT STRUCTURE.

04 INSTALL LIGHT DUTY PAVEMENT IN ACCORDANCE WITH DETAIL 1/C3 ACCORDINGLY. REINSTATE GRADES TO THE INTO EXISTING AND PROVIDE POSITIVE DRAINAGE TOWARDS STORM STRUCTURES.

05 GRADES TO SLOPE AWAY FROM THE BUILDING TO PROVIDE POSITIVE DRAINAGE.

06 ANY DISTURBED AREA WITHIN THE RIGHT-OF-WAY SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE CITY OF OTTAWA.

07 PROTECT EXISTING MANHOLES AND CATCHBASINS USING A FILTER SOCK OR FILTER BASE IN ACCORDANCE WITH DETAIL 4/C3.

08 NEW RAMP & TWSI AS PER CITY STANDARD.

09 PAVEMENT TO BE WITHIN 12mm OF DOOR.

10 PROVIDE MAXIMUM 4:1 SLOPE.

11 NEW CONCRETE SIDEWALK AS PER CITY STANDARD.

12 CONTRACTOR TO PROVIDE TRENCH BOX FOR EXCAVATION IN PROXIMITY OF MUNICIPAL RIGHT OF WAY.

13 REMOVE EXISTING BARRIER CURB .

14 EXISTING SIDEWALK TO BE REPLACED.CONTRACTOR SHALL ENSURE THE STRUCTURAL INTEGRITY OF EXISTING CONCRETE SIDEWALK THAT WILL REMAIN IN PLACE AND ITS UNDERLYING GRANULAR BASE WHEN COMPACTING THE SUBGRADE AND GRANULAR BASE OF THE NEW SIDEWALK".

15 INSTALL NEW BARRIER CURB AS PER CITY STANDARD SC1.1.

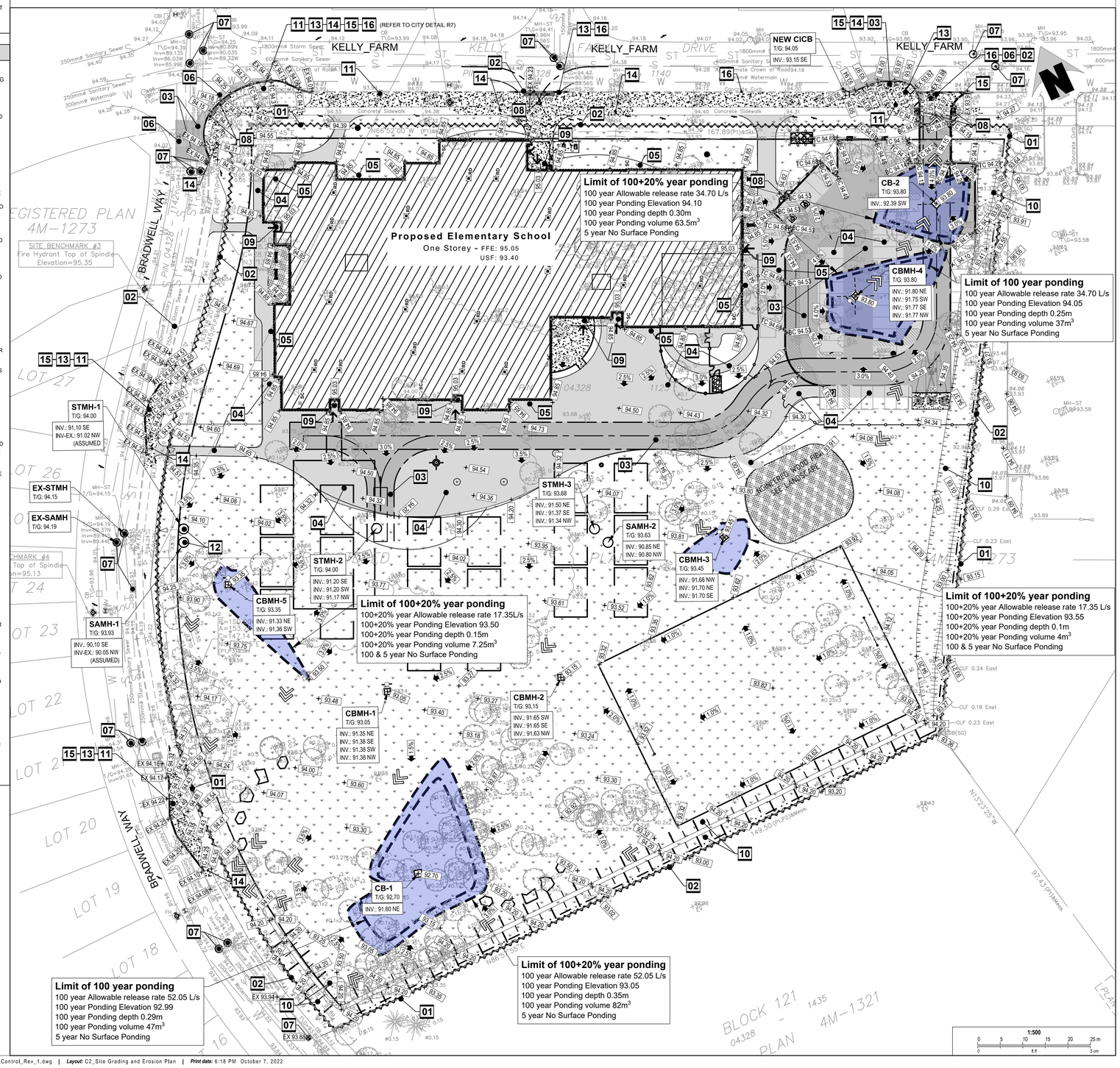
16 INSTALL NEW DEPRESSED CURB AS PER CITY STANDARD AT THE INTERFACE OF EXISTING EDGE OF PAVEMENT AND PROPOSED PAVEMENT OF THE NEW LAY-BY.

EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE, DURING CONSTRUCTION ACTIVITIES; THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS, AND INSTALLING AND MAINTAINING MUD MATS FOR OUTGOING CONSTRUCTION TRAFFIC DURING CONSTRUCTION ACTIVITIES.
2. PREVENT SOIL LOSS DURING CONSTRUCTION (BY STORM WATER RUNOFF OR WIND EROSION).
3. PROTECT TOPSOIL BY STOCKPILING FOR REUSE.
4. PREVENT SEDIMENTATION OF STORM SEWERS AND RECEIVING STREAMS.
5. PREVENT AIR POLLUTION FROM DUST AND PARTICULATE MATTER.
6. ALL STORM MANHOLES AND CATCHBASIN MANHOLES TO HAVE 300mm SUMPS; ALL CATCHBASINS TO HAVE 600mm SUMPS.
7. INSTALL FILTER BAG INSERT IN ALL STORM MANHOLES AND CATCH BASINS IMPACTED DURING CONSTRUCTION, INCLUDING CATCH BASINS IN THE RIGHT OF WAY.
8. SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA INSPECTOR OR CONSERVATION AUTHORITY.
9. STORM WATER PUMPED INTO CITY SERVICE SHALL FLOW THROUGH A FILTER SOCK.
10. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

GEOTECHNICAL NOTES

1. A GEOTECHNICAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO SHALL INSPECT ALL SUBGRADE SURFACES FOR FOOTING AND TRENCHES, PIPE BEDDING AND PAVEMENT STRUCTURES PRIOR TO CONSTRUCTION.
2. IT IS STRICTLY RECOMMENDED TO REFER GEOTECHNICAL INVESTIGATION REPORT: GEOTECHNICAL INVESTIGATION - PROPOSED FINDLAY CREEK CATHOLIC ELEMENTARY SCHOOL 4140 KELLY FARM DRIVE - PREPARED BY EXP SERVICES INC.
3. STRINGENT CONSTRUCTION CONTROL PROCEDURES SHOULD BE MAINTAINED TO ENSURE THAT UNIFORM SUBGRADE MOISTURE AND DENSITY CONDITIONS ARE ACHIEVED.
4. SHOULD SURFACE AND SUBSURFACE WATER SEEPAGE OCCUR INTO THE EXCAVATIONS COLLECT ANY WATER ENTERING THE EXCAVATIONS AND REMOVE IT BY PUMPING FROM SUMP.
5. THE SUBDRAINS ILLUSTRATED ON PLANS ARE SCHEMATIC. FULL SCHEME OF SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S). SUBDRAINS MUST BE INSTALLED IN THE PROPOSED PARKING AREA AND ACCESS ROADWAY AT LOW POINTS AND SHOULD BE CONTINUOUS BETWEEN CATCHBASINS TO INTERCEPT EXCESS SURFACE AND SUBSURFACE MOISTURE AND TO PREVENT SUBGRADE SOFTENING. THE LOCATION, SIZE AND EXTENT OF SUBDRAINS REQUIRED WITHIN THE PAVED AREAS SHOULD BE SUBMITTED BY CONTRACTOR AND REVIEWED BY THE GEOTECHNICAL ENGINEER IN CONJUNCTION WITH THE PROPOSED SITE GRADING.
6. IT IS RECOMMENDED THAT THE PIPE BEDDING BE 300 MM THICK AND CONSIST OF OPSS GRANULAR A. THE BEDDING MATERIAL SHOULD BE PLACED ALONG THE SIDES AND ON TOP OF THE PIPE TO PROVIDE A MINIMUM COVER OF 300 MM. THE BEDDING SHOULD BE COMPACTED TO AT LEAST 98 PERCENT OF THE SPMDD
7. BACKFILL AROUND STRUCTURES MANHOLES AND CATCHBASINS SHOULD CONSIST OF FREE-DRAINING GRANULAR MATERIAL CONFORMING TO OPSS GRANULAR B TYPE II IN ORDER TO MINIMIZE DIFFERENTIAL MOVEMENT BETWEEN PAVEMENT AND CATCH-BASINS/MANHOLE DUE TO FROST ACTION. WEEP HOLES SHOULD BE PROVIDED IN THE CATCHBASINS / MANHOLES TO FACILITATE DRAINAGE OF ANY WATER THAT MAY ACCUMULATE IN THE GRANULAR FILL
8. SPECIAL PROVISIONS SHOULD BE ALLOWED BY CONTRACTOR FOR LOADING CONDITIONS ON PAVEMENT STRUCTURE DURING CONSTRUCTION SUCH AS RESTRICTED LANES, HALF-LOADS DURING PAVING AND/OR TEMPORARY CONSTRUCTION ROADWAYS ESPECIALLY IF CONSTRUCTION TIME SPANS THROUGH UNFAVORABLE WEATHER PERIOD.
9. IT IS RECOMMENDED THAT A GEOTEXTILE BE PLACED ON THE SURFACE OF THE SUBGRADE PRIOR OF PLACEMENT OF ANY GRANULAR SUBBASE. THIS MUST BE ALLOWED FOR BY THE CONTRACTOR AND INSTALLED WHEN DIRECTED BY THE GEOTECHNICAL ENGINEER.
10. WEAKER SUBGRADE MAY DEVELOP AT SUBGRADE LEVEL OF SERVICE TRENCHES. IT IS RECOMMENDED TO PROVIDE ADDITIONAL GRANULAR SUBBASE, OPSS GRANULAR B TYPE II, AND GEOTEXTILE AT SUB-GRADE LEVEL TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. FOR PIPE BEDDING REQUIREMENTS REFER TO GEOTECHNICAL REPORT.
11. THE PROPOSED PARKING AREA AND ACCESS ROADS SHOULD BE STRIPPED OF ALL EXISTING FILL, SURFACE AND BURIED TOPSOIL (ORGANIC) LAYERS, ORGANIC STAINED SOILS AND OTHER OBVIOUSLY UNSUITABLE MATERIAL. THE SUBGRADE SHOULD BE PROPERLY SHAPED, CROWNED, THEN PROOF ROLLED WITH A HEAVY VIBRATORY ROLLER IN THE FULL-TIME PRESENCE OF A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER'S OFFICE. ANY SOFT OR SPONGY SUBGRADE AREAS DETECTED SHOULD BE SUB EXCAVATED AND PROPERLY REPLACED WITH SUITABLE APPROVED BACKFILL COMPACTED TO 95 PERCENT SPMDD (ASTM D698-12E2).
12. THE GRANULAR MATERIALS USED FOR PAVEMENT CONSTRUCTION SHOULD CONFORM TO ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS 1010) FOR GRANULAR A AND GRANULAR B TYPE II AND SHOULD BE COMPACTED TO 100 PERCENT OF THE SPMDD.
13. THE ASPHALTIC CONCRETE USED, AND ITS PLACEMENT SHOULD MEET OPSS 1150 OR 1151 REQUIREMENTS. IT SHOULD BE COMPACTED FROM 92 PERCENT TO 97 PERCENT OF THE MRD (ASTM D2041). ASPHALT PLACEMENT SHOULD BE IN ACCORDANCE WITH OPSS 310 AND OPSS 313.
14. TO MINIMIZE SETTLEMENT OF THE PAVEMENT STRUCTURE OVER SERVICES TRENCHES, THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE, TO 1.8 M DEPTH BELOW FINAL GRADE, SHOULD MATCH THE EXISTING MATERIAL ALONG THE TRENCH WALLS TO MINIMIZE DIFFERENTIAL FROST HEAVING OF THE SUBGRADE SOIL, PROVIDED THIS MATERIAL IS COMPACTIBLE. OTHERWISE, FROST TAPERS MAY BE REQUIRED.
15. THE MUNICIPAL SERVICES SHOULD BE INSTALLED IN SHORT OPEN TRENCH SECTIONS THAT ARE EXCAVATED AND BACKFILLED THE SAME DAY.
16. TRENCH BACKFILL AND SUBGRADE FILL SHOULD CONSIST OF OPSS 1010 GRANULAR B TYPE II FOR THE PLAY STRUCTURE AND OPSS 1010 SELECT SUBGRADE MATERIAL (SSM) FOR THE SPORTS FIELD. PARKING LOT AND ACCESS ROADS, PLACED IN 300 MM THICK LIFTS AND EACH LIFT COMPACTED TO 95 PERCENT SPMDD; AND FILL FOR LANDSCAPED AREAS SHOULD BE CLEAN FILL FREE OF DEBRIS, TOPSOIL (ORGANIC SOIL), COBBLES AND BOULDERS PLACED IN 300 MM THICK LIFTS AND EACH LIFT COMPACTED TO 92 PERCENT SPMDD.



OTTAWA CATHOLIC SCHOOL BOARD

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS
1150 Morrison Drive, Suite 410, Ottawa, ONT.
Phone: (613) 828-7800 Fax: (613) 828-2600
Jp2g No.: 20-1095C

No.	Description	YYYY-MM-DD
1	ISSUED FOR SITE PLAN CONTROL REV-1	2022-10-07

PROFESSIONAL ENGINEER SAMMOUR 100227665 October 7, 2022 PROVINCE OF ONTARIO

Client

PYE & RICHARDS - TEMPRANO & YOUNG ARCHITECTS INC.

824 Meath St. Suite 200 Ottawa, ON K1Z 6E8
613. 724. 7700 info@prty.ca

Project

OCSB Findlay Creek Elementary School

4140 Kelly Farm Drive, Ottawa, Ontario

Drawing Title

Site Grading, Erosion and Sediment Control Plan

Do not scale. Refer any dimensional errors and/or possible trade interference/conflict to the architects for clarification prior to commencement of the work. The conditions of the contract apply.

Project No.	Drawing No.
Scale: As shown	C2
Drawn By: R.I.	
Checked: A.S.	
Date	Revision No.

XXX-XX-XX-XXXX

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General Notes

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 POWER, COMMUNICATION AND 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 AND AS PER THE RECOMMENDATIONS INCLUDED IN THE GEOTECHNICAL REPORT.
6. REFER TO ARCHITECTS PLANS FOR BUILDING DIMENSIONS, 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 FARLEY, SMITH AND DENIS SURVEYING LTD., FILE NO.:482-20, DATED OCTOBER 1, 2020. 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 CATCH BASIN 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. ALL RESTORATION SHALL BE COMPLETED WITH THE GEOTECHNICAL REQUIREMENTS FOR BACKFILL AND COMPACTION.
12. ABUTTING PROPERTY GRADES TO BE MATCHED UNLESS OTHERWISE SHOWN.
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. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS. ALL EXCESS SOIL MANAGEMENT, TESTING AND DISPOSAL MUST COMPLY WITH CURRENT O.REG. 406/19. ALL ASSOCIATED COSTS ARE TO BE BORNE BY THE CONTRACTOR.
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. CONTRACTOR TO OBTAIN POST-CONSTRUCTION TOPOGRAPHIC SURVEY, COMPLETED BY OLS OR P.ENG CONFIRMING COMPLIANCE WITH DESIGN GRADING AND SERVICING. SURVEY IS TO INCLUDE LOCATION AND INVERTS FOR BURIED UTILITIES.
18. ABIDE BY RECOMMENDATIONS OF GEOTECHNICAL REPORT. REPORT ANY VARIATIONS IN OBSERVED CONATIONS FROM THOSE INCLUDED IN REPORT.
19. REPORT REFERENCES;
    i. GEOTECHNICAL INVESTIGATION PREPARED BY EXP SERVICES INC., PROJECT NO.: OTT-00245378-R0, DATED NOVEMBER 11, 2020.
20. PROVIDE CCTV INSPECTION REPORT FOR ALL SEWERS AND CATCHBASIN LEADS 200mm DIAMETER AND LARGER. REPEAT CCTV INSPECTION FOLLOWING RECTIFICATION OF ANY DEFICIENCIES.

Notes: Sanitary Sewer and Manholes

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. PROVIDE DYE TESTING FOR NEW SERVICES.
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.

Notes: Storm Sewer and Manholes

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 100.
4. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL S6.
5. ALL STORM MANHOLES TO BE AS PER MANHOLE AND CATCHBASIN SCHEDULE.
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. CB IN LANDSCAPE AREAS SHALL BE AS PER CITY OF OTTAWA STANDARD S29, S30 AND S31.
8. ALL CATCHBASIN LEADS TO BE MINIMUM 200mm DIAMETER AT MINIMUM 1.0% SLOPE UNLESS OTHERWISE SPECIFIED.
9. 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.
10. INSTALLATION OF FLOW CONTROL ICD'S TO BE VERIFIED BY QUALITY VERIFICATION ENGINEER RETAINED BY CONTRACTOR.

Parking Lot and Work in Public Rights of Way

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

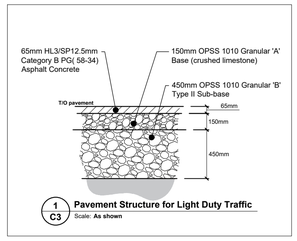
1. PRIOR TO START OF CONSTRUCTION:
   1.1. INSTALL SILT FENCE IN LOCATION SHOWN ON DWG C2.
   1.2. INSTALL FILTER FABRIC OR SILT SACK FILTERS IN ALL THE CATCHBASINS AND MANHOLES TO REMAIN DURING CONSTRUCTION WITHIN THE SITE (SEE TYPICAL DETAIL).
   1.3. INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
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 DITCH 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. DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.
   2.7. EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
   2.8. 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).
   2.9. 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).
   2.10. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.
   2.11. CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AS REQUIRED.
   2.12. DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
   2.13. ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
   2.14. 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.
   2.15. 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.
   2.16. 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.

Notes: Watermain

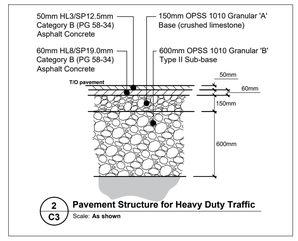
1. ALL WATERMAIN AND WATERMAIN APPURTANANCES, MATERIALS, CONSTRUCTION AND TESTING METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA AND MINISTRY OF ENVIRONMENT STANDARDS AND SPECIFICATIONS.
2. ALL WATERMAIN 300mm DIAMETER AND SMALLER TO BE POLY VINYL CHLORIDE (PVC) CLASS 150 DR 18 MEETING AWWA SPECIFICATION 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.

Parking Lot and Work in Public Rights of Way

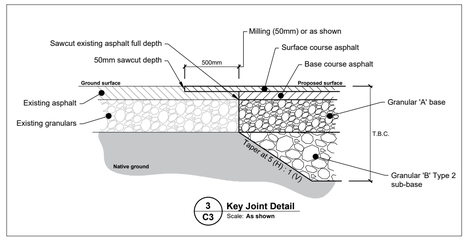
1. CONTRACTOR TO REINSTATE ROAD CUTS AS PER CITY OF OTTAWA DETAIL R10.
2. CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.
3. FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL REPORT REQUIREMENTS.
4. 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.
5. GRANULAR A MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR B PLACEMENT.
6. 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.
7. ASPHALT MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR A PLACEMENT.
8. 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.
9. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE CONSULTANT WITH VERIFICATION PRIOR TO PLACEMENT.
10. 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.
11. PAVEMENT STRUCTURE (MATERIAL TYPES AND THICKNESS) FOR HEAVY DUTY AND LIGHT DUTY AREAS TO BE AS SPECIFIED IN THE GEOTECHNICAL REPORT AND SHOWN ON THE PLANS.



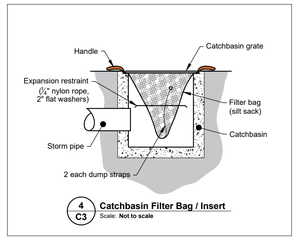
1 C3 **Pavement Structure for Light Duty Traffic**
Scale: **As shown**



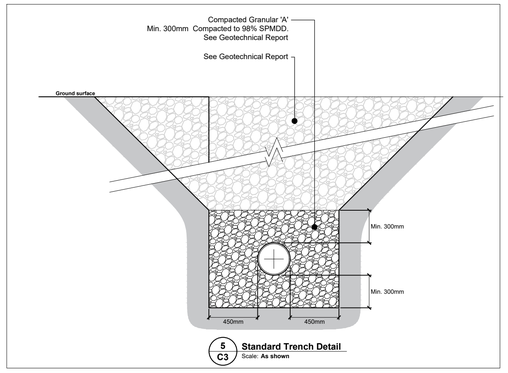
2 C3 **Pavement Structure for Heavy Duty Traffic**
Scale: **As shown**



3 C3 **Key Joint Detail**
Scale: **As shown**



4 C3 **Catchbasin Filter Bag / Insert**
Scale: **Not to scale**



5 C3 **Standard Trench Detail**
Scale: **As shown**

MANHOLE AND CATCHBASIN SCHEDULE

STRUCTURE ID	TOP OF FRAME ELEVATION (m)	PIPE INVERT ELEVATION (m)	STRUCTURE SIZE (mm) / OPSD No.	FRAME (CITY OF OTTAWA)
CB-1	92.700	91.60 NE	600 x 600 / 705.010	S19
CB-2	93.800	92.39 SW	600 x 600 / 705.010	S19
NEW-CICB	94.050	92.20 SE	600 x 600 / 705.010	S19
CBMH-1	93.000	91.35 NE / 91.38 SE / 91.38 SW / 91.38 NW	1800 / 701.012	S25 / S28.1
CBMH-2	93.000	91.65 SW / 91.65 SE / 91.63 NW	2400 / 701.013	S25 / S28.1
CBMH-3	93.450	91.68 NW / 91.70 NE / 91.70 SE	2400 / 701.013	S25 / S28.1
CBMH-4	93.800	91.80 NE / 91.75 SW / 91.77 SE / 91.77 NW	1800 / 701.012	S25 / S28.1
CBMH-5	93.350	91.33 NE / 91.36 SW	1800 / 701.012	S25 / S28.1
STMH-1	94.000	91.10 SE / EX-91.02 NW	1200 / 701.010	S25 / S24
STMH-2	94.000	91.20 SE / 91.20 SW / 91.17 NW	1200 / 701.010	S25 / S24
STMH-3	93.680	91.50 NE / 91.37 SE / 91.34 NW	1200 / 701.010	S25 / S24
SAMH-1	93.930	90.10 SE / 90.05 NW	1200 / 701.010	S25 / S24.1
SAMH-2	93.630	90.85 NE / 90.80 NW	1200 / 701.010	S25 / S24.1

CROSSING TABLE

LOCATION	OVER / UNDER	T/G	INVERT	OBVERT	CLEARANCE (m)
1	NEW WATERMAIN - EXITING SANITARY SEWER	94.16	91.61 (WM)	89.41 (SANITARY)	2.20
2	NEW WATERMAIN -EXISTING STORM SEWER	94.15	91.60 (WM)	90.87 (STORM)	0.73
3	NEW WATERMAIN - NEW STORM SEWER	94.17	91.62 (WM)	90.92 (STORM)	0.70
4	NEW WATERMAIN - EXISTING SANITARY SEWER	94.10	91.55 (WM)	89.43 (SANITARY)	2.12
5	NEW STORM SEWER - NEW SANITARY SEWER	93.74	91.17 (STORM)	90.37 (SANITARY)	0.80
6	NEW STORM SEWER - NEW SANITARY SEWER	94.02	91.22 (STORM)	90.62 (SANITARY)	0.60
7	NEW STORM SEWER - NEW SANITARY SEWER	93.91	91.38 (STORM)	91.18 (SANITARY)	0.20
8	NEW STORM SEWER - EXISTING WATERMAIN	94.05	93.15 (STORM)	91.62 (WATERMAIN)	1.53

WATER SERVICE TABLE

ID	DESCRIPTION	FINISHED GRADE (m)	T/O WATERMAIN (m)
1	BUILDING CONNECTION	95.050	92.650
2	45° HORIZONTAL BEND	94.430	92.030
3	45° HORIZONTAL BEND	94.430	92.030
4	45° HORIZONTAL BEND	94.580	92.180
5	45° HORIZONTAL BEND	94.660	92.180
6	45° HORIZONTAL BEND	94.820	92.420
7	45° HORIZONTAL BEND	94.840	92.420
8	45° HORIZONTAL BEND	94.770	92.370
9	45° HORIZONTAL BEND	94.780	92.370
10	45° HORIZONTAL BEND	94.810	92.370
11	45° HORIZONTAL BEND	94.770	92.370
12	45° HORIZONTAL BEND	94.640	92.210
13	45° HORIZONTAL BEND	94.610	92.210

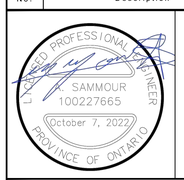
NOTE: PROVIDE MINIMUM 2.4m COVER OVER T/O WATERMAIN TO FINISHED GRADE, OTHERWISE PROVIDE THERMAL INSULATION HL40 AS PER DETAIL 2/C1.

OTTAWA CATHOLIC SCHOOL BOARD

Jp2g Consultants Inc.
ENGINEERS • PLANNERS • PROJECT MANAGERS
1150 Morrison Drive, Suite 410, Ottawa, ONT.
Phone: (613) 828-7800 Fax: (613) 828-2600

Jp2g No.: 20-1095C

No.	Description	YYYY-MM-DD
1	ISSUED FOR SITE PLAN CONTROL REV-1	2022-10-07



Client

PYE & RICHARDS - TEMPRANO & YOUNG ARCHITECTS INC.

824 Meath St. Suite 200 613. 724. 7700
Ottawa, ON K1Z 6E8 info@prty.ca

Project

OCSB Findlay Creek Elementary School

4140 Kelly Farm Drive, Ottawa, Ontario

Drawing Title

Details, Notes and Schedules

Project No.	Drawing No.
Scale: As shown	C3
Drawn By: R.I.	
Checked: A.S.	
Date	Revision No.

XXX-XX-XXXX

#XXXXX

Appendix B - Stormwater Management Calculations

Appendix B - Storm Sewer Design Sheet

B.1.1 - Allowable release rate

ID	Description	Type	Areas (m^2) $C_{0.90}$	Areas (m^2) $C_{0.20}$	Total (m^2)	$C_{pre\text{-}5\text{-}yr}$	$C_{pre\text{-}100\text{-}yr}$*
A	Property Grounds	uncontrollec	0	29405	29405		
			0	**29405**	**29405**		

**including 25% increase as per City of Ottawa Sewer Design Guidelines*

Using the data for the site from the preconusltation meeting notes
Tthe maximum allowable release rate allocated for this site is:

$Q_{allowable\ (5\text{-}year)}$ = **206** l/s ① (Provided in pre-consultation notes)
Total Area, A = **2.94** ha

B.1.2 - Post-development release rate

ID	Description	Type	Areas (m^2) $C_{0.90}$	Areas (m^2) $C_{0.20}$	Total (m^2)	$C_{post\text{-}5\text{-}yr}$	$C_{post\text{-}100\text{-}yr}$*
B1	New School Building Roof	controlled	4721	0	4721	0.90	1.00
B2	CB-1 catchment	controlled	0	3752	3752	0.20	0.25
B3	CBMH-5 catchment	controlled	184	1823	2007	0.26	0.32
B4	CBMH-2 catchment	controlled	1140	5760	6900	0.32	0.37
B5	CBMH-3 catchment	controlled	908	3510	4418	0.34	0.40
B6	CB2 catchment	controlled	988	0	988	0.90	1.00
B7	CBMH-1 catchment	controlled	945	1895	2840	0.43	0.50
B8	CBMH-4 catchment	controlled	1366	0	1366	0.90	1.00
B9	North & West School front	uncontrollec	392	2021	2413	0.31	0.37
			10644	**18761**	**29405**	**0.37**	**0.43**
			(A)	(B)	©	(D)	(E)

**including 25% increase as per City of Ottawa Sewer Design Guidelines*

Calculations for post-development runoff coefficient

$C_{post\text{-}5\text{-}yr\ (col.\ D)}$ = (column A * 0.9 + column B * 0.2) / column C
$C_{post\text{-}100\text{-}yr\ (col.\ E)}$ = (column A * 1.0 + column B * 0.2*1.25) / column C
Note: 0.90 x 1.25 = 1.125, use max. 1.0

Calculations for average weighted runoff coefficient

$C_{post\text{-}5\text{-}yr}$ = 0.37
$C_{post\text{-}100\text{-}yr}$ = 0.43

Estimated time of concentration, t_c = **10.0** minutes ***As per City of Ottawa Sewer Design Guidelines (Section 5.4.5.2)**

Based on Ottawa IDF curve, $i_{5\text{-}years}$ = $998.071/(t_c+6.053)^{0.814}$
104.2 mm/hr

Based on Ottawa IDF curve, $i_{100\text{-}years}$ = $1735.688/(t_c+6.014)^{0.820}$
178.6 mm/hr

B.1.2.1 - Uncontrolled overland surface flow

Total uncontrolled area, N&W front **0.241** ha
5-year Runoff coefficient, $_{5\text{-}yr\text{-}uncontrolled}$ **0.31**
100-year Runoff coefficient, $_{100\text{-}yr\text{-}uncontrolled}$ **0.37**

Uncontrolled overland surface Release Rate 5-year **21.9** l/s ②
Uncontrolled overland surface Release Rate 100-year **44.5** l/s ④

B.1.2.2 - Net-allowable release rate for storm sewers

$Q_{net\text{-}allowable\ 5\text{-}year}$ = **183.9** l/s ③ = ①-②
*$Q_{net\text{-}allowable\ 100\text{-}year}$ = **161.3** l/s ⑤ = ①-④ * Must be controlled to net-allowable 100-year

B.1.3 - Post-development onsite storage

B.1.3.1 - Estimated detention Roof

Area	**0.472**	ha
5-year Runoff coefficient	**0.90**	
100-year Runoff coefficient	**1.00**	
Roof Drains	**39.69**	l/s

21 roof drains at 30 GPM at 6" head, each drain = 1.89 l/s at 150mm head (scuppers level)

Table 1.3.1a - 5-year estimated detention Building Roof

	Time	$i_{5\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(minutes)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	104.2	123.1	39.7	83.4	50.0
peak V_{stored} →	15	83.6	98.7	39.7	59.0	53.1
	20	70.3	83.0	39.7	43.3	51.9
	25	60.9	71.9	39.7	32.2	48.4
	30	53.9	63.7	39.7	24.0	43.2
	35	48.5	57.3	39.7	17.6	37.0
	40	44.2	52.2	39.7	12.5	30.0
	45	40.6	48.0	39.7	8.3	22.4
	50	37.7	44.5	39.7	4.8	14.4
	55	35.1	41.5	39.7	1.8	5.9
	60	32.9	38.9	39.7	-0.8	-2.8
	Therefore	**53**	m^3 estimated roof detention			

Table 1.3.1b - 100-year estimated detention Building Roof

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	178.6	234.3	39.7	194.7	116.8
	15	142.9	187.5	39.7	147.8	133.1
	20	120.0	157.4	39.7	117.7	141.3
	25	103.8	136.3	39.7	96.6	144.9
peak V_{stored} →	30	91.9	120.6	39.7	80.9	145.6
	35	82.6	108.4	39.7	68.7	144.2
	40	75.1	98.6	39.7	58.9	141.4
	45	69.1	90.6	39.7	50.9	137.5
	50	64.0	83.9	39.7	44.2	132.7
	55	59.6	78.3	39.7	38.6	127.3
	60	55.9	73.4	39.7	33.7	121.2
	Therefore	**146**	m^3 estimated yard detention			

B.1.3.2 - Estimated detention CB-1 (surface Storage)

Area	**0.375**	ha
5-year Runoff coefficient	**0.20**	
100-year Runoff coefficient	**0.25**	
Install flow control downstream in CBMH-1	**17.37**	l/s

Table 1.3.2a - 5-year estimated detention in School Yard & Soccer Field

	Time	$i_{5\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(minutes)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
peak V_{stored} →	10	104.2	21.7	17.4	4.4	2.6
	15	83.6	17.4	17.4	0.1	0.1
	20	70.3	14.7	17.4	-2.7	-3.3
	25	60.9	12.7	17.4	-4.7	-7.0
	30	53.9	11.2	17.4	-6.1	-11.0
	35	48.5	10.1	17.4	-7.2	-15.2
	40	44.2	9.2	17.4	-8.2	-19.6
	45	40.6	8.5	17.4	-8.9	-24.0
	50	37.7	7.9	17.4	-9.5	-28.5
	55	35.1	7.3	17.4	-10.0	-33.1
	60	32.9	6.9	17.4	-10.5	-37.8
	Therefore	**3**	m^3 estimated yard detention			

Table 1.3.2b - 100-year estimated detention in School Yard & Soccer Field (surface Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	178.6	46.6	17.4	29.2	17.5
peak V_{stored} →	15	142.9	37.3	17.4	19.9	17.9
	20	120.0	31.3	17.4	13.9	16.7
	25	103.8	27.1	17.4	9.7	14.6
	30	91.9	24.0	17.4	6.6	11.9
	35	82.6	21.5	17.4	4.2	8.7
	40	75.1	19.6	17.4	2.2	5.3
	45	69.1	18.0	17.4	0.6	1.7
	50	64.0	16.7	17.4	-0.7	-2.1
	55	59.6	15.5	17.4	-1.8	-6.0
	60	55.9	14.6	17.4	-2.8	-10.1

Therefore **18** m^3 estimated yard detention

Table 1.3.2b - 100-year (+ 20%) estimated detention in School Yard & Soccer Field (surface Storage)

	Time	$i_{100\text{-years}}$x120%	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	214.3	55.9	17.4	38.5	23.1
	15	171.5	44.7	17.4	27.3	24.6
peak V_{stored} →	20	143.9	37.5	17.4	20.2	24.2
	25	124.6	32.5	17.4	15.1	22.7
	30	110.2	28.7	17.4	11.4	20.5
	35	99.1	25.8	17.4	8.5	17.8
	40	90.2	23.5	17.4	6.1	14.7
	45	82.9	21.6	17.4	4.2	11.4
	50	76.7	20.0	17.4	2.6	7.9
	55	71.5	18.7	17.4	1.3	4.2
	60	67.1	17.5	17.4	0.1	0.4

Therefore **25** m^3 estimated yard detention

B.1.3.3 - Estimated detention CBMH-5 (surface + underground Storage)

Area **0.201** ha

5-year Runoff coefficient **0.26**

100-year Runoff coefficient **0.32**

Install flow control in CBMH-1 **17.37** l/s

Table 1.3.2a - 5-year estimated detention in West School Yard & Soccer Field

	Time	$i_{5\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(minutes)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
peak V_{stored} →	10	104.2	15.4	17.4	-2.0	-1.2
	15	83.6	12.3	17.4	-5.1	-4.5
	20	70.3	10.4	17.4	-7.0	-8.4
	25	60.9	9.0	17.4	-8.4	-12.6
	30	53.9	7.9	17.4	-9.4	-17.0
	35	48.5	7.2	17.4	-10.2	-21.5
	40	44.2	6.5	17.4	-10.9	-26.1
	45	40.6	6.0	17.4	-11.4	-30.7
	50	37.7	5.5	17.4	-11.8	-35.5
	55	35.1	5.2	17.4	-12.2	-40.2
	60	32.9	4.9	17.4	-12.5	-45.1

Therefore **-1** m^3 estimated yard detention

Table 1.3.2b - 100-year estimated detention in West School Yard & Soccer Field (surface + underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
peak V_{stored} →	10	178.6	31.8	17.4	14.4	8.6
	15	142.9	25.4	17.4	8.0	7.2
	20	120.0	21.3	17.4	4.0	4.8
	25	103.8	18.5	17.4	1.1	1.6
	30	91.9	16.3	17.4	-1.0	-1.9
	35	82.6	14.7	17.4	-2.7	-5.6
	40	75.1	13.4	17.4	-4.0	-9.6
	45	69.1	12.3	17.4	-5.1	-13.7
	50	64.0	11.4	17.4	-6.0	-18.0
	55	59.6	10.6	17.4	-6.8	-22.3
	60	55.9	9.9	17.4	-7.4	-26.7

Therefore **9** m^3 estimated yard detention

Table 1.3.2b - 100-year (+ 20%) estimated detention in West School Yard & Soccer Field (surface + underground Storage)

	Time	$i_{100\text{-years}}$x120%	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	214.3	38.1	17.4	20.7	12.4
peak V_{stored} →	15	171.5	30.5	17.4	13.1	11.8
	20	143.9	25.6	17.4	8.2	9.9
	25	124.6	22.2	17.4	4.8	7.2
	30	110.2	19.6	17.4	2.2	4.0
	35	99.1	17.6	17.4	0.3	0.5
	40	90.2	16.0	17.4	-1.3	-3.2
	45	82.9	14.7	17.4	-2.6	-7.1
	50	76.7	13.6	17.4	-3.7	-11.2
	55	71.5	12.7	17.4	-4.6	-15.3
	60	67.1	11.9	17.4	-5.4	-19.6

Therefore **12** m^3 estimated yard detention

B.1.3.4 - Estimated detention CBMH-2 (underground Storage)

Area	**0.690**	ha
5-year Runoff coefficient	**0.32**	
100-year Runoff coefficient	**0.37**	
Install flow control in CBMH-1	**17.37**	l/s

Table 1.3.3a - 5-year estimated detention Future Portable Area

	Time	$i_{5\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(minutes)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	104.2	63.1	17.4	45.7	27.4
	15	83.6	50.6	17.4	33.2	29.9
peak V_{stored} →	20	70.3	42.5	17.4	25.2	30.2
	25	60.9	36.9	17.4	19.5	29.3
	30	53.9	32.7	17.4	15.3	27.5
	35	48.5	29.4	17.4	12.0	25.2
	40	44.2	26.8	17.4	9.4	22.5
	45	40.6	24.6	17.4	7.2	19.5
	50	37.7	22.8	17.4	5.4	16.3
	55	35.1	21.3	17.4	3.9	12.9
	60	32.9	19.9	17.4	2.6	9.3

Therefore **30** m^3 estimated yard detention **

Table 1.3.3b - 100-year estimated detention Future Portable Area (underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	178.6	128.1	17.4	110.7	66.4
	15	142.9	102.5	17.4	85.1	76.6
	20	120.0	86.0	17.4	68.7	82.4
	25	103.8	74.5	17.4	57.1	85.7
	30	91.9	65.9	17.4	48.5	87.3
peak V_{stored} →	35	82.6	59.2	17.4	41.9	87.9
	40	75.1	53.9	17.4	36.5	87.7
	45	69.1	49.5	17.4	32.2	86.8
	50	64.0	45.9	17.4	28.5	85.5
	55	59.6	42.8	17.4	25.4	83.8
	60	55.9	40.1	17.4	22.7	81.8

Therefore **88** m^3 estimated yard detention **

Table 1.3.3b - 100-year (+ 20%) estimated detention Future Portable Area (underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	214.3	153.7	17.4	136.3	81.8
	15	171.5	123.0	17.4	105.6	95.1
	20	143.9	103.2	17.4	85.9	103.0
	25	124.6	89.4	17.4	72.0	108.0
	30	110.2	79.1	17.4	61.7	111.1
	35	99.1	71.1	17.4	53.7	112.8
	40	90.2	64.7	17.4	47.3	113.5
peak V_{stored} →	45	82.9	59.4	17.4	42.1	113.6
	50	76.7	55.0	17.4	37.7	113.0
	55	71.5	51.3	17.4	33.9	112.0
	60	67.1	48.1	17.4	30.7	110.7

Therefore **114** m^3 estimated yard detention **

B.1.3.5 - Estimated detention CBMH-3 (Surface + underground Storage)

Total controlled Area	**0.442**	ha
5-year Runoff coefficient	**0.34**	
100-year Runoff coefficient	**0.40**	
Install flow control after CBMH-3	**17.37**	l/s

Table 1.3.4a - 5-year estimated detention North Soccer Field

	Time	$i_{5\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(minutes)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	104.2	44.0	17.4	26.6	16.0
peak V_{stored} →	15	83.6	35.3	17.4	17.9	16.1
	20	70.3	29.7	17.4	12.3	14.8
	25	60.9	25.7	17.4	8.4	12.5
	30	53.9	22.8	17.4	5.4	9.7
	35	48.5	20.5	17.4	3.1	6.6
	40	44.2	18.7	17.4	1.3	3.1
	45	40.6	17.2	17.4	-0.2	-0.6
	50	37.7	15.9	17.4	-1.5	-4.4
	55	35.1	14.8	17.4	-2.5	-8.4
	60	32.9	13.9	17.4	-3.5	-12.4

Therefore **16** m^3 estimated yard detention

Table 1.3.4b - 100-year estimated detention North Soccer Field (underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	178.6	88.6	17.4	71.3	42.8
	15	142.9	70.9	17.4	53.6	48.2
	20	120.0	59.6	17.4	42.2	50.6
peak V_{stored} →	25	103.8	51.6	17.4	34.2	51.3
	30	91.9	45.6	17.4	28.2	50.8
	35	82.6	41.0	17.4	23.6	49.6
	40	75.1	37.3	17.4	19.9	47.8
	45	69.1	34.3	17.4	16.9	45.7
	50	64.0	31.8	17.4	14.4	43.1
	55	59.6	29.6	17.4	12.2	40.4
	60	55.9	27.7	17.4	10.4	37.4

Therefore **51** m^3 estimated yard detention

Table 1.3.4b - 100-year (+ 20%) estimated detention North Soccer Field (underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	214.3	106.4	17.4	89.0	53.4
	15	171.5	85.1	17.4	67.8	61.0
	20	143.9	71.5	17.4	54.1	64.9
	25	124.6	61.9	17.4	44.5	66.7
peak V_{stored} →	30	110.2	54.7	17.4	37.4	67.3
	35	99.1	49.2	17.4	31.8	66.8
	40	90.2	44.8	17.4	27.4	65.8
	45	82.9	41.1	17.4	23.8	64.2
	50	76.7	38.1	17.4	20.7	62.2
	55	71.5	35.5	17.4	18.2	59.9
	60	67.1	33.3	17.4	15.9	57.3

Therefore **67** m^3 estimated yard detention

B.1.3.6 - Estimated detention CB-2 & CBMH-4 (surface + underground Storage)

Total controlled Area	**0.235**	ha
5-year Runoff coefficient	**0.90**	
100-year Runoff coefficient	**1.00**	
Install flow control after CBMH-4	**34.74**	l/s

Table 1.3.4a - 5-year estimated detention in Parking Area

	Time	$i_{5\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(minutes)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
peak V_{stored} →	10	104.2	61.4	34.7	26.6	16.0
	15	83.6	49.2	34.7	14.5	13.0
	20	70.3	41.4	34.7	6.6	8.0
	25	60.9	35.9	34.7	1.1	1.7
	30	53.9	31.8	34.7	-3.0	-5.4
	35	48.5	28.6	34.7	-6.2	-12.9
	40	44.2	26.0	34.7	-8.7	-20.9
	45	40.6	23.9	34.7	-10.8	-29.2
	50	37.7	22.2	34.7	-12.6	-37.7
	55	35.1	20.7	34.7	-14.1	-46.4
	60	32.9	19.4	34.7	-15.3	-55.2

Therefore **16** m^3 estimated yard detention

Table 1.3.4b - 100-year estimated detention in Parking Area (surface + underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	178.6	116.9	34.7	82.1	49.3
peak V_{stored} →	15	142.9	93.5	34.7	58.8	52.9
	20	120.0	78.5	34.7	43.8	52.5
	25	103.8	68.0	34.7	33.2	49.8
	30	91.9	60.1	34.7	25.4	45.7
	35	82.6	54.0	34.7	19.3	40.5
	40	75.1	49.2	34.7	14.4	34.6
	45	69.1	45.2	34.7	10.4	28.2
	50	64.0	41.9	34.7	7.1	21.3
	55	59.6	39.0	34.7	4.3	14.1
	60	55.9	36.6	34.7	1.8	6.6

Therefore **53** m^3 estimated yard detention

Table 1.3.4b - 100-year (+ 20%) estimated detention in Parking Area (surface + underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	214.3	140.2	34.7	105.5	63.3
	15	171.5	112.2	34.7	77.5	69.7
peak V_{stored} →	20	143.9	94.2	34.7	59.5	71.3
	25	124.6	81.6	34.7	46.8	70.2
	30	110.2	72.1	34.7	37.4	67.3
	35	99.1	64.8	34.7	30.1	63.2
	40	90.2	59.0	34.7	24.3	58.3
	45	82.9	54.2	34.7	19.5	52.6
	50	76.7	50.2	34.7	15.5	46.4
	55	71.5	46.8	34.7	12.1	39.9
	60	67.1	43.9	34.7	9.2	33.0

Therefore **71** m^3 estimated yard detention

B.1.3.7 - Estimated detention CBMH-1(underground Storage)

Area	**0.284**	ha
5-year Runoff coefficient	**0.43**	
100-year Runoff coefficient	**0.50**	
Install flow control after CBMH-1	**17.37**	l/s

Table 1.3.2a - 5-year estimated detention East Soccer Field

	Time	$i_{5\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(minutes)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
peak V_{stored} →	10	104.2	35.6	17.4	18.2	10.9
	15	83.6	28.6	17.4	11.2	10.1
	20	70.3	24.0	17.4	6.6	8.0
	25	60.9	20.8	17.4	3.4	5.2
	30	53.9	18.4	17.4	1.1	1.9
	35	48.5	16.6	17.4	-0.8	-1.7
	40	44.2	15.1	17.4	-2.3	-5.4
	45	40.6	13.9	17.4	-3.5	-9.4
	50	37.7	12.9	17.4	-4.5	-13.5
	55	35.1	12.0	17.4	-5.4	-17.7
	60	32.9	11.3	17.4	-6.1	-22.0

Therefore **11** m^3 estimated yard detention

Table 1.3.2b - 100-year estimated detention East Soccer Field (underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	178.6	70.4	17.4	53.1	31.8
	15	142.9	56.4	17.4	39.0	35.1
peak V_{stored} →	20	120.0	47.3	17.4	29.9	35.9
	25	103.8	41.0	17.4	23.6	35.4
	30	91.9	36.2	17.4	18.9	34.0
	35	82.6	32.6	17.4	15.2	31.9
	40	75.1	29.6	17.4	12.3	29.4
	45	69.1	27.2	17.4	9.9	26.6
	50	64.0	25.2	17.4	7.9	23.6
	55	59.6	23.5	17.4	6.1	20.3
	60	55.9	22.0	17.4	4.7	16.8

Therefore **36** m^3 estimated yard detention

Table 1.3.2b - 100-year (+ 20%) estimated detention East Soccer Field (underground Storage)

	Time	$i_{100\text{-years}}$	Q_{actual}	$Q_{allowable}$	Q_{stored}	V_{stored}
	(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)
	10	214.3	84.5	17.4	67.1	40.3
	15	171.5	67.6	17.4	50.3	45.2
	20	143.9	56.8	17.4	39.4	47.3
peak V_{stored} →	25	124.6	49.2	17.4	31.8	47.7
	30	110.2	43.5	17.4	26.1	47.0
	35	99.1	39.1	17.4	21.7	45.6
	40	90.2	35.6	17.4	18.2	43.7
	45	82.9	32.7	17.4	15.3	41.3
	50	76.7	30.3	17.4	12.9	38.7
	55	71.5	28.2	17.4	10.8	35.8
	60	67.1	26.5	17.4	9.1	32.7
	Therefore	**48**	m^3 estimated yard detention			

B.1.4 - Site storage

	required (m3)			Available (m3)			
	5-year required (m3)	**100-year required (m3)**	**Ponding depth (m)**	**Ponding area (m2)**	**surface Available (m3)**	**Undergorund Available (m3)**	**Total Available (m3)**
Roof Detention (B1) surface	**53**	**146**	0.15	4721	**236**	**0**	**236**
CB-1 School Yard & Soccer Field Detention (B2) Surface	**3**	**18**	0.29	483	**47**	**0**	**47**
CBMH-2 East Side Yard (underground) (B4)	**30**	**88**	0.00	0	**0**	**70**	**70**
CBMH-1 East Side Yard (underground) (B7)	**11**	**36**	0.00	0	**0**	**25**	**25**
Total of CB-1 , CBMH-1 & CBMH-2	**44**	**142**			**47**	**95**	**142**
CBMH-5 West School Yard & Soccer Field (underground) (B3)	**-1**	**9**	0.00	0	**0**	**9**	**9**
CBMH-3 East Side Yard (surface + underground) (B5)	**16**	**51**	0.00	0	**0**	**51**	**51**
Parking Lot CB-2 & CBMH-4 Detention (surface + underground) (B6 + B8)	**16**	**53**	0.25	441	**37**	**16**	**53**

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B.1.5 - Storm Sewer Pipe Design (5 YEARS)

Definitions
Manning's Coefficient = 0.013
Return Frequency (yrs) = 5
1 acre = 0.4047 hectares

Rational Method
Q = 2.78 CIA (l/s), where
C= Runoff Coefficient
i = Rainfall Intensity (mm/hr)
A = Areas in Hectares (ha)

Notes
1) Used City of Ottawa IDF Curve
2) Min. velocity = 0.8 m/sec
3) Max. velocity = 6.0 m/sec

LOCATION		AREA (ha)		FLOW				SEWER DATA								
		C=	C=	Individual	Cum.	tc	$i_{5\ years}$	$Flow_{5\ years}$	Dia.	Slope	Length	Capacity	Velocity	Sect.Time	Tot. Time	Utilization
From	To	0.90	0.20	2.78CA	2.78CA	(min.)	(mm/hr)	(l/s)	(mm)	(%)	(m)	(full) (l/s)	(full) (m/s)	(minutes)	(minutes)	(%)
CB-2	CBMH-4	0.100	0.000	0.25	0.25	10.0	104.2	26.1	300	2.17	27.0	142.4	2.0	0.2	10.2	18
CBMH-4	NODE	ICD				10.2	103.0	34.7	300	0.50	55.0	68.4	1.0	0.9	11.2	51
CBMH-3	NODE	ICD				10.0	104.2	17.4	300	1.00	20.0	96.7	1.4	0.2	10.2	18
NODE	STMH-3					11.2	98.4	52.1	300	0.50	21.0	68.4	1.0	0.4	11.5	76
Roof	STMH-3	ROOF DRAINS				10.0	104.2	39.7	300	1.60	45.0	122.3	1.7	0.4	10.4	32
STMH-3	STMH-2					11.5	96.7	91.8	450	0.30	48.5	156.1	1.0	0.8	12.4	59
CB-1	CBMH-1	0.000	0.375	0.21		10.0	104.2	21.7	300	0.55	40.0	71.7	1.0	0.7	10.7	30
CBMH-2	CBMH-1	0.114	0.576	0.61		10.0	104.2	63.1	900	0.70	38.0	1514.5	2.4	0.3	10.3	4
CBMH-1	STMH-2	ICD				10.7	100.8	52.1	300	0.40	36.0	61.2	0.9	0.7	11.4	85
STMH-2	NODE					12.4	93.2	143.8	600	0.16	33.0	245.6	0.9	0.6	13.0	59
CBMH-5	NODE	ICD				10.0	104.2	17.4	300	2.00	11.0	136.7	1.9	0.1	10.1	13
NODE	STMH-1					13.0	90.7	161.2	600	0.16	10.0	245.6	0.9	0.2	13.2	66
STMH-1	EXISTING BRADWELL WAY					13.2	89.9	161.2	750	1.00	14.5	1113.2	2.5	0.10	13.28	14

ICD / Roof drain Flow control installed

Orifice Diameter Calculation

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Design Parameters*

Pipe Area Formula: A = Q/(C(2gh)^0.5))

Pipe Diameter Formula: A = (pi*d^2)/4
d=sqrt(4*A/pi)

d = Orifice diameter (m)
A = Pipe area (m^2)
C = 0.61
g = 9.81 (m/s^2)
h = head of ponding from the centroid of the pipe invert (m)
Q = Max. flow through pipe (l/s)

CBMH-1

Elevation at Top of Ponding	Elevation at Pipe Invert	Size of Outlet Pipe	Head from Centroid (h)
(m)	(m)	(mm)	(m)
92.99	91.35	300.0	1.490

Max Flow (Q)	Coeffieicent (C)	g	Head from Centroid (h)	Pipe Area (A)	Orifice Diameter (d)	Orifice Diameter (d)
(l/s)	-	(m/s^2)	(m)	(m^2)	m	mm
52.1	0.61	9.8	1.49	0.016	0.142	142

CBMH-3

Elevation at Top of Ponding	Elevation at Pipe Invert	Size of Outlet Pipe	Head from Centroid (h)
(m)	(m)	(mm)	(m)
92.65	91.68	300.0	0.820

Max Flow (Q)	Coeffieicent (C)	g	Head from Centroid (h)	Pipe Area (A)	Orifice Diameter (d)	Orifice Diameter (d)
(l/s)	-	(m/s^2)	(m)	(m^2)	m	mm
17.4	0.61	9.8	0.82	0.007	0.095	95

CBMH-4

Elevation at Top of Ponding	Elevation at Pipe Invert	Size of Outlet Pipe	Head from Centroid (h)
(m)	(m)	(mm)	(m)
94.05	91.75	300.0	2.150

Max Flow (Q)	Coeffieicent (C)	g	Head from Centroid (h)	Pipe Area (A)	Orifice Diameter (d)	Orifice Diameter (d)
(l/s)	-	(m/s^2)	(m)	(m^2)	m	mm
34.7	0.61	9.8	2.15	0.009	0.106	106

CBMH-5

Elevation at Top of Ponding	Elevation at Pipe Invert	Size of Outlet Pipe	Head from Centroid (h)
(m)	(m)	(mm)	(m)
92.27	91.33	300.0	0.790

Max Flow (Q)	Coeffieicent (C)	g	Head from Centroid (h)	Pipe Area (A)	Orifice Diameter (d)	Orifice Diameter (d)
(l/s)	-	(m/s^2)	(m)	(m^2)	m	mm
17.4	0.61	9.8	0.79	0.007	0.096	96

Appendix C - Sanitary Servicing Calculations

New School Findlay Creek 4140 Kelly Farm Dr.

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Appendix C - Sanitary Sewer Design Sheet

C.1.1 - Peak Flow Design Based on Site Area

Definitions
Manning's Coefficient (n) = 0.013

Manning's Formula
$Q = A*R^{2/3}*S^{1/2}/n$ (l/s), where
A = Areas in Hectares (ha)
R = Hydraulic Radius (m)
S = Slope

Design Parameters*
1) Average Daily Flow = 280 L/p/day
2) Commercial/Institutional Flow = 28,000 L/ha/day
3) Maximum Residential Peak Factor = 4
4) Commercial/Institutional Peak Factor = 1.50
5) Extraneous Flow = 0.33L/s/ha
6) Minimum Velocity = 0.6 m/s

Designed RI
Checked AS

Location			Residential Flow							Institutional Flow				Infiltration Flow			Total Flow		Sewer Data				
						Cumulative		Average Flow	Peak Flow	Area (ha)		Average Flow	Peak Flow	Area (ha)		Inf. Flow	Average Flow	Peak Flow	Dia.	Slope	Capacity	Velocity	Utilization
Note	From	To	Area (ha)	Units	Population	Area	Population	(l/s)	(l/s)	Individual	Cumulative	(l/s)	(l/s)	Individual	Cumulative	(l/s)	(l/s)	(l/s)	(mm)		(full) (l/s)	(full) (m/s)	(%)
School	School	SAMH-1	0.00	0	0	0.00	0	0.00	0.00	2.94	2.94	0.95	1.43	2.94	2.94	0.97	1.92	2.40	200	0.70%	27.4	0.9	8.7
Municipal Connection	SAMH-1	Ex. MH																2.40	250	4.30%	123.3	2.5	1.9

Appendix D - Fire Flow Demand Calculations

New School Findlay Creek_4140 Kelly Farm Drive_Ottawa

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Appendix D- Fire Flow Demand Requirements

D.1.1 - Fire Flow Demand Requirements (Fire Underwritters Survey (FUS Guidelines))

Fire Flow Formula

Estimated Fire Flow Formula: $F=220*C*A^{1/2}$(L/min)

Designed
Checked
Dwg. Reference C1
Jp2g project No 20-1095C

F = Required fire flow (L/min)
C = Coefficient related to the type of construction

Type I (Fire Resistive)	0.6
Type II (Noncombustible)	0.8
Type III (Ordinary)	1
Type IV-D (Mass Timber)	1.5
Type IV-C (Mass Timber)	1
Type IV-B (Mass Timber)	0.9
Type IV-A (Mass Timber)	0.8
Type V (Mass Timber)	1.5

A = Total floor area in square metres

New School Building

Design Parameters*

Type of Building Construction = Type II (Noncombustible)
Floor Area*** = 4721.0 m^2
Occupany and Contents Class = Limited combustible
Sprinkler System = Automatic sprinkler system conforming to NFPA 13 with standard water supply and full supervision
Sprinkler Building Coverage = Complete building coverage
Factor of Building Coverage X = 1
Number of Storeys = 1

Exposure Parameters*

	West	North	East	South
Separation Distance (m) =	over 30	over 30	over 30	15.0
Length of Exposed Wall =	16.5	48.0	21	42
Length-Height Factor =	33.0	96.0	21.0	42.0

				Adjustments (increases or decreases)											
Building Construction	**Floor Area*** **	**Coefficient**	**A**	**B = A +/- %**		**C = B x %**		**D = B x %**						**Final Adjusted Fire Flow**	**Final Adjusted Fire Flow**
			Fire Flow (F)	**Occupancy**		**Sprinkler**		**Exposure*** **							
Type II (Noncombustible)	(m^2)		(L/min)	%	Adjusted Fire Flow(s) (L/min)	%	Fire Adjustment Flow(s) (L/min)	West	North	East	South	Total Exposure	Fire Adjustment Flow(s) (L/min)	E = B - C + D (L/min)*	(L/s)
	4,721.0	0.8	12,000.0	-0.15	10,200.0	50%	5,100.0	0%	0%	0%	12%	12%	1,224.0	6,000.0	100.0

Type V portables

*Water Supply for Public Protection (Fire Underwriters Survey, 2020).

Appendix E - Pre-Consultation & Development Servicing Study Checklist

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.
A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

For information and guidance on preparing required studies and plans refer to:

http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S		1. Site Servicing Plan	2. Site Servicing Study	S	
S		3. Grade Control and Drainage Plan	4. Geotechnical Study	S	
		5. Composite Utility Plan	6. Groundwater Impact Study		
		7. Servicing Options Report	8. Wellhead Protection Study		
S		9. Community Transportation Study and / or Transportation Impact Study	10. Erosion and Sediment Control Plan	S	
S		11. Storm water Management Report	12. Hydro geological and Terrain Analysis		
		13. Hydraulic Water main Analysis	14. Noise / Vibration Study		
		15. Roadway Modification Design Plan	16. Confederation Line Proximity Study		

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
		17. Draft Plan of Subdivision	18. Plan Showing Layout of Parking Garage		
		19. Draft Plan of Condominium	20. Planning Rationale	S	
S		21. Site Plan	22. Minimum Distance Separation (MDS)		
		23. Concept Plan Showing Proposed Land Uses and Landscaping	24. Agrology and Soil Capability Study		
		25. Concept Plan Showing Ultimate Use of Land	26. Cultural Heritage Impact Statement		
S		27. Landscape Plan	28. Archaeological Resource Assessment Requirements: **S** (site plan) **A** (subdivision, condo)		
S		29. Survey Plan	30. Shadow Analysis		
S		31. Architectural Building Elevation Drawings (dimensioned)	32. Design Brief	S	
		33. Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S		34. Phase 1 Environmental Site Assessment	35. Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		
A		36. Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37. Assessment of Landform Features		
		38. Record of Site Condition	39. Mineral Resource Impact Assessment		
S		40. Tree Conservation Report	41. Environmental Impact Statement / Impact Assessment of Endangered Species		
		42. Mine Hazard Study / Abandoned Pit or Quarry Study	43. Integrated Environmental Review (Draft, as part of Planning Rationale)		

Number of copies
Digital versions of all submissions

Meeting Date: June 16, 2022

Application Type: SPC – complex

File Lead (Assigned Planner): Kelby Lodoen Unseth

Infrastructure Approvals Project Manager: Tyler Cassidy

Site Address (Municipal Address): 4140 Kelly Farm Drive

*Preliminary Assessment: 1☐ 2☐ 3☐ 4☐ 5☐

*One (1) indicates that considerable major revisions are required before a planning application is submitted, while five (5) suggests that 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.**

It is important to note that the need for additional studies and plans may result during application review. If following the submission of your application, it is determined that material that is not identified in this checklist is required to achieve complete application status, in accordance with the Planning Act and Official Plan requirements, the Planning, Infrastructure and Economic Development Department *will notify you of outstanding material required within the required 30 day period. Mandatory pre-application consultation will not shorten the City's standard processing timelines, or guarantee that an application will be approved. It is intended to help educate and inform the applicant about submission requirements as well as municipal processes, policies, and key issues in advance of submitting a formal development application. This list is valid for one year following the meeting date. If the application is not submitted within this timeframe the applicant must again pre-consult with the* Planning, Infrastructure and Economic Development Department.

Description:

A Design Brief is the core submission document that illustrates how the development is designed to work with its existing and planned context, to improve its surroundings and also demonstrate how the proposal supports the overall goals of the Official Plan, relevant secondary plans, Council approved plans and design guidelines. The purpose of the Terms of Reference is to assist the applicant to organize and substantiate the design justification in support of the proposed development and to assist staff and the public in the review of the proposal.

Authority to Request a Design Brief:

The *Planning Act* gives municipalities the authority to require that a Design Brief be prepared. Under Sections 22(4), (5) and Section 41(4) of the *Planning Act*, a Council has the authority to request such other information or material that the authority needs in order to evaluate and make a decision on an application. Section 5.2.6 of the Official Plan sets out the general requirement for a Design Brief.

Preparation:

The Design Brief should be signed by an urban designer, licenced architect, landscape architect, or a full member of the Canadian Institute of Planners.

When Required:

A Design Brief is required for a Site Plan Control planning application.

A Scoped Design Brief* is required when the following planning applications are applied for and not accompanied by a Site Plan Control application:

- Official Plan Amendment
- Zoning By-law Amendment (exception: a change in use which does not result in an increase in height or massing)

The requirement and scope of a Design Brief will be determined at the formal pre-application consultation meeting. Should an application be required to go to the Urban Design Review Panel (UDRP), the Design Brief may be submitted as part of the submission materials to the panel.

Contents for Design Brief Submissions:

A Design Brief will contain and/or address the points identified during the pre-consultation meeting. Failure to address the critical elements identified in the pre-consultation meeting may result in the application being considered incomplete.

** A Scoped Design Brief is composed of:*

- *Section 1 should be combined into the Planning Rationale submission, and*
- *Section 2 items will be confirmed in the pre-application consultation meeting.*

SECTION 1

Application Submission:

Not Required	Required	
☐	☐	State the: type of application, legal description, municipal address, purpose of the application and provide an overall vision statement and goals for the proposal.

Response to City Documents:

Not Required	Required	
☐	☐	State the Official Plan land use designation for the subject property and demonstrate how the proposal conforms to the Official Plan as it relates to the design of the subject site. Reference specific policy numbers from the Official Plan to show consistency. Justify areas of non-compliance and explain why there is non-compliance.
☐	☐	State the applicable plans which apply to the subject proposal: community design plan, secondary plan, concept plan and design guideline. Reference the relevant design related polices within the applicable plans/guidelines and provide a comprehensive analysis asto how the proposed development incorporates the objectives or why it does not incorporate the objectives.

Context Plan:

Not Required	Required	
☐	☐	Provide a contextual analysis that discusses/illustrates abutting properties, key destinations and linkages within a 100 meter radius (a larger radius may be requested for larger/more complex projects), such as transit stations, transportation networks for cars, cyclists, and pedestrians, focal points/nodes, gateways; parks/open spaces, topography, views towards the site, the urban pattern (streets, blocks), future and current proposals (if applicable), public art and heritage resources.
☐	☐	Photographs to illustrate existing site conditions and surrounding contexts. Include a map pinpointing (with numbers) where each photo is taken and correspond these numbers with the site photos. Arrows illustrating the direction the photo is taken is also useful.

SECTION 2

Design Proposal:
The purpose of the Design Proposal is to show the building elevations, exterior details, transitions in form, treatment of the public realm and compatibility with adjacent buildings, using 3-D models, illustrations, diagrams, plans, and cross sections. Referencing Official Plan, Section 5.2.1, as determined at time of pre-application consultation meeting, submissions will need to address the following in the form of labelled graphics and written explanation:

Massing and Scale

Not Required	Required	
		Images which show: Building massing – from:
☐	☐	• at least two sides set within it current context (showing the entire height and width of the building) **OR**
☐	☐	• all four sides set within it current context (showing the entire height and width of the building).
		Views – of the entire block, from:
☐	☐	• at least two perspectives to show how the proposed building is set within its current context. **OR**
☐	☐	• all four perspectives to show how the proposed building is set within its current context.
☐	☐	Building transition – to adjacent uses, with labelled explanation of the transition measures used. (please model the potential build out of the parking lot to the north)
☐	☐	Grading – if grades are an issue.
☐	☐	Alternative building massing – additional imagery and site layouts considered and provide justification for the ultimate proposal sought.

Public Realm

Not Required	Required	
		Labelled graphics and a written explanation which show:
☐	☐	Streetscape – cross sections which illustrate the street design and right of way (referencing the City's design manuals).
☐	☐	Relationship to the public realm – illustrating how the first few storeys of the proposed development responds to and relates to the existing context (e.g. through a podium plan and first floor plan). This is to include detailed explanation on:

- Architectural responses
- Landscaping details
- Public art features (in accordance with Official Plan, Section 4.11)
- For developments in Design Priority Areas, detail the building and site features, (in accordance with Official Plan, Section 4.11) which will enhance the public realm. Provide explanation for features which are not provide.

Building Design

Not Required	Required	
☐	☐	Labelled graphics (e.g. building elevations and floor plans) and a written explanation which document the proposed exterior architectural details and design (in accordance with Official Plan, Section 5.2.1).
☐	☐	For high-rise development applications, detail the building design and massing and scale elements and how they relate to the proposed high-rise development (in accordance with Official Plan, Section 5.2.1).

Sustainability

Not Required	Required	
☐	☐	Any sustainable design features to be incorporated, such as green roofs or walls, sun traps, reflective or permeable surfaces.

Heritage

Not Required	Required	
☐	☐	How the building relates to the historic details, materials, site and setting of any existing historic resources on or adjacent to the subject property (if applicable).

Additional Contents:

Some proponents may be requested to provide submission material which complements the Design Brief. These additional requirements could be incorporated into the Design Brief submission for ease of review. These will be identified at the time of application consultation meeting:

- Site Plan
- Landscape Plan
- Plan showing existing and proposed servicing
- Shadow Analysis
- Wind Analysis

Submission Requirements

- One digital copy

Please see the engineering comments for the SPC application at 4140 Kelly Farm below:

List of Reports and Plans (Site Plan Control):

1. Site Servicing Plan
2. Grading Plan
3. Erosion and Sediment Control Plan
4. Storm Drainage / Ponding Plan
5. Stormwater Management and Site Servicing Report
6. Geotechnical Investigation Report

Please note the following information regarding the engineering design submissions for the above noted site:

1. The Servicing Study Guidelines for Development Applications are available at the following address: https://ottawa.ca/en/city-hall/planning-and-development/how-develop-property/development-application-review-process-2/guide-preparing-studies-and-plans
2. Servicing and site works shall be in accordance with the following documents:
   - Ottawa Sewer Design Guidelines (October 2012) and all the Technical Bulletins including, Technical Bulletin PIEDTB-2016-01 and ISTB-2018-01
   - Ottawa Design Guidelines – Water Distribution (2010) and Technical Bulletins ISD-2010-2, ISDTB-2014-02 and ISTB-2018-02
   - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
   - City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
   - City of Ottawa Environmental Noise Control Guidelines (January, 2016)
   - City of Ottawa Park and Pathway Development Manual (2012)
   - City of Ottawa Accessibility Design Standards (2012)
   - Ottawa Standard Tender Documents (latest version)
   - Ontario Provincial Standards for Roads & Public Works (2013)
3. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x 44455
4. The Stormwater Management Criteria, for the subject site, is to be based on the following (as established in the **Design Brief: Findlay Creek Village Stage 2 Phase 1** prepared by IBI Group, dated January 2007.
   - The sites allowable release rate is 70 L/s/ha as determined in the design brief listed above. The sites area is 2.94 ha, therefore the allowable release rate is 205.8 L/s.
   - Flows to the storm sewer in excess of the allowable release rate must be detained on site for storms up to the 1:100 year return. No surface ponding is permitted for events up to and including the 5-year event.

- Ensure no overland flow for all storms up to and including the 100-year event.
- The 2-yr storm or 5-yr storm event using the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
- A calculated time of concentration (Cannot be less than 10 minutes).
- Quality control requirements provided by Rideau Valley Conservation Authority (RVCA) are for “enhanced” target (80% TSS Removal). Quality control is provided by the existing Findlay Creek stormwater management facility.

5. Deep Services:

i. A plan view of the approximate services may be seen above. Services should ideally be grouped in a common trench to minimize the number of road cuts. The sizing of available future services is:

a. Connections (Bradwell Way):

i. 750 mm dia. STM Conc. stub
ii. 250 mm dia. SAN PVC stub
iii. 200 mm dia. WM PVC

b. Connections (Kelly Farm Drive):
i. 305 mm dia. WM PVC

ii. *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.*

iii. *Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).*

iv. *Provide information on the type of connection permitted*

Sewer connections to be made above the springline of the sewermain as per:

a. Std Dwg S11.1 for flexible main sewers – *connections made using approved tee or wye fittings.*

b. Std Dwg S11 (For rigid main sewers) – *lateral must be less that 50% the diameter of the sewermain,*

c. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – *for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,*

d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

e. *No submerged outlet connections.*

6. Civil consultant must request boundary conditions from the City's assigned Project Manager prior to first submission. Water Boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide the following information:

- Location of service(s)
- Type of development and the amount of fire flow required (as per FUS, 1999).
- Average daily demand: ___ l/s.
- Maximum daily demand: ___l/s.
- Maximum hourly daily demand: ___ l/s.
- Hydrant location and spacing to meet City's Water Design guidelines.
- Water supply redundancy will be required for more than 50 m3/day water demand.

7. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

8. MECP ECA Requirements (Standard) –

All development applications should be considered for an Environmental Compliance Approval (ECA) by the Ministry of the Environment, Conservation, and Parks (MECP);

- Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant then determines what type of application is required and the City's project manager confirms. (If the consultant is not clear if an ECA is required, they will work with the City to determine what is required. If the consultant it is still unclear or there is a difference of opinion only then will the City PM approach the MECP.
- The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
- Standard Works ToR Draft ECA's are sent to the local MECP office (moeccottawasewage@ontario.ca) for information only
- Additional ToR draft ECAs require a project summary/design brief and require a response from the local MECP (10 business day window)
- Site plan Approval, or Draft Approval, is required before an application is sent to the MECP

9. General/ additional comments:

    - Only one watermain connection per site. However, looping would be required if proposed demand is 50m3/day or greater.

Preconsult meeting notes and comments

Meeting: Thursday June 16, 2022 @ 11am

City Attendees:

Kelby Lodoen Unseth - Planner
Tyler Cassidy – Project Manager
Mike Giampa – Transportation Project Manager
Environmental Planner – Matthew Hayley
Mark Richardson – Forestry
Burl Walker – Parks and Facilities Planning
Selma Hassan – Urban Design

Location:

4140 Kelly Farm Drive

Property Overview and Discussion:

The property is located on the south corner of Kelly Farm Drive and Bradwell Way, municipally referred to as 4140 Kelly Farm Drive, is currently zoned I1E H(15). The site is also located within the General Urban Area as shown on Schedule B of the Official Plan.
The purpose of the I1 – Minor institutional zone is to:

1. *permit a range of community uses, institutional accommodation and emergency service uses to locate in areas designated as **General Urban Area** or **Central Area** in the Official Plan; and*

2. *minimize the impact of these minor institutional uses located in close proximity to residential uses by ensuring that the such uses are of a scale and intensity that is compatible with neighbourhood character.*

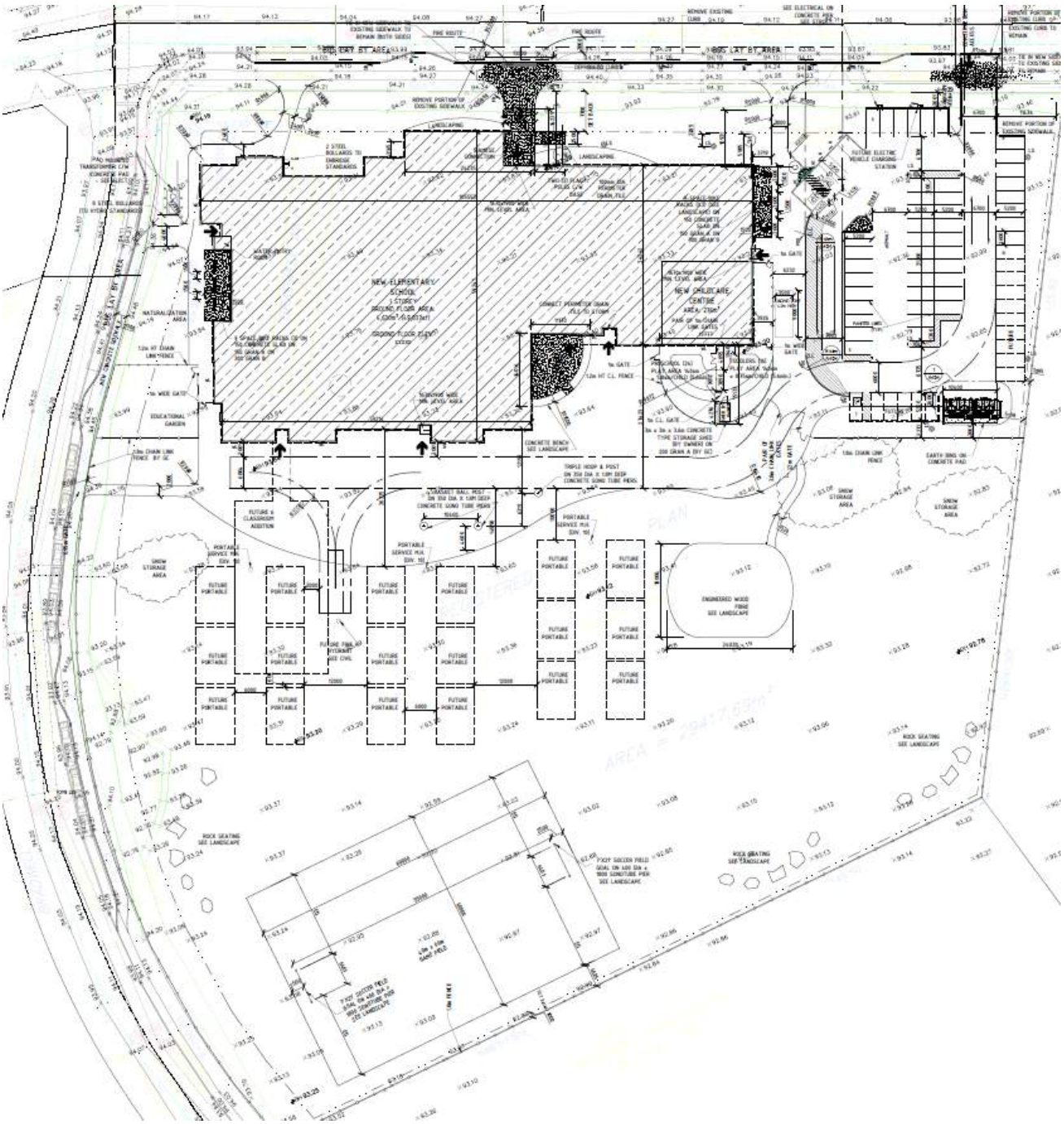
H(15) also identifies the maximum height of the building of 15 metres.

Property:

Preconsult meeting notes and comments

Meeting: Thursday June 16, 2022 @ 11am

Site Plan Concept:



Preconsult meeting notes and comments

Meeting: Thursday June 16, 2022 @ 11am

Parks

1) Parks and Facilities Planning is currently undertaking a legislated review for the replacement of the City's Parkland Dedication By-law, with the proposed By-law to be considered by Planning Committee on June 23 and City Council in early July 2022. The effective date of the proposed By-law is September 1, 2022. To ensure the applicant is aware of any potential parkland dedication requirements for the proposed development, we encourage them to familiarize themselves with the existing Parkland Dedication By-law and the progress of the proposed By-law. The applicant can sign up for project notifications on the Engage Ottawa project page or by emailing the project lead at Kersten.Nitsche@ottawa.ca.

2) The proposed development is exempt from parkland dedication under subsection 14(1)(f) of the current Parkland Dedication By-law No. 2009-95 and subsection 11.2.(f) of the proposed Parkland Dedication By-law.

3) The school block is located adjacent to Dragonfly Park. The park has been developed and contains a playground, a full-size basketball court and a sledding hill.

4) The applicant's site plan illustrates a fence along the shared lot line with Dragonfly Park. The City has received requests from parents and the Vimy Ridge Public School principal to construct a park pathway to an opening in the fence between the park and Vimy Ridge Public School. Staff would like to avoid a similar situation developing with the proposed school at 4140 Kelly Farm Drive.

5) The following condition of site plan approval would be proposed:

   The Owner shall install fencing of uniform appearance and quality, with a minimum height of five feet (5') (1.5m) along the common boundary of the School property and Dragonfly Park. The fence shall be installed 0.15m on the school property side of the common property line, and the location of the fence shall be verified by an Ontario Land Surveyor. All fences must adhere to the City's fence By-law 2003-462. Fence materials will be of commercial grade and consist of 6-gauge black vinyl coated chain link material and black powder coated schedule 40 pipe rails and posts or an approved alternative.

   No gates or openings in the fence shall be permitted unless approved by the General Manager, Recreation, Cultural and Facility Services.

Environment:

6) Bird-Safe Design

   The proposal will need to review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner

glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://ottawa.ca/en/planning-development-and-construction/developing-property/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans .

7) Climate
Please add features that reduce the urban heat island effect (see OP 10.3.3) produced by the parking lot and a building footprint. For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or constructing the parking lot or building differently.

Forestry:

TCR requirements:

8) a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. an approved TCR is a requirement of Site Plan approval.
    b. The TCR may be combined with the LP provided all information is supplied

9) Any removal of privately-owned trees 10cm or larger in diameter, or 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.

10) The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester
    b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit

11) the TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition

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

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

Preconsult meeting notes and comments

Meeting: Thursday June 16, 2022 @ 11am

14) 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
    a. the location of tree protection fencing must be shown on the plan
    b. show the critical root zone of the retained trees
    c. if excavation will occur within the critical root zone, please show the limits of excavation

15) 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.

16) For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

LP tree planting requirements:

For additional information on the following please contact adam.palmer@Ottawa.ca

17) 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. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

18) 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 include watering and warranty as described in the specification (can be provided by Forestry Services).
    d. Plant native trees whenever possible
    e. No root barriers, dead-man anchor systems, or planters are permitted.
    f. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

19) Hard surface planting
    a. Curb style planter is highly recommended

b. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
c. Trees are to be planted at grade

20) Soil Volume
   a. Please document on the LP that adequate soil volumes can be met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

21) Sensitive Marine Clay
   a. Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

22) **Tree Canopy Cover**
   a. The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
   b. At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate.
   c. Indicate on the plan the projected future canopy cover at 40 years for the site.

Urban Design:

23) A Design Brief is required. A Terms of Reference is attached. The required sections are highlighted in yellow. The information can be integrated into the Planning Rationale.

24) The submission will be reviewed against the applicable design guidelines in the Leitrim CDP. The applicant already seems to be quite aware of these and ready to respond to them.

25) Given the abutting uses are another school and a municipal park, openings in the fence are not required.

Preconsult meeting notes and comments

Meeting: Thursday June 16, 2022 @ 11am

Engineering:

26) Attached as separate notes

Planning:

27) The appropriate setbacks were questioned. The property line designations and minimum setbacks are as follows:
    a. Front yard property line is applied to Kelly Farm Drive frontage. Corner Side Yard Setback is applied to Bradwell Way.
    b. Minimum Front Yard Setback 3m
    c. Minimum Corner Side Yard Setback 4.5m
    d. Minimum Rear and Interior Side Yard setback abutting I1E and O1 zoned is 1m

28) The application appears to be a Complex Site Plan Control Application.

29) City of Ottawa Accessibility Design Standards: https://documents.ottawa.ca/sites/documents/files/documents/accessibility_design_standards_en.pdf

30) Please ensure that the Parking, Queuing and Loading Provisions are following and appropriate vehicle and bicycle parking is provided on-site (https://ottawa.ca/en/part-4-parking-queuing-and-loading-provisions-sections-100-114#bicycle-parking-space-rates-and-provisions-sec-111).

31) Please ensure that the Landscaping Provisions for Parking Lots is followed (https://ottawa.ca/en/part-4-parking-queuing-and-loading-provisions-sections-100-114#section-110-landscaping-provisions-parking-lots).

32) The Planning Rationale Terms of Reference may be found here.

33) For information on Applications, including fees, please visit: https://ottawa.ca/en/planning-development-and-construction/developing-property/development-application-review-process/development-application-submission/development-application-forms#site-plan-control

34) The application processing timeline generally depends on the quality of the submission. For more information on standard processing timelines, please visit: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/development-application-forms#site-plan-control

Preconsult meeting notes and comments

Meeting: Thursday June 16, 2022 @ 11am

Transportation:

35) Comments outstanding.

Attachments:

- Plan and study list
- Urban Design Terms of Reference
- Engineering notes

For any questions, please feel free to contact me at the information below. Please provide all submission documents electronically as paper copies of plans and reports are not being requested at this time.

Best regards,

Kelby Lodoen Unseth MCIP, RPP
Planner II | Urbaniste II
Development Review (South Services) | Examen des projets d'aménagement (services sud)
Planning, Infrastructure and Economic Development | Services de planification, d'infrastructure et de développement économique

City of Ottawa | Ville d'Ottawa
☎ 613.580.2424 ext./poste 12852
ottawa.ca/planning / ottawa.ca/urbanisme

Enc.

Appendix F Roof Drain and ICD Product Data Sheets

PRODUCT TECHNICAL SPECIFICATION

General

Inlet control devices (ICD's) are designed to provide flow control at a specified rate for a given water head level and also provide odour and floatable control. All ICD's will be IPEX Tempest or approved equal.

All devices shall be removable from a universal mounting plate. An operator from street level using only a T-bar with a hook will be able to retrieve the device while leaving the universal mounting plate secured to the catch basin wall face. The removal of the TEMPEST devices listed above must not require any unbolting or special manipulation or any special tools.

High Flow (HF) Sump devices will consist of a removable threaded cap which can be accessible from street level with out entry into the catchbasin (CB). The removal of the threaded cap shall not require any special tools other than the operator's hand.

ICD's shall have no moving parts.

Materials

ICD's are to be manufactured from Polyvinyl Chloride (PVC) or Polyurethane material, designed to be durable enough to withstand multiple freeze-thaw cycles and exposure to harsh elements.

The inner ring seal will be manufactured using a Buna or Nitrile material with hardness between Duro 50 and Duro 70.

The wall seal is to be comprised of a 3/8" thick Neoprene Closed Cell Sponge gasket which is attached to the back of the wall plate.

All hardware will be made from 304 stainless steel.

Dimensioning

The Low Medium Flow (LMF), High Flow (HF) and the High Flow (HF) Sump shall allow for a minimum outlet pipe diameter of 200mm with a 600mm deep Catch Basin sump.

Installation

Contractor shall be responsible for securing, supporting and connecting the ICD's to the existing influent pipe and catchbasin/manhole structure as specified and designed by the Engineer.

PRODUCT INFORMATION: TEMPEST HF & MHF ICD

Product Description

Our HF, HF Sump and MHF ICD's are designed to accommodate catch basins or manholes with sewer outlet pipes 6" in diameter or larger. Any storm sewer larger than 12" may require custom modification. However, IPEX can custom build a TEMPEST device to accommodate virtually any storm sewer size.

Available in 5 preset flow curves, these ICDs have the ability to provide constant flow rates: 9lps (143 gpm) and greater

Product Function

TEMPEST HF (High Flow): designed to manage moderate to higher flows 15 L/s (240 gpm) or greater and prevent the propagation of odour and floatables. With this device, the cross-sectional area of the device is larger than the orifice diameter and has been designed to limit head losses. The HF ICD can also be ordered without flow control when only odour and floatable control is required.

TEMPEST HF (High Flow) Sump: The height of a sewer outlet pipe in a catch basin is not always conveniently located. At times it may be located very close to the catch basin floor, not providing enough sump for one of the other TEMPEST ICDs with universal back plate to be installed. In these applications, the HF Sump is offered. The HF Sump offers the same features and benefits as the HF ICD; however, is designed to raise the outlet in a square or round catch basin structure. When installed, the HF sump is fixed in place and not easily removed. Any required service to the device is performed through a clean-out located in the top of the device which can be often accessed from ground level.

TEMPEST MHF (Medium to High Flow):
The MHF plate or plug is designed to control flow rates 9 L/s (143 gpm) or greater. It is not designed to prevent the propagation of odour and floatables.

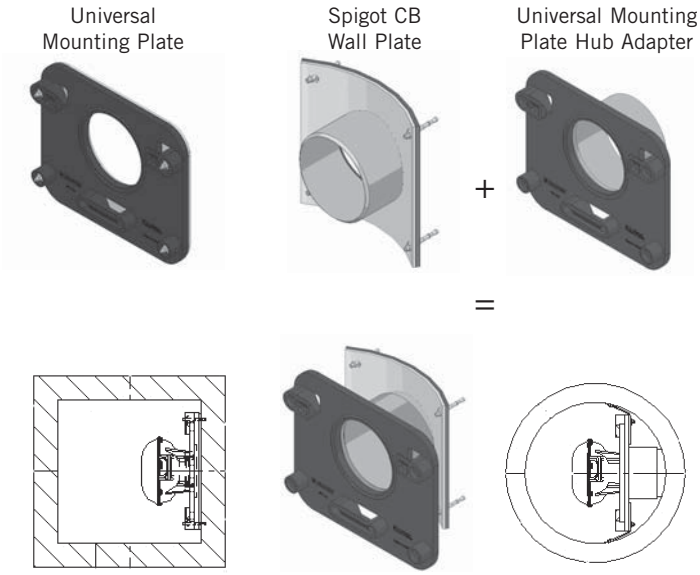
Product Construction

The HF, HF Sump and MHF ICDs are built to be light weight at a maximum weight of 6.8 Kg (14.6 lbs).

Product Applications

The HF and MHF ICD's are available to accommodate both square and round applications:

Square Application **Round Application**



The HF Sump is available to accommodate low to no sump applications in both square and round catch basins:

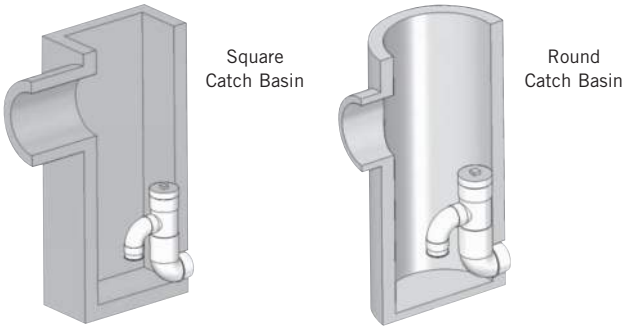
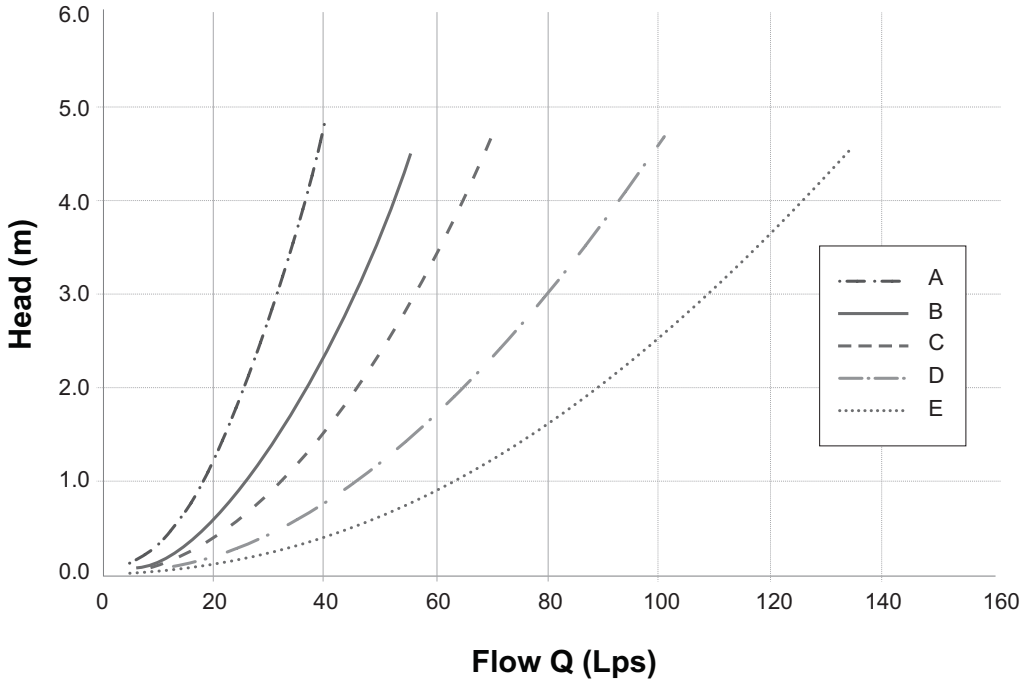


Chart 3: HF & MHF Preset Flow Curves



RD-100

Tag: _____

Large Capacity Roof Drain

Components:

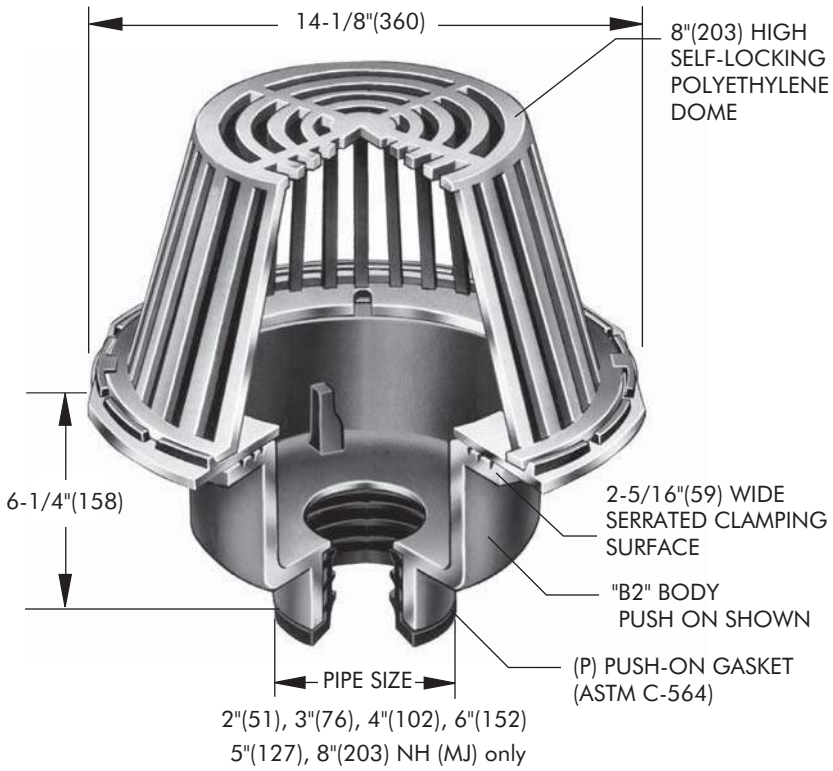

B2


B2-DM


B2-FLG


FC-2

SPECIFICATION: Watts Drainage Products RD-100 epoxy coated cast iron roof drain with deep sump, wide serrated flashing flange, flashing clamp device with integral gravel stop and self-locking polyethylene (standard) dome strainer.



Free Area Sq. In.
137

Deck opening 10" (254) with sump receiver 13-1/4" (337)

** Side Outlet (-SO) option only available in 2"(51), 3"(76), 4"(102) pipe sizes. Underdeck Clamp (-BED and -D options) are not available when -SO is selected.

Order Code: RD-10☐☐-☐-☐

Ex. RD-102P-K

Pipe Sizing (Select One)

Suffix	Description	
2	2"(51) Pipe Size	☐
3	3"(76) Pipe Size	☐
4	4"(102) Pipe Size	☐
5	5"(127) Pipe Size	☐
6	6"(152) Pipe Size	☐
8	8"(203) Pipe Size	☐

Outlet Type (Select One)

Suffix	Description	
NH	No Hub (MJ)	☐
P	Push On	☐
T	Threaded Outlet	☐
X	Inside Caulk	☐

Options (Select One or More)

Suffix	Description	
-A	Accutrol weir (specify # 1-6 slots)	☐
-B	Sump Receiver Flange	☐
-BED	Sump Receiver, Adj Ext., Deck Clamp	☐
-C	Secondary Membrane Clamp	☐
-D	Underdeck Clamp	☐
-E	Adjustable Extension	☐
-GSS	Stainless Steel Ballast Guard	☐
-H	Adj. to 6" IRMA Ballast Guard	☐
-K	Ductile Iron Dome	☐
-K80	Aluminum Dome	☐
-L	Vandal Proof Dome	☐
-R	2" High External Water Dam	☐
-SO	Side Outlet**	☐
-V	Fixed Extension (1-1/2",2",3",4")	☐
-W	Adj. Water Level Regulator	☐
-W-1	Waterproofing Flange	☐
-Z	Extended Integral Wide Flange	☐
-5	Sediment Bucket	☐
-12	Galvanized Dome	☐
-13	All Galvanized	☐
-83	Mesh Covered Dome	☐
-113M	Special Epoxy from 3M Range	☐

Optional Body Material (NH Only)

Suffix	Description	
-60	PVC Body w/Socket Outlet	☐
-61	ABS Body w/Socket Outlet	☐

Job Name _____ Contractor _____

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

Engineer _____ Representative _____

CANADA: 5435 North Service Road, Burlington, ON, L7L 5H7 TEL: 905-332-6718 TOLL-FREE: 1-888-208-8927 Website: www.wattsdrainage.ca

Accutrol Weirs

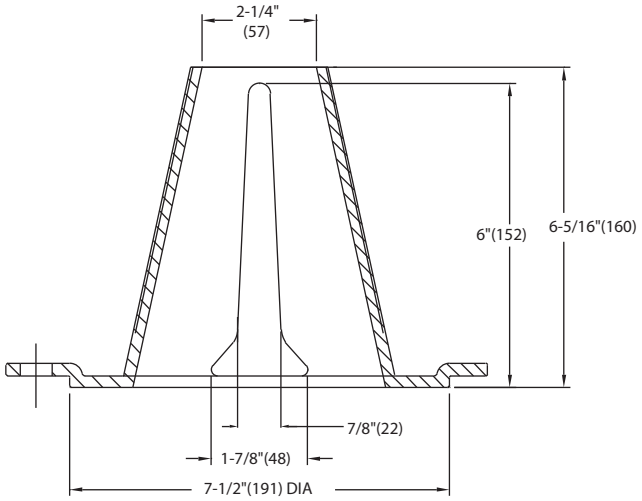
Tag: _____

Flow Control for Roof Drains

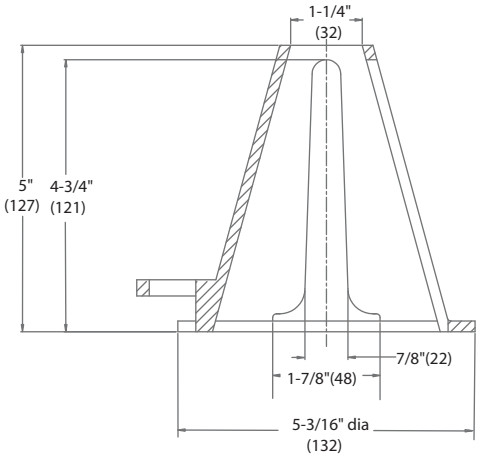
ACCUTROL WEIR FLOW CONTROL

SPECIFICATION: Watts Drainage Products epoxy coated cast iron Accutrol Weir is designed with parabolic openings which limit the flow of rain water off a roof. Each weir slot controls flow to 5 gpm per inch of head to a maximum of 30 gpm at 6" head(for large sump), 25 gpm at 5" head(for small sump) . The Accutrol Weir is secured to the flashing clamp of the roof drain. The Accutrol Weir is available with 1 to 4 slots for the large sump drain and up to 3 slots for the small sump drain.

For Large Sump Roof Drains Specify the "-A" option and number of slots required. (ie. "RD-100-A2" for two slot weir)
For Small Sump Roof Drains Specify the "-A" option and number of slots required. (ie. "RD-200-A1" for one slot weir)



LARGE SUMP ACCUTROL WEIR



SMALL SUMP ACCUTROL WEIR

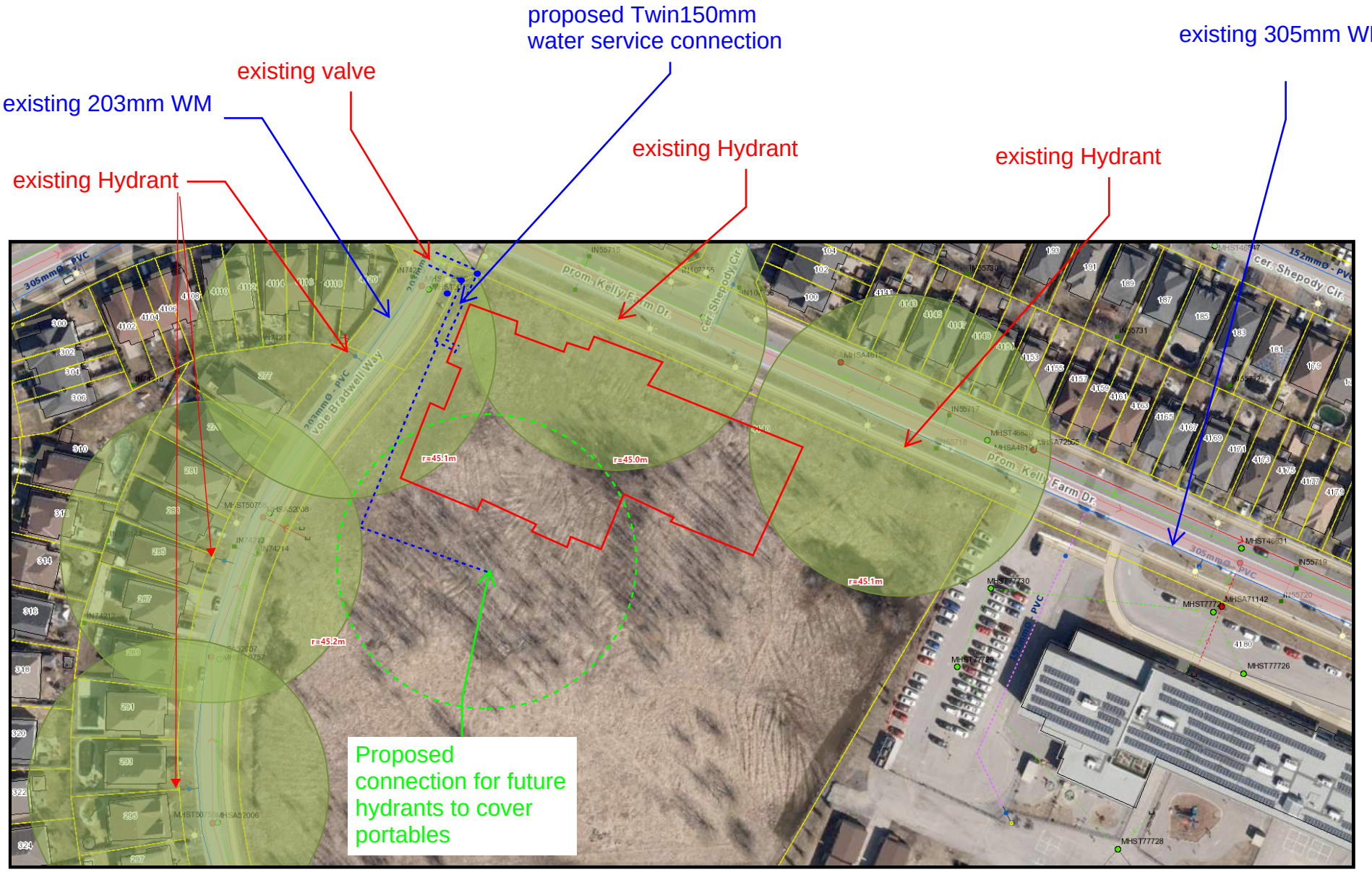
Job Name _____ Contractor _____

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

Engineer _____ Representative _____

CANADA: 5435 North Service Road, Burlington, ON, L7L 5H7 TEL: 905-332-6718 TOLL-FREE: 1-888-208-8927 Website: www.wattsdrainage.ca

Appendix G - Boundary Conditions

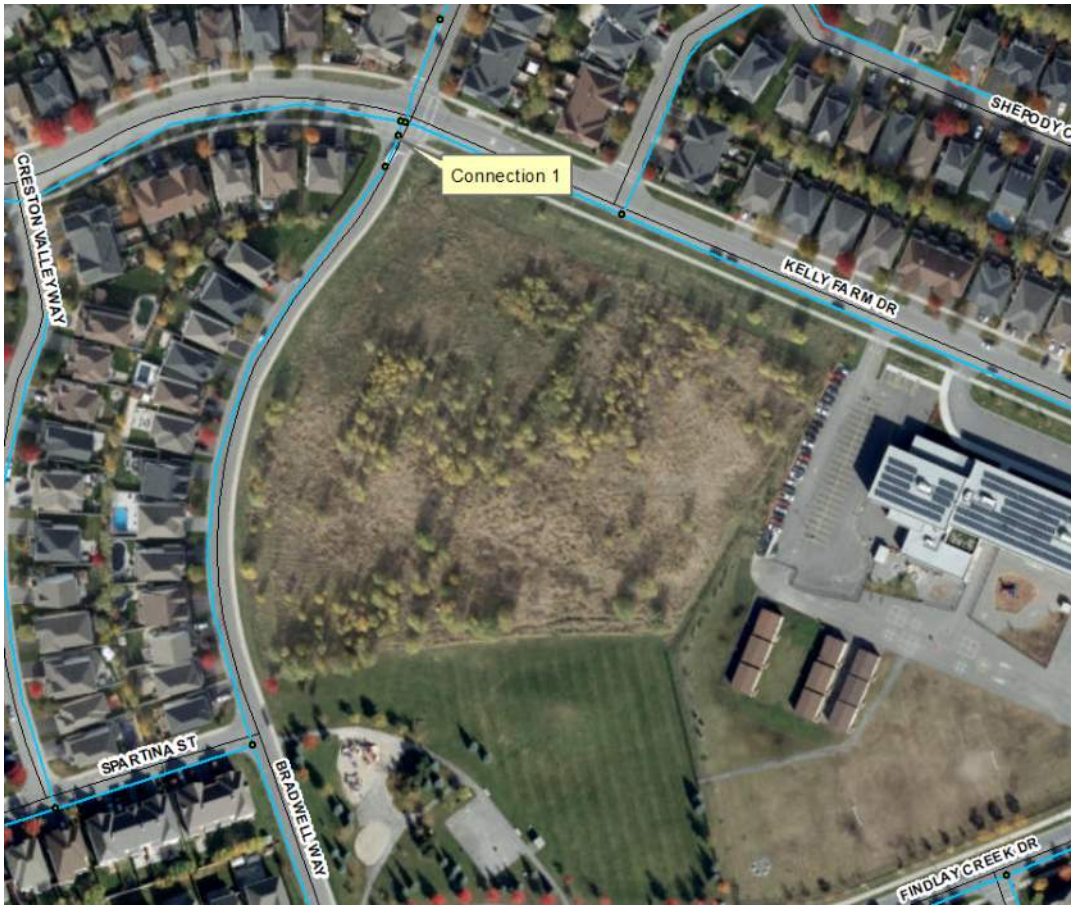

proposed Twin150mm
water service connection
existing 305mm WM
existing valve
existing 203mm WM
existing Hydrant
existing Hydrant
existing Hydrant
Proposed
connection for future
hydrants to cover
portables

Boundary Conditions
4140 Kelly Farm Drive

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	50	0.83
Maximum Daily Demand	75	1.25
Peak Hour	135	2.25
Fire Flow Demand #1	6,000	100.00

Location



Results – Existing Conditions

Connection 1 – Bradwell Way

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	154.6	85.7
Peak Hour	145.4	72.5
Max Day plus Fire 1	136.8	60.3

Ground Elevation = 94.4 m

Results – SUC Zone Reconfiguration

Connection 1 – Bradwell Way

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	147.3	75.2
Peak Hour	145.6	72.8
Max Day plus Fire 1	144.7	71.5

Ground Elevation = 94.4 m

Notes

1. A second connection to the watermain, separated by an isolation valve, is required to decrease vulnerability of the water system in case of breaks.
2. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

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.

D.1.2 - Existing Water Boundary Conditions

Water Demands

Average Daily Demand:	0.83	l/s
Maximum Daily Demand:	1.25	l/s
Maximum Hour Demand:	2.25	l/s
Fire Flow Demand:	100.00	l/s
Maximum Daily + Fire Flow Demand:	101.25	l/s

Design Parameters

Pipe Diameter:	150	mm
Pipe Material:	PVC	
Pipe Length (total network):	47.0	m
Finished Floor Elevation:	95.05	
Pavement (R.O.W.) Elevation:	94.10	

Boundary Conditions

Max. HGL:	147.3	m
Min HGL:	145.6	m
Max. Day + Fire:	144.7	m

Boundary Condition Check

Check water pressure at municipal connection:

Min. HGL - Pavement elevation =	51.50	m
=	73.23	psi*
=	504.91	kPa*

***Normal operating pressure ranges between 345 kPa (50 psi) and 552 kPa (80 psi) under a condition of maximum daily flow as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)**

Pressure at municipal connection OK

Check water pressure at building connection (at max. hour demand):

Min. HGL - Finished floor elevation - Friction Loss** =	50.54	m
=	71.87	psi***
=	495.54	kPa***

****Friction loss calculated using the Hazen-Williams Equation**

*****Under maximum hourly demand conditions the pressures shall not be less than 276 kPa (40 psi) as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)**

Pressure at building connection (at max. hour demand) OK

Check water pressure at building connection (at max. day + fire demand):

ax. day + Fire - Finished floor elevation - Friction Loss** =	42.59	m
=	60.57	psi****
=	417.60	kPa****

****Friction loss calculated using the Hazen-Williams Equation**

******Under maximum day and fire flow demand conditions the residual pressure at any point in the system shall not be less than 140 kPa (20 psi) as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)**

Pressure at municipal connection (at max. day + fire demand) OK