Servicing & Stormwater Management

Rev 1

700 Spring Valley Road
Ottawa, Ontario

November 29, 2024

Client Project # [Client number]

Jp2g Project # 24-5049A

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

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1 Introduction

Jp2g Consultants Inc. (Jp2g) was retained by N45 Architecture Inc. (N45) to complete a Servicing & Stormwater Management Report suitable for the City of Ottawa Site Plan Control Application, for the Ottawa Carleton District School Board (OCDSB) development located at 700 Spring Valley Drive, hereafter referred to as the 'site'.

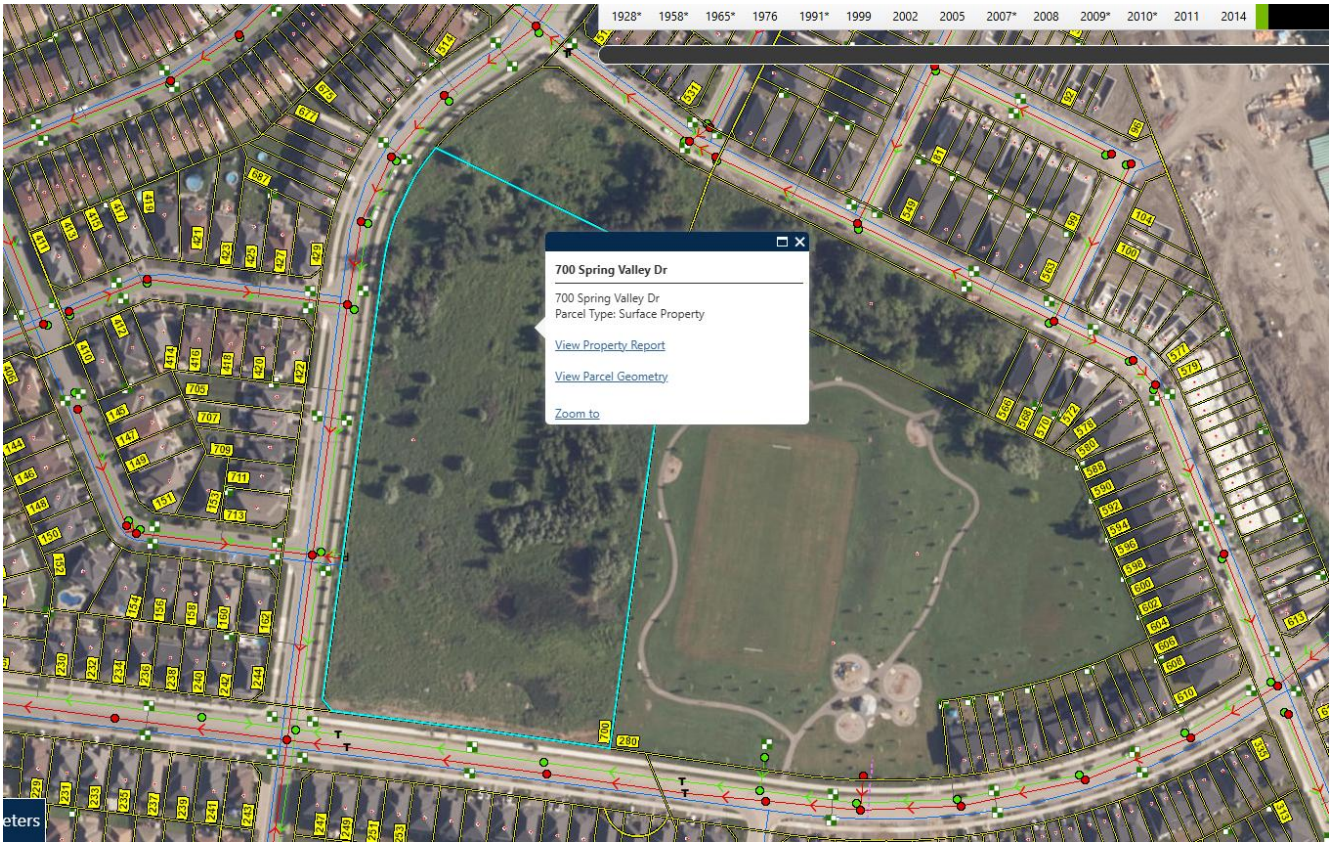


Figure 1: Approximate Site Boundary of 700 Spring Valley Drive

The site is approximately 2.83 ha in size and is bound by Knotridge Street to the north, Spring Valley Drive to the west, and Joshua Street to the south. The proposed development includes the construction of a new two-story school and one-story daycare, with no basements, and associated parking and landscaping areas. The building footprint is approximately 3,909 m^2.

A pre-consultation meeting was held with City of Ottawa staff on June 25, 2024, to determine the project constraints and requirements. The following report details the site servicing and stormwater management calculations used for capacity and water quantity control in accordance with the City's requirements.

A preliminary version of this report was submitted to the Rideau Valley Conservation Authority (RVCA) for pre-consultation, their response is attached in Appendix F. It is our understanding that the RVCA has no objection to the SWM design and defers the review to the City of Ottawa.

1.1 Background Studies

The site is part of the Spring Valley trails Subdivision within the City of Ottawa. Several background studies have been complete for the subject site. Proposed servicing for the site's development are required to be consistent with the servicing strategy outline in the report listed below:

- Spring Valley Subdivision - Claridge Homes – Phase 2 Development Servicing Report, Project No. 10261-5.2.2/ Dated July 2010 by IBI Group

- A geotechnical report has been provided for the subject development. Refer to Geotechnical Investigation East Urban Center Elementary School 700 Spring Valley Drive, Ottawa ON Project No. OTT-23012778-E0 by EXP for geotechnical findings and recommendations.

1.2 Design Drawings

The following reference civil design drawings are included in Appendix A:

- C1 – Site Servicing Plan
- C2 – Site Grading, Erosion and Sediment Control Plan
- C3 – Details, Notes and Schedules
- FIG.1 – Pre-Development Drainage Areas
- FIG.2 – Post-Development Drainage Areas
- FIG.3 – Fire Hydrant Coverage Areas

1.3 Environmental Compliance Assessment

Our understanding is an environmental compliance assessment for the site is not required. This site is exempt by O. Reg. 525/98, applicable as follows:

> *"Subsections 53 (1) and (3) of the Act do not apply to the use, operation, establishment, alteration, extension or replacement of or a change in the storm water management facility that,*
>
> *(a) is designed to service one lot or parcel of land;*
>
> *(b) discharges into a storm sewer that is not a combined sewer;*
>
> *(c) does not service industrial land or a structure located on industrial land; and*
>
> *(d) is not located on industrial land. O. Reg. 525/98, s. 3; O. Reg. 40/15, s. 4."*

2 Objective

The objective of this study is to outline the servicing requirements for the development of the site and identify the impact of the development on the existing municipal services, including water, storm, and sanitary.

3 Stormwater Management

3.1 Stormwater Management Criteria

3.1.1 Quality Control

Quality control for this site is provided by a downstream stormwater management facility, as determined during pre-consultation. No on-site quality control is provided for stormwater runoff.

3.1.2 Quantity Control

The quantity control criteria for this site is to control the 100-year post-development release rate to 240.55 L/s. Refer to the Spring Valley Trails Subdivision Phase 2 Development Servicing Report. For the 700 spring valley commercial site, a stormwater allowance of 85 L/s/ha was allotted for the school development site. Based on the 2.83ha site area, the allowable release rate is thus 240.55 L/s for all storms up to and including the 100 year storm. Refer to Appendix G – Excerpts From Servicing Reports for Storm Drainage Plans allocated for the 700 spring valley subject site.

3.2 Pre-Development Conditions

The existing site is an undeveloped parcel bounded by residential developments on all sides. An existing 600mm diameter storm sewer stub at 0.76% extends onto the property from EX-STMH-MH309 in Spring Valley Drive. The pre-development drainage area is shown in Appendix A.

The existing site is generally rolling topography with natural hills and depressions, with overland flow generally travelling towards the southeast, and some limited areas flowing towards Spring Valley Drive and Joshua Street. The pre-development drainage pattern will generally be maintained in the post-development condition, with some flows being directed to Spring Valley Drive through the proposed storm sewer system, and the majority of overland flow remaining towards the southeast.

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 new storm sewer system to the existing 600mm stub leading to Spring Valley Drive.

3.4 Proposed Servicing

On site storm drainage will be collected in proposed catch basins and catch basin manholes. Collected storm drainage will be conveyed to the provided 600mm diameter storm sewer stub for the site. A backflow preventer will be provided in the monitoring manhole receiving the building service the building's storm service with protection from surcharging. Shop drawings will be provided by the contractor for approval during construction.

Foundation drainage will be connected downstream of all proposed flow controls. The foundation drainage is proposed to be connected to the foundation drains will be connected to the storm sewer building service, conveyed to STMH-1 and thus to the existing 600mm diameter storm stub provided for the site.

3.4.1 Drainage Areas

Subcatchment drainage areas were delineated based on the proposed grading design, to provide a separate drainage area for each storm sewer inlet. Area-weighted runoff coefficients were determined using a value of 0.20 for pervious areas and a value of 0.90 for impervious areas. Runoff coefficients were increased by 25% for the 100 year event, to a maximum value of 1.00. Detailed calculations and information for each subcatchment area is shown in Appendix B.

3.4.2 Stormwater Management Controls

Stormwater management control is provided by a combination of roof drain controls and Inlet Control Devices (ICDs), which are orifice control plates out the outlet pipes of certain catchbasin and catchbasin-manhole structures, as follows:

- ICD-1 located in structure CB-3, which controls subcatchments B12, B9, and B8.
- ICD-2 located in structure CBMH-3, which controls subcatchments B2, B11, B10, and B7.
- ICD-3 located in structure CBMH-4, which controls subcatchments B5 and B4.
- ICD-4 located in structure CBMH-5, which controls subcatchments B6 and B3.
- Roof drains which control roof drainage from subcatchment B1.
- Subcatchment B13 is uncontrolled.

For roof drainage, parabolic weirs (Watts Drainage Adjustable Flow Control Roof Drains, or equivalent approved product) will be used to control flow. 34 roof drains are proposed in the "closed" position, which each deliver a flow rate of 5 gpm (0.32 L/s), for a total roof outflow of 10.88 L/s to be confirmed by the building mechanical designer. To ensure the maximum release rate based on the head provided in the roof drain specifications, scuppers are to be provided on the building roof at 150mm above the roof drain elevation, to ensure each flow control roof drain will restrict flow to 0.32 L/s. Refer to the attached roof drain flow control product sheet in Appendix B.

A summary of the ICD devices and roof control is shown in Table 1 below. Detailed calculations, including stage-storage tables for each control, are included in Appendix B. As shown in the table, the maximum surface ponding depth during the 100 year event is 300mm. The maximum ponding limit for each stormwater storage area is shown on drawing C2 in Appendix A.

Table 1: 100 Year Stormwater Control Summary

ICD	Allowable Outflow (L/s)	Required Storage (m^3)	Structure Elevation (m)	Spill Elevation (m)	Ponding Elevation (m)	Ponding Depth (m)	Outlet Invert (m)	Pipe Diameter (mm)	Head over Centroid (m)	Orifice Coefficient	Orifice Diameter (mm)
ICD-1	33.50	78.43	72.00	72.25	72.21	0.21	70.02	300	2.339	0.61	101.6
ICD-2	32.80	274.67	72.40	72.75	72.70	0.30	69.865	375	3.022	0.61	94.3
ICD-3	40.00	29.63	73.40	73.60	73.60	0.20	69.49	300	4.259	0.61	95.6
ICD-4	46.90	37.19	72.75	73.00	72.95	0.20	69.42	300	3.681	0.61	107.3
Roof	0.00	0.00	0.00	0.00	0.00	0.00	n/a - roof drain control				
Total	**153.20**										

As seen from Table 1, the maximum ponding behind ICD-4, which is adjacent the proposed school building, is 72.95m. The proposed school has a finished floor elevation of 73.30m, and the spill elevation is 73.00m at the southeastern corner of the parking area, at which point stormwater flows overland across the sports field towards the east.

Surface ponding in the parking areas (i.e. ICD-3 and ICD-4) was analysed to ensure that there is no ponding in parking areas during the 2 year storm event. With reference to the sheets attached in Appendix B, for the 2 year storm event there is no surface ponding behind ICD-3 or ICD-4 (Rational Method storage calculation shows a negative volume).

3.4.3 Post-Development Site Outflow

The resulting site outflow summary for the 100 year event is shown in Table 2 below, which shows that the stormwater controls are able to reduce the post-development site outflow below the allowable 240.55 L/s. Full details including inflows, outflows, and storage calculations for each stormwater management control are included in Appendix B.

Table 2: Post-Development 100 Year Stormwater Outflow Summary

Source	Outflow (L/s)
ICD-1	33.50
ICD-2	32.80
ICD-3	40.00
ICD-4	46.90
Roof	10.88
Uncontrolled	65.87
Total	**229.95**
Allowable	**240.55**
Difference	**10.60**

3.5 Storm Sewer Pipe Design

The storm sewer pipe design has been completed assuming that the storm sewers must convey the 5 year event assuming no inlet controls, in accordance with City requirements. Sewers were sized and sloped to ensure that a maximum of 85% of full flow capacity, while staying above the minimum slopes specified in the City of Ottawa *Sewer Design Guidelines*.

In conjunction with the geotechnical investigation provided by Exp., the recommended pipe bedding and cover should consist of minimum 300mm of OPSS Granular 'A' compacted to a minimum of 98% SPMDD.

3.6 Overland Flow Route – Stress Test Event

The capacity of the overland flow route taken by runoff water spilling out of the parking area to the east was checked to ensure that the overland flow route is capable of conveying the 'stress test event' during the 100 year + 20% storm event. The four parking lot drainage areas are B3, B4, B5, and B6, and the downstream drainage

area B7 which contains the overland flow was also included to account for any backwater effects from the downstream area. The peak 100 year flow from these areas is 0.260 m^3/s, so the 100 year + 20% flow is therefore 0.312 m^3/s.

The shape of the overland flow route was defined based on the top of curb profile as per the grading plan, and is a trapezoidal shape with a narrow crest at the spill elevation 73.00m (top of curb elevation in the southeast corner of the parking area). With reference to the calculation sheets included in Appendix B, the overland flow route was considered as both a weir and an open channel using Manning's formula. As a weir, the capacity of the overland flow route up to elevation 73.25m (5cm below the FFE of the school) is 1.884 m^3/s assuming a weir coefficient of 1.84, which far exceeds the 100 year + 20% flow. As a Manning's open channel with a slope of 2% (based on the grading plan) and a roughness coefficient of 0.035, the 100 year + 20% flow would have a depth of flow of 0.11m, which would not cause any spill into the building.

4 Sanitary Servicing

There is an existing 200mm sanitary sewer stub which extends to the property line at 0.69% from the EX-SAMH in Spring Valley Drive. From the Spring Valley Phase 2 Servicing Study, an allocation of 3.25 L/s was allotted for the subject site. Based on an institutional flow allowance of 50,000 L/d, peak factor of 1.5, and an infiltration allowance of 0.28 L/s/ha, refer to Appendix G for sanitary drainage plan and sanitary design sheet from the subdivision servicing study.

A new 200mm sanitary sewer will connect the existing stub to SAMH-1 on site. Flows from the new building will be conveyed to SAMH-1 through a new 200mm sanitary sewer at 2.0% slope. Refer to drawing C1 in Appendix A. A backflow preventer will be provided in the monitoring manhole connected to the building service providing the building's sanitary service with protection from surcharging. Shop drawings will be provided by the contractor for approval during construction.

Peak sanitary flow from the site is calculated to be 2.31 L/s. The new 200mm sanitary sewer at 2.0% slope will have a full flow capacity of 46.3 L/s. The existing 200mm sanitary sewer at 0.69% slope has a full flow capacity of 27.1 L/s. The full flow capacities are sufficient to handle the new development sanitary flows, as calculated based on the City of Ottawa *Sewer Design Guidelines* (October 2012) and *Technical Bulletin ISTB-2018-01* (March 2018). Refer to the sanitary sewer design sheet in Appendix C for full calculations.

5 Water Servicing

There is an existing 300mm watermain located within Joshua Street, and an existing 200mm watermain located within Spring Valley Drive. There is an existing 300mm capped water service which extends from the 200mm watermain in Spring Valley Drive to the site, as shown on as-built drawings for Spring Valley Drive (14270 page 118).

As the water demand calculation requires more than 50 m^3 per day, two water service connections are provided.

Connection 1 – South: A water service connection is proposed to the existing 300mm watermain along Joshua Street, to the south of the proposed school.

Connection 2 – West: A water service connection is also proposed to the existing 300mm watermain service stub at the site property line which connects to the 200mm watermain along Spring Valley Drive, to the west of the proposed school.

5.1 Domestic Water Demand

The water demands for the new school is calculated based on Table 4.2 of the City's 2010 *Ottawa Design Guidelines - Water Distribution*.

5.1.1 Design Criteria

Based on pre-consultation discussions, there is an assumed population of 675 students and an assumption of an additional 325 persons is included to account for the staff and day care. The total population used to calculate the domestic water demand is 1000 persons.

The average daily domestic water demand rate, and the maximum daily and hourly peaking factors, are obtained from Table 4.2 of the *Ottawa Design Guidelines – Water Distribution*. As per Table 3 below, the average daily rate of 70 L/student/day is equivalent to an average daily demand rate of 0.81 L/s for 1000 students. The maximum daily factor of 1.5 results in a maximum daily demand of 1.22 L/s, and the maximum hourly factor of 1.8 results in a maximum hourly demand of 2.19 L/s.

Table 3: Domestic Water Demand

Parameter	Value	Unit	Source
Demand Type	Schools		Site plan
Average Daily Rate	70	L/student/d	*Ottawa Design Guidelines - Water Distribution* Table 4.2
Amount of students	1000	students	Site plan
Average Daily Demand	70000 0.81	L/d L/s	
Maximum Daily Factor	1.5		*Ottawa Design Guidelines - Water Distribution* Table 4.2
Maximum Daily Demand	1.22	L/s	
Maximum Hourly Factor	1.8		*Ottawa Design Guidelines - Water Distribution* Table 4.2
Maximum Hourly Demand	2.19	L/s	

5.2 Fire Flow Demand

There are four fire hydrants along the frontage of the property (three on Spring Valley Drive, on one Joshua Street). In addition, one private fire hydrant is proposed on site to the east of the proposed school building.

Based on the 2020 Fire Underwriters Survey (FUS) Method, the fire flow demand for the school is calculated to be 116.7 L/s. Refer to the attached calculation sheet in Appendix D for details.

5.2.1 Hydrant Coverage

Based on Table 1 of Appendix I of the City of Ottawa *Technical Bulletin ISTB-2018-02*, a class AA hydrant at a separation distance of less than 75m provides a fire flow of 5,700 L/min (95 L/s). The four existing hydrants along the frontage of the proposed property are all within 75m and will therefore provide an aggregate flow of 380 L/s. With the addition of the new proposed fire hydrant, the total available fire flow from the five hydrants will be 475 L/s, which exceeds the fire flow demand of 116.7 L/s.

Based on the aggregate flow between the 4 existing hydrants and the proposed private fire hydrant, the fire flow demand will be sufficiently met. Refer to Figure 3 in Appendix A which shows the hydrant coverage.

5.2.2 Hydrant Pressure

A pressure check for the private fire hydrant was conducted, for each of the proposed water service connections (i.e. Connection 1 to Joshua Street and Connection 2 to Spring Valley Drive). It was determined that a pressure of 53.23 psi is available at the hydrant based on Connection 1, or 41.94 psi based on Connection 2. This exceeds the minimum 20 psi requirement.

5.3 Boundary Conditions Pressure Check

The above domestic water demand and fire flow 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 were returned (included in Appendix D):

Connection 1 – Joshua Street
Maximum HGL = 130.7m Head / 83.9 psi Pressure
Peak Hour = 126.7m Head / 78.4 psi Pressure
Max Day plus Fire Flow = 126.0m Head / 77.4 psi Pressure
Ground Elevation = 71.6m

Connection 2 – Spring Valley Drive
Maximum HGL = 130.7m Head / 83.4 psi Pressure
Peak Hour = 126.7m Head / 77.9 psi Pressure
Max Day plus Fire Flow = 124.8m Head / 75.0 psi Pressure
Ground Elevation = 72.0m

Pressure checks within the system were conducted for the max hour demand, and max day + fire demand using the above boundary conditions. Operating pressures of the water supply system were between the 345-552 kPa pressure range for the municipal connection at the maximum hourly demand, above the 276 kPa requirement at the building connection for the maximum hour demand, as well as above the minimum 140 kPa requirement for the maximum daily + fire flow demand scenario at the building connections. Detailed calculations are shown in Appendix D.

As per the Ontario Building Code (OBC) in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi). The maximum HGL from the boundary conditions is above the 80 psi limit and therefore it is recommended that a pressure reducing valve be installed inside the building downstream of the meter.

End of report.

Appendix A
Design Drawings

LEGEND

- PROPERTY LINE
- NEW BUILDING
- DEPRESSED CURB
- BREAK OF SLOPE - NEW
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- NEW SANITARY SEWER
- NEW STORM SEWER
- NEW WATERMAIN
- NEW SILT FENCE
- NEW PERFORATED DRAIN PIPE
- NEW PERIMETER FOUNDATION DRAINAGE
- NEW SWALE
- NEW RETAINING WALL
- NEW LIGHT DUTY ASPHALT
- NEW HEAVY DUTY ASPHALT
- NEW CONCRETE SIDEWALK
- NEW GRASS
- NEW REINFORCED GRASS
- MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT
- PRECAST PAVERS
- NEW EWF / MULCH
- NEW GRANULAR PATH
- EXISTING SIDEWALK
- EXISTING CONCRETE CURB
- NEW CONCRETE CURB

LEGEND CONTINUED

- EXISTING CATCHBASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- NEW CATCHBASIN
- NEW STORM MANHOLE / CATCHBASIN MANHOLE
- NEW SANITARY MANHOLE
- NEW REAR YARD CATCH BASIN
- NEW FIRE HYDRANT
- NEW WATER VALVE
- NEW INLET CONTROL DEVICE
- NEW ROOF DRAIN
- NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
- NEW TRANSFORMER PAD
- SEWER FLOW DIRECTION
- BUILDING ENTRANCE
- SEWER CAP
- PROPOSED TWSI
- NEW SIAMESE CONNECTION
- SEE SHEET NUMBER "C3"
- SEE SHEET NUMBER "C3"

DRAWING NOTES

01 SUPPLY AND INSTALL NEW 150mm 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.THRUST BLOCKS SHALL BE AS PER OPSD 1103.010 & 1103.020.

02 INSTALLATION OF NEW SERVICE CONNECTION TEE 300mmX150mm 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: 66.75 INVERTS TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE UNDERGROUND UTILITY LOCATES BY DAYLIGHTING PRIOR TO CONSTRUCTION.

04 INSTALL FOUR WAY 3.0m LONG 150mm 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. SPECIFIC WEIR SETTINGS IN CLOSED POSITION. MAXIMUM DISCHARGE 10.88 l/s TOTAL. MAXIMUM ROOF PONDING DEPTH 150mm. 100 YEAR PONDING VOLUME: 195.5m³.

07 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CB-3 OUTLET. MAXIMUM DISCHARGE 33.5 l/s AT 2.34m HEAD AND ORIFICE DIAMETER AT 102mm.

08 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-3 OUTLET. MAXIMUM DISCHARGE 32.8 l/s AT 3.02m HEAD AND ORIFICE DIAMETER AT 94mm.

09 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CBMH-4 OUTLET. MAXIMUM DISCHARGE 40 l/s AT 2.35m HEAD AND ORIFICE DIAMETER AT 111mm.

10 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-5 OUTLET. MAXIMUM DISCHARGE 46.9 l/s AT 3.68m HEAD AND ORIFICE DIAMETER AT 107mm.

11 INSTALL NEW MONITORING STORM MANHOLE , STMH-1 AND 375mm Ø STORM SEWER PIPE FROM BUILDING TO CONNECT THE EXISTING 600mm Ø STUB. PROVIDE WATERTIGHT CONNECTION.

12 INSTALL NEW MONITORING SANITARY MANHOLE SAMH-1 AND 200mm Ø SAINTARY SEWER PIPE FROM BUILDING TO CONNECT THE EXISTING 200mm Ø STUB. PROVIDE WATERTIGHT CONNECTION.

13 FOR RAMP DETAILS REFER TO ARCHITECTURAL.

14 CONNECT STORM AT APPROXIMATE INVERT LEVEL = 70.00 AND SANITARY SEWER AT APPROXIMATE INVERT LEVEL = 70.00 TO BUILDING. INVERT LEVELS TO BE COORDINATED AND MATCHING WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

DRAWING NOTES CONTINUED

15 CONNECT SERVICES TO INTERIOR PLUMBING 1.0m FROM BUILDING FOUNDATION. REFER TO MECHANICAL AND ARCHITECTURAL PLANS.

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

17 SUPPLY AND INSTALL NEW 150mm Ø PERFORATED DRAIN PIPE c/w FILTER SOCK AS PER CITY DETAIL S9. CONNECT SUBDRAIN TO CBMH-2. PROVIDE WATERTIGHT CONNECTION.

18 SUPPLY AND INSTALL NEW 150mm Ø PERFORATED DRAIN PIPE c/w FILTER SOCK. CONNECT SWALE SUBDRAIN TO CB-2. PROVIDE WATERTIGHT CONNECTION.

19 SUPPLY AND INSTALL NEW 150mm Ø PERFORATED DRAIN PIPE C/W FILTER SOCK. CONNECT SOCCER FIELD SUBDRAIN TO CB-3. PROVIDE WATERTIGHT CONNECTION.

20 SUPPLY AND INSTALL NEW WATERMAIN IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING W50 (TYPICAL PRIVATE SERVICE >100mm CONNECTION PROCEDURE).

21 EXISTING STORM STUB APPROXIMATE INVERT: 68.74. INVERTS TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE UNDERGROUND UTILITY LOCATES BY DAYLIGHTING PRIOR TO CONSTRUCTION.

22 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, 24" SIZE (600mm).
- VALVE CLAMP LOCATIONS UPSTREAM CLAMP

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

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

25 FUTURE FIRE HYDRANT .

26 SUBDRAINS SHOULD BE INSTALLED UNDER CURBS ON THE SIDES OF THE ACCESS ROAD AND PARKING AREA AND TO CONNECT TO STORM WATER NETWORK. SEE GEOTECHNICAL NOTES AND REFER TO GEOTECHNICAL REPORT.

27 NEW SIAMESE CONNECTION.

28 INSTALL NEW DISTRICT METER AREA (DMA) CHAMBER AND VALVE AS PER CITY OF OTTAWA STANDARD DETAIL DRAWING W3 AND W3.3.

29 PROVIDE INSULATION UNDER ENTRANCE PAVING/PAVERS 3m BEYOND DOORS .

30 WATER SERVICE ENTRY TO BE SLEEVED THROUGH FOUNDATION WALL ON TOP OF FOOTING AT 72.05. INVERT LEVELS TO BE COORDINATED AND MATCHING WITH STRUCTURAL AND MECHANICAL DRAWINGS. INSULATE PER CITY OF OTTAWA W22 WHERE LESS THAN 2.4m OF COVER IS PROVIDED.

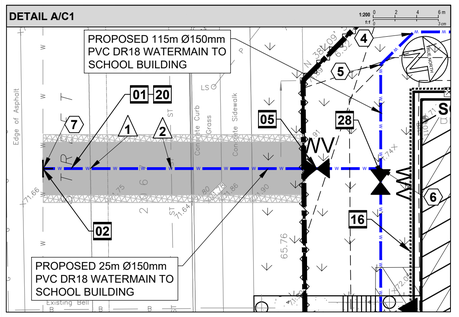
31 ROOF TOP SCUPPERS TO BE PROVIDED AT 150mm ABOVE LEVEL OF ROOF DRAINS.

32 NEW TRANSFORMER AND BOLLARDS.

GENERAL NOTES

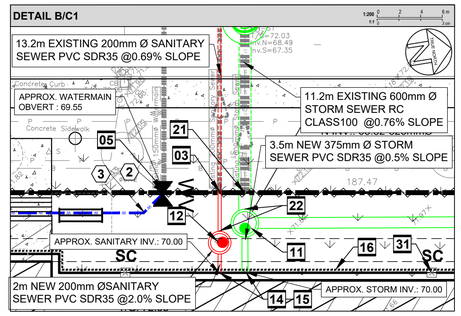
1. DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
4. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE CONTRACT DOCUMENTS.
5. CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
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.
7. FOR EXACT LOCATIONS AND NUMBERS OF ROOF DRAINS AND SCUPPERS, REFER TO MECHANICAL, STRUCTURE AND ARCHITECTURAL DRAWINGS.

DETAIL A/C1

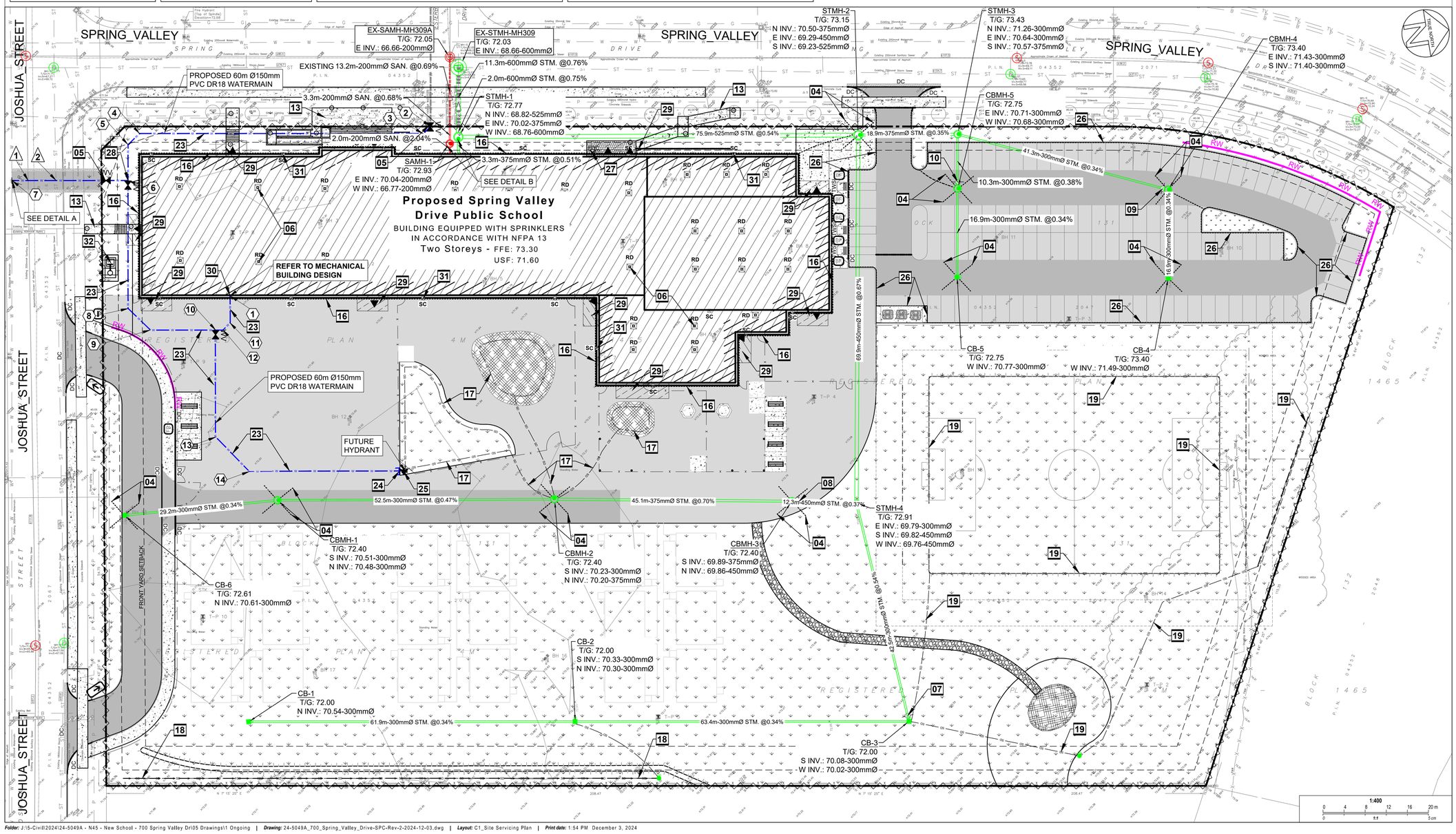


A C1 **DETAIL** Scale: **1:200**

DETAIL B/C1



B C1 **DETAIL** Scale: **1:200**



DWG NAME: J:\5-Civil\2024\24-5049A - N45 - NEW SCHOOL - 700 SPRING VALLEY DR\05 DRAWINGS\01 ONGOING\24-5049A_700_SPRING_VALLEY_DRIVE-SPC-REV-2-2024-12-03.DWG LAYOUT: C1_SITE SERVICING PLAN SAVED ON 2024-12-03

OTTAWA-CARLETON DISTRICT SCHOOL BOARD

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Jp2g PROJECT No.: 24-5049A

NOT FOR CONSTRUCTION

No.	DESCRIPTION	YYYY-MM-DD
2	ISSUED FOR SITE PLAN CONTROL REV-2	2024-11-29
1	ISSUED FOR SITE PLAN CONTROL REV-1	2024-09-13

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project
Spring Valley Drive Elementary School

700 Spring Valley Dr, Ottawa, Ontario K1W 0C5

seal

drawing title
Site Servicing Plan

scale	drawn by
As Shown	R.Ismail
date	checked by
September 2024	A.Sammour
project number	drawing number
24-828	C1

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

revision

DXX-XX-XX-XXXX

#XXXXX

LEGEND

Symbol	Description
	PROPERTY LINE
	NEW BUILDING
DC	DEPRESSED CURB
	BREAK OF SLOPE - NEW
	NEW SILT FENCE
	NEW SWALE
RW RW	NEW RETAINING WALL
	NEW LIGHT DUTY ASPHALT
	NEW HEAVY DUTY ASPHALT
	NEW CONCRETE SIDEWALK
	NEW GRASS
	NEW REINFORCED GRASS
	MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT
	PRECAST PAVERS
	NEW EWF / MULCH
	NEW STONED DUST PATH
	MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT
Concrete Sidewalk	EXISTING SIDEWALK
	EXISTING CONCRETE CURB
	NEW CONCRETE CURB

LEGEND CONTINUED

Symbol	Description
CB	EXISTING CATCHBASIN
D	EXISTING STORM MANHOLE
S	EXISTING SAINTARY MANHOLE
FH	EXISTING FIRE HYDRANT
WV	EXISTING WATER VALVE
CB	NEW CATCHBASIN
	NEW STORM MANHOLE / CATCHBASIN MANHOLE
	NEW SANITARY MANHOLE
DB	NEW REAR YARD CATCH BASIN
FH	NEW FIRE HYDRANT
WV	NEW WATER VALVE
	NEW INLET CONTROL DEVICE
RD	NEW ROOF DRAIN
SC	NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
T	NEW TRANSFORMER PAD
	BUILDING ENTRANCE
	PROPOSED TWSI
	NEW SIAMESE CONNECTION
×XX.XX	EXISTING NATURAL GRADE
×XX.XX	PROPOSED ELEVATION
×XX.XX	PROPOSED TOP OF CURB ELEVATION
- X.XX%	PROPOSED SLOPE
	OVERLAND FLOW ROUTE

DRAWING NOTES

01 INSTALL SILT FENCE IN ACCORDANCE WITH OPSD 219.130.

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

03 INSTALL HEAVY DUTY PAVEMENT IN ACCORDANCE WITH DETAIL 2/C3 ACCORDINGLY. REINSTATE GRADES TO TIE INTO EXISTING AND PROVIDE POSITIVE DRAINAGE TOWARDS STORM STRUCTURES.

04 INSTALL LIGHT DUTY PAVEMENT IN ACCORDANCE WITH DETAIL 1/C3 ACCORDINGLY. REINSTATE GRADES TO TIE 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 CONSTRUCT PARKING LOT,LAY BY AND BUS LOOP ENTRANCE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING SC7.1 - CURB RETURN ENTRANCES.

09 PAVEMENT TO BE WITHIN 12mm OF DOOR.

10 TOP OF BANK. PROVIDE MAXIMUM 4:1 SLOPE TO TIE INTO EXISTING / PROPOSED GRADES.

11 CONTRACTOR TO PROVIDE TRENCH BOX FOR EXCAVATION IN PROXIMITY OF MUNICIPAL RIGHT OF WAY FOR PROPOSED MANHOLES AND SEWERS.

12 TWSI AS PER CITY STANDARDS.

13 TIE IN NEW ASPHALT TO CONCRETE SIDEWALK.

14 EXISTING LIGHT STANDARD.

15 NEW EXTENSION OF EXISTING SIDEWALK . PROVIDE DOWELS AND JOINTS BETWEEN EXISTING AND NEW SIDEWALK EXTENSION AS APPLICABLE PER CITY OF OTTAWA STANDARD DETAILS R4 , R5 AND R6. 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 EXTENSION. INSTALL REINFORCING MESH 150X150mm MW9.1XMW9.1 THROUGHOUT NEW EXTENSION. STOP WIRE MESH AT EXPANSION JOINTS.

16 CONSTRUCT MONOLITHIC SIDEWALK AS PER CITY OF OTTAWA STANDARD DETAIL SC4, SC5 & SC7.1. PROVIDE MAXIMUM SLOPE OF 2.0%.INSTALL REINFORCING MESH 150X150mm MW9.1XMW9.1 THROUGHOUT NEW SIDEWALK. STOP WIRE MESH AT EXPANSION JOINTS.

17 NEW TRANSFORMER AND BOLLARDS.

DRAWING NOTES CONTINUED

18 CONSTRUCT CONCRETE BARRIER / DEPRESSED CURB AS PER CITY OF OTTAWA STANDARD DETAIL SC1.1.

19 SAW CUT INTO EXISTING ASPHALT AS PER DETAIL 3/C3. MATCH EXISTING PAVEMENT AND GRANULAR STRUCTURE.

20 PROPOSED RETAINING WALLS OVER 1.0M IN HEIGHT MUST BE DESIGNED AND SEALED BY A STRUCTURAL P.ENG. ALONG WITH A STAMPED ENGINEERING REPORT, STATING THAT THE PROPOSED RETAINING WALL IS DESIGNED WITH A FACTOR OF SAFETY ≥ 1.5 AGAINST GLOBAL INSTABILITY.

21 NEW ACCESSIBLE PARKING ACCESS RAMP. PROVIDE MAXIMUM 8% SLOPE.

22 CONSTRUCT NEW SWALE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING S29 (WITH HDPE PERFORATED PIPE) .

23 CONCRETE PADS FOR GARBAGE STORAGE / BIKE RACKS & NEW TRANSFORMER.

24 EXISTING BARRIER CURB TO BE REMOVED.

GENERAL NOTES

1. DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
4. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE CONTRACT DOCUMENTS.
5. CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
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.
7. IN THE EVENT THAT EXCAVATION IS REQUIRED ON THE CITY ROW OR ADJACENT PROPERTY, CONTRACTOR IS RESPONSIBLE TO ENSURE ADDITIONAL PERMIT AND/OR PERMISSION

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 EAST URBAN CENTER ELEMENTARY SCHOOL, 700 SPRING VALLEY DRIVE, OTTAWA, ONTARIO COMMUNITY BY EXP SERVICES INC.
3. IT IS ANTICIPATED THAT THE MAJORITY OF THE MATERIAL REQUIRED FOR BACKFILLING PURPOSES AND FOR TRENCH BACKFILL WOULD HAVE TO BE IMPORTED AND SHOULD CONFORM TO THE RECOMMENDATION STATED IN THE GEOTECHNICAL REPORT.
4. CONTRACTOR BIDDING ON THIS PROJECT MUST REVIEW AVAILABLE DATA AND DECIDE ON THEIR OWN THE BEST METHOD FOR THE EXCAVATION OF THE BEDROCK IF DEEMED REQUIRED.
5. IT IS RECOMMENDED THAT THE BEDDING FOR THE UNDERGROUND SERVICES INCLUDING MATERIAL SPECIFICATIONS, THICKNESS OF COVER MATERIAL AND COMPACTION REQUIREMENTS CONFORM TO MUNICIPAL REQUIREMENTS AND/OR ONTARIO PROVINCIAL STANDARD SPECIFICATION AND DRAWINGS (OPSS AND OPSD).
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. THE BEDDING THICKNESS MAY BE FURTHER INCREASED IN AREAS WHERE THE SUBGRADE BECOMES DISTURBED.
8. SINCE PAVED SURFACES WILL BE LOCATED OVER SERVICE TRENCHES, IT IS RECOMMENDED THAT THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (UP TO 1.8 M BELOW FINISHED GRADE), SHOULD MATCH THE EXISTING MATERIAL IN THE ROADWAY TO MINIMIZE DIFFERENTIAL FROST HEAVING OF THE SUBGRADE. THE TRENCH BACKFILL SHOULD BE PLACED IN 300 MM THICK LIFTS AND EACH LIFT SHOULD BE COMPACTED TO 95 PERCENT SPMDD.
9. THE BEDROCK/AUGER REFUSAL DEPTHS ACROSS THE SITE WERE VARIABLE.SHALLOW BEDROCK AND LARGE BOULDERS SHOULD BE EXPECTED DURING THE INSTALLATION OF ANY SERVICES AT THE SITE AND CONTRACTORS BIDDING ON THIS WORK SHOULD ANTICIPATE THESE CONDITIONS.
10. IT IS ANTICIPATED THAT THE MAJORITY OF THE MATERIAL REQUIRED FOR TRENCH BACKFILL AND SUBGRADE FILL IN PARKING AREA AND ACCESS ROADS WOULD HAVE TO BE IMPORTED AND SHOULD CONFORM TO OPSS 1010 SELECT SUBGRADE MATERIAL (SSM) - COMPACTED TO 95 PERCENT OF THE SPMDD AND THE UPPER 300 MM OF THE SUBGRADE FILL MUST BE COMPACTED TO 98% SPMDD.
11. AS PART OF THE SUBGRADE PREPARATION, THE PROPOSED PARKING AREA, PAVED AREA AND ACCESS ROADS SHOULD BE STRIPPED OF TOPSOIL 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. 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).

GEOTECHNICAL NOTES CONTINUED

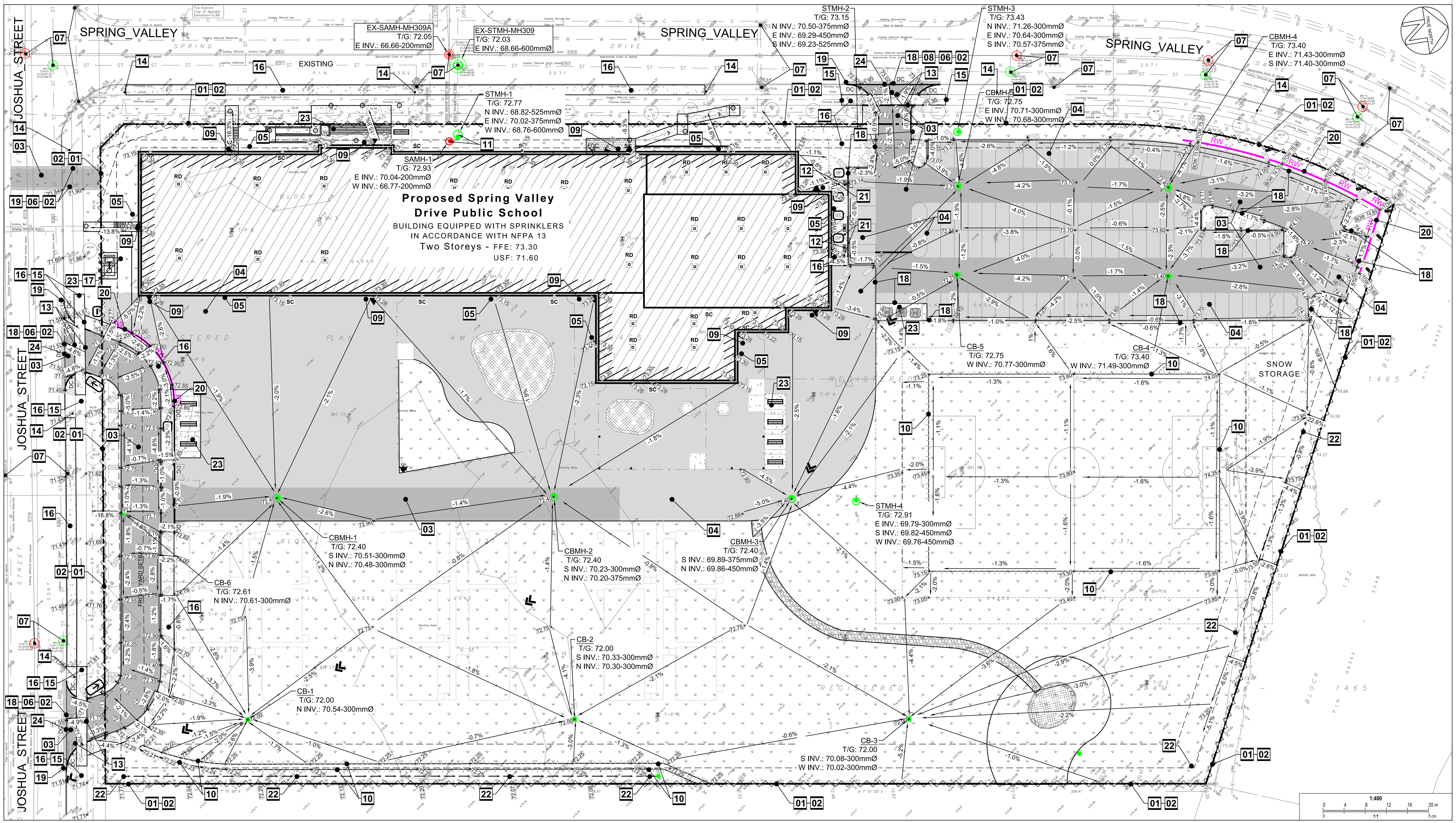
12. THE SUBDRAINS ILLUSTRATED ON PLANS ARE SCHEMATIC. FULL SCHEME OF SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S).SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S). SUBDRAINS MUST BE INSTALLED IN THE PROPOSED PARKING AREA AT LOW POINTS AND SHOULD BE CONTINUOUS BETWEEN CATCHBASINS TO INTERCEPT EXCESS SURFACE AND SUBSURFACE MOISTURE AND TO PREVENT SUBGRADE SOFTENING. THIS WILL ENSURE NO WATER COLLECTS IN THE GRANULAR COURSE, WHICH COULD RESULT IN PAVEMENT FAILURE DURING THE SPRING THAW. THE LOCATION AND EXTENT OF SUBDRAINS REQUIRED WITHIN THE PAVED AREAS SHOULD BE REVIEWED BY THE GEOTECHNICAL ENGINEER IN CONJUNCTION WITH THE PROPOSED SITE GRADING.
13. TO MINIMIZE THE PROBLEMS OF DIFFERENTIAL MOVEMENT BETWEEN THE PAVEMENT AND CATCHBASINS/MANHOLE DUE TO FROST ACTION, THE BACKFILL AROUND THE STRUCTURES SHOULD CONSIST OF FREE-DRAINING GRANULAR PREFERABLY CONFORMING TO OPSS GRANULAR B TYPE II MATERIAL. WEEP HOLES SHOULD BE PROVIDED IN THE CATCHBASINS/MANHOLES TO FACILITATE DRAINAGE OF ANY WATER THAT MAY ACCUMULATE IN THE GRANULAR FILL.
14. THE MOST SEVERE LOADING CONDITIONS ON LIGHT-DUTY PAVEMENT AREAS AND THE SUBGRADE MAY OCCUR DURING CONSTRUCTION. CONSEQUENTLY, SPECIAL PROVISIONS SUCH AS RESTRICTED LANES, HALF-LOADS DURING PAVING, TEMPORARY CONSTRUCTION ROADWAYS, ETC., MAY BE REQUIRED, ESPECIALLY IF CONSTRUCTION IS CARRIED OUT DURING UNFAVORABLE WEATHER.
15. THE FINISHED PAVEMENT SURFACE SHOULD BE FREE OF DEPRESSIONS AND SHOULD BE SLOPED (PREFERABLY AT A MINIMUM CROSS FALL OF 2 PERCENT) TO PROVIDE EFFECTIVE SURFACE DRAINAGE TOWARDS CATCH BASINS. SURFACE WATER SHOULD NOT BE ALLOWED TO POND ADJACENT TO THE OUTSIDE EDGES OF PAVED AREAS.
16. RELATIVELY WEAKER SUBGRADE MAY DEVELOP OVER SERVICE TRENCHES AT SUBGRADE LEVEL. THESE AREAS MAY REQUIRE THE USE OF THICKER/COARSER SUB-BASE MATERIAL AND THE USE OF A GEOTEXTILE AT THE SUBGRADE LEVEL. IF THIS IS THE CASE, IT IS RECOMMENDED THAT ADDITIONAL 150 MM THICK GRANULAR SUB-BASE, OPSS GRANULAR B TYPE II, SHOULD BE PROVIDED IN THESE AREAS, IN ADDITION TO THE USE OF A GEOTEXTILE AT THE SUBGRADE LEVEL.
17. 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.
18. 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.
19. ALL EARTHWORK ACTIVITIES FROM PLACEMENT AND COMPACTION OF FILL IN THE SERVICE TRENCHES TO SUBGRADE PREPARATION, PLACEMENT AND COMPACTION OF GRANULAR MATERIALS AND ASPHALTIC CONCRETE SHOULD BE INSPECTED BY QUALIFIED GEOTECHNICIANS TO ENSURE THAT CONSTRUCTION OF THE SEWERS AND PAVEMENT PROCEEDS ACCORDING TO THE SPECIFICATIONS.
20. STRINGENT CONSTRUCTION CONTROL PROCEDURES SHOULD BE MAINTAINED TO ENSURE THAT UNIFORM SUBGRADE MOISTURE AND DENSITY CONDITIONS ARE ACHIEVED.

GEOTECHNICAL NOTES CONTINUED

21. SHOULD SURFACE AND SUBSURFACE WATER SEEPAGE OCCUR INTO THE EXCAVATIONS COLLECT ANY WATER ENTERING THE EXCAVATIONS AND REMOVE IT BY PUMPING FROM SUMP.
22. IF THE BACKFILL IN THE SERVICE TRENCHES WILL CONSIST OF GRANULAR FILL, CLAY SEALS SHOULD BE INSTALLED IN THE SERVICE TRENCHES AT SELECT INTERVALS (SPACING) AS PER CITY OF OTTAWA DRAWING NO. S8. THE SEALS SHOULD BE 1 M WIDE, EXTEND OVER THE ENTIRE TRENCH WIDTH AND FROM THE BOTTOM OF THE TRENCH TO THE UNDERSIDE OF THE PAVEMENT STRUCTURE. THE CLAY SHOULD BE COMPACTED TO 95 PERCENT SPMDD. THE PURPOSE OF THE CLAY SEALS IS TO PREVENT THE PERMANENT LOWERING OF THE GROUNDWATER LEVEL. CLAY SEAL LOCATIONS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
23. IT IS RECOMMENDED THAT A GEOTEXTILE BE PLACED ON THE SURFACE OF THE SUBGRADE PRIOR OF PLACEMENT OF ANY GRANULAR SUB-BASE. THIS MUST BE ALLOWED FOR BY THE CONTRACTOR AND INSTALLED WHEN DIRECTED BY THE GEOTECHNICAL ENGINEER.
24. THE MUNICIPAL SERVICES SHOULD BE INSTALLED IN SHORT OPEN TRENCH SECTIONS THAT ARE EXCAVATED AND BACKFILLED THE SAME DAY.

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.



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DISTRICT SCHOOL BOARD

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Jp2g PROJECT No.: 24-5049A

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N45 ARCHITECTURE INC.
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tel. 613.224.0095 fax 613.224.9811

project

Spring Valley Drive Elementary School

700 Spring Valley Dr, Ottawa, Ontario K1W 0C5

seal

LICENSED PROFESSIONAL ENGINEER
A. SAMMOUR
100227665
Nov 29, 2024
PROVINCE OF ONTARIO

drawing title

Site Grading , Erosion and Sediment Control Plan

scale 1:400	drawn by R.Ismail
date September 2024	checked by A.Sammour
project number 24-828	drawing number C2

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.

DO NOT SCALE DRAWINGS.

revision

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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. 4153-24, DATED MAY 09,2024. 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;

    GEOTECHNICAL INVESTIGATION

    EAST URBAN CENTER ELEMENTARY SCHOOL,

    700 SPRING VALLEY DRIVE, OTTAWA, ONTARIO PREPARED BY EXP DATED NOVEMBER 26, 2024.
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 S35, 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 375mm DIAMETER AND SMALLER SHALL BE PVC SDR-35, WITH RUBBER GASKET PER CSA A-257.3.
3. STORM SEWERS 450mm AND LARGER 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 S35, 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 CB'S AS REQUIRED.
   - 2.4. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
   - 2.5. INSPECT SILT FENCES, FILTER FABRIC FILTERS AND CATCH BASIN SUMPS WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
   - 2.6. 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.

Parking Lot and Work in Public Rights of Way

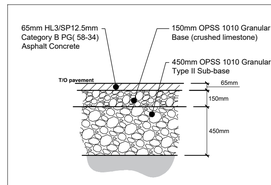
1. CONTRACTOR TO REINSTATE ROAD CUTS AS PER CITY OF OTTAWA DETAIL R10.
2. CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.
3. FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL REPORT 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.

Notes: Watermain

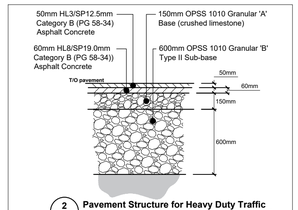
1. ALL WATERMAIN AND WATERMAIN APPURTANANCES, MATERIALS, CONSTRUCTION AND TESTING METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA AND MINISTRY OF ENVIRONMENT STANDARDS AND SPECIFICATIONS.
2. ALL WATERMAIN 300mm DIAMETER AND SMALLER TO BE POLY VINYL CHLORIDE (PVC) CLASS 150 DR 18 MEETING AWWA SPECIFICATION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

Excess Soil And O.REG. 406/19

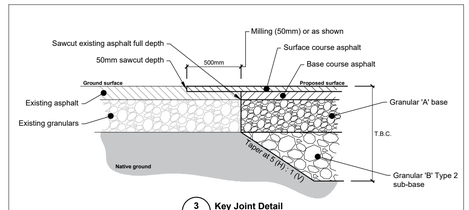
1. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, FOUNDATION, PAVED AREAS, SWALES/DRAINS AND SERVICE TRENCHES. EXCESS MATERIAL REMOVAL FROM SITE SHALL FOLLOW THE GEOTECHNICAL AND ENVIRONMENTAL ENGINEER'S RECOMMENDATION.
2. CONTRACTOR TO STOCKPILE UN-USABLE FILL TO BE REMOVED FROM SITE TO ALLOW THE GEOTECHNICAL ENGINEER IN 10 DAYS TO INSPECT THE MATERIALS AND TO PROVIDE GUIDANCE TO CONTRACTOR PRIOR TO DISPOSAL. EROSION CONTROL MEASURE ARE TO BE APPLIED TO STOCKPILE AREA. EXCESS MATERIALS SHALL BE DISPOSED AS PER THE REQUIREMENTS OF OPSS 180.
3. IF CONTAMINATION HAZARDOUS MATERIAL IS SUSPECTED DURING CONSTRUCTION (E.G. STAINING, ODOURS, ETC.), THE CONTRACTOR MUST NOTIFY THE PROPERTY OWNER(S), PROJECT LEADER, PRIME CONSULTANT, AND GEOTECHNICAL ENGINEER, FOR DIRECTION ON HOW TO PROCEED ACCORDING TO FEDERAL AND PROVINCIAL LEGISLATION. THE GEOTECHNICAL ENGINEER UNDER THE GUIDANCE OF A QUALIFIED PERSON, MUST DETERMINE IF ADDITIONAL SAMPLING (INCLUDING LEACHATE TESTING) IS REQUIRED TO MEET THE MINIMUM SAMPLING PROVISIONS UNDER O.REG. 406/19 (AS AMENDED).
4. EXCESS SOIL MANAGEMENT, TESTING AND DISPOSAL MUST COMPLY WITH O.REG. 406/19.
5. ALL SOIL HAULAGE RECORDS SHALL BE KEPT AND PROVIDED BY THE CONTRACTOR AND SUBMITTED TO THE CONSULTANT .
6. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED AT AN APPROVED DUMP SITE BY CONTRACTOR .



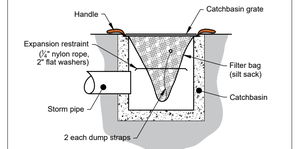
1 C3 **Pavement Structure for Light Duty Traffic**
Scale: **As shown**



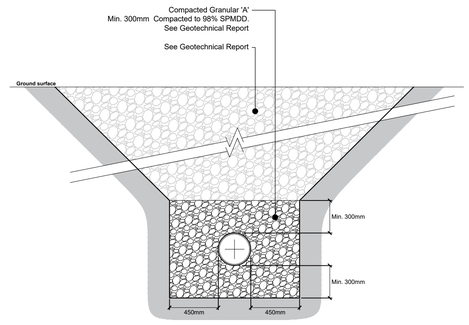
2 C3 **Pavement Structure for Heavy Duty Traffic**
Scale: **As shown**



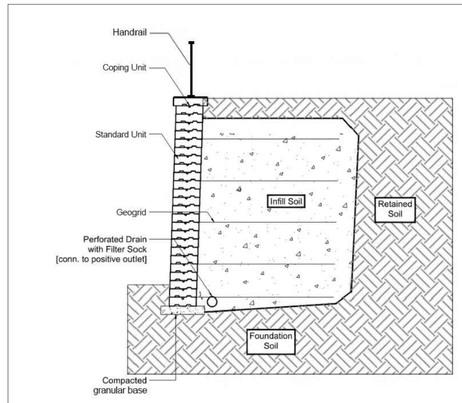
3 C3 **Key Joint Detail**
Scale: **As shown**



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



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



NOTE:
RETAINING WALLS OVER 1.0M IN HEIGHT MUST BE DESIGNED AND SEALED BY A STRUCTURAL P.ENG. ALONG WITH A STAMPED ENGINEERING REPORT, STATING THAT THE PROPOSED RETAINING WALL IS DESIGNED WITH A FACTOR OF SAFETY ≥ 1.5 AGAINST GLOBAL INSTABILITY.

6 C3 **Retaining Wall Detail**
Scale: **As shown**

CROSSING TABLE

LOCATION	OVER / UNDER	T/G	OBVERT	INVERT	CLEARANCE (m)
1	NEW WATERMAIN - EXITING SANITARY	71.73	69.27 (WM)	65.70 (SAN)	3.57
2	NEW WATERMAIN - EXISTING STORM SEWER	71.67	69.27 (WM)	67.47 (STM)	1.80

ICD SCHEDULE

LOCATION	PIPE SIZE (mm)	ICD SIZE (mm)	INVERT ELEVATION (m)	FLOW RATE (lps)
CB-3	300	102	70.12	33.5
CBMH-3	375	94	70.00	32.8
CBMH-4	300	111	71.5	40.0
CBMH-5	300	94	70.78	29.6

WATER SERVICE TABLE

ID	DESCRIPTION	FINISHED GRADE (m)	T/O WATERMAIN (m)
①	BUILDING CONNECTION	73.30	70.90
②	EXISTING WATERMAIN STUB CONNECTION	72.52	69.55
③	45° HORIZONTAL BEND	72.69	69.55
④	45° HORIZONTAL BEND	72.57	69.55
⑤	45° HORIZONTAL BEND	72.79	69.55
⑥	TEE 150X150mm	73.00	69.55
⑦	SERVICE TEE	71.67	69.27
⑧	45° HORIZONTAL BEND	72.69	69.55
⑨	45° HORIZONTAL BEND	73.03	69.55
⑩	TEE 150X150mm	73.09	69.55
⑪	45° HORIZONTAL BEND	73.10	69.55
⑫	45° HORIZONTAL BEND	73.09	69.55
⑬	45° HORIZONTAL BEND	72.66	69.55
⑭	45° HORIZONTAL BEND	72.52	69.55

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

NEW STORM SEWER STRUCTURE SCHEDULE

MANHOLE NO.	DESCRIPTION	T/GRATE ELEVATION	INVERT ELEVATION	PIPE DIA. (mm)	OPSD No.	FRAME (CITY OF OTTAWA)
CB-1	600x600mm Catchbasin	72.00	70.54N	300	705.010	S19
CB-2	600x600mm Catchbasin	72.00	70.33S 70.30N	300 300	705.010	S19
CB-3	600x600mm Catchbasin	72.00	70.08S 70.02W	300 300	705.010	S19
CB-4	600x600mm Catchbasin	73.40	71.49W	300	705.010	S19
CB-5	600x600mm Catchbasin	72.75	70.77W	300	705.010	S19
CB-6		72.61	70.61N	300	705.010	S19
CBMH-1	1,200mmØ Manhole	72.40	70.51S 70.48N	300 300	701.010	S25 / S28.1
CBMH-2	1,200mmØ Manhole	72.40	70.23S 70.20N	300 375	701.010	S25 / S28.1
CBMH-3	1,200mmØ Manhole	72.40	69.89S 69.86N	375 450	701.010	S25 / S28.1
CBMH-4	1,200mmØ Manhole	73.40	71.43E 71.40S	300 300	701.010	S25 / S28.1
CBMH-5	1,200mmØ Manhole	72.75	70.71E 70.68W	300 300	701.010	S25 / S28.1
SAMH-1	1,200mmØ Manhole	72.93	70.04E 66.77W	200 200	701.010 / 1003.010 DROP STRUCTURE TEE	S25 / S24
STMH-1	1,500mmØ Manhole	72.77	68.82N 70.02E 68.76W	525 600 375	701.010 / 1003.010 DROP STRUCTURE TEE	S25 / S24.1
STMH-2	1,500mmØ Manhole	73.15	70.50N 69.29E 69.23S	375 525 450	701.010 / 1003.010 DROP STRUCTURE TEE	S25 / S24.1
STMH-3	1,200mmØ Manhole	73.43	71.26N 70.64E 70.57S	300 375 300	701.010 / 1003.010 DROP STRUCTURE TEE	S25 / S24.1
STMH-4	1,200mmØ Manhole	72.91	69.79E 69.82S 69.76W	300 450 450	701.010	S25 / S24.1

OTTAWA-CARLETON DISTRICT SCHOOL BOARD

Jp2g Consultants Inc.
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12 INTERNATIONAL DR. PEMBROKE, ON. K8A 6W5 T: 613-735-2507 PEMBROKE@JP2G.COM
1150 MORRISON DR., #410 OTTAWA, ON, K2H 8S9 T: 613-828-7800 OTTAWA@JP2G.COM
16 EDWARD ST. S., #211 ARNPRIOR, ON, K7S 3W4 T: 613-626-0780 ARNPRIOR@JP2G.COM
Jp2g PROJECT No.: 24-5049A

NOT FOR CONSTRUCTION

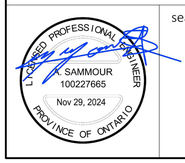
No.	DESCRIPTION	YYYY-MM-DD
2	ISSUED FOR SITE PLAN CONTROL REV-2	2024-11-29
1	ISSUED FOR SITE PLAN CONTROL REV-1	2024-09-13

N45 ARCHITECTURE INC.
71 Bank Street, 7th Floor - Ottawa, Ontario K1P 5N2
tel. 613.224.0095 fax 613.224.9811

project
Spring Valley Drive Elementary School

700 Spring Valley Dr, Ottawa, Ontario K1W 0C5

seal



drawing title
Details, Notes and Schedules

scale	drawn by
As Shown	R.Ismail
date	checked by
September 2024	A.Sammour
project number	drawing number
24-828	C3

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.

DO NOT SCALE DRAWINGS.

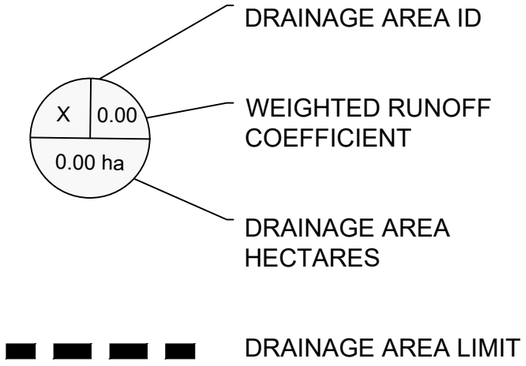
revision

DXX-XX-XX-XXXX

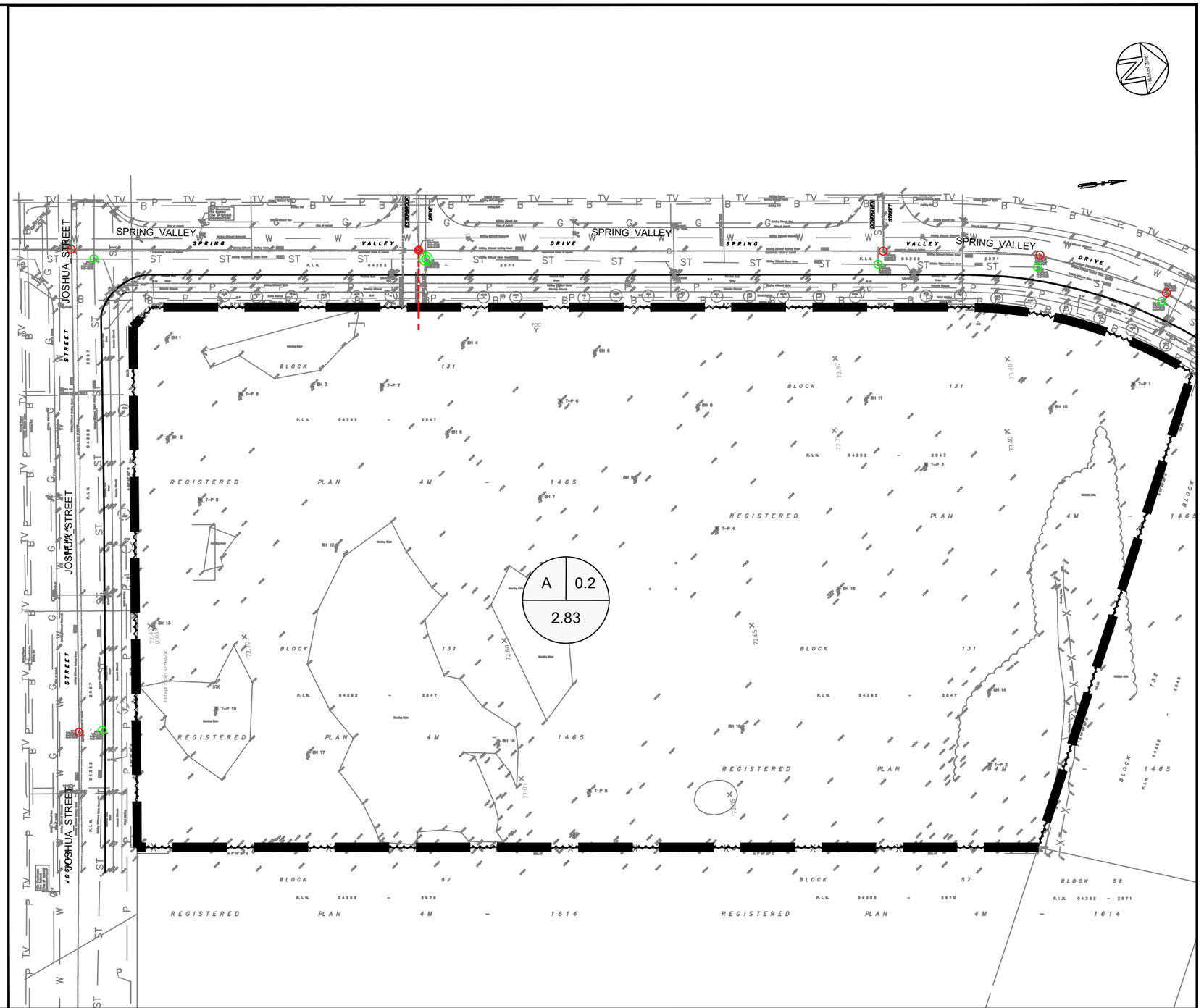
#XXXXX

Appendix B
Stormwater Management

LEGEND



* ALLOWABLE RELEASE RATE = 240.55 l/s .
REFER TO PRE-CONSULTING MEETING NOTES : JULY 5th ,2024 .

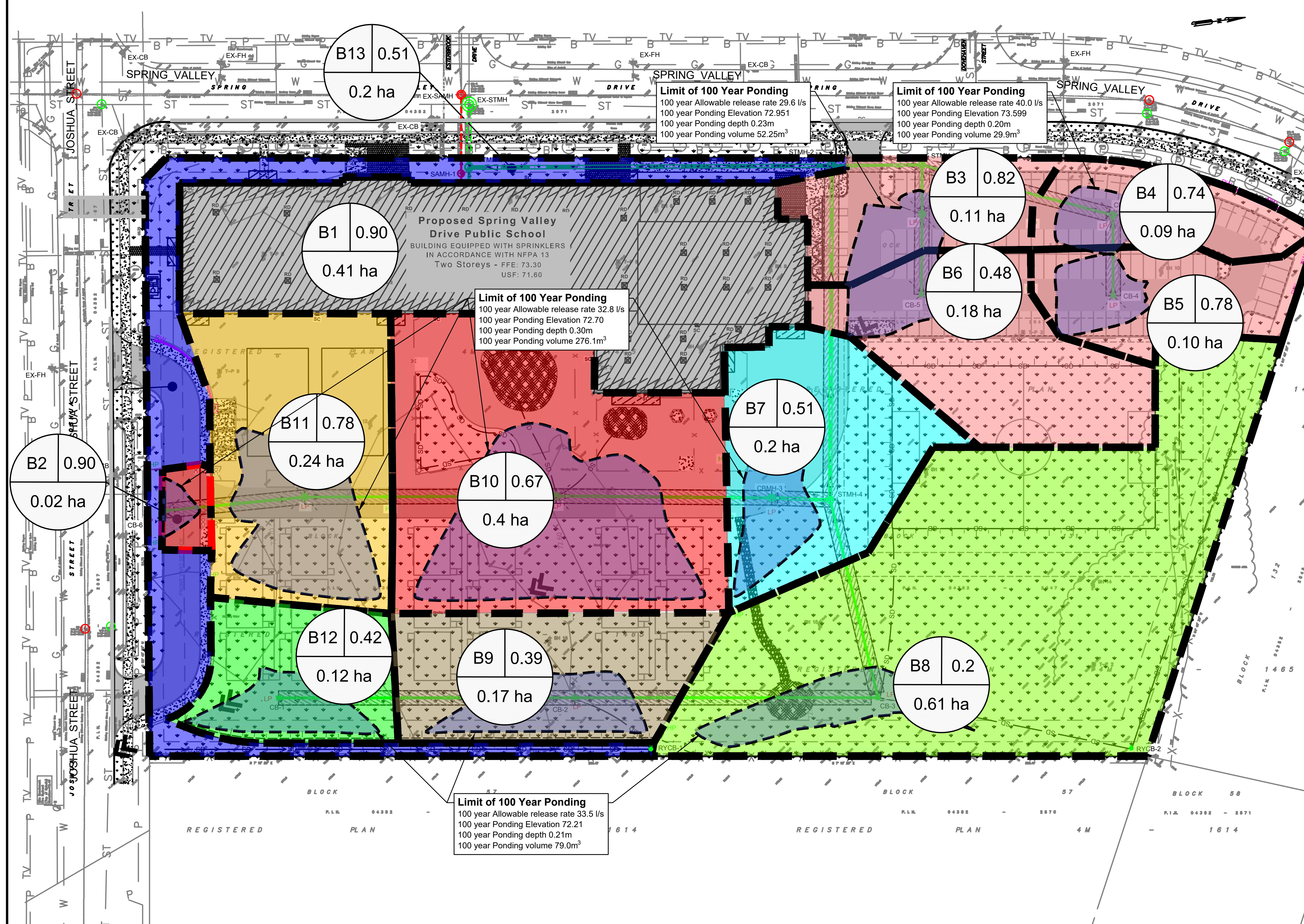


				Jp2g PROJECT No.: 24-5049A	PROJECT: 700 SPRING VALLEY DRIVE ELEMENTARY SCHOOL 700 SPRING VALLEY DR, OTTAWA, ONTARIO K1W 0C5	CLIENT No.:	NORTH: TRUE NORTH
						DRAFTED: R.ISMAIL	SCALE: 1:1,000 (0 m, 10, 20, 30, 40, 50 m)
1	2024-09-05	K.R.	ISSUED FOR SITE PLAN CONTROL		DRAWING: FIGURE-1 PRE-DEVELOPMENT DRAINAGE AREAS	DESIGNED: K.ROMANCHUK	
						REVIEWED: Z.BAUMAN	SHEET# FIG.1
No.	YYYY-MM-DD	BY	DESCRIPTION			APPROVED: A.SAMMOUR	

DWG NAME: \\JP2GDATA\PROJECT DATA\5-CIVIL\2024\24-5049A - N45 - NEW SCHOOL - 700 SPRING VALLEY DR\05 DRAWINGS\1 ONGOING\24-5049A_700_SPRING_VALLEY_DRIVE-SPC-REV-1-2024-09-05.DWG LAYOUT: FIG.1_PRE_DEVELOPMENT_AREA SAVED ON 2024-09-05 BY KRISTOPHER RAMOS

LEGEND

- X | 0.00 / 0.00 ha — DRAINAGE AREA ID; WEIGHTED RUNOFF COEFFICIENT; DRAINAGE AREA HECTARES
- ▬ ▬ ▬ ▬ — DRAINAGE AREA LIMIT



No.	YYYY-MM-DD	BY	DESCRIPTION
1	2024-09-05	K.R.	ISSUED FOR SITE PLAN CONTROL

Jp2g PROJECT No.: 24-5049A

PROJECT
700 SPRING VALLEY DRIVE
ELEMENTARY SCHOOL
700 SPRING VALLEY DR, OTTAWA, ONTARIO K1W 0C5

DRAWING
FIGURE-2
POST-DEVELOPMENT DRAINAGE AREAS

CLIENT No.:
DRAFTED: R.ISMAIL
DESIGNED: K.ROMANCHUK
REVIEWED: Z.BAUMAN
APPROVED: A.SAMMOUR

NORTH — TRUE NORTH

SCALE 1:1,000 — 0 m, 10, 20, 30, 40, 50 m

SHEET# **FIG.2**

DWG NAME: \\JP2GDATA\PROJECT DATA\5-CIVIL\2024\24-5049A - N45 - NEW SCHOOL - 700 SPRING VALLEY DR\05 DRAWINGS\1 ONGOING\24-5049A_700_SPRING_VALLEY_DRIVE-SPC-REV-1-2024-09-05.DWG LAYOUT: FIG.2_POST_DEVELOPMENT_AREA SAVED ON 2024

STORM SEWER DESIGN SHEET

LOCATION					CONTRIBUTING AREA				FLOW				STORM SEWER DESIGN							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
ROAD SEGMENT	FROM	TO	SEWER TYPE (Lateral or Trunk)	AREA ID	AREA (A) (ha)	RUNOFF COEFF. (C) (--)	SECTION (C*A) [6]x[7] (ha)	ACCUM. (C*A) [8]+ prev[9] (ha)	TIME OF CONCEN. (Tc) (min)	RAINFALL INTENSITY (I) (mm/hr)	ACTUAL FLOW (Q =2.78*C*A*I) 2.78x[9]x[11] (L/s)	ACTUAL FLOW [12] or CONTROLLED FLOW (L/s)	LENGTH (m)	SLOPE (%)	DIA. (mm)	FULL FLOW CAPACITY (L/s)	% OF PIPE CAPACITY (%)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW IN PIPE (min)	TIME OF CONCEN AFT. PIPE (min)	COMMENTS
Field	CB-1	CB-2	Lateral	B12	0.11	0.36	0.042	0.042	10.00	104.193	12.04	12.04	61.9	0.34%	300	56.39	21%	0.80	1.29	11.29	
Field	CB-2	CB-3	Trunk	B9	0.17	0.39	0.066	0.108	11.29	97.824	29.29	29.29	63.4	0.34%	300	56.39	52%	0.80	1.32	12.62	
Field	CB-3	STMH-4	Trunk	B8	0.61	0.21	0.129	0.237	12.62	92.137	60.75	60.75	42.5	0.54%	300	71.06	85%	1.01	0.70	13.32	
Driveway	CB-6	CBMH-1	Lateral	B2	0.02	0.90	0.016	0.016	10.00	104.193	4.61	4.61	29.2	0.34%	300	56.39	8%	0.80	0.61	10.61	
Play Area	CBMH-1	CBMH-2	Trunk	B11	0.24	0.77	0.184	0.200	10.61	101.077	56.06	56.06	52.5	0.47%	300	66.29	85%	0.94	0.93	11.54	
Play Area	CBMH-2	CBMH-3	Trunk	B10	0.39	0.67	0.263	0.462	11.54	96.693	124.22	124.22	45.1	0.70%	375	146.69	85%	1.33	0.57	12.11	
Play Area	CBMH-3	STMH-4	Trunk	B7	0.19	0.52	0.099	0.561	12.11	94.233	147.05	147.05	12.3	0.37%	450	173.42	85%	1.09	0.19	12.30	
Play Area	STMH-4	STMH-2	Trunk		0.00	0.00	0.000	0.799	13.32	89.400	198.45	198.45	69.9	0.67%	450	233.37	85%	1.47	0.79	14.12	
Parking Lot	CB-4	CBMH-4	Trunk	B5	0.10	0.78	0.081	0.081	10.00	104.193	23.49	23.49	16.9	0.34%	300	56.39	42%	0.80	0.35	10.35	
Parking Lot	CBMH-4	STMH-3	Trunk	B4	0.09	0.74	0.063	0.144	10.35	102.364	40.99	40.99	41.3	0.34%	300	56.39	73%	0.80	0.86	11.22	
Parking Lot	CB-5	CBMH-5	Trunk	B6	0.18	0.48	0.089	0.089	10.00	104.193	25.68	25.68	16.9	0.34%	300	56.39	46%	0.80	0.35	10.35	
Parking Lot	CBMH-5	STMH-3	Trunk	B3	0.11	0.82	0.089	0.178	10.35	102.364	50.69	50.69	10.3	0.38%	300	59.61	85%	0.84	0.20	10.56	
Parking Lot	STMH-3	STMH-2	Trunk		0.00	0.00	0.000	0.322	11.22	98.181	87.93	87.93	18.9	0.35%	375	103.73	85%	0.94	0.34	11.55	
To Connection	STMH-2	STMH-1	Trunk		0.00	0.00	0.000	1.121	14.12	86.525	269.56	269.56	75.9	0.54%	525	316.03	85%	1.46	0.87	14.98	
Roof Drainage	Roof	STMH-1	Lateral	B1	0.41	0.90	0.368	0.368	10.00	104.193	106.65	106.65	3.3	0.51%	375	125.21	85%	1.13	0.05	10.05	
To Connection	STMH-1	Stub	Trunk		0.00	0.00	0.000	1.489	14.98	83.612	346.07	346.07	2.0	0.76%	600	535.28	65%	1.89	0.02	15.00	
Existing Sewer	Stub	EX-STMH	Trunk		0.00	0.00	0.000	1.489	15.00	83.555	345.84	345.84	11.5	0.76%	600	535.28	65%	1.89	0.10	15.10	

Notes:

Project Name:	700 Spring Valley Road	Prepared By:	K. Romanchuk	Storm Event:	1:5 Year
Jp2g Project No.:	24-5049A	Reviewed By:	Ali S	Rainfall Intensity Formula:	Ottawa IDF
Client Ref No.:		Approved By:	Ali S		
		Date:	8/27/2024	Mannings, n =	0.013
		Revision:	1		

Rational Method: $Q = 2.78 * C * A * I$

where, Q = peak flow (L/s)
C = runoff coefficient
I = average rainfall intensity (mm/hr)
A = area (ha)

24-5049A - 700 Spring Valley Road
Stormwater Management Calculations

Subcatchment Runoff

Receiving Structure	Subcatchment	Area (ha)	Impervious Area (C = 0.90) (m^2)	Impervious Area (C = 0.90) (ha)	Pervious Area (C = 0.20) (ha)	5 Year C <=10yr	5 Year Rainfall Intensity (mm/hr)	5 Year Runoff (L/s)	100 Year C 100yr	100 Year Rainfall Intensity (mm/hr)	100 Year Runoff (L/s)	Structure Elevation (m)
Uncontrolled												
Uncontrolled	**B13**	0.210	917	0.092	0.1181	0.51	104.2	30.75	0.63	178.6	65.87	
Total Uncontrolled		**0.210**						**30.75**			**65.87**	
Controlled												
Roof	**B1**	0.409	4091	0.409	0	0.90	104.2	106.65	1.00	178.6	203.07	80.00
CB-6	**B2**	0.018	177	0.018	0	0.90	104.2	4.61	1.00	178.6	8.79	72.60
CBMH-5	**B3**	0.109	968	0.097	0.0117	0.82	104.2	25.91	1.00	178.6	53.86	72.75
CBMH-4	**B4**	0.085	655	0.066	0.0199	0.74	104.2	18.23	0.92	178.6	39.05	73.40
CB-4	**B5**	0.104	861	0.086	0.0181	0.78	104.2	23.49	0.97	178.6	50.33	73.40
CB-5	**B6**	0.184	741	0.074	0.1099	0.48	104.2	25.68	0.60	178.6	55.02	72.75
CBMH-3	**B7**	0.191	873	0.087	0.1032	0.52	104.2	28.74	0.65	178.6	61.56	72.40
CB-3	**B8**	0.613	98	0.010	0.6033	0.21	104.2	37.50	0.26	178.6	80.34	72.00
CB-2	**B9**	0.168	465	0.047	0.1214	0.39	104.2	19.15	0.49	178.6	41.03	72.00
CBMH-2	**B10**	0.393	2630	0.263	0.1296	0.67	104.2	76.07	0.84	178.6	162.95	72.40
CBMH-1	**B11**	0.237	1945	0.195	0.0426	0.77	104.2	53.17	0.97	178.6	113.90	72.40
CB-1	**B12**	0.115	266	0.027	0.0881	0.36	104.2	12.04	0.45	178.6	25.79	72.00
Total Controlled		**2.625**						**431.26**			**895.69**	
Total Assuming No Control		**2.835**						**462.01**			**961.56**	

SWM Control Summary - Refer to Individual Sheets

ICD	Allowable Outflow (L/s)	Required Storage (m^3)	Structure Elevation (m)	Spill Elevation (m)	Ponding Elevation (m)	Ponding Depth (m)	Outlet Invert (m)	Pipe Diameter (mm)	Head over Centroid (m)	Orifice Coefficient	Orifice Diameter (mm)
ICD-1	33.50	78.43	72.00	72.25	72.21	0.21	70.02	300	2.339	0.61	101.6
ICD-2	32.80	274.67	72.40	72.75	72.70	0.30	69.865	375	3.022	0.61	94.3
ICD-3	40.00	29.63	73.40	73.60	73.60	0.20	69.49	300	4.259	0.61	95.6
ICD-4	46.90	37.19	72.75	73.00	72.95	0.20	69.42	300	3.681	0.61	107.3
Roof	0.00	0.00	0.00	0.00	0.00	0.00	n/a - roof drain control				
Total	**153.20**										

Total Site Outflow Summary

Source	Outflow (L/s)
ICD-1	33.50
ICD-2	32.80
ICD-3	40.00
ICD-4	46.90
Roof	10.88
Uncontrolled	65.87
Total	**229.95**
Allowable	**240.55**
Difference	**10.60**

24-5049A - 700 Spring Valley Road
SWM Calculations - 100 Year Event Control
ICD-1

Upstream Structure	Subcatchment	Area (ha)	C 5yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s)	V_{stored} (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-1	B12	0.115	0.36	0.45	72.00					
CB-2	B9	0.168	0.39	0.49	72.00					
CB-3	B8	0.613	0.21	0.26	72.00					
ICD-1 Total		0.896	0.26	0.33	72.00	33.5	78.43	72.209	72.250	0.209

ICD-1 - Rational Method Storage Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	147.16	33.50	113.66	68.20
15	142.9	117.77	33.50	84.27	75.84
20	120.0	98.86	33.50	65.36	78.43
25	103.8	85.59	33.50	52.09	78.13
30	91.9	75.71	33.50	42.21	75.99
35	82.6	68.06	33.50	34.56	72.57
40	75.1	61.93	33.50	28.43	68.24
45	69.1	56.91	33.50	23.41	63.20
50	64.0	52.71	33.50	19.21	57.63
55	59.6	49.14	33.50	15.64	51.61
60	55.9	46.07	33.50	12.57	45.24

ICD-1 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Area CB-1 (m^2)	Area CB-2 (m^2)	Area CB-3 (m^2)	Area	Area Total (m^2)	Incremental Volume (m^3)	Total Volume (m^3)	
72.00	0.00	0.00	0.00	0.00	0.00		0.00	0.0	0.0	
72.02	0.02	0.02	2.87	3.76	3.57		10.20	0.1	0.1	
72.04	0.02	0.04	11.50	15.06	14.30		40.86	0.5	0.6	
72.06	0.02	0.06	25.90	33.90	32.19		91.99	1.3	1.9	
72.08	0.02	0.08	46.05	60.28	57.22		163.55	2.6	4.5	
72.10	0.02	0.10	71.98	94.21	89.43		255.62	4.2	8.7	
72.12	0.02	0.12	103.66	135.67	128.79		368.12	6.2	14.9	
72.14	0.02	0.14	141.10	184.68	175.31		501.09	8.7	23.6	
72.15	0.01	0.15	161.88	212.01	201.27		575.16	5.4	29.0	
72.16	0.01	0.16	184.02	241.23	229.00		654.25	6.1	35.1	
72.17	0.01	0.17	207.57	272.34	258.53		738.44	7.0	42.1	
72.18	0.01	0.18	232.55	305.32	289.84		827.71	7.8	49.9	
72.19	0.01	0.19	258.94	340.10	322.95		921.99	8.7	58.7	
72.20	0.01	0.20	286.74	376.68	357.85		1021.27	9.7	68.4	
72.21	0.01	0.21	286.74	414.99	394.52		1096.25	10.6	79.0	
72.22	0.01	0.22	286.74	455.14	432.99		1174.87	11.4	90.3	
72.23	0.01	0.23	286.74	497.15	473.24		1257.13	12.2	102.5	
72.24	0.01	0.24	286.74	540.98	514.98		1342.70	13.0	115.5	
72.25	0.01	0.25	286.74	540.98	514.98		1342.70	13.4	128.9	Spill
72.26	0.01	0.26					0.00	6.7	135.6	
72.27	0.01	0.27					0.00	0.0	135.6	
72.28	0.01	0.28					0.00	0.0	135.6	
72.29	0.01	0.29					0.00	0.0	135.6	
72.30	0.01	0.30					0.00	0.0	135.6	

24-5049A - 700 Spring Valley Road
SWM Calculations - 100 Year Event Control
ICD-2

Upstream Structure	Subcatchment	Area (ha)	C 5yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s)	V_{stored} (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-6	B2	0.018	0.90	1.00	72.60					
CBMH-1	B11	0.237	0.77	0.97	72.40					
CBMH-2	B10	0.393	0.67	0.84	72.40					
CBMH-3	B7	0.191	0.52	0.65	72.40					
ICD-2 Total		0.838	0.67	0.83	72.40	32.8	274.67	72.699	72.750	0.299

ICD-2 - Rational Method Storage Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	347.20	32.80	314.40	188.64
15	142.9	277.85	32.80	245.05	220.55
20	120.0	233.24	32.80	200.44	240.53
25	103.8	201.93	32.80	169.13	253.69
30	91.9	178.64	32.80	145.84	262.50
35	82.6	160.57	32.80	127.77	268.32
40	75.1	146.12	32.80	113.32	271.96
45	69.1	134.27	32.80	101.47	273.96
50	64.0	124.36	32.80	91.56	274.67
55	59.6	115.94	32.80	83.14	274.35
60	55.9	108.69	32.80	75.89	273.19

ICD-2 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Area					Incremental Volume (m^3)	Total Volume (m^3)	
			CB-6 (m^2)	CBMH-1 (m^2)	CBMH-2 (m^2)	CBMH-3 (m^2)	Total (m^2)			
72.40	0.00	0.00		0.00	0.00	0.00	0.00	0.0	0.0	
72.42	0.02	0.02		3.80	6.67	1.71	12.18	0.1	0.1	
72.44	0.02	0.04		15.23	26.73	6.89	48.85	0.6	0.7	
72.46	0.02	0.06		34.31	60.17	15.50	109.98	1.6	2.3	
72.48	0.02	0.08		61.02	107.00	27.57	195.59	3.1	5.4	
72.50	0.02	0.10		95.36	167.22	43.10	305.68	5.0	10.4	
72.52	0.02	0.12		137.34	240.89	62.07	440.30	7.5	17.8	
72.54	0.02	0.14		186.94	327.75	84.49	599.18	10.4	28.2	
72.56	0.02	0.16		243.81	427.61	110.36	781.78	13.8	42.1	
72.58	0.02	0.18		308.10	540.38	139.40	987.88	17.7	59.7	
72.60	0.02	0.20	0.00	379.89	666.05	171.76	1217.70	22.1	81.8	
72.62	0.02	0.22	2.64	459.15	804.84	207.47	1474.10	26.9	108.7	
72.64	0.02	0.24	10.60	545.89	956.64	246.61	1759.74	32.3	141.1	
72.65	0.01	0.25	16.56	592.01	1037.42	267.40	1913.39	18.4	159.4	
72.66	0.01	0.26	22.20	640.00	1121.47	289.03	2072.70	19.9	179.4	
72.67	0.01	0.27	29.70	689.73	1208.77	311.51	2239.71	21.6	200.9	
72.68	0.01	0.28	38.02	741.30	1299.34	334.75	2413.41	23.3	224.2	
72.69	0.01	0.29	47.11	794.72	1393.15	358.72	2593.70	25.0	249.2	
72.70	0.01	0.30	56.95	849.99	1490.21	383.49	2780.64	26.9	276.1	
72.71	0.01	0.31	65.80	907.11	1590.55	409.08	2972.54	28.8	304.9	
72.72	0.01	0.32	75.31	966.07	1694.16	435.50	3171.04	30.7	335.6	
72.73	0.01	0.33	84.82	1026.89	1801.00	462.74	3375.45	32.7	368.3	
72.74	0.01	0.34	94.80	1089.56	1911.09	490.80	3586.25	34.8	403.1	
72.75	0.01	0.35	94.80	1089.56	1911.09	490.80	3586.25	35.9	439.0	Spill

24-5049A - 700 Spring Valley Road
SWM Calculations - 100 Year Event Control
ICD-3

Upstream Structure	Subcatchment	Area (ha)	C 5yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s)	V_{stored} (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-4	B5	0.104	0.78	0.97	73.40					
CBMH-4	B4	0.085	0.74	0.92	73.40					
ICD-3 Total		0.190	0.76	0.95	73.40	40.0	29.63	73.599	73.600	0.199

ICD-3 - Rational Method Storage Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	89.38	40.00	49.38	29.63
15	142.9	71.52	40.00	31.52	28.37
20	120.0	60.04	40.00	20.04	24.05
25	103.8	51.98	40.00	11.98	17.97
30	91.9	45.98	40.00	5.98	10.77
35	82.6	41.33	40.00	1.33	2.80
40	75.1	37.61	40.00	-2.39	-5.73
45	69.1	34.56	40.00	-5.44	-14.68
50	64.0	32.01	40.00	-7.99	-23.97
55	59.6	29.84	40.00	-10.16	-33.51
60	55.9	27.98	40.00	-12.02	-43.28

ICD-3 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Area					Incremental Volume (m^3)	Total Volume (m^3)	
			CB-4 (m^2)	CBMH-4 (m^2)			Total (m^2)			
73.40	0.00	0.00	0.00	0.00			0.00	0.0	0.0	
73.42	0.02	0.02	2.49	1.95			4.44	0.0	0.0	
73.44	0.02	0.04	9.98	7.83			17.81	0.2	0.3	
73.46	0.02	0.06	22.49	17.64			40.13	0.6	0.8	
73.48	0.02	0.08	40.01	31.39			71.40	1.1	2.0	
73.50	0.02	0.10	62.53	49.06			111.59	1.8	3.8	
73.52	0.02	0.12	90.05	70.65			160.70	2.7	6.5	
73.54	0.02	0.14	122.59	96.19			218.78	3.8	10.3	
73.55	0.01	0.15	140.73	110.44			251.17	2.3	12.7	
73.56	0.01	0.16	160.12	125.65			285.77	2.7	15.3	
73.57	0.01	0.17	180.77	141.87			322.64	3.0	18.4	
73.58	0.01	0.18	202.67	159.06			361.73	3.4	21.8	
73.59	0.01	0.19	225.82	177.23			403.05	3.8	25.6	
73.60	0.01	0.20	250.22	196.38			446.60	4.2	29.9	Spill
73.61	0.01	0.21					0.00	2.2	32.1	
73.62	0.01	0.22					0.00	0.0	32.1	
73.63	0.01	0.23					0.00	0.0	32.1	
73.64	0.01	0.24					0.00	0.0	32.1	
73.65	0.01	0.25					0.00	0.0	32.1	
73.66	0.01	0.26					0.00	0.0	32.1	
73.67	0.01	0.27					0.00	0.0	32.1	
73.68	0.01	0.28					0.00	0.0	32.1	
73.69	0.01	0.29					0.00	0.0	32.1	
73.70	0.01	0.30					0.00	0.0	32.1	

24-5049A - 700 Spring Valley Road

SWM Calculations - 100 Year Event Control

ICD-3 - 2 Year Event - Parking Area Surface Ponding Check

Upstream Structure	Subcatchment	Area (ha)	C 5yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s)	V_{stored} (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-4	B5	0.104	0.78	0.97	73.40					
CBMH-4	B4	0.085	0.74	0.92	73.40					
ICD-3 - 2 Year Event - Parking		0.190	0.76	0.95	73.40	40.0	-0.93	#N/A	73.600	#N/A

ICD-3 - 2 Year Event - Parking Area Surface Ponding Check - Rational Method Storage Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	38.44	40.00	-1.56	-0.93
15	61.8	30.92	40.00	-9.08	-8.17
20	52.0	26.04	40.00	-13.96	-16.75
25	45.2	22.61	40.00	-17.39	-26.09
30	40.0	20.04	40.00	-19.96	-35.92
35	36.1	18.05	40.00	-21.95	-46.10
40	32.9	16.45	40.00	-23.55	-56.52
45	30.2	15.14	40.00	-24.86	-67.13
50	28.0	14.04	40.00	-25.96	-77.89
55	26.2	13.10	40.00	-26.90	-88.77
60	24.6	12.29	40.00	-27.71	-99.75

ICD-3 - 2 Year Event - Parking Area Surface Ponding Check - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Area					Incremental Volume (m^3)	Total Volume (m^3)	
			CB-4 (m^2)	CBMH-4 (m^2)			Total (m^2)			
73.40	0.00	0.00	0.00	0.00			0.00	0.0	0.0	
73.42	0.02	0.02	2.49	1.95			4.44	0.0	0.0	
73.44	0.02	0.04	9.98	7.83			17.81	0.2	0.3	
73.46	0.02	0.06	22.49	17.64			40.13	0.6	0.8	
73.48	0.02	0.08	40.01	31.39			71.40	1.1	2.0	
73.50	0.02	0.10	62.53	49.06			111.59	1.8	3.8	
73.52	0.02	0.12	90.05	70.65			160.70	2.7	6.5	
73.54	0.02	0.14	122.59	96.19			218.78	3.8	10.3	
73.55	0.01	0.15	140.73	110.44			251.17	2.3	12.7	
73.56	0.01	0.16	160.12	125.65			285.77	2.7	15.3	
73.57	0.01	0.17	180.77	141.87			322.64	3.0	18.4	
73.58	0.01	0.18	202.67	159.06			361.73	3.4	21.8	
73.59	0.01	0.19	225.82	177.23			403.05	3.8	25.6	
73.60	0.01	0.20	250.22	196.38			446.60	4.2	29.9	Spill
73.61	0.01	0.21					0.00	2.2	32.1	
73.62	0.01	0.22					0.00	0.0	32.1	
73.63	0.01	0.23					0.00	0.0	32.1	
73.64	0.01	0.24					0.00	0.0	32.1	
73.65	0.01	0.25					0.00	0.0	32.1	
73.66	0.01	0.26					0.00	0.0	32.1	
73.67	0.01	0.27					0.00	0.0	32.1	
73.68	0.01	0.28					0.00	0.0	32.1	
73.69	0.01	0.29					0.00	0.0	32.1	
73.70	0.01	0.30					0.00	0.0	32.1	

24-5049A - 700 Spring Valley Road
SWM Calculations - 100 Year Event Control
ICD-4

Upstream Structure	Subcatchment	Area (ha)	C 5yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s)	V_{stored} (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-5	B6	0.184	0.48	0.60	72.75					
CBMH-5	B3	0.109	0.82	1.00	72.75					
ICD-4 Total		0.293	0.61	0.75	72.75	46.9	37.19	72.951	73.000	0.201

ICD-4 - Rational Method Storage Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	108.88	46.90	61.98	37.19
15	142.9	87.13	46.90	40.23	36.21
20	120.0	73.14	46.90	26.24	31.49
25	103.8	63.32	46.90	16.42	24.63
30	91.9	56.02	46.90	9.12	16.41
35	82.6	50.35	46.90	3.45	7.25
40	75.1	45.82	46.90	-1.08	-2.59
45	69.1	42.10	46.90	-4.80	-12.95
50	64.0	39.00	46.90	-7.90	-23.71
55	59.6	36.36	46.90	-10.54	-34.79
60	55.9	34.08	46.90	-12.82	-46.14

ICD-4 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Area					Incremental Volume (m^3)	Total Volume (m^3)	
			CB-5 (m^2)	CBMH-5 (m^2)			Total (m^2)			
72.75	0.00	0.00	0.00	0.00			0.00	0.0	0.0	
72.77	0.02	0.02	4.20	2.88			7.08	0.1	0.1	
72.79	0.02	0.04	16.84	11.59			28.43	0.4	0.4	
72.81	0.02	0.06	37.62	26.11			63.73	0.9	1.3	
72.83	0.02	0.08	66.28	46.43			112.71	1.8	3.1	
72.85	0.02	0.10		160.78			160.78	2.7	5.8	
72.87	0.02	0.12		220.43			220.43	3.8	9.7	
72.89	0.02	0.14		282.74			282.74	5.0	14.7	
72.90	0.01	0.15		312.70			312.70	3.0	17.7	
72.91	0.01	0.16		341.86			341.86	3.3	20.9	
72.92	0.01	0.17		370.20			370.20	3.6	24.5	
72.93	0.01	0.18		397.73			397.73	3.8	28.3	
72.94	0.01	0.19		424.46			424.46	4.1	32.5	
72.95	0.01	0.20		450.40			450.40	4.4	36.8	
72.96	0.01	0.21		475.52			475.52	4.6	41.5	
72.97	0.01	0.22		499.88			499.88	4.9	46.3	
72.98	0.01	0.23		523.28			523.28	5.1	51.4	
72.99	0.01	0.24		545.35			545.35	5.3	56.8	
73.00	0.01	0.25		545.35			545.35	5.5	62.2	Spill
73.01	0.01	0.26					0.00	2.7	65.0	
73.02	0.01	0.27					0.00	0.0	65.0	
73.03	0.01	0.28					0.00	0.0	65.0	
73.04	0.01	0.29					0.00	0.0	65.0	
73.05	0.01	0.30					0.00	0.0	65.0	

24-5049A - 700 Spring Valley Road

SWM Calculations - 100 Year Event Control

ICD-4 - 2 Year Event - Parking Area Surface Ponding Check

Upstream Structure	Subcatchment	Area (ha)	C 5yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s)	V_{stored} (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-5	B6	0.184	0.48	0.60	72.75					
CBMH-5	B3	0.109	0.82	1.00	72.75					
ICD-4 - 2 Year Event - Parking		0.293	0.61	0.75	72.75	46.9	-0.04	#N/A	73.000	#N/A

ICD-4 - 2 Year Event - Parking Area Surface Ponding Check - Rational Method Storage Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	46.83	46.90	-0.07	-0.04
15	61.8	37.66	46.90	-9.24	-8.31
20	52.0	31.73	46.90	-15.17	-18.21
25	45.2	27.54	46.90	-19.36	-29.04
30	40.0	24.42	46.90	-22.48	-40.47
35	36.1	21.99	46.90	-24.91	-52.32
40	32.9	20.04	46.90	-26.86	-64.47
45	30.2	18.44	46.90	-28.46	-76.85
50	28.0	17.10	46.90	-29.80	-89.41
55	26.2	15.96	46.90	-30.94	-102.11
60	24.6	14.97	46.90	-31.93	-114.93

ICD-4 - 2 Year Event - Parking Area Surface Ponding Check - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Area					Incremental Volume (m^3)	Total Volume (m^3)	
			CB-5 (m^2)	CBMH-5 (m^2)			Total (m^2)			
72.75	0.00	0.00	0.00	0.00			0.00	0.0	0.0	
72.77	0.02	0.02	4.20	2.88			7.08	0.1	0.1	
72.79	0.02	0.04	16.84	11.59			28.43	0.4	0.4	
72.81	0.02	0.06	37.62	26.11			63.73	0.9	1.3	
72.83	0.02	0.08	66.28	46.43			112.71	1.8	3.1	
72.85	0.02	0.10		160.78			160.78	2.7	5.8	
72.87	0.02	0.12		220.43			220.43	3.8	9.7	
72.89	0.02	0.14		282.74			282.74	5.0	14.7	
72.90	0.01	0.15		312.70			312.70	3.0	17.7	
72.91	0.01	0.16		341.86			341.86	3.3	20.9	
72.92	0.01	0.17		370.20			370.20	3.6	24.5	
72.93	0.01	0.18		397.73			397.73	3.8	28.3	
72.94	0.01	0.19		424.46			424.46	4.1	32.5	
72.95	0.01	0.20		450.40			450.40	4.4	36.8	
72.96	0.01	0.21		475.52			475.52	4.6	41.5	
72.97	0.01	0.22		499.88			499.88	4.9	46.3	
72.98	0.01	0.23		523.28			523.28	5.1	51.4	
72.99	0.01	0.24		545.35			545.35	5.3	56.8	
73.00	0.01	0.25		545.35			545.35	5.5	62.2	Spill
73.01	0.01	0.26					0.00	2.7	65.0	
73.02	0.01	0.27					0.00	0.0	65.0	
73.03	0.01	0.28					0.00	0.0	65.0	
73.04	0.01	0.29					0.00	0.0	65.0	
73.05	0.01	0.30					0.00	0.0	65.0	

24-5049A - 700 Spring Valley Road
SWM Calculations - 100 Year Event Control
Roof

Upstream Structure	Subcatchment	Area (ha)	C 5yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$* (L/s)	V_{stored} (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
Roof	B1	0.409	0.90	1.00	80.00					
Roof Total		0.409	0.90	1.00	80.00	10.88	193.73	80.149	80.150	0.149

*roof outflow calculated based on **34** roof drains at **0.32 L/s** per drain, refer to attached product sheet

Roof - Rational Method Storage Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
65	52.6	59.87	10.88	48.99	191.08
70	49.8	56.63	10.88	45.75	192.13
75	47.3	53.74	10.88	42.86	192.89
80	45.0	51.17	10.88	40.29	193.38
85	43.0	48.85	10.88	37.97	193.65
90	41.1	46.76	10.88	35.88	193.73
95	39.4	44.85	10.88	33.97	193.62
100	37.9	43.11	10.88	32.23	193.36
105	36.5	41.51	10.88	30.63	192.96
110	35.2	40.04	10.88	29.16	192.43
115	34.0	38.67	10.88	27.79	191.78

Roof - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Area					Incremental Volume* (m^3)	Total Volume* (m^3)
			Roof (m^2)				Total (m^2)		
80.00	0.00	0.00	3910.00				3910.00	0.0	0.0
80.02	0.02	0.02	3910.00				3910.00	26.1	26.1
80.04	0.02	0.04	3910.00				3910.00	26.1	52.1
80.06	0.02	0.06	3910.00				3910.00	26.1	78.2
80.08	0.02	0.08	3910.00				3910.00	26.1	104.3
80.10	0.02	0.10	3910.00				3910.00	26.1	130.3
80.11	0.01	0.11	3910.00				3910.00	13.0	143.4
80.12	0.01	0.12	3910.00				3910.00	13.0	156.4
80.13	0.01	0.13	3910.00				3910.00	13.0	169.4
80.14	0.01	0.14	3910.00				3910.00	13.0	182.5
80.15	0.01	0.15	3910.00				3910.00	13.0	195.5
80.16	0.01	0.16	3910.00				3910.00	13.0	208.5
80.17	0.01	0.17	3910.00				3910.00	13.0	221.6
80.18	0.01	0.18	3910.00				3910.00	13.0	234.6
80.19	0.01	0.19	3910.00				3910.00	13.0	247.6
80.20	0.01	0.20	3910.00				3910.00	13.0	260.7
80.21	0.01	0.21	3910.00				3910.00	13.0	273.7
80.22	0.01	0.22	3910.00				3910.00	13.0	286.7
80.23	0.01	0.23	3910.00				3910.00	13.0	299.8
80.24	0.01	0.24	3910.00				3910.00	13.0	312.8
80.25	0.01	0.25	3910.00				3910.00	13.0	325.8

*average end area calculation divided by 3 to reflect inverted pyramid shape of roof storage

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

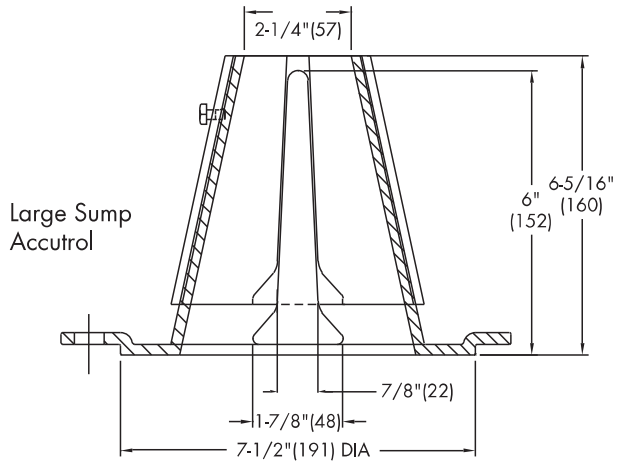
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

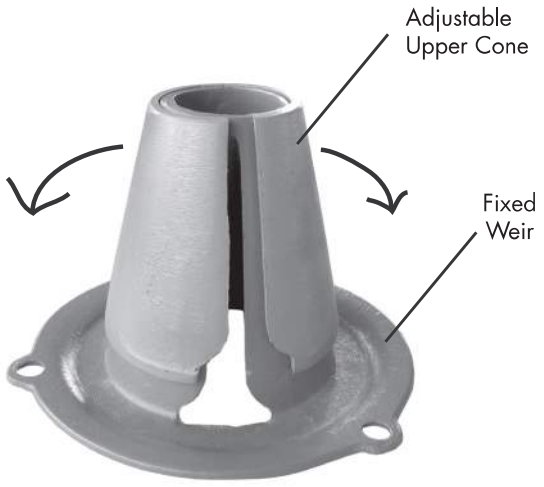
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____ Contractor _____

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

Engineer _____ Representative _____

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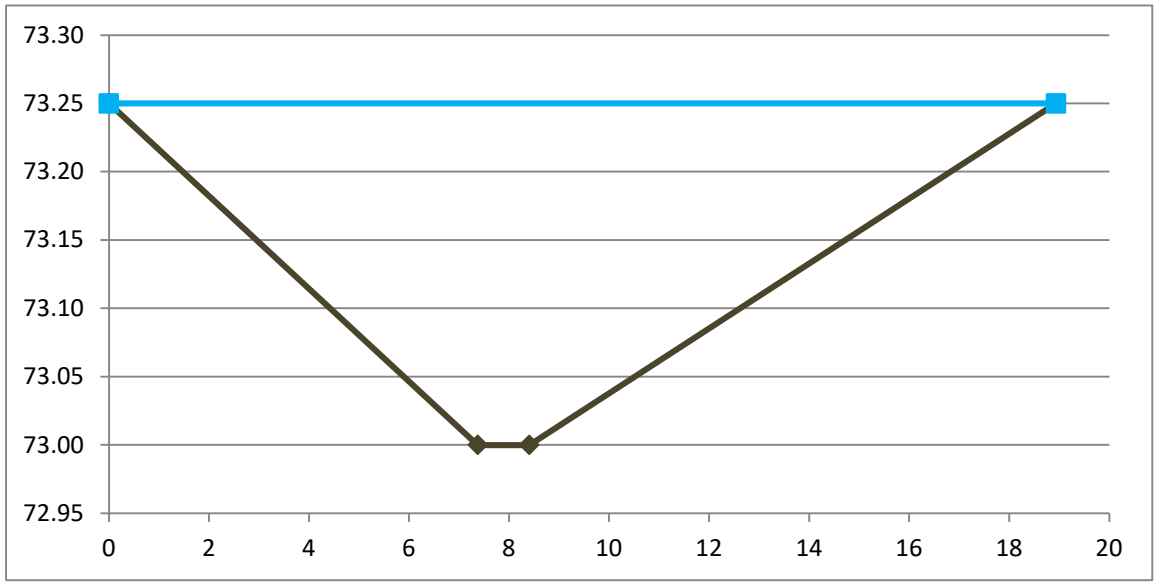
A Watts Water Technologies Company

700 Spring Valley Road
Jp2g Project No.: 24-5049A
Date: September 5, 2024
Contact: Kurtis Romanchuk

this provides the check of the capacity of the overland flow path out of the parking area to the southeast. The parking lot is drainage areas B3, B4, B5, and B6. The downstream field drainage area which contains the first part of the overland flow pathway is drainage area B7. The sum of the 100 year peak runoff flows from these 5 drainage areas is 259.81 L/s, or 0.260 cms. The 100 year + 20% flow is therefore 0.312 cms.



Overland Flow Check - Trapezoidal Weir Representing Spill Over Curb

Parameter	Value	Unit	Source
Trapezoidal Weir			
Weir Coefficient (C_W)	1.84		*Weir characteristics.*
Crest Length (L)	1.03	m	*Length of spill crest from Grading Plan.*
Left Side Slope (Z_1)	29	:1	*horizontal ratio = distance / (top elevation - crest elevation)*
Right Side Slope (Z_2)	42	:1	*horizontal ratio = distance / (top elevation - crest elevation)*
Crest Elevation	73	m	*Spill elevation from Grading Plan.*
Water Surface Elevation	73.25	m	*just below FFE - elevation of "spill" into permanent school building*
Head Above Crest Elevation (H)	0.25	m	*Head = Water Surface Elevation - Crest Elevation*
Discharge Over Weir Crest	0.2369	m^3/s	$Q = C_W * L * H^{3/2}$
Discharge Over Left Side Slope	0.6785	m^3/s	$Q = \frac{2}{5} * C_W * Z_1 * H^{5/2}$
Discharge Over Right Side Slope	0.968392	m^3/s	$Q = \frac{2}{5} * C_W * Z_2 * H^{5/2}$
Weir Discharge (Q)	**1.883792**	**m^3/s**	

this considers the curb over which the water spills out as a weir, and shows that at a head of 0.25m (i.e. before spilling into the building), the capacity of this weir is 1.884 cms assuming a weir coefficient of 1.84. This is far above the 100 year + 20% peak flow from these drainage areas of 0.312 cms.

700 Spring Valley Road
Jp2g Project No.: 24-5049A
Date: September 5, 2024
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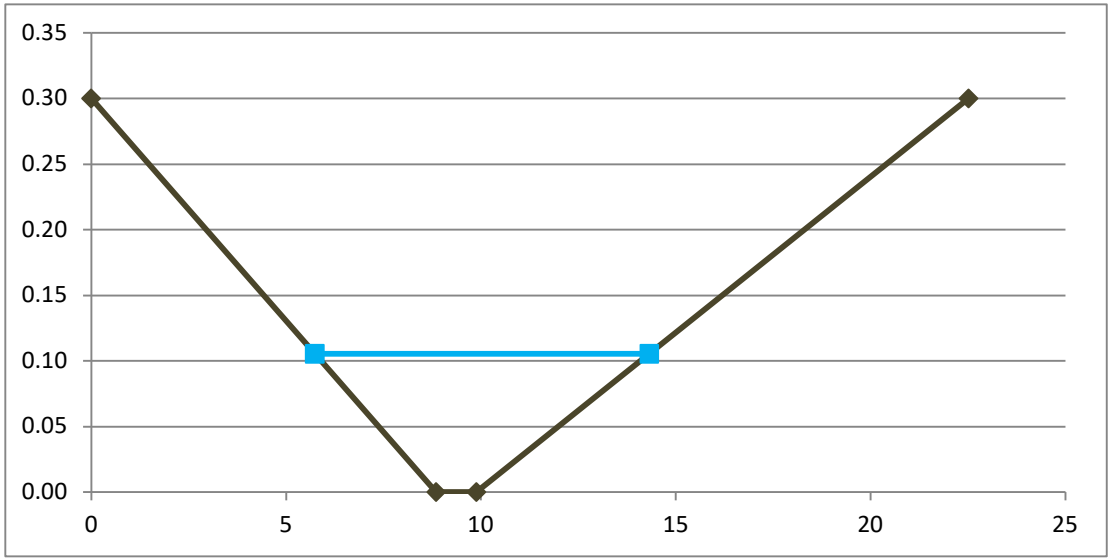
This considers the downstream flow pathway and does a Manning's calculation to determine an approximate depth of overland flow. Based on a channel shape the same as the weir, with a manning's 'n' of 0.035 (quite high for grass, so this is very conservative), the depth of flow in the channel for the 100 year + 20% peak flow from the aforementioned drainage areas is only 0.11m. Again, this is much below the 0.30m that would cause spill into the permanent school building.



Overland Flow Check - Trapezoidal Channel Representing Overland Flow Path

Parameter	Value	Unit	Source
Trapezoidal Channel			
Manning's "n" (n)	0.035		*Land cover / material characteristics from site visits / site photographs / orthophotography.*
Channel Depth (D)	0.3	m	*Site design.*
Bottom Width (W)	1.03	m	*Length of spill crest from Grading Plan.*
Left Side Slope (Z_1)	29	:1	*horizontal ratio = distance / (top elevation - crest elevation)*
Right Side Slope (Z_2)	42	:1	*horizontal ratio = distance / (top elevation - crest elevation)*
Channel Slope (S)	2	%	*Slope of downstream land from Grading Plan.*
Flow (Q)	0.3117752	m^3/s	*100 Year flow + 20% for drainage areas B3, B4, B5, B6, B7.*
$\frac{Q*n}{S^{1/2}} = A*R^{2/3} =$	0.08		$Q = \frac{1}{n} * A * R^{2/3} * S^{1/2}$
Depth of Flow (y)	0.11	m	*Iterative solving of the following equation for "y" using a table:* $\frac{Q*n}{S^{1/2}} = A*R^{2/3} = \frac{A^{5/3}}{P^{2/3}} = \left(y\left(W + y\left(\frac{Z_1+Z_2}{2}\right)\right)\right)^{5/3} / \left(W + \sqrt{y^2+(Z_1 y)^2} + \sqrt{y^2+(Z_2 y)^2}\right)^{2/3}$
Wetted Perimeter (P)	2.05	m	$P = W + \sqrt{y^2+(Z_1 y)^2} + \sqrt{y^2+(Z_2 y)^2}$
Area (A)	0.51	m^2	$A = y\left(W + y\left(\frac{Z_1+Z_2}{2}\right)\right)$
Velocity (V)	0.62	m/s	$V = Q/A$
Hydraulic Radius (R)	0.25	m	$R = A/P$

This analysis assumes the ICDs are plugged, if they are operating then the overland flow out of the parking areas would be reduced by an additional 86.90 L/s which is still going out through ICD-3 and ICD-4. It also doesn't include the effect of storage attenuation above elevation 73.00m, which would further reduce the outflow requirement during an event. So this can be considered a conservative analysis.

Appendix C

Sanitary

24-5049A 700 Spring Valley Road - New School
Sanitary Sewer Design Sheet
Peak Flow Design Based on Site Area

Location			Sewer Data								Residential Flow							Commercial / Institutional Flow				Infiltration Flow			Total Flow	
Note	From	To	Length	Dia.	U.S. Inv.	D.S. Inv.	Slope	Capacity (full)	Velocity (full)	Utilization	Area	Units	Population	Cumulative		Average Flow	Peak Flow	Area *(ha)*		Average Flow	Peak Flow	Area *(ha)*		Inf. Flow	Average Flow	Peak Flow
														Area	Population			Individual	Cumulative			Individual	Cumulative			
			(m)	*(mm)*	*(m)*	*(m)*		*(l/s)*	*(m/s)*	*(%)*	*(ha)*		*(p)*			*(l/s)*	*(l/s)*			*(l/s)*	*(l/s)*			*(l/s)*	*(l/s)*	*(l/s)*
School	School	SAMH-1	2.0	200	70.04	70.00	2.00%	46.4	1.5	5.0	0.00	0	0	0.00	0	0.00	0.00	2.83	2.83	0.92	1.38	2.83	2.83	0.93	1.85	2.31
Municipal Connection	SAMH-1	Stub	3.4	200	66.77	66.75	0.59%	25.2	0.8	9.2	0.00	0	0	0.00	0	0.00	0.00	0.00	2.83	0.92	1.38	0.00	2.83	0.93	1.85	2.31
Municipal Connection	Stub	Ex. SAMH	13.2	200	66.75	66.66	0.68%	27.1	0.9	8.5	0.00	0	0	0.00	0	0.00	0.00	0.00	2.83	0.92	1.38	0.00	2.83	0.93	1.85	2.31

Parameter	Value	Unit	Source
Manning's Roughness (n)	0.013		City of Ottawa *Sewer Design Guidelines* , October 2012, Table 6.3
Residential Average Flow	280	L/p/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Commercial Average Flow	28000	L/ha/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Institutional Average Flow	28000	L/ha/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Industrial Average Flow	35000	L/ha/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Infiltration Allowance	0.33	L/s/ha	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018

Table 6.2 Sanitary Sewer Dia vs. Minimum Slope

Diameter	Minimum Slope
200 mm	0.32%
250 mm	0.24%
300 mm	0.186%
375 mm	0.14%
450 mm	0.111%
525 mm and larger	0.10%

Table 6.3 Material vs. Roughness Coefficient "n"

Material	Roughness Coefficient "n"
All Smooth Wall Pipes (PVC, Concrete, HDPE, all Linings etc.)	0.013
Brick	0.015
Corrugated Metal Pipe (paved)	0.017
Corrugated Metal Pipe (unpaved)	0.024

Table 4.2 Per Unit Populations

Unit Type	Persons Per Unit
Single Family	3.4
Semi-detached	2.7
Duplex	2.3
Townhouse (row)	2.7
Apartments:	
Bachelor	1.4
1 Bedroom	1.4
2 Bedroom	2.1
3 Bedroom	3.1
Average Apt.	1.8

Appendix D
Water

Boundary Conditions
700 Spring Valley

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	49	0.81
Maximum Daily Demand	73	1.22
Peak Hour	131	2.19
Fire Flow Demand #1	7,002	116.70

Location

Results

Connection 1 - Joshua St.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.7	83.9
Peak Hour	126.7	78.4
Max Day plus Fire Flow	126.0	77.4

[1] Ground Elevation = 71.6 m

Connection 2 - Spring Valley Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.7	83.4
Peak Hour	126.7	77.9
Max Day plus Fire Flow	124.8	75.0

[1] Ground Elevation = 72.0 m

Notes

1. 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.

To: Ryan Leonard <r.leonard@gwal.com>
Cc: Zachary Bauman <ZachB@jp2g.com>; Nathan Farncombe <nathanf@n45.ca>; 'Vladimir Popovic' <vladimirp@n45.ca>; Kurtis Naneff <knaneff@gwal.com>
Subject: RE: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request

Hi Ryan,

As per the City of Ottawa guidelines we have to follow the FUS Fire Under Writer Survey 2020 calculation methodology (FUS attached), table 4 provides the maximum % reduction of fire water demand that can be achieved through sprinkler credits:

Table 4 Sprinkler Credits

Automatic Sprinkler System Design	Credit	
	With complete building coverage	With partial building coverage of X%
Automatic sprinkler protection designed and installed in accordance with NFPA 13	30%	30% × Percentage of Total Floor Area Serviced by Sprinkler System
Water supply is standard for both the system and Fire Department hose lines	10%	10% × Percentage of Total Floor Area Serviced by Sprinkler System
Fully supervised system	10%	10% × Percentage of Total Floor Area Serviced by Sprinkler System

The FUS defines the “Water Supply is standard for both the system and the Fire Department hose lines” as follows:

Water Supply is Standard for both the Sprinkler System and Fire Department Hose Lines (10%)

To qualify to apply an additional 10% reduction, a water supply that is standard for both the sprinkler system and fire department hose lines is required, to qualify the following conditions should be satisfied:

a) Sprinkler system is supplied by a pressurized water supply system (public or private) that is designed and built with no major non-conformance issues (i.e. water supply system is designed in accordance with Part 1 of the Water Supply for Public Fire Protection to qualify for fire insurance grading recognition).
b) Calculated demand for maximum sprinkler design area operation in addition to hose stream requirements are below the available water supply curve (at the corresponding flow rate and pressure). An appropriate safety margin is used to take into account the difference between the available water supply curve at the time of hydrant flow testing as compared to the available water supply curve during Maximum Day Demand.

c) Volume of water available is adequate for the total flow rate including the maximum sprinkler design area operation plus required hose streams plus Maximum Day Demand for the full duration of the design fire event.
d) Residual pressure at all points in the water supply system can be maintained at not less than 150 kPa during the flowing of the sprinkler and required hose streams (plus Maximum Day Demand).

Our full calculation following FUS is attached, with a full 50% reduction on the sprinklers side (30% + 10% + 10%).
The final adjusted fire flow would be 7,000 l/ min.
table -1 FUS requires a fire duration of 2 hours for the 7,000 l/ min fire flow required.

Table 1 Required Duration of Fire Flow

Fire Flow Required (litres per minute)	Duration(hours)
2,000 or less	1.0
3,000	1.25
4, 000	1.5
5,000	1.75
6,000	2.0
8,000	2.0
10,000	2.0
12,000	2.5
14,000	3.0
16,000	3.5
18,000	4.0
20,000	4.5
22,000	5.0
24,000	5.5
26,000	6.0
28,000	6.5
30,000	7.0
32000	7.5
34,000	8.0
36,000	8.5
38,000	9.0
40,000 and over	9.5

** Interpolate for intermediate figures*

From: Vladimir Popovic <vladimirp@n45.ca>
Sent: Monday, July 29, 2024 12:36 PM
To: Ali Sammour <AliS@jp2g.com>
Cc: Zachary Bauman <ZachB@jp2g.com>; Nathan Farncombe <nathanf@n45.ca>
Subject: FW: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request

****EXTERNAL EMAIL**** Please use caution.

Ali,

See email below from Ryan. Can you clarify the 10%

Thanks,

Vlad

Vladimir Popovic, oaa, fraic, leed ap
partner

N45 Architecture Inc
The Sovereign Building
71 Bank Street, 7th Floor, Ottawa, Ontario, K1P 5N2

Phone (613) 224-0095 ext 224
Fax (613) 224-9811

From: Ryan Leonard <r.leonard@gwal.com>
Sent: Monday, July 29, 2024 12:29 PM
To: Vladimir Popovic <vladimirp@n45.ca>
Cc: Nathan Farncombe <nathanf@n45.ca>; Kurtis Naneff <knaneff@gwal.com>
Subject: RE: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request

Hi Vlad,

The answer is yes to all 3 questions, however, the below could use some explanation… What does standard mean in context below? NFPA 13 has a Quick Response area reduction clause which allows fire protection designers to reduce the design area if they use Quick Response sprinkler heads. This effectively reduces the amount of water supply used for calculating the sprinkler system. We would have to specifically state in our specifications that area reductions based on this rule is not permitted. Never had to do that before.

- Water Supply is standard for both the system and the Fire Department hose lines (10% credit)

RYAN LEONARD, P.Eng. | **Senior Associate, Senior Mechanical Engineer**
GOODKEY, WEEDMARK & ASSOCIATES LTD.

Email: r.leonard@gwal.com

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GWAL
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From: Vladimir Popovic <vladimirp@n45.ca>
Sent: Monday, July 29, 2024 10:50 AM

To: Ryan Leonard <r.leonard@gwal.com>
Cc: Nathan Farncombe <nathanf@n45.ca>
Subject: FW: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request
Importance: High

Ryan,

Would you be able to confirm the info below for Civil Engineer.

Thanks,

Vlad

Vladimir Popovic, oaa, fraic, leed ap
partner

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71 Bank Street, 7th Floor, Ottawa, Ontario, K1P 5N2

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From: Ali Sammour <AliS@jp2g.com>
Sent: Monday, July 29, 2024 9:59 AM
To: Vladimir Popovic <vladimirp@n45.ca>
Cc: Zachary Bauman <ZachB@jp2g.com>
Subject: FW: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request
Importance: High

Hi Vlad,

Could you please expedite the response from Mechanical on our below questions and Thank you.

Ali Sammour M.Eng., P.Eng., PMP
Manager - Civil Engineering | Senior Civil Engineer
Jp2g Consultants Inc.

1150 Morrison Drive, Suite 410, Ottawa | K2H 8S9, Ontario, Canada
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From: Ali Sammour <AliS@jp2g.com>
Sent: Wednesday, July 24, 2024 12:03 PM
To: Ryan Leonard <r.leonard@gwal.com>; Kurtis Naneff <knaneff@gwal.com>; Vladimir Popovic <vladimirp@n45.ca>
Cc: Zachary Bauman <ZachB@jp2g.com>; Kurtis Romanchuk <KurtisR@jp2g.com>
Subject: RE: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request
Importance: High

Hi Ryan,

Please see below from the City, could you please confirm that the sprinkler system is:

- An Automatic sprinkler protection designed and installed in accordance with NFPA 13 (30% credit)
- Water Supply is standard for both the system and the Fire Department hose lines (10% credit)
- A fully supervised system (10% credit)

Your confirmation on the 3 points above would allow us to apply a credit of 50% as shown on our attached calculation sheet and we will be able to get back to the city of Ottawa accordingly.

@Vladimir Popovic / @Ryan Leonard Please note the below by the City .

Ali Sammour M.Eng., P.Eng., PMP
Manager - Civil Engineering | Senior Civil Engineer
Jp2g Consultants Inc.

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From: Chetrar, Anton <anton.chetrar@ottawa.ca>
Sent: Wednesday, July 24, 2024 11:28 AM
To: Kurtis Romanchuk <KurtisR@jp2g.com>
Cc: Zachary Bauman <ZachB@jp2g.com>; Ali Sammour <AliS@jp2g.com>; Vladimir Popovic <vladimirp@n45.ca>; Adams, Reed <reed.adams@ottawa.ca>
Subject: RE: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request

****EXTERNAL EMAIL**** Please use caution.

Hi Kurtis,

Thank you for your e-mail.

We wanted to confirm the sprinkler system used in the Fire Flow Demand calculations. Per FUS 2020 - Automatic sprinkler systems give a 40% fire flow adjustment while the calculations show a 50% adjustment. If the intent is to provide a fully supervised sprinkler system, this will need to be discussed and demonstrated in the water section of the servicing brief how the system will function, as well as noted on the servicing drawings that a fully supervised sprinkler system will be used. Further, if a fully sprinkled system is being proposed, it will need be included as a condition of approval.

If a fully supervised sprinkler system is not being proposed, please revise the Fire Flow Demand calculations and re-submit.

Once this is confirmed, I will request the boundary conditions from the water group.

Also, going forward Mohammed is no longer working on this project and is replaced by Reed Adams (cc'ed on this e-mail).

Let me know if any questions.

Regards,
Anton Chetrar | P. Eng
Project Manager, Infrastructure - Gestionnaire de projet, Projets d'infrastructure
Development Review All Wards (DRAW) | Direction de l'examen des projets d'aménagement -Tous les quartiers (EPATQ)
Planning, Development and Building Services Department (PDBS) and Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
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anton.chetrar@ottawa.ca

From: Kurtis Romanchuk <KurtisR@jp2g.com>
Sent: July 23, 2024 3:13 PM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>; Chetrar, Anton <anton.chetrar@ottawa.ca>
Cc: Zachary Bauman <ZachB@jp2g.com>; Ali Sammour <alis@jp2g.com>; Vladimir Popovic <vladimirp@n45.ca>
Subject: PC2024-0236 700 Spring Valley Drive - Boundary Conditions Request

Hi Mohammed and Anton,

This is pertaining to the Pre-Application Consultation File Number PC2024-0236. I am submitting a Boundary Conditions Request for the proposed school complex site plan control application for the property 700 Spring

Valley Drive (pre-consultation notes attached for ease of reference). A sketch is attached showing the location of hydrants and the proposed service connection locations.

The Fire Flow Demand was calculated using the 2020 Fire Underwriters Survey method to be 116.7 L/s, refer to the attached calculation sheet for details.

Based on pre-consultation discussions, there is an assumed population of 675 students and an assumption of an additional 325 persons is included to account for the staff and day care. The total population used to calculate the domestic water demand is 1000 persons. The average daily domestic water demand rate, and the maximum daily and hourly peaking factors, are obtained from Table 4.2 of the *Ottawa Design Guidelines – Water Distribution*. As per the table below, the average daily rate of 70 L/student/day is equivalent to an average daily demand rate of 0.81 L/s for 1000 students. The maximum daily factor of 1.5 results in a maximum daily demand of 1.22 L/s, and the maximum hourly factor of 1.8 results in a maximum hourly demand of 2.19 L/s.

Parameter	Value	Unit	Source
Demand Type	Schools		Site plan
Average Daily Rate	70	L/student/d	*Ottawa Design Guidelines - Water Distribution* Table 4.2
Amount of students	1000	students	Site plan
Average Daily Demand	70000 0.81	L/d L/s	
Maximum Daily Factor	1.5		*Ottawa Design Guidelines - Water Distribution* Table 4.2
Maximum Daily Demand	1.22	L/s	
Maximum Hourly Factor	1.8		*Ottawa Design Guidelines - Water Distribution* Table 4.2
Maximum Hourly Demand	2.19	L/s	

Our proposed water service connection locations are:

- Connection 1 – West: The proposed school development will connect to an existing 300mm watermain service which connects to the 200mm watermain along Spring Valley Drive, to the west of the proposed school.
- Connection 2 – South: As the water demand calculation requires more than 50 m^3 per day, we understand from Note 20 of the pre-consultation notes that a second water service connection is required. We propose to connect to the existing 300mm watermain along Joshua Street, to the south of the proposed school.

We would like to confirm the boundary conditions for the school project at the corner of Spring Valley Drive and Joshua Street. Please let me know if you require any additional information at this point.

Best Regards,

Kurtis Romanchuk P.Eng.
Water Resources Engineer
Jp2g Consultants Inc.

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m: | **p:**

'

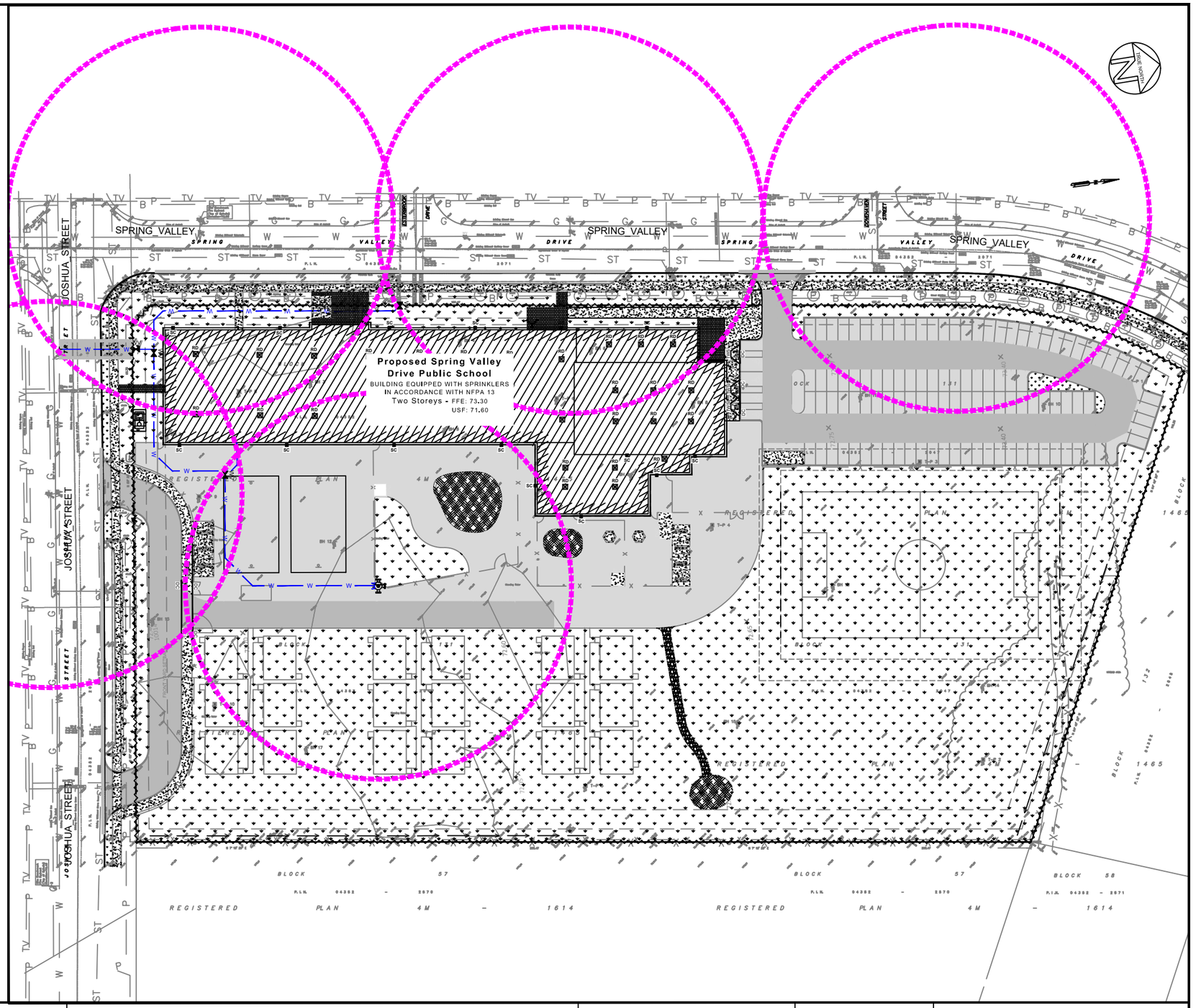
'

LEGEND

45m RADIUS - FIRE HYDRANT COVERAGE

FIRE HYDRANT

NEW WATERMAIN



				Jp2g PROJECT No.: 24-5049A	PROJECT: 700 SPRING VALLEY DRIVE ELEMENTARY SCHOOL 700 SPRING VALLEY DR, OTTAWA, ONTARIO K1W 0C5	CLIENT No.:	NORTH: TRUE NORTH
						DRAFTED: R.ISMAIL	SCALE: 1:1,000 (0 m, 10, 20, 30, 40, 50 m)
						DESIGNED: K.ROMANCHUK	
1	2024-09-05	K.R.	ISSUED FOR SITE PLAN CONTROL		DRAWING: FIGURE-3 FIRE HYDRANT COVERAGE AREAS	REVIEWED: Z.BAUMAN	SHEET# FIG.3
No.	YYYY-MM-DD	BY	DESCRIPTION			APPROVED: A.SAMMOUR	

DWG NAME: \\JP2GDATA\PROJECT DATA\5-CIVIL\2024\24-5049A - N45 - NEW SCHOOL - 700 SPRING VALLEY DR\05 DRAWINGS\1 ONGOING\24-5049A_700_SPRING_VALLEY_DRIVE-SPC-REV-1-2024-09-05.DWG LAYOUT: FIG.3_HYDRANT SAVED ON 2024-09-05

New School_700 Spring Valley Drive_Ottawa

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

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 KR
Checked ZB
Dwg. Reference C1
Jp2g project No 21-5149A

F = Required fire flow (L/min)
C = Coefficient related to the type of construction
$C_{1.5}$ = 1.5 for wood frame construction
$C_{1.0}$ = 1.0 for ordinary construction
$C_{0.8}$ = 0.8 for non-combustible construction
$C_{0.6}$ = 0.6 for fire-resistive construction
A = Total floor area in square metres

New School Building

Design Parameters*

Type of Building Construction = Type II (Noncombustible)
Floor Area*** = 7400.0 m^2
Occupancy and Contents Class Limited combustible
Sprinkler System = Automatic sprinkler system conforming to NFPA standards
Sprinkler Building Coverage = Complete building coverage
Factor of Building Coverage X = 1
Number of Storeys = 2

Exposure Parameters*

	West	North	East	South	
Separation Distance =	over 30m	over 30m	over 30m	28	m
Length of Exposed Wall =	NA	NA	NA	22.8	m
Length-Height Factor =	NA	NA	NA	22.8	m·storeys (up to a maximum of 5-storeys)

				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)
	7,400.0	0.8	15,000.0	-0.15	12,750.0	50%	6,375.0	0%	0%	0%	2%	2%	255.0	7,000.0	116.7

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

D.1.2 - Existing Water Boundary Conditions - Connection 1 - Joshua Street

Water Demands

Average Daily Demand:	0.81	l/s
Maximum Daily Demand:	1.22	l/s
Maximum Hour Demand:	2.19	l/s
Fire Flow Demand:	116.67	l/s
Maximum Daily + Fire Flow Demand:	117.89	l/s

Design Parameters

Pipe Diameter:	150	mm
Pipe Material:	PVC	
Pipe Length (total network):	73.0	m
Finished Floor Elevation:	73.30	
Pavement (R.O.W.) Elevation:	71.60	

Boundary Conditions

Max. HGL:	130.7	m
Min HGL:	126.7	m
Max. Day + Fire:	126	m

Boundary Condition Check

Check water pressure at municipal connection:

Min. HGL - Pavement elevation =	55.10	m
=	78.35	psi*
=	540.21	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** =	53.39	m
=	75.92	psi***
=	523.45	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):

Min. HGL - Finished floor elevation - Friction Loss** =	38.17	m
=	54.28	psi****
=	374.27	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

D.1.2 - Existing Water Boundary Conditions - Connection 1 - Joshua Street

Water Demands

Average Daily Demand:	0.81	l/s
Maximum Daily Demand:	1.22	l/s
Maximum Hour Demand:	2.19	l/s
Fire Flow Demand at hydrant	116.67	l/s
Maximum Daily + Fire Flow Demand:	117.89	l/s

Design Parameters

Pipe Diameter:	150	mm
Pipe Material:	PVC	
Pipe Length (total network):	122.6	m
Finished Floor Elevation:	73.30	
Pavement elevation at hydrant:	72.91	

Boundary Conditions

Max. HGL:	130.70	m
Min HGL:	126.70	m
Max. Day + Fire:	126.00	m

Boundary Condition Check

Check water pressure at fire hydrant

Min. HGL - elevation at hydrant- Friction Loss** =	37.43	m	
=	53.23	psi****	
=	367.00	kPa****	

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

******Appendix I Ottawa design guidelines table 1 hydrant class AA, 5,700 l/min =95 l/s at a minimum 20 psi**

D.1.3 - Existing Water Boundary Conditions - Connection 2 - Spring Valley Road

Water Demands

Average Daily Demand:	0.81	l/s
Maximum Daily Demand:	1.22	l/s
Maximum Hour Demand:	2.19	l/s
Fire Flow Demand:	116.67	l/s
Maximum Daily + Fire Flow Demand:	117.89	l/s

Design Parameters

Pipe Diameter:	150	mm
Pipe Material:	PVC	
Pipe Length (total network):	132.5	m
Finished Floor Elevation:	73.30	
Pavement (R.O.W.) Elevation:	72.00	

Boundary Conditions

Max. HGL:	130.7	m
Min HGL:	126.7	m
Max. Day + Fire:	124.8	m

Boundary Condition Check

Check water pressure at municipal connection:

Min. HGL - Pavement elevation =	54.70	m
=	77.78	psi*
=	536.29	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** =	53.38	m
=	75.91	psi***
=	523.38	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):

Min. HGL - Finished floor elevation - Friction Loss** =	25.13	m
=	35.74	psi****
=	246.42	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

D.1.3 - Existing Water Boundary Conditions - Connection 2 - Spring Valley Road

Water Demands

Average Daily Demand:	0.81	l/s
Maximum Daily Demand:	1.22	l/s
Maximum Hour Demand:	2.19	l/s
Fire Flow Demand at hydrant	116.67	l/s
Maximum Daily + Fire Flow Demand:	117.89	l/s

Design Parameters

Pipe Diameter:	150	mm
Pipe Material:	PVC	
Pipe Length (total network):	182.1	m
Finished Floor Elevation:	73.30	
Pavement elevation at hydrant:	72.91	

Boundary Conditions

Max. HGL:	130.70	m
Min HGL:	126.70	m
Max. Day + Fire:	124.80	m

Boundary Condition Check

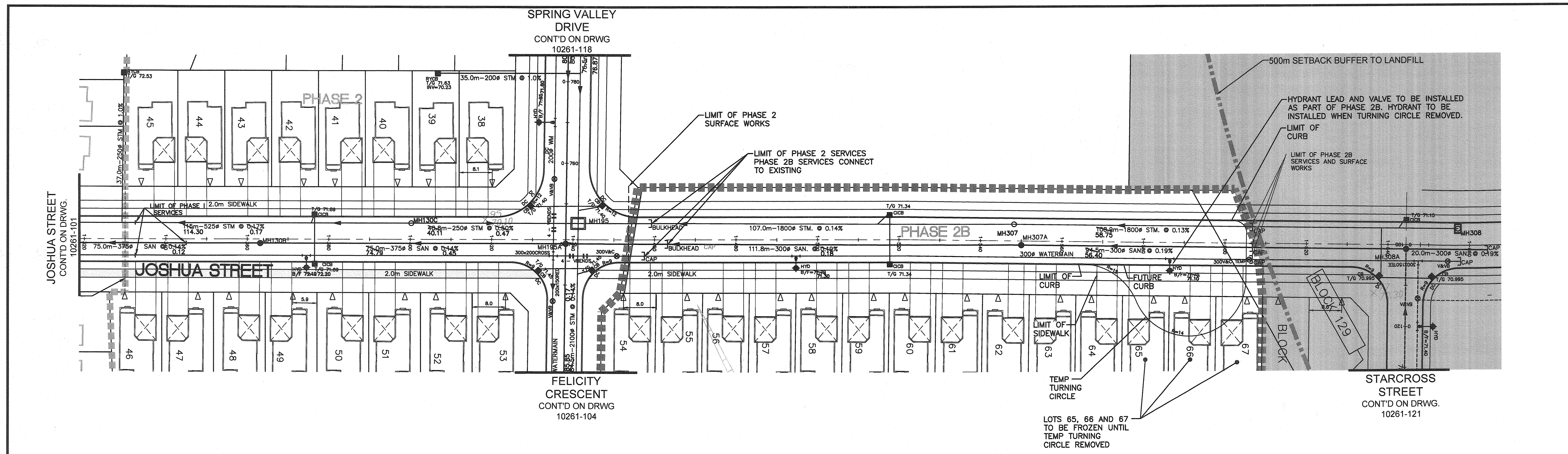
Check water pressure at fire hydrant

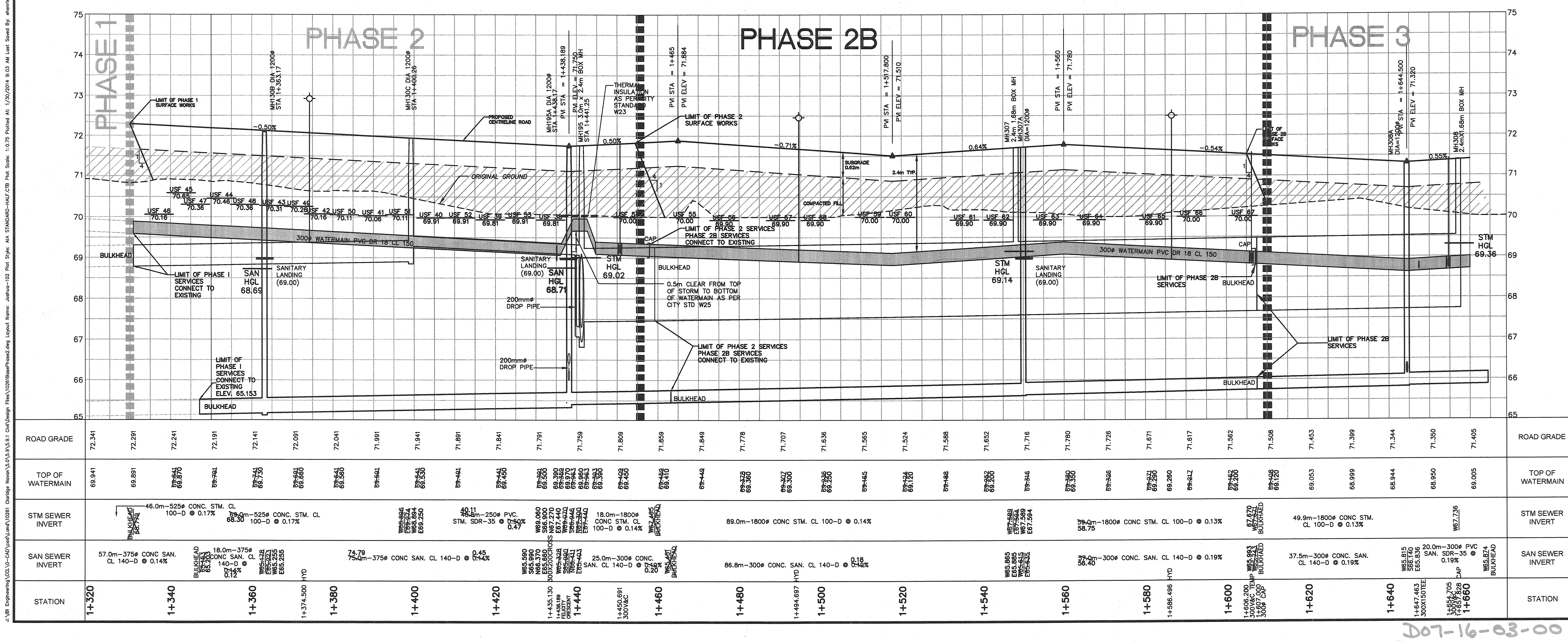
Min. HGL - elevation at hydrant- Friction Loss** =	29.49	m	
=	41.94	psi****	
=	289.17	kPa****	

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

******Appendix I Ottawa design guidelines table 1 hydrant class AA, 5,700 l/min =95 l/s at a minimum 20 psi**

Appendix E
Additional Documents





LEGEND

300ø ST.	STORM SEWER
250ø SAN.	SANITARY SEWER
100ø WATERMAIN	WATERMAIN
	SUBDRAIN
STMH	STORM MANHOLE
CBMH	CATCHBASIN MANHOLE
MH1A	SANITARY MANHOLE
HYD	HYDRANT
V&VB	VALVE AND VALVE BOX
CB	CATCH BASIN
CICB	CURB INLET CATCH BASIN
DC	DEPRESSED SIDEWALK
	SERVICE LOCATION
	TWIN SERVICE LOCATION
	CURB, BARRIER CURB EXCEPT WHERE FRONTING TOWNHOUSE ON 18m ROW MOUNTABLE CURB TO BE USED.
	PHASING LINE FUTURE WORK

No.	REVISIONS	By	Date
19			
18			
17	ASBUILT	EH	14:01:30
16	REVISED AS PER CITY COMMENTS	DGY	12:01:18
15	REVISED AS PER CITY COMMENTS	DGY	11:08:11
14	ADDED PHASE 2B LIMIT	DGY	11:06:16
13	REVISED AS PER NEW LEGAL	DGY	10:11:17
12	REVISED AS PER NEW LEGAL	DGY	10:10:25
11	REVISED AS PER CITY COMMENTS	DGY	10:09:20
10	REVISED FOR PHASE 2	DGY	09:04:03
9	REVISED AS PER NEW LEGAL	DGY	08:02:20
8	REVISED AS PER NEW LEGAL	DGY	07:08:03
7	REVISED SANITARY HGL	DGY	07:02:28
6	REVISED AS PER CITY COMMENTS	DGY	07:02:20
5	REVISED AS PER CITY COMMENTS	DGY	07:01:23
4	REVISE DRAFT PLAN	DGY	06:12:21
3	REVISED FOR TENDER SET	DGY	06:10:10
2	REVISED AS PER CITY COMMENTS	DGY	06:09:13
1	ISSUED FOR APPROVAL	DGY	06:08:16

CLARIDGE HOMES

IBI GROUP
333 Preston Street
Tower 1, Suite 400
Ottawa, Ontario
Canada K1S 5N4
Tel (613)225-1311
FAX (613)225-9868

Project Title
CLARIDGE HOMES SPRING VALLEY

LICENSED PROFESSIONAL ENGINEER D. G. Yannoulopoulos PROVINCE OF ONTARIO

N

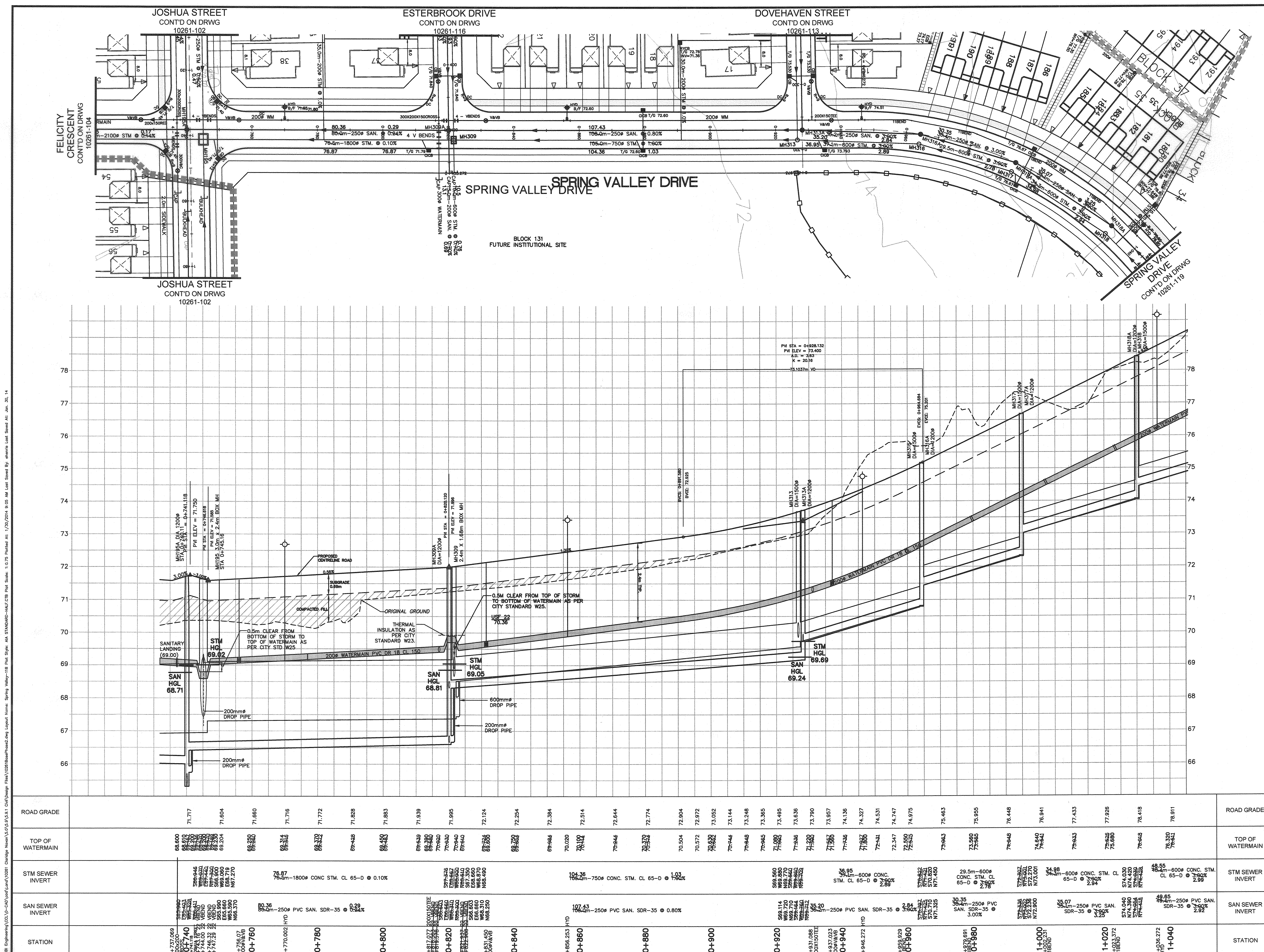
Drawing Title
JOSHUA STREET STA. 1+320 TO STA. 1+660

Scale H 1:500 V 1:50

Design	Date
D.G.Y.	AUGUST 2006
Drawn	Checked
D.D.	
Project No.	Drawing No.
10261	102

D07-16-03-0011

14270



LEGEND

300ø ST.	STORM SEWER
250ø SAN.	SANITARY SEWER
100ø WATERMAIN	WATERMAIN
	SUBDRAIN
STMH	STORM MANHOLE
CBMH	CATCHBASIN MANHOLE
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	PHASING LINE
	FUTURE WORK

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4	ASBUILT	EH	14:01:30
3	REVISED AS PER NEW LEGAL	DGY	10:11:17
2	REVISED AS PER CITY COMMENTS	DGY	10:09:20
1	ISSUED FOR PHASE 2	DGY	09:04:03

CLARIDGE HOMES

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Project Title
CLARIDGE HOMES
SPRING VALLEY

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
PROVINCE OF ONTARIO

Drawing Title
SPRING VALLEY DRIVE
STA. 0+740 TO STA. 1+045

Scale
H 1:500
V 1:50

Design	Date
D.G.Y.	NOVEMBER 2008
Drawn	**Checked**
E.H.	D.G.Y.
Project No.	**Drawing No.**
10261	118

D07-16-03-0011 14270

File No.: PC2024-0236

July 5, 2024

Barry Boyd
c/o OCDSB
131 Green Bank Road
Ottawa, ON K2H 6L3

Via email: barry.boyd@ocdsb.ca

Subject: Pre-Consultation: Meeting Feedback
Proposed Complex – Site Plan Control Application – 799 Spring Valley Drive

Thank you for meeting with us regarding the Ottawa-Carleton District School Board's development proposal regarding an elementary school, including daycare and the potential introduction of 18 portables. Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on June 25, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

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

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 3 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca. Please note that you may submit the Phase 3 pre-consultation request under this same file number and directly to Shoma Murshid.

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

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

Supporting Information and Material Requirements

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

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

Consultation with Technical Agencies

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

Planning

Comments:

1. Policies and provisions

a. PPS: Settlement Area

b. OP: Neighbourhood, Suburban Transect Area East

c. East Urban Community Development Plan (Phase 1): Institutional – School

d. Zoning I1F: Minor Institutinal Zone, subzone F

2. Committee of Adjustment / variances required: unknown

3. Section 37 requirements / Community Benefits Charge: Not required.

4. Design guidelines: Refer to comments starting at #9, Urban Design Comments (Nader Kadri).

5. Landscape requirements: Refer to comments starting at #42, Forestry Comments (Hayley Murray).

6. Clay soils policy apply. Please click on this link to read more about this policy.

7. East Urban Community Landowners Group (EUCLOG) - please obtain a letter of clearance from EUCLOG. This letter will be required prior to site plan approval. Reach out to:

   Kris Kilborn

   Principal, Community Development

   Business Center Practice Lead

   Mobile: 613 297-0571
   Fax: 613 722-2799
   kris.kilborn@stantec.com

   Stantec
   300 - 1331 Clyde Avenue
   Ottawa ON K2C 3G4

   Kris Kilborn will provide you with the trustee's contact information.

8. Please pre-consult with Rideau Valley Conservation Authority as their sign off will be required prior to site plan approval:

   Eric Lalande, MCIP, RPP
   Senior Planner, Rideau Valley Conservation Authority
   613-692-3571 x1137

Urban Design

Comments:

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

10. Please consider pedestrian circulation throughout the property, particularly from the surface parking lot to the school. The OCDSB template may benefit from a segregated walkway through the center of the parking lot.
11. Please ensure that there are pedestrian markings at crosswalks and critical pedestrian routes.

12. Please provide low-scale perennial planting between the proposed parking lot and Spring Valley Drive.
13. Please increase the amount of tree planting along the perimeter of the property.
14. Please explore a mural or further architectural articulation of the blank facades (example: Shingwakons Public School)

15. In coordination with Transportation comments, explore the removal of the vehicular lay-by in front of the proposed bus lay-by.

Feel free to contact Nader Kadri for follow-up questions.

Engineering

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

    a. Demonstrate the servicing strategy is consistent with higher-level studies and plans. Excerpts from relevant higher-level studies and plans will need to be discussed and provided in the Appendix of the Site Servicing and SWM report as supporting documentation to the design. Any deviations will require an update or addendum to the subdivision level MSS to support any changes at the discretion of the City. The following studies apply: **(Gloucester East Urban Community (EUC) Infrastructure Servicing Study Update – Dated November 2004 and revised March 2005; Spring Valley Trails Subdivision – Phase 2 Development Servicing Report – Dated July 2010 and revised September 2010).**

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

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

    d. **Water Quality Control**: provided at SWM Pond 3.

    e. **Water Quantity Control**: Based on the Spring Valley Trails Subdivision – Phase 2 Development Servicing Report – Dated July 2010 and revised September 2010, the allowable release rate for the subject site is 240.55 l/s up to the 5-year storm event. Please control post-development runoff from the subject site, above the 5-year storm event up to and including the 100-year storm event.

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

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

ii. Demonstrate that the stress test spill elevation (100-year +20% event) does not spill onto any permanent structures.
iii. The maximum permissible ponding depth for the 100-year storm event is 350mm. No spilling to adjacent sites.
iv. Please note that as per Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14) there shall be no surface ponding on private parking areas during the 2-year storm rainfall event. 100-year spill elevation must be 300mm lower than any building opening or ramp

h. Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.

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

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

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

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

i. When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on

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

ii. Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc. UG storage to provide actual 5- and 100-year event storage requirements.

17. General Servicing

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

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

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

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

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

18. Storm Sewer

    a. A 600mm dia. concrete storm sewer (2011) stub is available at Esterbrook Drive and Spring Valley Drive.

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

19. Sanitary Sewer

    a. A 200 mm dia. PVC Sanitary sewer (2011) is available at Esterbrook Drive and Spring Valley Drive.

    b. Please provide the new Sanitary sewer discharge and we will confirm if sanitary sewer main has the capacity. The allowable sanitary release rate based on the Spring Valley Trails Subdivision – Phase 2 Development Servicing Report – Dated July 2010 and revised September 2010, is 3.25l/s.

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

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

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

    f. The proposed wastewater servicing design shall be consistent with higher-level studies and plans (Spring Valley Trails Subdivision – Phase 2 Development Servicing Report – Dated July 2010 and revised September 2010).

20. Water:

    a. A 300 mm dia. PVC watermain (2011) is available at Esterbrook Drive and Spring Valley Drive.

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

    c. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the

expected loads required by the proposed development, including calculations. Please provide the following information:

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

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

v. Average daily demand: __L/s.

vi. Maximum daily demand: __L/s.

vii. Maximum hourly daily demand: __L/s.

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

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

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

f. Any proposed emergency route is to be to the satisfaction of Fire Services.

21. Grading and Erosion

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

b. Erosion and sediment control plan must be provided.

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

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

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

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

22. Environmental

a. The Phase One ESA will need to be updated in a letter format (i.e. not a full report) due to the report being published more than 18 months ago. The update shall review all the information re a potential for occurrence of contamination impacting the site since the original phase one ESA was done. The phase one ESA shall be updated as per the requirements of Section 28 of the O. Reg. 153/04.

23. Geotechnical

a. Please note that a full depth Geotechnical Study/Investigation shall be prepared in support of this development proposal.

b. Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long-term damages associated with lowering the groundwater in this area.

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

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

24. Slope Stability Assessment Reports

    a. The North-West corner of the site has slopes more than 2 meter in height. A report addressing the stability of slopes, prepared by a qualified geotechnical engineer licensed in the Province of Ontario, should be provided wherever a site has slopes (existing or proposed) steeper than 5 horizontal to 1 vertical (i.e., 11 degree inclination from horizontal) and/or more than 2 meter in height.

    b. A report is also required for sites having retaining walls greater than 1 meter high, that addresses the global stability of the proposed retaining walls.

    c. Slope Stability Guidelines for Development Applications (ottawa.ca)

25. Regarding Quantity Estimates

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

26. Gas pressure regulating stations: A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans. This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.

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

Feel free to contact Anton Chetrar, Project Manager, for follow-up questions.

Noise

Comments:

27. A noise study is required and must address:

    a. Road, as the site is within proximity to Sweet Valley and Joshua, both collectors. Note that the study submitted did not address these two collector roadways and is therefore not adequate.

b. Rail, site is within 300m of Montreal and Ottawa Rail Corridor.

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

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

Transportation

Comments:

29. Follow Transportation Impact Assessment Guidelines:

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

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

    c. TIA must account for 18 portable classrooms proposed.

    d. Please ensure the TIA is clear on the intended traffic operations, i.e. school bus drop off zones, parent drop off areas, etc.

    e. Transportation has concerns with the parallel on-street lay-by area and the on-site loop in terms of conflict points between pedestrians, buses and passenger vehicles. It is the city's preference to have only one of the two drop-off lanes (i.e. on street or on site).

    f. The southern most lay-by on Sweet Valley appears to be close to the intersection, the location will be reviewed as part of the TIA/RMA and re-location further away from the intersection may be required.

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

    h. An RMA is required for the proposed lay-bys, the functional plan and/or RMA plans must be submitted with the formal submission to deem complete. You are strongly recommended to start the RMA process as soon as possible. Request base mapping asap if RMA is required, contact Engineering Services.

i. The proposed alternative for on-street parent drop off will be discussed and reviewed by transportation staff. Please provide a concept plan for discussion purposes at your earliest convinience.

30. Note the renderings provided for discussion do not show the proposed lay-bys.

31. ROW Protection:

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

    b. Corner triangles are required (measure on the property line/ROW protected line; no structure above or below this triangle): Collector to collector: two overlapping 5 metre x 15 metre triangles.

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

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

32. Clear throat requirements on a collector is 15m. Ensure this length is provided. The clear throat length is measured from the ends of the driveway curb return radii at the roadway and the point of first conflict on-site.

33. Nearby DC intersections include a future roundabout at Renaud Road and Navan Road (there is no timeline for this work).

34. Transportation Master Plan includes widening Navan Road between Brian Coburn Blvd and Mer Bleue Rd, 2031 Network Concept (there is no timeline for this work).

35. Nearby planned construction and infrastructure projects include:

    a. Renaud Road Traffic Calming Measures listed as Area Traffic Management Measures along Renaud in progress this year, for more information, reach out to PM Christine Reist.

    b. Culvert renewal on Navan Rd planned this year. For more information contact PM: Daniel Brazeau

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

    a. Ensure all crosswalks located internally on the site provide a TWSI at the depressed curb, per requirements of the Integrated Accessibility Standards Regulation under the AODA.

    b. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).

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

37. On site plan:

    a. Ensure site access meets the City's Private Approach Bylaw.

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

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

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

    e. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).

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

    g. Sidewalk is to be continuous across access as per City Specification 7.1.

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

Environment

Comments:

38. There are no natural heritage features or surface water features on site that would trigger the need for an Environmental Impact Statement (EIS). There is the potential for at-risk Butternut trees to be present on or adjacent to the site. However, these trees will be addressed through the Tree Conservation Report (TCR) as requested by Forestry in the following comments section, so an EIS is not required for this submission.

39. The applicant is encouraged to review the City's Bird Safe Design Guidelines and incorporate mitigation measures from that document where appropriate.

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

41. Some additional plantings along the northern perimeter of the site that allow for a more natural gradation into the adjoining woodlands would be appreciated.

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

Forestry

Comments:

42. A Tree Conservation Report and Landscape Plan are submission requirements for this site plan application.
43. The development needs to design around all healthy retainable trees where feasible. Services, parking access…etc. need to minimize impact to retainable trees in the right of way.
44. The Official Plan, section 4.10.3 strongly supports tree retention and tree planting on a school site. Please review these policies:
    a. School site design must incorporate new tree plantings and the conservation of existing trees where possible.
    b. Woodlots, stands of trees or clusters of newly planted trees, should be incorporated into functional spaces either on site or through a pathway connected to adjacent sites, where appropriate and feasible.
45. The Geotechnical Report identifies clays with high plasticity but does not identify any tree planting restrictions on site. Please confirm there are no geotechnical tree planting implications that need to be adhered to. This must be noted on the Landscape Plan.

46. Show the dimensions of the planting areas as part of demonstrating the soil volume provided. For example, what is the width of the planting bed along Joshua Street?

47. Large canopy native species are always preferred.

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

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

b. Any tree 10 cm in diameter or greater and City-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.

c. The TCR must contain 2 separate plans/maps:

    i. Plan/Map 1 - show existing conditions with tree cover information.

    ii. Plan/Map 2 - show proposed development with tree cover information.

d. The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter, and health condition. Please note that averages can be used if there are forested areas.

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

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

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

h. 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

i. 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.

j. Removal of a City tree is not permitted unless justified. If justified, monetary compensation for the value of the tree must be paid before a tree removal permit is issued.

46. Landscape Plan (LP) requirements.

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

Additional Elements for Tree Planting in the Right of Way:

l. Please ensure any retained trees are shown on the LP
m. Sensitive Marine Clay - Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.
n. Soil Volume - Please demonstrate as per the Landscape Plan Terms of Reference that the available soil volumes for new plantings will meet or exceed the minimum soil volumes requested.
o. The city requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.
p. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. Please provide a projection of the future canopy cover for the site to 40 years
q. Minimum Setbacks
    iii. Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
    iv. Maintain 2.5m from curb
    v. Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.

    vi. 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.

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

r. Tree specifications
    viii. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.

    ix. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.

    x. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and if possible, include watering and warranty as described in the specification.

    xi. No root barriers, dead-man anchor systems, or planters are permitted.

    xii. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

s. Hard surface planting

xiii. If there are hard surface plantings, a planting detail must be provided.

xiv. Curb style planters are highly recommended.

xv. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.

xvi. Trees are to be planted at grade.

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

Parkland

Comments:

47. Cash-in-lieu of parkland / parkland dedication

    a. Parkland Dedication By-law No. 2022-280

    b. The school site is exempt from parkland dedciation.

        xvii. Kindly confirm if there is an intent to have an internal connection to the park.

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

Other

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

    a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. Please be advised that this is expected to occur in Q3 2024.

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

Submission Requirements and Fees

49.

a. Site Plan Control, Application for New Development, Complex ($72,000.22) + Initial Engineering Design Review and Inspection Fee ($$ based on a sliding scale) + Initial Conservation Authority Fee ($1,120)

b. Additional information regarding fees related to planning applications can be found here.

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

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

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

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

Yours Truly,
Jennifer Rodriguez
Student Planner

Reviewed by Shoma Murshid, MCIP, RPP

Encl. SPIL (Study and Plan Identification List)

c.c. Shoma Murshid, Nader Kadri, Mohammed Fawzi, Anton Chetrar, Jessica Button, Mark Elliot, Hayley Murray, Josiane Gervais, Arushi Dutta

File No.: PC2024-0417

November 14, 2024

Barry Boyd
c/o OCDSB
131 Green Bank Road
Ottawa, ON K2H 6L3

Via email: barry.boyd@ocdsb.ca

Subject: Phase 3 Pre-Consultation: Review Feedback
Proposed Complex – Site Plan Control Application – 700(799) Spring Valley Drive

Please find below information regarding next steps as well as consolidated comments from the review of the studies and plans submitted in support of the above-noted pre-consultation.

Next Steps

1. A review of the materials submitted for the above-noted pre-consultation has been undertaken and staff have identified deficiencies needing to be resolved**.** Please proceed to complete a Pre-consultation Application Form for another Phase 3 review and submit together with the necessary revised studies and/or plans to planningcirculations@ottawa.ca.

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

3. Please note, responses to any additional comments provided below may be included within the subsequent pre-consultation submission, however, may also be addressed as part of the future formal application submission.

Planning

Comments:

1. Policies and provisions

a. PPS: Settlement Area

b. OP: Neighbourhood, Suburban Transect Area East

c. East Urban Community Development Plan (Phase 1): Institutional – School

d. Zoning I1F: Minor Institutinal Zone, subzone F

2. Section 37 requirements / Community Benefits Charge: Exempt.

3. East Urban Community Landowners Group (EUCLOG)

Proposed school to be built at 799 Spring Valley Drive does not have any obligations under the above noted CSA.

Urban Design

Comments:

4. No further comments.

Engineering

- **Preliminary Geotechnical Investigation – Proposed Spring Valley Trails Elementary School**, prepared by EXP Services Inc., dated March 18, 2019.
- **Servicing and Stormwater Management Report – 700 Spring Valley Road**, prepared by Jp2g Consultants Inc., dated September 2024.
- **Site Servicing Plan**, Drawing No. C1, prepared by Jp2g Consultants Inc., revision 1, dated 09/05/24, stamped 09/05/24.
- **Site Grading, Erosion and Sediment Control Plan**, Drawing No. C2, prepared by Jp2g Consultants Inc., revision 1, dated 09/05/24, stamped 09/05/24.
- **Details, Notes and Schedules**, Drawing No. C3, prepared by Jp2g Consultants Inc., revision 1, dated 09/05/24, stamped 09/05/24.
- **Phase I – Environmental Site Assessment – Spring Valley Drive at Joshua Street**, prepared by CM3 Environmental Inc., dated February 2019.
- **Planning Engineering Comments – PC2024-0417,** prepared byJp2g Consultants Inc., dated October 8, 2024.

Comments:

Preliminary Geotechnical Report

5. Please provide final geotechnical report referenced in the details drawing for review.

6. Provide servicing and grading drawings for Geotech review.

Servicing and Stormwater Management Report

7. Provide reference to the approved servicing study for the subdivision and the geotechnical investigation.

8. Provide discussion in the report related to agency consultation, permits and approvals required.

9. Provide a location map for the subject site in the servicing report.

10. Provide discussions on the storm and sanitary backwater valves as specified on servicing drawing.

Site Servicing Plan

11. Ensure that the site plan on the civil drawings to match the latest site plan.

12. Revise the proposed storm sewer diameter to match the existing storm sewer stub diameter (600mm dia.)

13. Please revise on plan the existing and proposed sanitary pipes currently labeled as storm.

14. Clearly differentiate on civil drawings the following: existing concrete curb, new concrete curb, existing sidewalk, new concrete sidewalk.

Site Grading, Erosion and Sediment Control Plan

15. Proposed retaining wall adjacent to Spring Valley Drive ROW:

    a. Proposed TOW/BOW elevations should be shown at minimum 3 locations throughout the length of any proposed retaining walls.

    b. Proposed retaining walls over 1.0m in height must be designed and sealed by a structural P.Eng. along with a stamped engineering report, stating that the proposed retaining wall is designed with a factor of safety ≥ 1.5 against global instability.

    c. Ensure that retaining wall and related construction is located entirely on private property. In the event that excavation is required on the City ROW or adjacent property, additional permit and/or permission might be required.

16. Existing permitter grades to be shown clearly all around the property lines (ex. southeast area.)

Details, Notes and Schedules

17. Please update Note #6 for Sanitary Sewer and Storm Sewer to refer to City of Ottawa standard S35.

Phase I - Environmental Site Assessment

18. Section 3.2.1 of report mentions that records have been ordered from the MECP however were not available at the time of report. Please update the report to include this information.

19. *Engineering comment #22* from the Phase 1 Feedback remains outstanding.

Planning Engineering Comments – Jp2g Responses

20. *Engineering comment #16a:* (City response: Excerpts from the relevant higher-level studies and plans have not been included nor discussed in the report as stated in the original City comment. Please update the report to include discussion and demonstrate how the servicing strategy is consistent with the relevant higher-level studies.)

21. *Engineering comment #16b, c, d, f, i, k, l:* Jp2g response acknowledged.

22. *Engineering comment #16e:* Provide reference in the report to the approved subdivision servicing report and include excerpts from approved subdivision servicing report in the Appendix.

23. *Engineering comment #16g, ii:* Please include discussion regarding the stress test in the body of report. It is acknowledged that Appendix B includes the stress test analysis.

24. *comment #16h:* Please discuss in the body of the report how the foundation drainage system will be integrated into the servicing design.

25. *Engineering comment #16j:* Please provide a roof drain plan as previously requested. Also please complete the attached roof drain declaration form.

26. *Engineering comment #17a, b, c, d, e:* Jp2g response acknowledged.

27. *Engineering comment #18a:* The servicing drawing shows a proposed 525mm dia. concrete storm sewer connection to the existing 600mm dia. concrete storm sewer. Please revise the proposed storm sewer to 600mm dia.

28. *Engineering comment #18b:* Jp2g response acknowledged.

29. *Engineering comment #19a, c, d, e:* Jp2g response acknowledged.

30. *Engineering comment #19b, f:* Provide reference in the report to the approved subdivision servicing report and include excerpts from approved subdivision servicing report in the Appendix.

31. *Engineering comment #20a,b:* Please provide the building with a dual feed watermain as per comment (b). The building will require 2 water maters – please show the location of the water meters.

32. *Engineering comment #20c, e,:* Jp2g response acknowledged.

33. *Engineering comment #20d:* Please review and revise the design for future hydrant feed. If the watermain breaks anywhere in the highlighted location H (shown on drawing C1 comments), the fire hydrant will be out of order.

34. *Engineering comment #20f:* The proposed emergency route is currently being reviewed by Fire Services. Comments will be provided once available.

35. *Engineering comment 21a:* Refer to Site grading comment above.

36. *Engineering comment 21b, d, e, f:* Jp2g response acknowledged.

37. *Engineering comment 21c:* Snow storage areas not shown on drawing C2 as per response, please updated drawing to show location of snow storage areas.

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

Noise

List of Studies and Plans Reviewed:

- **Noise Impact Study**, prepared by Thornton Tomasetti, dated June 4, 2024.

Deficiencies:

38. A noise study is required and must address:

a. Road, as the site is within proximity to **Sweet Valley** and **Joshua**, both collectors. Note that the study submitted did not address these two collector roadways and is therefore not adequate.

b. Rail, **site is within 300m of Montreal and Ottawa Rail Corridor**, which is a Protected Transportation Corridor as per the City's OP. The study submitted did not address the rail corridor and is therefore not adequate.

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

Transportation

- **700 Spring Valley Drive Transportation Impact Assessment**, prepared by Novatech, dated September 2024.
- **Site Plan and Details**, Drawing No. A001, prepared by N45 Architecture, revision 01, dated 09 September 2024.
- **Site Grading, Erosion and Sediment Control Plan**, Drawing No. C2, prepared by Jp2g Consultants Inc., revision 1, dated 09/05/24, stamped 09/05/24.
- **Landscape Plan**, prepared by Ruhland and Associates Ltd, dated 2024/09/13

Deficiencies:

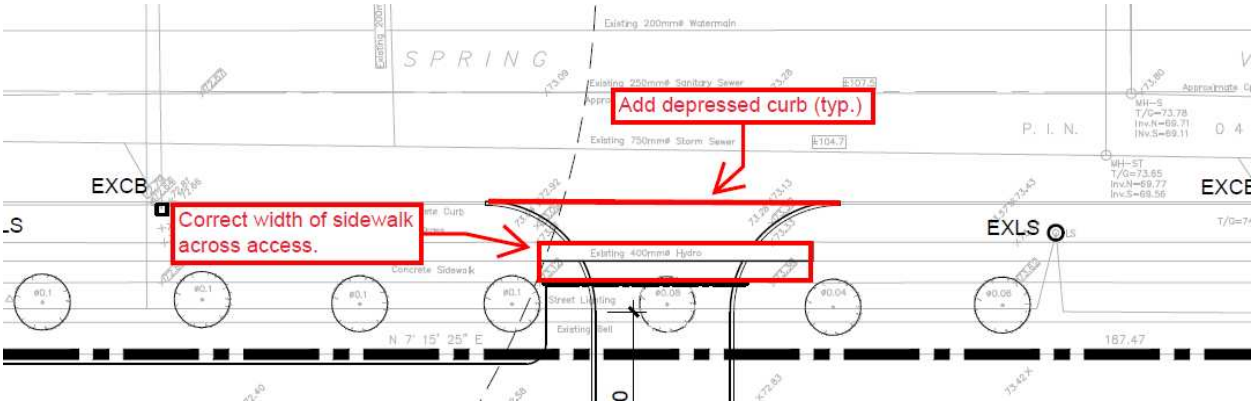
39. Landscape and Civil plans still show a layby along Spring Valley Drive and Joshua Street, revise to ensure consistency between plans.

Comments:

Transportation Engineering Services

40. Comment-Response #37-g: In the site plan, correct the width of the sidewalk across the Spring Valley Drive access.

41. At all accesses, illustrate curbs at the road edge as depressed, per City of Ottawa standard drawing SC7.1. This applies to the site plan as well as the functional design in Appendix L of the TIA. Refer to markup below:



Traffic Signal Design

42. No comments for this current circulation. Traffic Signal Design Unit reserves the right to make future comments based on subsequent submissions.

Traffic Engineering

43. No comments.

Streetlighting

44. Streetlight plant located in the proposed work area. Streetlighting plant must be protected and maintained during construction. If removals/relocation required for construction or due to proposed entrances to the property, please contact Ryan Zaichkowsky (ryan.zaichkowsky@ottawa.ca) The applicant is 100% responsible for all costs of any required street light plant alterations and/or repairs. Repairs or alterations to the exiting street light plant must be performed by the city's street light maintenance contractor.

45. Please maintain a minimum of 0.6 metres horizontal and 0.3 metres vertical clearance from existing streetlight plant. Contact Ontario One Call (1-800-400-2255) for locates prior to excavation. If conflict arises/damages to Streetlighting plant occur, please contact Ryan Zaichkowsky (ryan.zaichkowsky@ottawa.ca)

Transit Services

46. Comments were not provided.

Road Safety

47. Comments were not provided.

Transportation Development Review

48. Add proposed fence on west side of bus loop on the on Functional Plan within TIA (Drawing No. 124091-FD).

49. Submit a Pavement Marking and Signage Plan for approval as part of the application in support of the sought parking restrictions along the Spring Valley and Joshua Street frontages.

50. Site Plan:

    a. Show aisle widths in parking lot. Ensure they meet Section 107 of the Zoning Bylaw.

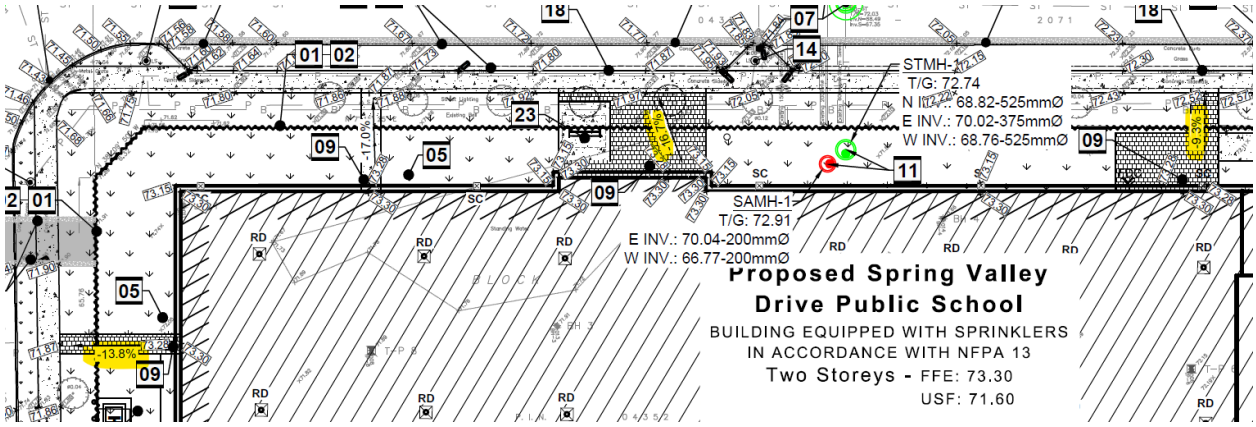
    b. Pads proposed between the curb and sidewalks for school pick-up/drop-off on Spring Valley Drive and Joshua Street must be concrete, not asphalt.

    c. The Site Plan shows snow storage within the area required for the ISD for outbound vehicles turning left onto Spring Valley Drive (as per the TIA). Consider alternative snow storage location. If an alternative location is not possible, include a note on site plan restricting height of snow storage in this location.

    d. Corner triangles must be conveyed at no cost to the City through the Site Plan.

e. Pavers within the City ROW will require a Maintenance and Liability Agreement.

51. Grading Plan: The exterior pathways between the building entrances and the sidewalk do not meet AODA requirements. As per Section 80.23 (6.), “The maximum running slope of the exterior path must be no more than 1:20”.

a. 

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

Environment

Deficiencies:

52. The EIS that has been submitted meets the Terms of Reference for completeness. However, it appears to be using outdated site plans and is not consistent with the Site Plan and the TCR. The location and alignment of the soccer field is different between the EIS and the other documents.

Comments:

53. Also, not a concern with regards to completeness, but I will be asking for confirmation of the Butternut Health Evaluation reception from the MECP as a condition of approval.

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

Forestry

- **Tree Conservation Report,** prepared by IFS Associates, dated July 8, 2024
- **Landscape Plan**, prepared by Ruhland and Associates Ltd, dated 2024/09/13

- **Preliminary Geotechnical Investigation**, prepared by exp., dated March 19, 2019
- **Environmental Impact Study,** prepared by BCH Environmental Consulting Inc., dated August 22, 2024
- **Site Plan Details,** A001-002, prepared by N45 Architecture, dated 09 Sep 2024
- **Site Servicing Plan,** C1, prepared by Jp2g Consultants Inc., dated 2024-09-05.
- **Grading Plan**, C2, prepared by N45 Architecture Inc., dated 2024-09-05.

Deficiencies:

Tree Conservation Report

54. Map legends are not legible. Photo included for reference:

55. Tree labels are not legible on the maps provided. Photo included for reference:

56. Please address how the slope from Knotridge toward Joshua Street influences tree retention. How will grading needs allow to tree retention?

57. Tree ID numbers are missing on the Tree Conservation Plan, Map-2, photo provided:

58. Show the limit/extent of the construction area. This is representative of where grading, excavation…etc occurs.

59. Describe mitigation measures that will be used to promote the long-term survival of retained trees (e.g. buffers for protection, fencing, single loaded roads along forest stands, edge preparation, or any other measures as required given the site conditions).

60. Include tree planting recommendations for the site which will help offset the vegetation loss on the site and will also be used to direct the development of the Landscape Plan, including the following:

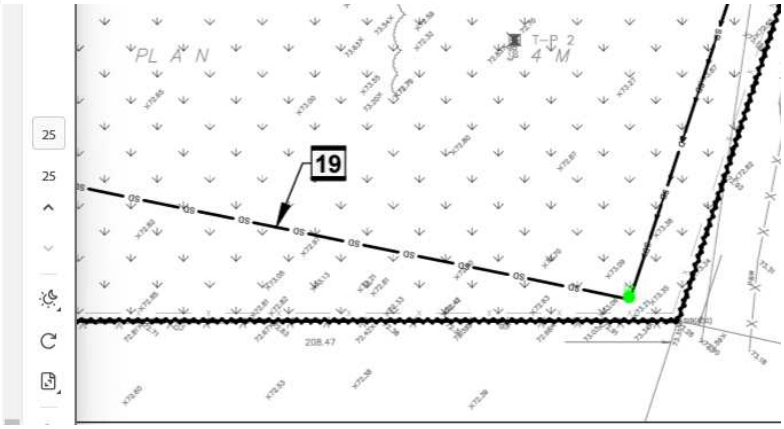
    a. The species to be used for the given site conditions;

    b. The use of native, non-invasive tree species. In applicable areas, the most current Guidelines for Tree Planting in Sensitive Marine Clay Soils must be followed; and

    c. Where tree planting is required to provide protection for watercourses and steep slopes.

61. Show civil features on the plan that influence tree retention, including retaining walls and servicing locations.

62. It appears the TCR, LP and Civil Plans do not align. For example, this pipe drain appears to enter a tree retention area. Provide alternative engineering solutions to allow for tree retention. Photo provided:



63. Tree protection fencing must be shown for all retained trees.

Landscape Plan

64. ID numbers are missing on retained trees on L-01 (bottom right corner).

65. Scale ratio is illegible, photo included:

1:400	dra T.Fy D.A.
2020-12-18 2024 08 28	che M.R. / J.L. M.R.
project number N45 ___-___ RA 24-1743	drawing number L-01

66. The Key Plan showing the location of the site is missing.

67. Provide inventory information for retained trees referenced by ID number (species, size, condition, ownership)

68. For proposed vegetation, show quantity by species and total quantity by ownership (Subject lands or City ROW)

69. The calculations for the canopy cover projection must be shown on the plan.

a. How was canopy cover calculated? If a formalized method was followed, please show a reference on the plan.

b. If size classes were used to catergorize trees, please provide reference to this and what spreads were used.

70. Show civil features on the plan that influence tree planting, including retaining walls and servicing locations.

Comments:

71. For ease of review, it is recommended a column is added to the inventory label indicating whether a tree is to be retained or removed.

72. Please provide more context to why soil volume depths are all <1m.

73. The Geotechnical Report notes a silty clay on site with high plasticity. It does not however identify any tree planting restrictions. All tree planting in the ROW must adhere to the Sensitive Marine Clay Soil Guidelines (2017). It is strongly recommended the policy also be followed on the subject site unless alternative solutions have been agreed upon by the LA and Geotechnical Consultant. Please update the LP and Geotechnical Report if sensitive soils are present. Provide a map showing where tree planting restrictions must be followed, if relevant.

74. It is difficult to confirm retention plans are suitable at this point because civil features were not incorporated into the TCR and/or LP. There are concerns over civil plans and tree retention/planting.

75. Confirm the plans used in the TCR is up to date. The portable layout for example is different between the TCR and Site Plan.

76. Provide regular spacing for mature shade trees throughout the parking lot. Reference policy 11 under Section 4.1.4 of the OP.

77. Please show on the LP the tree planting in the Right of Way meets the setback requirements by maintaining 1.5m from sidewalk/MUP/cycle track, 2.5m from curb, 4.5m from curb or sidewalk for conifers, maintain 7.5m between large growing trees and 4.5m between small growing trees. Adhere to Hydro Ottawa's tree planting guidelines when planting around primary conductors.

78. Prioritize native large canopy tree species. Columnar species should be avoided unless justified. This is a large property with a lot of open space.

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

Parkland

79. The school site is exempt from parkland dedciation.

    i. Kindly confirm if there is an intent to have an internal connection to the park.

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

Environmental Remediation Unit

Deficiencies:

80. The phase one ESA is dated 2019, which is outdated based on a regulatory prescribed 18 months validity for ESAs. Submission of an updated phase one ESA in compliance with the O. Reg. 153/04 requirements is needed.

81. Also, the original phase one ESA (CM3, 2019) is missing MECP FOI response and HLUI. These need to be included in the phase one ESA update.

Conservation Authority

Deficiencies:

82. Given the geotechnical circulated was prepared in 2019, RVCA would be looking to see an update to the report to address the above noted concerns related to sensitive marine clay and historic landslide records.

Comments:

83. I was contacted in early September by Jp2g Consultants regarding future development of the site at 700/799 Spring Valley Drive. I did note to them at that time that the site is located within an area where there is a documented presence of sensitive marine clay conditions and historic landslides. I noted that RVCA would recommend that as a part of a geotechnical study prepared for the site, there be a section providing analysis/commentary on the presence of sensitive marine clays, potential stability issues/risks associated with the soil conditions in the area, and any associated mitigation measures required to address potential stability risks.

Feel free to contact me for follow-up questions,

Stephen Bohan

Building Code Services – Zoning By-law Review

84. The front lot line will be abutting Joshua Street for zoning purposes.

85. The review is for a building in Area C on Schedule 1.

86. Provide setbacks from all buildings to all lot lines on the site plan as per the I1F Subzone Table 170 A.

87. The minimum interior side yard setback is 3m where it does not abut a residential zone in table 170 A. If this is applicable to your development please update your matrix.

88. Show the Bicycle parking space dimensions on the plan.

89. Show the parking space dimensions on the site plan to match the matrix.

90. Show compliance with the requirements for a landscaped buffer as per Section 110 on the site plan.

91. Provide the size of the driveway and aisles in the parking lot on the site plan.

92. All outdoor refuse collection and refuse loading areas contained withi or accessed via a parking lot must comply with the provisions of Section 110 (3).

93. Provide an elevation drawing of the refuse area and the dimensions of the required opaque screen. The requirement is a minimum height of 2 metres.

94. Label on the plan what the dotted line around the sports field represents as they cross over to the neighboring lot.

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

Yours Truly,
Shoma Murshid

c.c. Stephen Bohan, Josiane Gervais, Anton Chetrar, Nader Kadri, Vahid Arasteh, Hayley Murray, Mark Elliott, Jessica Button, Matthew Steeves, Sylvie L'Abbé, Dina Belarbi

Appendix F
RVCA Pre-Consultation Response

Kurtis Romanchuk

From: Stephen Bohan <stephen.bohan@rvca.ca>
Sent: September 9, 2024 1:36 PM
To: Kurtis Romanchuk
Cc: Ali Sammour; Zachary Bauman
Subject: RE: Pre-Consultation Request - 700 Spring Valley Road School Development

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Kurtis,

As I understand it, the proposed stormwater management design for your project will involve connecting to the existing municipal storm sewer system under Spring Valley Drive. As the site will be connecting to the municipal system, RVCA would defer review of the SWM design to the City of Ottawa.

The site is located within an area where there is a documented presence of sensitive marine clay conditions and historic landslides.

RVCA has a delegated responsibility for representing the provincial interest on natural hazards matters, as outline in Section 3.1 of the PPS, in planning exercises where the province is not involved. Additionally, RVCA has a mandate through provincial legislation to regulate development and site alteration within and directly adjacent to lands subject to natural hazards, including lands with unstable soils (sensitive marine clays [leda], organic soils) or unstable bedrock (karst topography). Sensitive marine clays are considered geotechnically sensitive and when disturbed or altered by increased loading, vibrations, or changes in groundwater conditions there can be significant stability issues.

Based on the above, RVCA would recommend that as a part of a geotechnical study prepared for the site, there be a section providing analysis/commentary on the presence of sensitive marine clays, potential stability issues/risks associated with the soil conditions in the area, and any associated mitigation measures required to address potential stability risks.

Regards,

Stephen Bohan
Planner
Rideau Valley Conservation Authority
613-692-3571 x1191

From: Kurtis Romanchuk <KurtisR@jp2g.com>
Sent: Wednesday, September 4, 2024 12:43 PM
To: LRC Info <info@lrconline.com>; Eric Lalande <eric.lalande@rvca.ca>
Cc: Ali Sammour <AliS@jp2g.com>; Zachary Bauman <ZachB@jp2g.com>
Subject: Pre-Consultation Request - 700 Spring Valley Road School Development

Good afternoon,

Please see the attached Servicing and Stormwater Management Report, which includes site plan drawings in Appendix A, for a proposed new school development at 700 Spring Valley Drive. We would like to pre-consult with RVCA in advance of a future application for this development work.

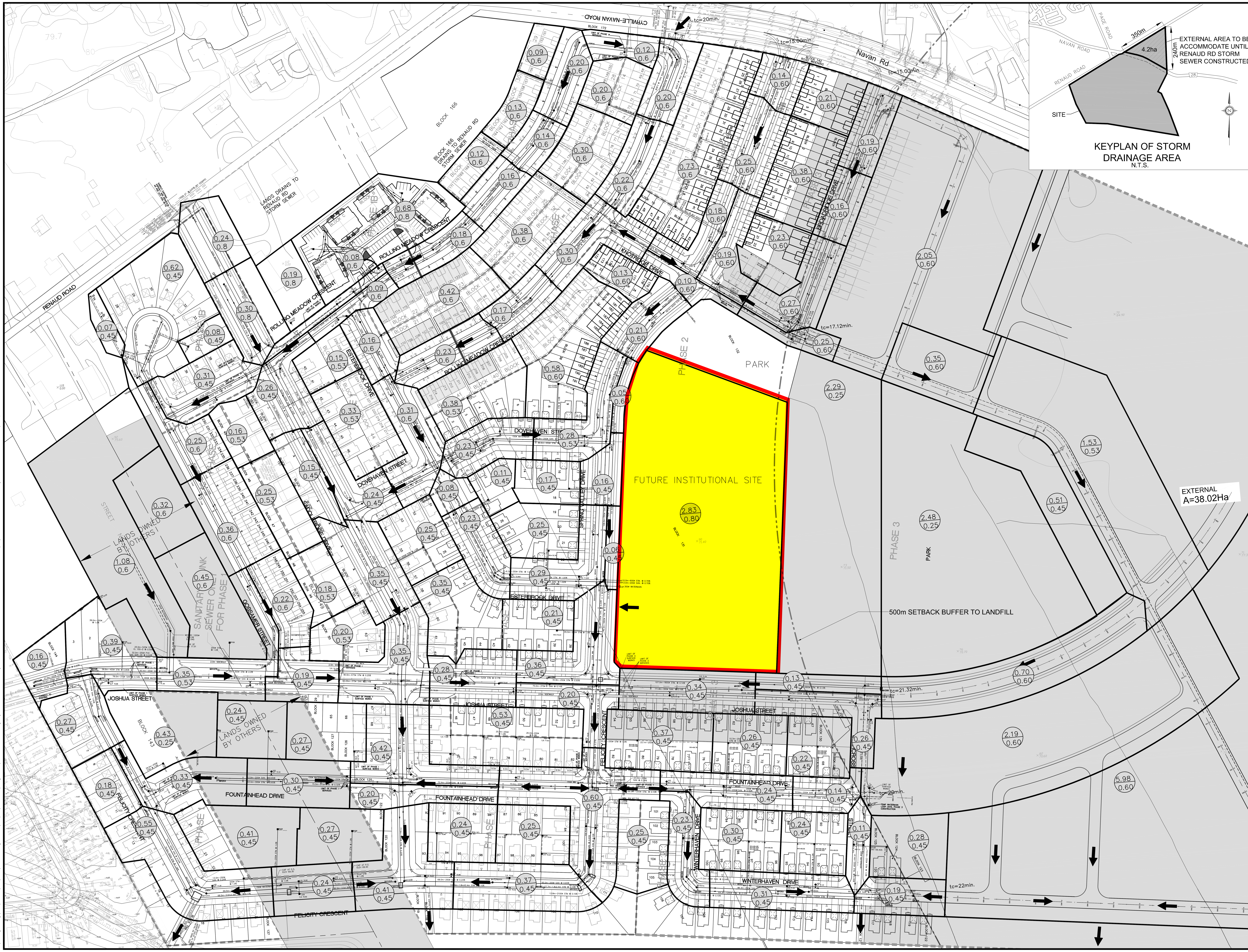
I am eager to hear any pre-consultation comments you might have on the proposed work, I am also available to meet to discuss via Teams or in person. Please let me know if you require any additional details at this time.

Thank you,
Kurtis

Kurtis Romanchuk P.Eng.
Water Resources Engineer
Jp2g Consultants Inc.

16 Edward Street South, Suite 211, Arnprior | K7S 3W4, Ontario, Canada
e: KurtisR@jp2g.com | **w:** www.jp2g.com
m: 343-544-8482 | **p:** 613-828-7800

Appendix G
Excerpts from Subdivision Report



NOTE:

SEE RESPECTIVE SERVICING PLANS FOR SEWER SIZES AND SLOPES.

LEGEND:

STORM

0.19 / 0.43 — AREA IN HECTARES / RUNOFF COEFFICIENT

MAJOR STORM ROUTE

RUNOFF COEFFICIENT

0.25 – PARK/OPEN SPACE
0.45 – SINGLE
0.53 – SINGLES/TOWNS
0.60 – TOWNHOUSES
0.80 – COMMERCIAL/INSTITUTIONAL

No.	REVISIONS	By	Date
14	REVISED AS PER CITY COMMENTS	DGY	10:09:20
13	REVISED AS PER NEW LEGAL	DGY	09:06:01
12	REVISED FOR PHASE 2	DGY	09:02:02
11	REVISED AS PER CITY COMMENTS	DGY	09:01:19
10	REVISED GOSSAMER	DGY	08:07:23
9	REVISED PRAIRIE/GOSSAMER	DGY	08:06:19
8	REVISED AS PER NEW LEGAL	DGY	08:03:04
7	REVISED AS PER NEW LEGAL	DGY	08:02:20
6	REVISED AS PER NEW LEGAL	DGY	07:08:16
5	REVISED AS PER CITY COMMENTS JAN 16, 2007	DGY	07:01:23
4	REVISE DRAFT PLAN	DGY	06:12:21
3	REVISED AS PER CITY COMMENTS	DGY	06:10:30
2	REVISED AS PER CITY COMMENTS	DGY	06:09:13
1	ISSUED FOR APPROVAL	DGY	06:08:16

CLARIDGE HOMES

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Tel (613)225-1311
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Project Title

CLARIDGE HOMES SPRING VALLEY

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
PROVINCE OF ONTARIO

N

Drawing Title

STORM DRAINAGE AREA PLAN

Scale
1:1250

Design	Date
D.G.Y.	AUGUST 2006
Drawn	Checked
D.D.	
Project No.	Drawing No.
10261	500

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K1S 5N4

STORM SEWER DESIGN SHEET

PROJECT: SPRING VALLEY Phase 2
LOCATION: CITY OF OTTAWA
CLIENT: CLARIDGE HOMES

LOCATION			AREA (Ha)								RATIONAL DESIGN FLOW					LEVEL OF SERVICE				1:5yr ICD RESTRICTED INLET FLOW (l/s)										SEWER DATA						
STREET	FROM MH	TO MH	C= 0.25	C= 0.45	C= 0.53	C= 0.60	C= 0.80	C= 0.90	INDIV. 2.78AC	ACCUM. 2.78AC	INLET (min.)	TIME IN PIPE	TOTAL (min.)	I (mm/Hr)	PEAK FLOW (L/s)	AREA (ha) INDIV.	AREA (ha) ACCUM.	FLOW (L/s) INDIV.	FLOW (L/s) ACCUM.	EXT.	V2 6.8	V1 10.0	V 14.0	A 21.2	B 31.5	C 40.5	D 60.0	INDIV. FLOW (L/s)	ACCUM. FLOW (L/s)	CAP. (L/s)	LENGTH (M)	PIPE (mm)	SLOPE (%)	VEL. (M/s)	AVAIL. CAP. (L/s)	AVAIL. CAP. (%)
Broadridge Crescent	328	327				0.19			0.32	0.32	15.00	0.74	15.74	83.56	**26.74**	0.19	0.19	16.15	**16.15**			1						10.00	**10.00**	**153.96**	93.5	300	2.33	2.110	127.22	82.63%
Broadridge Crescent	327	326				0.16			0.27	0.59	15.74	0.55	16.29	81.24	**47.93**	0.16	0.35	13.60	**29.75**			1						10.00	**20.00**	**201.75**	91.0	300	4.00	2.765	153.82	76.24%
Broadridge Crescent	326	324				0.27			0.45	1.04	16.29	0.08	16.36	79.61	**82.80**	0.27	0.62	22.95	**52.70**					1				21.20	**41.20**	**201.75**	12.5	300	4.00	2.765	118.95	58.96%
Phase 3						2.30			3.84	3.84	Tc= 15MIN + 225m/ 2m/s = 15 + 2.12 = 17.12					2.05	2.05	174.25	**174.25**	174.25								174.25	**174.25**							
Knotridge Drive	325	324							0.00	3.84	17.12	0.18	17.30	77.28	**296.75**	0.25	2.30	21.25	**195.50**					1				21.20	**195.45**	**452.97**	16.5	600	0.50	1.552	156.22	34.49%
Knotridge Drive	324	319				0.42			0.70	5.58	17.30	0.48	17.77	76.80	**428.56**	0.42	3.34	35.70	**283.90**				1	1				35.20	**271.85**	**640.64**	62.5	600	1.00	2.195	212.08	33.10%
Spring Valley Drive	323	322				0.35			0.58	0.58	15.00	0.51	15.51	83.56	**48.46**	0.35	0.35	29.75	**29.75**						1			31.50	**31.50**	**174.75**	72.9	300	3.00	2.395	126.29	72.27%
Spring Valley Drive	322	321				1.36			2.27	2.85	15.51	0.44	15.94	81.95	**233.57**	1.36	1.71	115.60	**145.35**					1	1		1	52.70	**84.20**	**315.81**	72.4	375	2.98	2.770	82.24	26.04%
Spring Valley Drive	321	319							0.00	2.85	15.94	0.23	16.17	80.63	**229.79**	0.00	1.71	0.00	**145.35**										**84.20**	**316.83**	38.2	375	3.00	2.779	87.04	27.47%
Knotridge Drive	320	319				0.18			0.30	0.30	10.00	1.51	11.51	104.19	**31.26**	0.18	0.18	15.30	**15.30**				1					14.00	**14.00**	**43.88**	78.5	250	0.50	0.866	12.62	28.77%
Spring Valley Drive	319	318				0.23			0.38	9.11	17.77	0.21	17.98	75.55	**688.30**	0.23	5.46	19.55	**464.10**		1	1						16.80	386.85	**1,109.37**	48.4	600	3.00	3.801	421.08	37.96%
Spring Valley Drive	318	317				0.21			0.35	9.46	17.98	0.15	18.13	75.01	**709.60**	0.21	5.67	17.85	**481.95**				1				14.00	400.85	**1,109.37**	34.3	600	3.00	3.801	399.77	36.04%
Spring Valley Drive	317	316							0.00	9.46	18.13	0.13	18.26	74.63	**706.02**	0.00	5.67	0.00	**481.95**									400.85	**1,109.37**	29.5	600	3.00	3.801	403.35	36.36%
Spring Valley Drive	316	313				0.05			0.08	9.54	18.26	0.16	18.43	74.31	**708.91**	0.05	5.72	4.25	**486.20**		1						6.80	407.65	**1,109.37**	37.1	600	3.00	3.801	400.46	36.10%
Dovehaven Street	315	314		0.23	0.38				0.85	0.85	15.00	0.54	15.54	83.56	**71.02**	0.61	0.61	51.85	**51.85**				1		1			45.50	45.50	**61.36**	35.8	300	0.65	1.115	10.33	12.70%
Dovehaven Street	314	313			0.280	0.58			1.38	2.23	15.54	1.02	16.56	81.87	**182.56**	0.86	1.47	73.10	**124.95**						1	1		72.00	117.50	**239.86**	89.6	450	0.65	1.461	57.29	23.89%
Spring Valley Drive	313	309		0.33					0.41	12.18	18.43	0.69	19.11	73.91	**900.18**	0.33	7.52	28.05	**639.20**				2					28.00	553.15	**1,161.53**	105.0	750	1.00	2.547	261.34	22.50%
Esterbrook Drive	312	311		0.19					0.24	0.24	15.00	0.80	15.80	83.56	**20.05**	0.19	0.19	16.15	**16.15**		1	1						16.80	16.80	**62.02**	59.0	250	1.00	1.224	41.97	67.67%
Esterbrook Drive	311	310							0.00	0.24	15.80	0.09	15.89	81.05	**19.45**	0.00	0.19	0.00	**16.15**									16.80	**62.02**	6.3	250	1.00	1.224	42.57	68.64%
Esterbrook Drive	310	309		0.77					0.96	1.20	15.89	0.82	16.71	80.79	**96.95**	0.77	0.96	65.45	**81.60**					3				63.60	80.40	**182.87**	78.7	375	1.00	1.604	85.92	46.98%
Spring Valley Drive	309	195		0.63			2.83		7.08	20.46	19.11	0.88	20.00	72.26	**1,478.44**	3.46	11.94	294.10	**1014.90**	240.55	1			1	1			59.50	933.60	**3,793.06**	76.5	1800	0.10	1.444	2,314.62	61.02%
EXTERNAL			External AC = 18.773						52.19	52.19	TC EX = 20.52 min					38.02	38.02	3231.70	**3231.70**	3231.70								3231.70	3231.70							
Phase 3			2.48	0.51	1.530	1.05			6.37	6.37	Tc = 20.52min + 235m/ 4.9m/s = 20.52 + 0.80 = 21.32 min					5.57	43.59	3705.15	**3705.15**	473.45								473.45	3705.15							
Joshua Street	308	307	2.29	0.39					2.08	60.64	21.32	1.10	22.42	67.48	**4,092.04**	2.68	46.27	227.80	**3932.95**	194.65		1		1				225.85	3931.00	**4,323.67**	108.9	1800	0.13	1.646	231.62	5.36%
Joshua Street	307	195		0.34					0.43	61.07	22.42	1.04	23.47	65.35	**3,990.65**	0.34	46.61	28.90	**3961.85**						1			31.50	3962.50	**4,486.53**	107.0	1800	0.14	1.708	495.88	11.05%
Joshua Street	130C	195							0.00	0.00	15.00	0.79	15.79	83.56	**0.00**	0.00	0.00	0.00	**0.00**									0.00	**43.88**	40.8	250	0.50	0.866	43.88	100.00%
Felicity Crescent	195	EX 162		0.57					0.71	82.24	23.47	0.74	24.21	63.46	**5,218.79**	0.57	59.12	48.45	**5025.20**					2				42.40	4938.50	**6,768.10**	84.5	2100	0.14	1.893	1,549.31	22.89%
Phase 3						5.98			9.97	9.97	Tc = 15min + 630m / 1.5m/s = 15 + 7min = 22min					5.98	5.98	508.30	**508.30**	508.30								508.30	508.30							
Winterhaven Drive	304	303		0.19					0.24	10.21	22.00	0.76	22.76	66.15	**675.35**	0.19	6.17	16.15	**524.45**	524.45								0.00	524.45	**900.98**	45.9	1050	0.10	1.008	225.63	25.04%
Stercross Street	305	303		0.39					0.49	0.49	15.00	0.84	15.84	83.56	**40.94**	0.39	0.39	33.15	**33.15**					1	1			35.20	35.20	**59.69**	41.4	300	0.35	0.818	18.74	31.40%
Winterhaven Drive	303	302		0.55					0.69	11.39	22.76	0.98	23.74	64.72	**737.21**	0.55	7.11	46.75	**604.35**					2				42.40	602.05	**900.98**	69.0	1050	0.10	1.008	163.77	18.18%
Winterhaven Drive	302	301		0.30					0.38	11.77	23.74	0.97	24.71	62.99	**741.43**	0.30	7.41	25.50	**629.85**					1				21.20	623.25	**1,286.53**	64.3	1200	0.10	1.102	545.11	42.37%
Winterhaven Drive	301	300							0.00	11.77	24.71	0.19	24.89	61.37	**722.30**	0.00	7.41	0.00	**629.85**										623.25	**1,286.53**	12.3	1200	0.10	1.102	564.24	43.86%
Winterhaven Drive	300	329		0.23					0.29	12.06	24.89	1.02	25.91	61.07	**736.47**	0.23	7.64	19.55	**649.40**					1				21.20	644.45	**1,286.53**	67.4	1200	0.10	1.102	550.06	42.76%
Phase 3											Tc = 15min + 300m / (1.0m/s) = 15+5 = 20min																								
Fountainhead Drive	Stub	306				2.19			3.65	3.65	20.00	0.37	20.37	70.25	**256.42**	2.19	2.19	186.15	**186.15**	145.70							1	40.50	186.20	**367.11**	18.0	750	0.10	0.805	110.69	30.15%
Fountainhead Drive	306	330		0.36					0.45	4.10	20.37	1.18	21.55	69.44	**284.72**	0.36	2.55	30.60	**216.75**			1		1			31.20	217.40	**367.11**	56.8	750	0.10	0.805	82.39	22.44%
Fountainhead Drive	330	329		0.50					0.63	4.73	21.55	1.53	23.08	67.02	**317.03**	0.50	3.05	42.50	**259.25**					2				42.40	259.80	**367.11**	73.9	750	0.10	0.805	50.08	13.64%
Fountainhead Drive	329	EX 162							0.00	16.79	25.91	1.05	26.96	59.48	**998.64**	0.00	10.69	0.00	**908.65**										904.25	**1,286.53**	69.5	1200	0.10	1.102	287.90	22.38%
Felicity Crescent	EX 162	EX 161		0.85					1.06	100.09	26.96	0.61	27.57	57.93	**5,798.43**	0.85	70.66	72.25	**6006.10**							1	1	72.00	5914.75	**6,521.40**	66.8	2100	0.13	1.824	722.97	11.09%
			4.77	7.33	2.19	15.52	2.83	0.00																												
									51.41								70.66																			

Designed: D.Y
Checked: E.A.H.
Dwg. Reference: 10261- 500

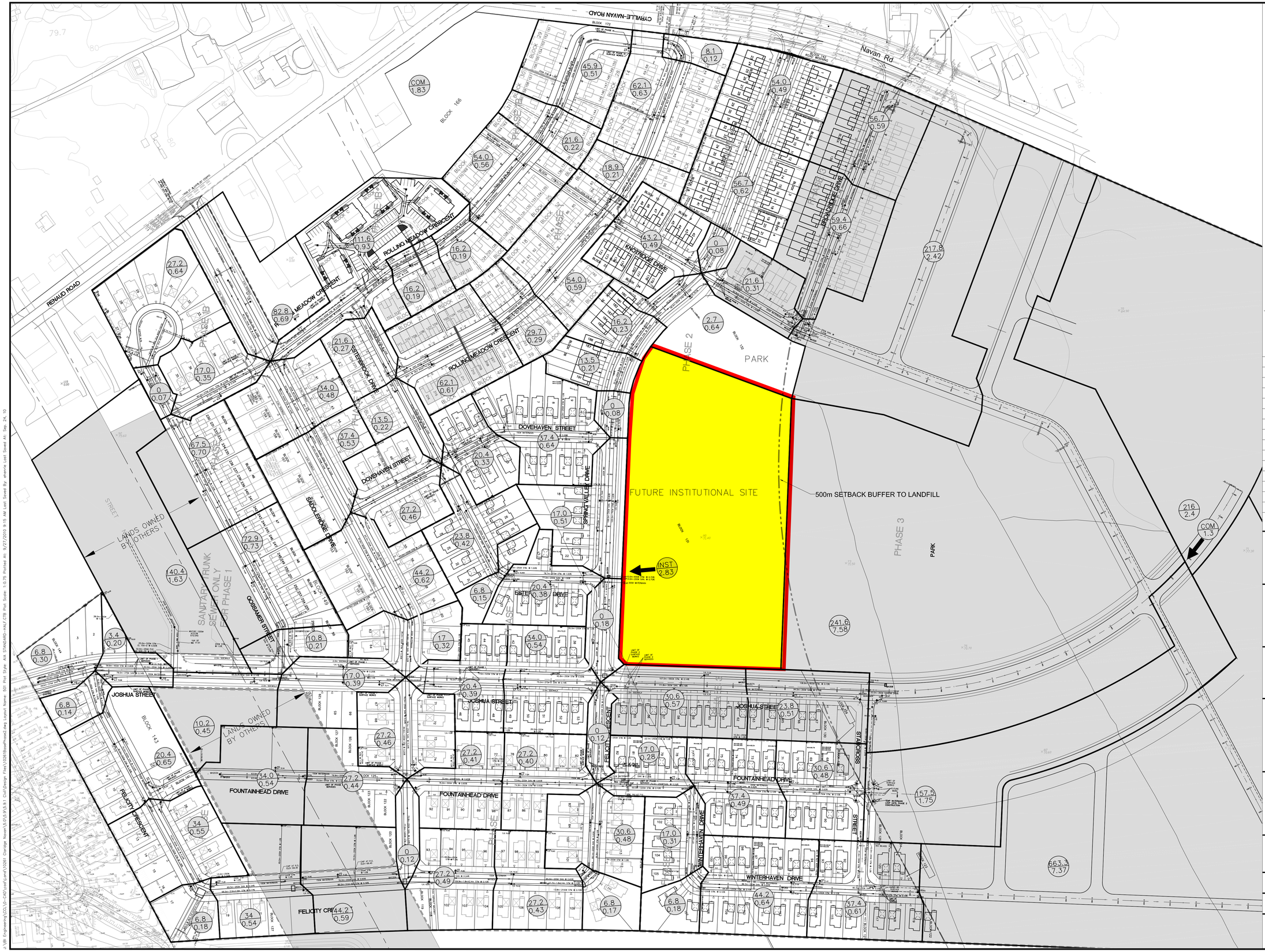
Revision	File Ref:	Date:	Date / Sheet No:
	10261- 5.7	2/3/2009	1 of 1

Q = 2.78AIC, where:
Q = Peak Flow in Litres per Second (l/s)
A = Area in Hectares (ha.)
I = Rainfall Intensity in Millimeters per Hour (mm/hr)
{I=998.071/(TC+6.053)0.814}

Level of Service= 85.00 L/s/Ha

Assumed CB Head= ___m [1:5 yr]

Mannings Coefficient (n) = 0.013



NOTE:

SEE RESPECTIVE SERVICING PLANS FOR SEWER SIZES AND SLOPES.

LEGEND:

SANITARY

7 / 0.19 — POPULATION / AREA IN HECTARES

POPULATION

SINGLE FAMILY = 3.4ppu
TOWNHOUSE = 2.7ppu
INST/COM 50,000 l/s/Ha
LOW-MED DENSSITY = 90 ppHa

No.	REVISIONS	By	Date
14			
13	REVISED AS PER CITY COMMENTS	DGY	10:09:20
12	REVISED AS PER NEW LEGAL	DGY	09:06:01
11	REVISED AS PER CITY COMMENTS	DGY	09:01:19
10	PHASE 2	DGY	08:11:21
9	REVISED GOSSAMER	DGY	08:07:23
8	REVISED PRAIRIE/GOSSAMER	DGY	08:06:19
7	REVISED AS PER NEW LEGAL	DGY	08:03:04
6	REVISED AS PER NEW LEGAL	DGY	08:02:20
5	REVISED AS PER NEW SITE PLAN	DGY	07:08:16
4	REVISE DRAFT PLAN	DGY	06:12:21
3	REVISED AS PER CITY COMMENTS	DGY	06:10:30
2	REVISED AS PER CITY COMMENTS	DGY	06:09:13
1	ISSUED FOR APPROVAL	DGY	06:08:16

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Project Title

CLARIDGE HOMES
SPRING VALLEY

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
PROVINCE OF ONTARIO

N

Drawing Title

SANITARY DRAINAGE AREA PLAN

Scale
1:1250

Design	Date
D.G.Y.	AUGUST 2006
Drawn	Checked
D.D.	
Project No.	Drawing No.
10261	501

J:\IBI Engineering\CCL\3-CAD\Land\10261 Claridge Nepean\5.0\5.5\5.5.1 Civil\Design Files\10261Broadhead2.dwg Layout Name: 501 Plot Styler: AIA STANDARD-HALF CTB Plot Scale: 1:0.75 Plotted At: 9/27/2010 9:19 AM Last Saved By: ehenrie Last Saved At: Sep. 24, 10

IBI GROUP

IBI Group
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Ottawa, Ontario
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SANITARY SEWER DESIGN SHEET

PROJECT: SPRING VALLEY Phase 2
LOCATION: City Of Ottawa
CLIENT: CLAIRIDGE HOMES

LOCATION			RESIDENTIAL									INSTITUTIONAL COMMERCIAL INDUSTRIAL							INFILTRATION ALLOWANCE			TOTAL FLOW	PROPOSED SEWER DESIGN						
			UNIT TYPES					POPULATION		CUMULATIVE FLOW		AREA (ha)																	
Street	From MH	To MH	Singles	Semis	Towns	Stacked	Area (Ha.)	INDIV.	CUM.	Peaking Factor	Peak Flow (l/s)	INSTITUITION Indiv	INSTITUITION Cumm.	COMMERCIAL Indiv	COMMERCIAL Cumm.	INDUSTRIAL Indiv	INDUSTRIAL Cumm.	Pk. Flow (l/s)	Incr. Area (Ha.)	Cum. Area (Ha.)	Flow (l/s)	(l/s)	Capacity (l/s)	Pipe Size (mm)	Length (M)	Slope (%)	Velocity(f) M/sec	Avail. Cap. l/s	Avail. Cap. (%)
Phase 3 & External		304A					7.37	663.3	663.3	3.91	10.50							0.00	7.37	7.37	2.06	12.56							
Winterhaven Drive	304A	302A	11				0.610	37.4	700.7	3.89	11.05							0.00	0.61	7.98	2.23	13.28	30.39	250	80.3	0.24	0.60	17.11	56.29
Winterhaven Drive	302A	301A	13				0.640	44.2	744.9	3.88	11.70							0.00	0.64	8.62	2.41	14.11	30.39	250	86.3	0.24	0.60	16.28	53.56
Winterhaven Drive	301A	300A	2				0.180	6.8	751.7	3.88	11.80							0.00	0.18	8.80	2.46	14.26	30.39	250	11.2	0.24	0.60	16.13	53.06
Winterhaven Drive	300A	329A	5				0.310	17.0	768.7	3.87	12.05							0.00	0.31	9.11	2.55	14.60	30.39	250	67.1	0.24	0.60	15.79	51.96
Fountainhead Drive	306A	330A	9				0.480	30.6	30.6	4.00	0.50							0.00	0.48	0.48	0.13	0.63	27.59	200	53.6	0.65	0.85	26.96	97.70
Fountainhead Drive	330A	329A	11				0.490	37.4	68.0	4.00	1.10							0.00	0.49	0.97	0.27	1.37	24.19	200	66.2	0.50	0.75	22.82	94.33
Fountainhead Drive	329A	EX 162A	5				0.280	17.0	853.7	3.84	13.29							0.00	0.28	10.36	2.90	16.19	30.39	250	75.0	0.24	0.60	14.20	46.72
Felicity Crescent	EX 162A	195A					0.120	0.0	853.7	3.84	13.29							0.00	0.12	10.48	2.93	16.22	32.24	250	78.0	0.27	0.64	16.02	49.68
Phase 3	Stub	305A					1.75	157.5	157.5	4.00	2.55							0.00	1.75	1.75	0.49	3.04	30.39	250	15.0	0.24	0.60	27.35	90.00
Starcross St	305A	308A						0.0	157.5	4.00	2.55							0.00	0.00	1.75	0.49	3.04	30.39	250	78.0	0.24	0.60	27.35	90.00
External							2.40	216.0	216.0	4.00	3.50			1.30	1.30			1.13	3.70	3.70	1.04	5.66							
Phase 3	Stub	308A					7.580	241.6	457.6	3.99	7.40				1.30			1.13	7.58	11.28	3.16	11.69	43.97	300	20.0	0.19	0.60	32.28	73.42
Joshua Street	308A	307A	7				0.510	23.8	638.9	3.92	10.14				1.30			1.13	0.51	13.54	3.79	15.06	43.97	300	94.5	0.19	0.60	28.91	65.75
Joshua Street	307A	195A	9				0.570	30.6	669.5	3.91	10.59				1.30			1.13	0.57	14.11	3.95	15.67	43.97	300	111.8	0.19	0.60	28.30	64.36
Broadridge Crescent	328A	327A			21		0.590	56.7	56.7	4.00	0.92							0.00	0.59	0.59	0.17	1.09	52.23	200	93.0	2.33	1.61	51.14	97.92
Broadridge Crescent	327A	326A			22		0.660	59.4	116.1	4.00	1.88							0.00	0.66	1.25	0.35	2.23	68.43	200	93.0	4.00	2.11	66.20	96.74
Broadridge Crescent	326A	324A							116.1	4.00	1.88							0.00	0.00	1.25	0.35	2.23	68.43	200	10.3	4.00	2.11	66.20	96.74
Phase 3		325A					2.42	217.8	217.8	4.00	3.53							0.00	2.42	2.42	0.68	4.21							
Knotridge Drive	325A	324A					0.000	0.0	217.8	4.00	3.53							0.00	0.00	2.42	0.68	4.21	30.39	250	13.2	0.24	0.60	26.18	86.15
Knotridge Drive	324A	319A			8		0.310	21.6	355.5	4.00	5.76							0.00	0.31	3.98	1.11	6.87	30.39	250	82.8	0.24	0.60	23.52	77.38
Spring Valley Drive	323A	322A			20		0.490	54.0	54.0	4.00	0.88							0.00	0.49	0.49	0.14	1.02	59.26	200	72.7	3.00	1.83	58.24	98.28
Spring Valley Drive	322A	321A			21		0.620	56.7	110.7	4.00	1.79							0.00	0.62	1.11	0.31	2.10	59.26	200	72.4	3.00	1.83	57.16	96.45
Spring Valley Drive	321A	319A					0.080	0.0	110.7	4.00	1.79							0.00	0.08	1.19	0.33	2.12	59.26	200	38.0	3.00	1.83	57.14	96.42
Knotridge Drive	320A	319A			16		0.490	43.2	43.2	4.00	0.70							0.00	0.49	0.49	0.14	0.84	19.36	200	77.3	0.32	0.60	18.52	95.68
Spring Valley Drive	319A	318A			1		0.640	2.7	512.1	3.97	8.23							0.00	0.64	6.30	1.76	9.99	107.45	250	49.4	3.00	2.12	97.46	90.70
Spring Valley Drive	318A	317A			6		0.230	16.2	528.3	3.96	8.48							0.00	0.23	6.53	1.83	10.31	107.45	250	35.1	3.00	2.12	97.14	90.41
Spring Valley Drive	317A	316A			5		0.210	13.5	541.8	3.96	8.68							0.00	0.21	6.74	1.89	10.57	107.45	250	30.4	3.00	2.12	96.88	90.17
Spring Valley Drive	316A	313A					0.080	0.0	541.8	3.96	8.68							0.00	0.08	6.82	1.91	10.59	107.45	250	36.2	3.00	2.12	96.86	90.14
Dovehaven Street	315A	314A	6				0.330	20.4	20.4	4.00	0.33							0.00	0.33	0.33	0.09	0.42	27.59	200	36.2	0.65	0.85	27.17	98.47
Dovehaven Street	314A	313A	11				0.640	37.4	57.8	4.00	0.94							0.00	0.64	0.97	0.27	1.21	27.59	200	86.9	0.65	0.85	26.38	95.61
Spring Valley Drive	313A	309A	5				0.510	17.0	616.6	3.93	9.81							0.00	0.51	8.30	2.32	12.13	55.49	250	108.0	0.80	1.10	43.36	78.13
Esterbrook Drive	312A	311A	7				0.420	23.8	23.8	4.00	0.39							0.00	0.42	0.42	0.12	0.51	34.22	200	53.2	1.00	1.06	33.71	98.52
Esterbrook Drive	311A	310A	2				0.150	6.8	30.6	4.00	0.50							0.00	0.15	0.57	0.16	0.66	34.22	200	5.4	1.00	1.06	33.56	98.07
Esterbrook Drive	310A	309A	6				0.380	20.4	51.0	4.00	0.83							0.00	0.38	0.95	0.27	1.10	34.22	200	77.0	1.00	1.06	33.12	96.80
Spring Valley Drive	309A	195A					0.18	0.0	667.6	3.91	10.56	2.83	2.83					2.46	3.01	12.26	3.43	16.45	30.39	250	80.0	0.24	0.60	13.94	45.87
Joshua Street	195A	130B	10				0.54	34.0	2224.8	3.55	31.99		2.83		1.30			3.59	0.54	37.39	10.47	46.04	68.44	375	75.0	0.14	0.60	22.40	32.72
Joshua Street	130B	EX130A	6				0.39	20.4	2245.2	3.55	32.25		2.83		1.30			3.59	0.39	37.78	10.58	46.41	68.44	375	75.0	0.14	0.60	22.03	32.18

Designed: D.Y

Checked: E.A.H.

REVISION | DATE

Dwg Reference: 10261- 501 | **File Ref:** | **Date:** 02/02/2009 | **Sheet No.** 1

Population Per Unit:
- 3.4 For Singles
- 2.7 Townhouses/Semis
- 1.9 Mixed Use
- 90.0 Low/Medium Density (90 ppHa)

Avg. Per Capita Flow Rate: 350 l/day

Residential Peaking Factor: Harmon Formula = 1+(14/(4+P^0.5)) where P = pop'n in thousands

ICI Rates		Peak Factor
Institution	50000 l/ha/day	1.5
Commercial	50000 l/ha/day	1.5
Industrial	35000 l/ha/day	Moe Guidelines

Infiltration Allowance: 0.28 l/sec/Ha

Assumed pipe loss ceofficient = 0.013