



Site Servicing and Stormwater Management Report

Findlay Creek School Rev 3

820 Miikana Road, Ottawa, Ontario



Prepared for



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

Rev 3 SUBMISSION October 27, 2022



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1 Introduction

Jp2g Consultants Inc. was retained by N45 Architects Inc. to complete a Site Servicing and Stormwater Management Report suitable for the City of Ottawa Site Plan Control Application, for the Ottawa Carleton District School Board development located at the southeast corner of Miikana road and Kelly Farm Drive intersection Ottawa, ON.

The site is approximately **2.55 ha** in size and is bound by Miikana Road and Kelly Farm Drive on the north and west property limits respectively. The proposed development includes the construction of a new two-storey school with no basement, and associated parking and landscaped areas. All floors area is approximately **7,300.0 m²**, the roof area is approximately **3,862 m²**.

A Pre-Consultation meeting was held with City of Ottawa staff on February 14, 2022, to determine the project constraints and requirements. The following report details the site servicing & stormwater management calculations used for capacity, water quantity and quality control in accordance with the City of Ottawa's requirements. Geotechnical requirements can be seen from the Geotechnical Investigation Report, *Proposed New Findlay Creek Public School*, provided by exp.

1.1 Design Drawings

The following reference civil design drawings are included.

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

1.2 Environmental Compliance Assessment

Our understanding is an environmental compliance assessment for the subject site is not required. This site is exempt by the following Ontario Regulation 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 a 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

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

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



3 Stormwater Management

3.1 Pre-Development Conditions

The existing site is in an undeveloped parcel bounded by residential developments on all sides. A **750mm** storm sewer at **0.3%** slope connecting to subdivision storm sewer manhole **MH6104** is constructed by others on Miikana Road at the north side of the site.

3.2 Allowable Release Rate

The stormwater management design criteria for this site are based on the IBI's storm drainage plan for design brief pathways at Findlay creek 4800 bank street (Remer lands) phase 1 Leitrim development area dated August 2017. According to the storm drainage plan (Table 4.5 of the study) a post-development allowable release rate of $Q_{\text{allowable}} = 476 \text{ l/s}$ was determined, see attached **Appendix E**.

3.3 Post-Development Conditions

The proposed site development includes a new school building, asphalt parking, hard surface walkways and landscaped areas. Site storm drainage will be conveyed through the existing 750mm dia. storm sewer & manhole MH6104 on Miikana road. The storm water will be managed to limit the 100-year post-development flow rate to the pre-allocated release rate identified in section 3.2.

The site development area is approximately 2.55 ha with a post-development average weighted run-off coefficient of $C = 0.49$ and $C = 0.56$ for the 5-year and 100-year storm events, respectively. The post development watersheds can be seen in Figure 2 – Post Development Storm Drainage Areas. Runoff coefficients for each storm drainage area were calculated based on the weighted runoff coefficient. A 25% increase for the runoff coefficients were applied for the post development 100-yr storm, with the max c value taken as 1.0. Detailed calculations can be seen in **Appendix B**. Stormwater management techniques are required to reduce peak flows from the area, given that post-development peak flows will exceed the pre-allocated allowable release rate of **476 l/s**.

3.4 Storm Sewer Pipe Design

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

3.5 Stormwater Quality Control

Based on the pre-consultation meeting and communication with the City and South Nation, no additional stormwater quality control is required for this site. It was confirmed that the existing storm sewer system is treated downstream for quality control by the Findlay Creek Village Stormwater Facility to an enhanced level of service (80% TSS removal). Refer to **Appendix I** for confirmation of the TSS removal

3.6 Stormwater Quantity Control

Post-development peak flows will be controlled on the building's roof, in the proposed parking area and in the school yard by installing flow restrictors at the outlet of storm structures CB-1, CBMH-4 and CBMH-5, limiting the outlet discharge for all structures and overland flow to **476 l/s**.



Table 1: Allowable Release Rate Breakdown

ID	Description	Flows	
		5-Year Event	100-Year Event
	Allowable Release Rate (Section 3.2)	476 L/s	476 L/s
1.2.1	Uncontrolled flow	104.5 L/s	205.1 L/s
1.2.2	Net-allowable release rate	371 L/s	270.4 L/s*

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

To meet the net-allowable release rate for storm sewers, post-development flows will be controlled on the building's roof, in the proposed parking area and in the school yard. The total resulting peak controlled flow is **270.4 L/s** for both the **5-year and 100-year**, which is equal to the net-allowable release rate.

Table 2: Controlled Flow Breakdown

ID	Description	Controlled Flows	Head (m)	Surface Storage (m ³)		
				5-Year Requirement	100-Year Requirement	Max. Available
	Net-allowable controlled release rate (Table 1)	270.4 L/s				
1.3.1	Building Roof	55.5 L/s	-	27	88	193
1.3.2	School Yard & Soccer Field CB-1	45 L/s	1.75	N/A	7	8
1.3.3	CBMH-4 East Side Yard *	39.9 L/s	2.33	41	79	89
1.3.4	Parking Lot	130 L/s	2.62	N/A	31	187

Refer to **Appendix B** for full calculations.

Flow was restricted at CBMH-4 using an ICD size of 110mm. This ICD was sized to provide the restricted 39.9l/s of flow through the orifice, at the maximum design head for the surface storage for the 100 year + 20% design storm. As underground storage was used, the release rate will fluctuate from the maximum, at the 100 year + 20% design head, to a release rate of zero. Therefore, as seen in section B.1.3.3a of Appendix B, a storage requirement check for 50% of the peak flow through CBMH-4's orifice was performed to ensure that the underground storage had sufficient capacity for the reduced flow rate. With the reduced flow rate, it was determined that 41m³ of storage was to be provided.

The maximum ponding depth in parking lots will be less than 350mm in accordance with the City of Ottawa requirements. The maximum ponding limits generated from the ICD's are indicated on drawing **C2 – Grading Plan**. In the event the capacity of this system is exceeded, emergency runoff will overflow onto Miikana Road from the northeast parking lot entrance. Flow will also be detained on the school roof by installing parabolic weirs, (Watts Drainage Adjustable Flow Control for Roof Drains, or equivalent approved product), at the 30 proposed locations. Roof drains specified are to be type **RD-100-A1**, to be confirmed by building mechanical design restricting flow from the roof to **55.5 L/s**. To ensure the maximum release rate based on the head provided in the technical roof drain specifications, scuppers are to be provided on the building roof at 150mm above the roof drain elevation, ensuring each flow control roof drain will restrict flow to **1.85 L/s** (30 GPM at 6" head) Refer to **Appendix G product data sheets**.

4 Sanitary Servicing

A new **200mm** sanitary sewer will connect to an existing **200mm** sanitary sewer stub out through SANMH-1 at a **0.38%** slope connecting to the existing sanitary manhole **MH6104A** on Miikana Road and will convey sanitary flows from the new building. Refer to drawing **C1 – Site Servicing Plan**.



Peak sanitary flow for the site is calculated to be **2.07 l/s**. The new **200mm** sanitary sewers at **2%** slope will have a full flow capacity of **46.4 l/s**. The sanitary flows allocated for our subject property is **2.93 l/s** based on IBI's sanitary sewer design sheet in Appendix C of Design Brief, Remer Lands Phase 1 Leitrim South Holdings Inc. (Regional Group). The full flow capacities indicate it is sufficient to handle the new development sanitary flows. The sanitary demand was calculated based on the *City of Ottawa Sewer Design Guidelines 2012* and *Technical Bulletins 2018*. Refer to **Appendix C** for full calculations.

5 Water

A **200mm** watermain stub exists on the north side of the subject property. The existing stub connects to the municipal **200mm** watermain running along Miikana Drive. Additionally, there is a municipal **406mm** watermain running along Kelly Farm Drive. The school facility requires more than 50 m³ per day therefore dual 150mm dia water service connections are proposed from the existing 406mm watermain on Kelly Farm Dr. to supply the building and the private fire hydrant. The existing stub on Miikana road is proposed to be abandoned in place.

5.1 Domestic Water Demand

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

Design Criteria:

The pre-consultation meeting noted a population of 674 students, an assumption of extra 325 people is made to account for the staff and portables (55 staff + 15 students x 18 portable = 325).
Total population = 1,000 students and staff.

- Average daily demand for schools = 70 l/student/day
- Maximum school occupancy = 1,000 persons (staff and students)
- Maximum Day Factor (Institutional) = 1.5
- Maximum Hour Factor (Institutional) = 1.8

Average Daily Demand: $\frac{70 \text{ l/student/day} \times 1000 \text{ population}}{24 \text{ hrs/day} \times 3600 \text{ s/hr}} = 0.81 \text{ l/s}$

Maximum Daily Demand: $0.81 \text{ l/s} \times 1.5 = 1.22 \text{ l/s}$

Maximum Hour Demand: $1.22 \text{ l/s} \times 1.8 = 2.20 \text{ l/s}$

The max hour water demand allocated for our subject property is **3.84 l/s** based on IBI's domestic water demand calculations in Appendix B of Design Brief, Leitrim Development Area Phase 1 Leitrim Holdings South Inc. Therefore, the allocated domestic water demand is sufficient for the subject property.

5.2 Fire Flow Demand

There are four (4) fire hydrants along the frontage of the property and a proposed private fire hydrant which will provide fire protection to the site (building and portables). Two (2) along Miikana Road and another two (2) across the road along Kelly Farm Drive. The new building will be equipped with an automatic sprinkler system. Based on the Fire Underwriters Survey Method 2020, the fire flow demand for the new school is calculated to be:

Fire Flow Demand: **117.0 l/s**

FUS method 2020 was used to calculate the fire flow demand considering the portables. Under this condition, the demand was calculated to be **83.3 l/s**, and therefore the more stringent fire flow of **117.0 l/s** shall be considered as the fire flow demand for the new development. (Refer to Appendix B – Fire Flow Calculations).

Based on the aggregate flow between the 3 hydrants on the municipal frontage, and the proposed private fire hydrant, the fire flow demand will be sufficiently met. The 3 fire hydrants within the rights of way on Miikana and Kelly Farm Drive contribute a fire flow of 189 L/s based on a class AA hydrant at a separation distance of between 75m to 150m. In addition, a pressure check for the private fire hydrant was conducted, and determined 54 psi of



pressure is available at the private fire hydrant. Based on Appendix I, table 1 of the City of Ottawa design guidelines, the private fire hydrant of class AA will supply an additional 5,700 l/min of fire flow, resulting in an aggregate contribution of 284 l/s exceeding the 117.0 l/s requirements.

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

Connection 1 - Kelly farm Dr.

Maximum HGL = 148.9 m Head / 77.2 psi Pressure
Peak Hour = 145.3 m Head / 72.0 psi Pressure
Max Day + Fire = 143.7 m Head / 69.8 psi Pressure

Connection 2 - Kelly farm Dr.

Maximum HGL = 148.9 m Head / 77.2 psi Pressure
Peak Hour = 145.3 m Head / 72.0 psi Pressure
Max Day + Fire = 143.7 m Head / 69.8 psi Pressure

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 hourly demand, as well as exceeding the minimum 140 kPa requirement for the maximum daily + fire flow demand scenario at the building connection. Detailed calculations can be seen in Appendix D.

As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.). The maximum HGL 77.2 psi is considered relatively close to the 80 psi requirements in a static scenario and therefore it is recommended to install a pressure reducing valve inside the building downstream of the meter.

End of Site Servicing and Stormwater Management Report.

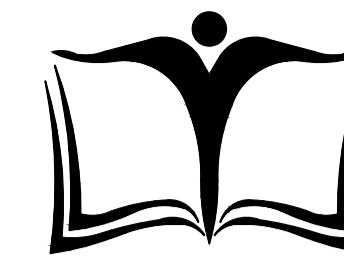
Please contact the undersigned should you require any clarification.



Prepared By:

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Appendix A - Drawings and Figures



OTTAWA-CARLETON DISTRICT SCHOOL BOARD

Jp2g Consultants Inc. ENGINEERS • PLANNERS • PROJECT MANAGERS



No.	DESCRIPTION	DATE
2	ISSUED FOR SITE PLAN CONTROL REV-2	2022-10-27
1	ISSUED FOR SITE PLAN CONTROL REV-1	2022-06-28
No.	DESCRIPTION	YYYY-MM-DD

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

project Findlay Creek #2 Public School

820 Miikana Road, Ottawa, Ontario K1X 0G5

Professional Engineer Seal for J. Sammour, dated October 27, 2022.

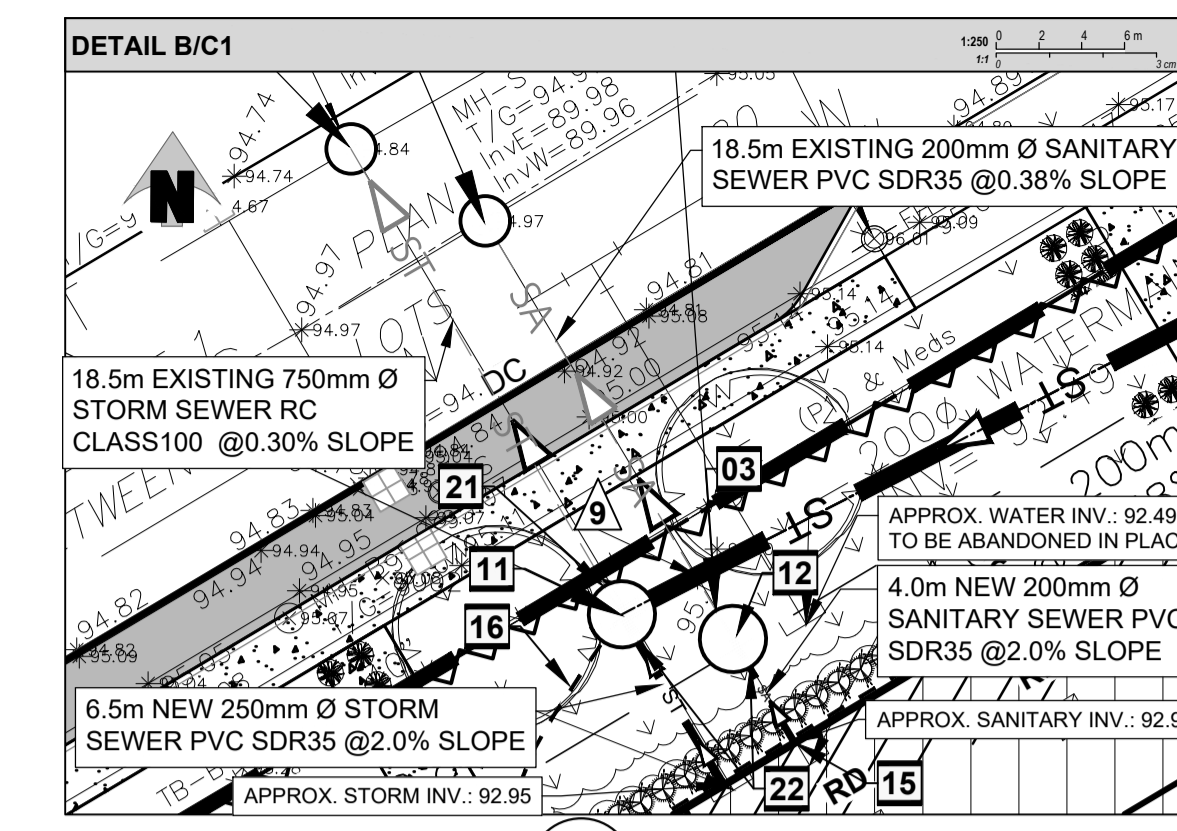
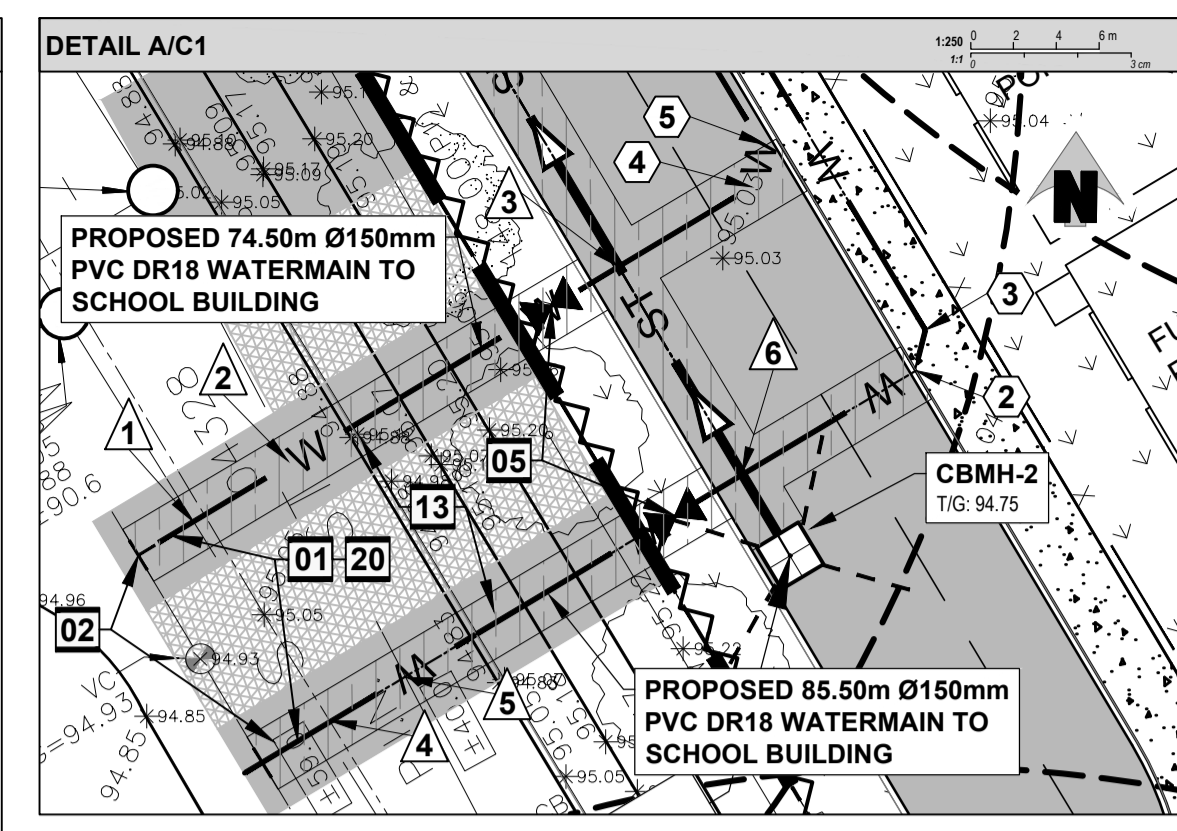
drawing title Site Servicing Plan

scale As shown	drawn by R.I.
date June 2022	checked by A.S.
project number 22-719	drawing number C1

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

LEGEND

	PROPERTY LINE
	EXISTING BUILDING
	DEPRESSED CURB
	BREAK OF SLOPE - NEW
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	NEW SANITARY SEWER
	NEW STORM SEWER
	NEW WATERMAIN
	NEW FENCE
	NEW SILT FENCE
	NEW PERFORATED DRAIN PIPE
	NEW PERIMETER FOUNDATION DRAINAGE TO BE CONNECTED TO THE NEW STORM SEWER
	NEW LIGHT DUTY ASPHALT
	NEW HEAVY DUTY ASPHALT
	NEW CONCRETE SIDEWALK
	NEW GRASS
	NEW REINFORCED GRASS
	NEW INSULATION
	MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT AS PER CITY SPECS
	SEE SHEET NUMBER "C3"
	EXISTING CATCHBASIN
	EXISTING CATCHBASIN MANHOLE
	EXISTING MANHOLES
	NEW CATCHBASIN
	NEW CATCHBASIN MANHOLE
	NEW SANITARY MANHOLE
	NEW STORM MANHOLE
	NEW WATER VALVE
	NEW INLET CONTROL DEVICE
	NEW ROOF DRAIN
	NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
	SEWER FLOW DIRECTION
	BUILDING ENTRANCE
	FIRE HYDRANT
	SEWER CAP
	NEW SIAMESE CONNECTION



A C1 DETAIL Scale: 1:250

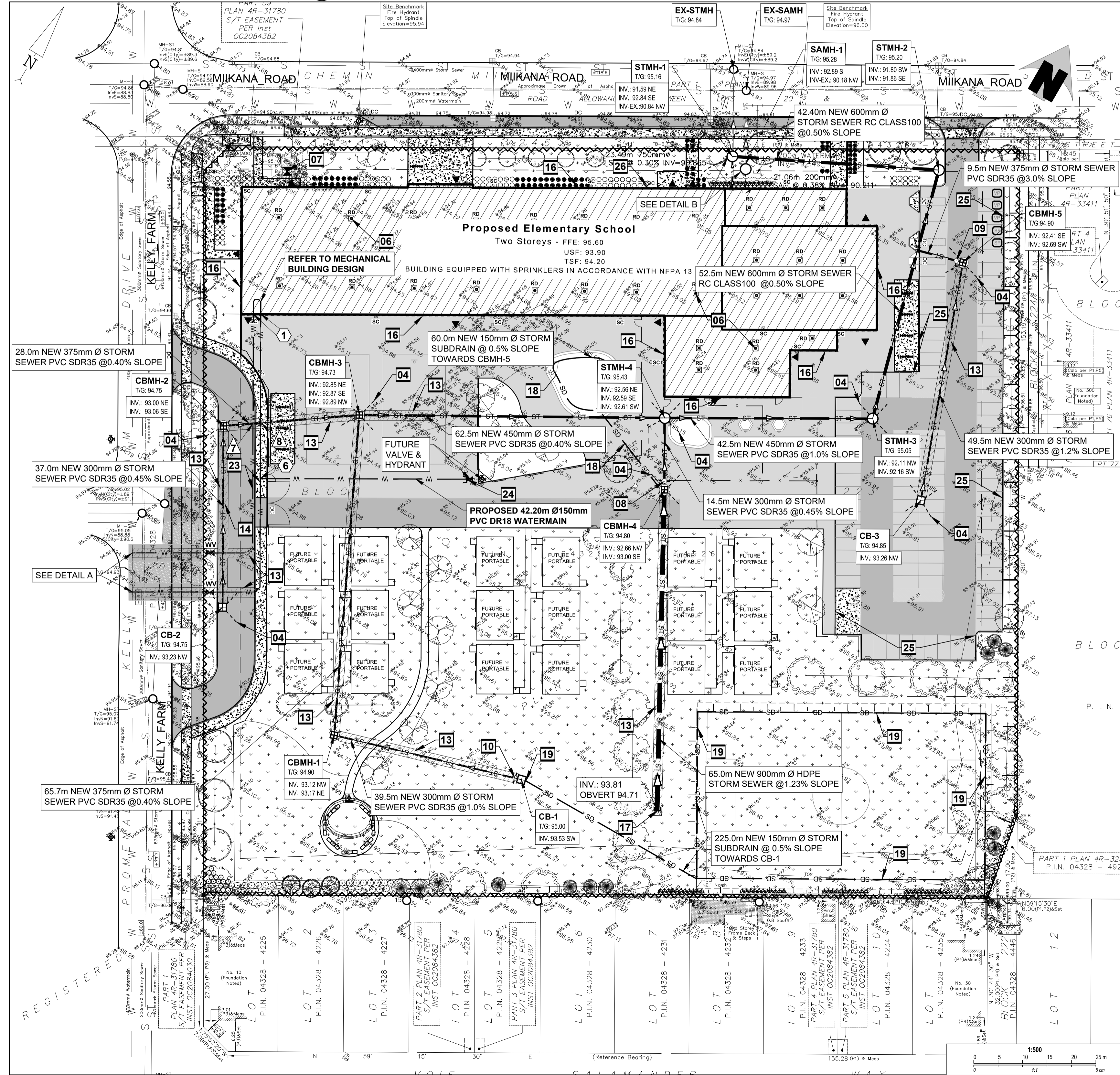
B C1 DETAIL Scale: 1:250

DRAWING NOTES

- SUPPLY AND INSTALL NEW 150mm Ø PVC DR18 WATER MAIN SERVICE, MINIMUM 2.4m COVER. OTHERWISE PROVIDE HD40 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.
- INSTALLATION OF NEW SERVICE CONNECTION TEE TO EXISTING MUNICIPAL WATERMAIN TO BE COMPLETED BY CITY OF OTTAWA FORCES. EXCAVATION, BACKFILL AND RE-INSTATEMENT BY CONTRACTOR.
- EXISTING SANITARY STUB APPROXIMATE INVERT: 90.18 INVERTS TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE UNDERGROUND UTILITY LOCATES BY DAYLIGHTING PRIOR TO CONSTRUCTION.
- INSTALL FOUR WAY 3.0m LONG 100mm Ø PERFORATED SUBDRAIN WRAPPED IN GEOTEXTILE SOCK EXTENDING FROM CB/CBMH AT PAVEMENT SUBGRADE LEVEL. PROVIDE WATERTIGHT CONNECTION.
- SUPPLY AND INSTALL NEW 150mm WATER VALVE AT PROPERTY LINE. VALVE BOX ASSEMBLY AS PER CITY OF OTTAWA STANDARD DETAIL DRAWING W24 AND W50.
- SUPPLY AND INSTALL WATTS ROOF DRAIN CONTROLS TO BE INSTALLED ON ROOF DRAINS. MAXIMUM DISCHARGE 55 L/S TOTAL. MAXIMUM ROOF PONDING DEPTH 0.15m. REFER TO MECHANICAL DRAWING FOR SPECIFIC WEIR SETTINGS. 5-YEAR PONDING VOLUME: 27m³. 100 YEAR PONDING VOLUME: 38m³.
- EXISTING TRANSFORMER AND BOLLARDS TO REMAIN.
- SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-4 OUTLET. MAXIMUM DISCHARGE 39.9 l/s AT 2.33m HEAD AND ORIFICE DIAMETER AT 111mm.
- SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-5 OUTLET. MAXIMUM DISCHARGE 130 l/s AT 2.47m HEAD AND ORIFICE DIAMETER AT 197mm.
- SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CB-1 OUTLET. MAXIMUM DISCHARGE 45 l/s AT 1.56m HEAD AND ORIFICE DIAMETER AT 130mm.
- INSTALL NEW STORM MANHOLE, STMH-3 AND 250mm Ø STUB. PROVIDE WATERTIGHT CONNECTION.
- INSTALL NEW SANITARY MANHOLE SAMH-1 AND 200mm Ø SANITARY SEWER PIPE FROM BUILDING TO CONNECT THE EXISTING 200mm Ø STUB. PROVIDE WATERTIGHT CONNECTION.
- PROVIDE 100mm HIGH LOAD RIGID INSULATION PLACED WITHIN SUBGRADE. INSULATION SHALL BE 2.0m WIDE ABOVE PIPE WHERE INDICATED.
- INSTALL NEW STORM MANHOLE, STMH-1 AND 675mm Ø STORM SEWER PIPE TO CONNECT TO THE EXISTING STORM MANHOLE EX-STMH AT INVERT 91.15. PROVIDE WATERTIGHT CONNECTION.
- CONNECT SERVICES TO INTERIOR PLUMBING 1.0m FROM BUILDING FOUNDATION. REFER TO MECHANICAL AND ARCHITECTURAL PLANS.
- NEW PERIMETER FOUNDATION DRAINAGE (REFER TO ARCHITECTURAL) TO BE CONNECTED TO THE NEW STORM SEWER.
- SUPPLY AND INSTALL NEW 900mm Ø HDPE STORMWATER STORAGE PIPE COMPLETE WITH NEW 900mm Ø CAP AT APPROXIMATE INVERT: 92.80m FOR STORMWATER MANAGEMENT PURPOSES.
- SUPPLY AND INSTALL NEW 150mm Ø PERFORATED DRAIN PIPE CW FILTER SOCKS AS PER CITY DETAIL S9. CONNECT SUBDRAIN TO CBMH-4. PROVIDE WATERTIGHT CONNECTION.
- SUPPLY AND INSTALL NEW 150mm Ø PERFORATED DRAIN PIPE CW FILTER SOCK. CONNECT SOCCER FIELD SUBDRAIN TO CB-1. PROVIDE WATERTIGHT CONNECTION.
- SUPPLY AND INSTALL NEW WATERMAIN IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING W50 (TYPICAL PRIVATE SERVICE >100mm CONNECTION PROCEDURE).
- EXISTING STORM STUB APPROXIMATE INVERT: 90.84. INVERTS TO BE CONFIRMED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE UNDERGROUND UTILITY LOCATES BY DAYLIGHTING PRIOR TO CONSTRUCTION.
- SUPPLY AND INSTALL BACKFLOW VALVES ON SANITARY AND STORM BUILDING CONNECTION AS PER CITY OF OTTAWA REQUIREMENT. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR PRO-FLEX PROCO 790 DUCK-BILL TYPE AS FOLLOWS:
 - SANITARY BACKWATER VALVE, 8" SIZE (200mm).
 - STORM BACKWATER VALVE, 10" SIZE (250mm).
 - VALVE CLAMP LOCATIONS AT DISCHARGE.
- ALL WATERMAIN SHALL BE PROVIDED WITH TRACER WIRE AS PER CITY OF OTTAWA STANDARD DETAILS AND SPECIFICATIONS.
- INSTALL UNDERGROUND CAP WITH METAL BOX FOR CONNECTION TO THE FUTURE FIRE HYDRANT VALVE.
- SUBDRAINS SHOULD BE INSTALLED ON THE SIDES OF THE ACCESS ROAD AND PARKING AREA. SEE GEOTECHNICAL NOTES AND REFER TO GEOTECHNICAL REPORT.
- NEW SIAMESE CONNECTION.

GENERAL NOTES

- DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
- 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.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
- 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.
- 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.
- 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.



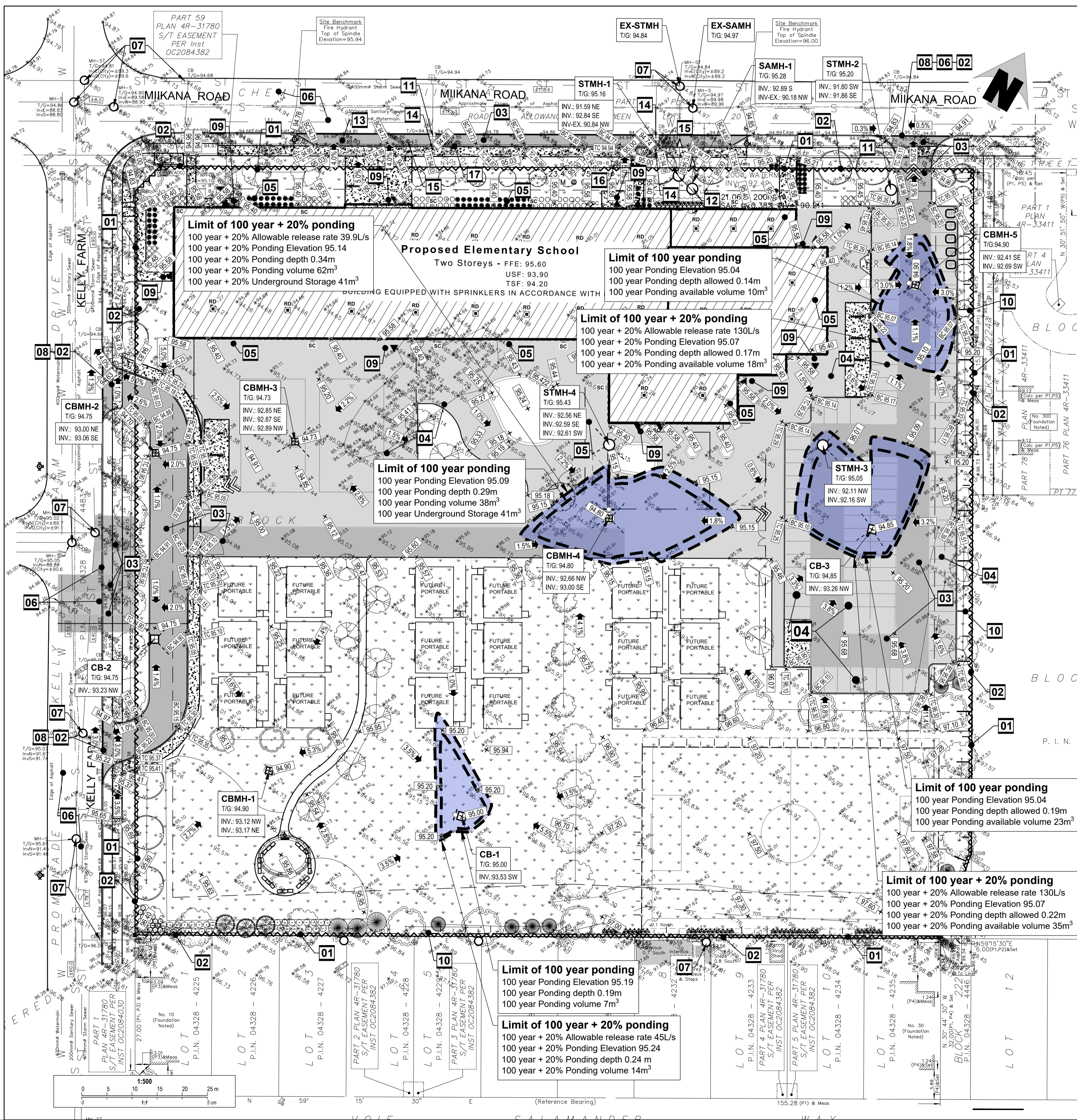
LEGEND	
	PROPERTY LINE
	EXISTING BUILDING
	DEPRESSED CURB
	BREAK OF SLOPE - NEW
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	NEW SANITARY SEWER
	NEW STORM SEWER
	NEW WATERMAIN
	NEW SILT FENCE
	NEW PERFORATED DRAIN PIPE
	NEW PERIMETER FOUNDATION DRAINAGE TO BE CONNECTED TO THE NEW STORM SEWER
	NEW LIGHT DUTY ASPHALT
	NEW HEAVY DUTY ASPHALT
	NEW CONCRETE SIDEWALK
	NEW GRASS
	NEW REINFORCED GRASS MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT AS PER CITY SPECS
	EXISTING CATCHBASIN
	EXISTING CATCHBASIN MANHOLE
	EXISTING MANHOLES
	NEW CATCHBASIN
	NEW CATCHBASIN MANHOLE
	NEW SANITARY MANHOLE
	NEW STORM MANHOLE
	NEW WATER VALVE
	NEW INLET CONTROL DEVICE
	NEW ROOF DRAIN
	NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
	NEW TRANSFORMER PAD
	EXISTING NATURAL GRADE
	PROPOSED FINISHED GRADE
	PROPOSED SLOPE
	OVERLAND FLOW ROUTE
	PROPOSED TOP OF CURB
	PROPOSED BOTTOM OF CURB

- GENERAL NOTES**
- DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
 - 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.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIALS RELATANT TO THE PROJECT.
 - 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.
 - 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.
 - CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.

- DRAWING NOTES**
- INSTALL SILT FENCE IN ACCORDANCE WITH OPSD 219.130.
 - MATCH EXISTING GRADES AT PROPERTY LINE AND LIMITS OF WORK.
 - INSTALL HEAVY DUTY PAVEMENT IN ACCORDANCE WITH DETAIL 2C3 ACCORDINGLY. REINSTATE GRADES TO THE INTO EXISTING AND PROVIDE POSITIVE DRAINAGE TOWARDS STORM STRUCTURES.
 - INSTALL LIGHT DUTY PAVEMENT IN ACCORDANCE WITH DETAIL 1C3 ACCORDINGLY. REINSTATE GRADES TO THE INTO EXISTING AND PROVIDE POSITIVE DRAINAGE TOWARDS STORM STRUCTURES.
 - GRADES TO SLOPE AWAY FROM THE BUILDING TO PROVIDE POSITIVE DRAINAGE.
 - ANY DISTURBED AREA WITHIN THE RIGHT-OF-WAY SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE CITY OF OTTAWA.
 - PROTECT EXISTING MANHOLES AND CATCHBASINS USING A FILTER SOCK OR FILTER BASE IN ACCORDANCE WITH DETAIL 4C3.
 - CONSTRUCT PARKING LOT LAY BY AND BUS LOOP ENTRANCE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING SC7.1 - CURB RETURN ENTRANCES.
 - PAVEMENT TO BE WITHIN 12mm OF DOOR.
 - PROVIDE MAXIMUM 4:1 SLOPE.
 - COVER OF EXISTING CATCH BASIN TO BE MODIFIED TO TOP ENTRY GATE AS PER CITY STANDARD S19.
 - CONTRACTOR TO PROVIDE TRENCH BOX FOR EXCAVATION IN PROXIMITY OF MUNICIPAL RIGHT OF WAY.
 - REMOVE EXISTING BARRIER CURB AND EXISTING SIDEWALK.
 - PROVIDE NEW INLET TYPE CATCH BASIN AS PER CITY STANDARD S3 AND EXTEND EXISTING CATCH BASIN LEAD.
 - RELOCATE LIGHT STANDARD TO THE BACK OF NEW SIDEWALK.
 - PROTECT BELL JUNCTION BOX AND MANHOLE. CONTRACTOR TO COORDINATE WITH UTILITIES FOR RELOCATION AND/OR PROTECTION.
 - INSTALL NEW BARRIER CURB AS PER CITY STANDARD SC1.1.

- EROSION AND SEDIMENT CONTROL NOTES**
- THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE 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.
 - PREVENT SOIL LOSS DURING CONSTRUCTION (BY STORM WATER RUNOFF OR WIND EROSION).
 - PROTECT TOPSOIL BY STOCKPILING FOR REUSE.
 - PREVENT SEDIMENTATION OF STORM SEWERS AND RECEIVING STREAMS.
 - PREVENT AIR POLLUTION FROM DUST AND PARTICULATE MATTER.
 - ALL STORM MANHOLES AND CATCHBASIN MANHOLES TO HAVE 300mm SUMP. ALL CATCHBASINS TO HAVE 600mm SUMPS.
 - INSTALL FILTER BAG INSERT IN ALL STORM MANHOLES AND CATCH BASINS IMPACTED DURING CONSTRUCTION, INCLUDING CATCH BASINS IN THE RIGHT OF WAY.
 - SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA INSPECTOR OR CONSERVATION AUTHORITY.
 - STORM WATER PUMPED INTO CITY SERVICE SHALL FLOW THROUGH A FILTER SOCK.
 - THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

- GEOTECHNICAL NOTES**
- 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.
 - IT IS STRICTLY RECOMMENDED TO REFER GEOTECHNICAL INVESTIGATION REPORT - GEOTECHNICAL INVESTIGATION PROPOSED NEW FINDLAY CREEK PUBLIC SCHOOL, 820 MIKANA ROAD, SOUTHEAST CORNER OF MIKANA ROAD AND KELLY FARM DRIVE FINDLAY CREEK COMMUNITY BY EXP SERVICES INC.
 - IT IS ANTICIPATED THAT THE MAJORITY OF THE MATERIAL REQUIRED FOR BACKFILL PURPOSES AND FOR TRENCH BACKFILL WOULD HAVE TO BE IMPORTED AND SHOULD CONFORM TO THE RECOMMENDATION STATED IN THE GEOTECHNICAL REPORT.
 - 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.
 - 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).
 - IT IS RECOMMENDED THAT THE PIPE BEDDING BE 300 MM THICK AND CONSIST OF OPSD 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 SPMD.
 - THE BEDDING THICKNESS MAY BE FURTHER INCREASED IN AREAS WHERE THE SUBGRADE BECOMES DISTURBED.
 - SINCE PAVED SURFACES WILL BE LOCATED OVER SERVICE TRENCHES, IT IS RECOMMENDED THAT THE TRENCH BACKFILL MATERIAL, WHICH IS 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 SPMD.
 - THE BEDROCK/UNDERLIEGERS 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.
 - 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 OPSD 1010 SELECT SUBGRADE MATERIAL (SSM) - COMPACTED TO 95 PERCENT OF THE SPMD AND THE UPPER 300 MM OF THE SUBGRADE FILL MUST BE COMPACTED TO 98% SPMD.
 - 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 THIS OFFICE. ANY SOFT OR SPONGY SUBGRADE AREAS DETECTED SHOULD BE SUB EXCAVATED AND PROPERLY REPLACED WITH SUITABLE APPROVED BACKFILL COMPACTED TO 95 PERCENT SPMD (ASTM D698-12E2).
 - THE SUBDRAINS ILLUSTRATED ON PLANS ARE SCHEMATIC. FULL SCHEME OF SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S). SUBDRAINS MUST BE INSTALLED IN THE PROPOSED PARKING AREA 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 DRAINAGE 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.
 - TO MINIMIZE THE PROBLEMS OF DIFFERENTIAL MOVEMENT BETWEEN THE PAVEMENT AND CATCHBASIN/MANHOLE DUE TO FROST ACTION, THE BACKFILL AROUND THE STRUCTURES SHOULD CONSIST OF FREE-DRAINING GRANULAR PREFERABLY CONFORMING TO OPSD GRANULAR B TYPE II MATERIAL. WEEP HOLES SHOULD BE PROVIDED IN THE CATCHBASIN/MANHOLE TO FACILITATE DRAINAGE OF ANY WATER THAT MAY ACCUMULATE IN THE GRANULAR FILL.
 - 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.
 - 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.
 - RELATIVELY WEAKER SUBGRADE MAY DEVELOP OVER SERVICE TRENCHES AT SUBGRADE LEVEL. THESE AREAS MAY REQUIRE THE USE OF THICKER/COMPENSER 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, OPSD GRANULAR B TYPE II, SHOULD BE PROVIDED IN THESE AREAS, IN ADDITION TO THE USE OF A GEOTEXTILE AT THE SUBGRADE LEVEL.
 - 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 SPMD.
 - THE ASPHALTIC CONCRETE USED, AND ITS PLACEMENT SHOULD MEET OPSD 1150 OR 1151 REQUIREMENTS. IT SHOULD BE COMPACTED FROM 92 PERCENT TO 97 PERCENT OF THE MFD (ASTM D2041). ASPHALT PLACEMENT SHOULD BE IN ACCORDANCE WITH OPSD 310 AND OPSD 313.
 - 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 GEOTECHNICALS TO ENSURE THAT CONSTRUCTION OF THE SEWERS AND PAVEMENT PROCEEDS ACCORDING TO THE SPECIFICATIONS.
 - STRINGENT CONSTRUCTION CONTROL PROCEDURES SHOULD BE MAINTAINED TO ENSURE THAT UNIFORM SUBGRADE MOISTURE AND DENSITY CONDITIONS ARE ACHIEVED.
 - SHOULD SURFACE AND SUBSURFACE WATER SEEPAGE OCCUR INTO THE EXCAVATIONS COLLECT ANY WATER ENTERING THE EXCAVATIONS AND REMOVE IT BY PUMPING FROM SUMP.
 - 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 SPMD. 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.
 - IT IS RECOMMENDED THAT A GEOTEXTILE BE PLACED ON THE SURFACE OF THE SUBGRADE PRIOR TO PLACEMENT OF ANY GRANULAR SUB-BASE. THIS MUST BE ALLOWED FOR BY THE CONTRACTOR AND INSTALLED WHEN DIRECTED BY THE GEOTECHNICAL ENGINEER.
 - THE MUNICIPAL SERVICES SHOULD BE INSTALLED IN SHORT OPEN TRENCH SECTIONS THAT ARE EXCAVATED AND BACKFILLED THE SAME DAY.



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1150 Morrison Drive, Suite 410, Ottawa, ONT.
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21-5124A

Site Location

No.	DESCRIPTION	DATE
2	ISSUED FOR SITE PLAN CONTROL REV-2	2022-10-27
1	ISSUED FOR SITE PLAN CONTROL REV-1	2022-06-28
No.	DESCRIPTION	YYYY-MM-DD

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

project
Findlay Creek #2 Public School
820 Miikana Road, Ottawa, Ontario
K1X 0G5

seal

drawing title	
Site Grading, Erosion and Sediment Control Plan	
scale As shown	drawn by R.I.
date June 2022	checked by A.S.
project number 22-719	drawing number C2
CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.	
revision	



OTTAWA-CARLETON DISTRICT SCHOOL BOARD

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Table with 3 columns: No., DESCRIPTION, YYYY-MM-DD. Includes entries for site plan control revisions.

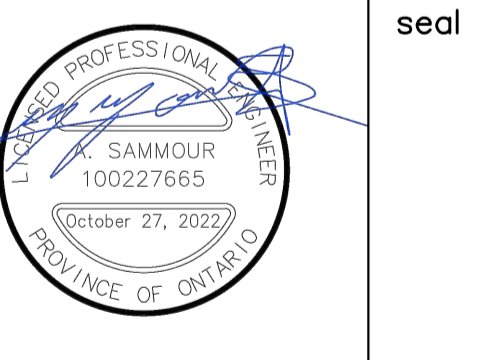


N45 ARCHITECTURE INC.

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project Findlay Creek #2 Public School

820 Miikana Road, Ottawa, Ontario K1X 0G5



drawing title Details, Notes and Schedules

Table with drawing metadata: scale, date (June 2022), project number (22-719), drawing number (C3), drawn by (R.I.), checked by (A.S.), drawing number (22-719 C3).

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

#18804

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...

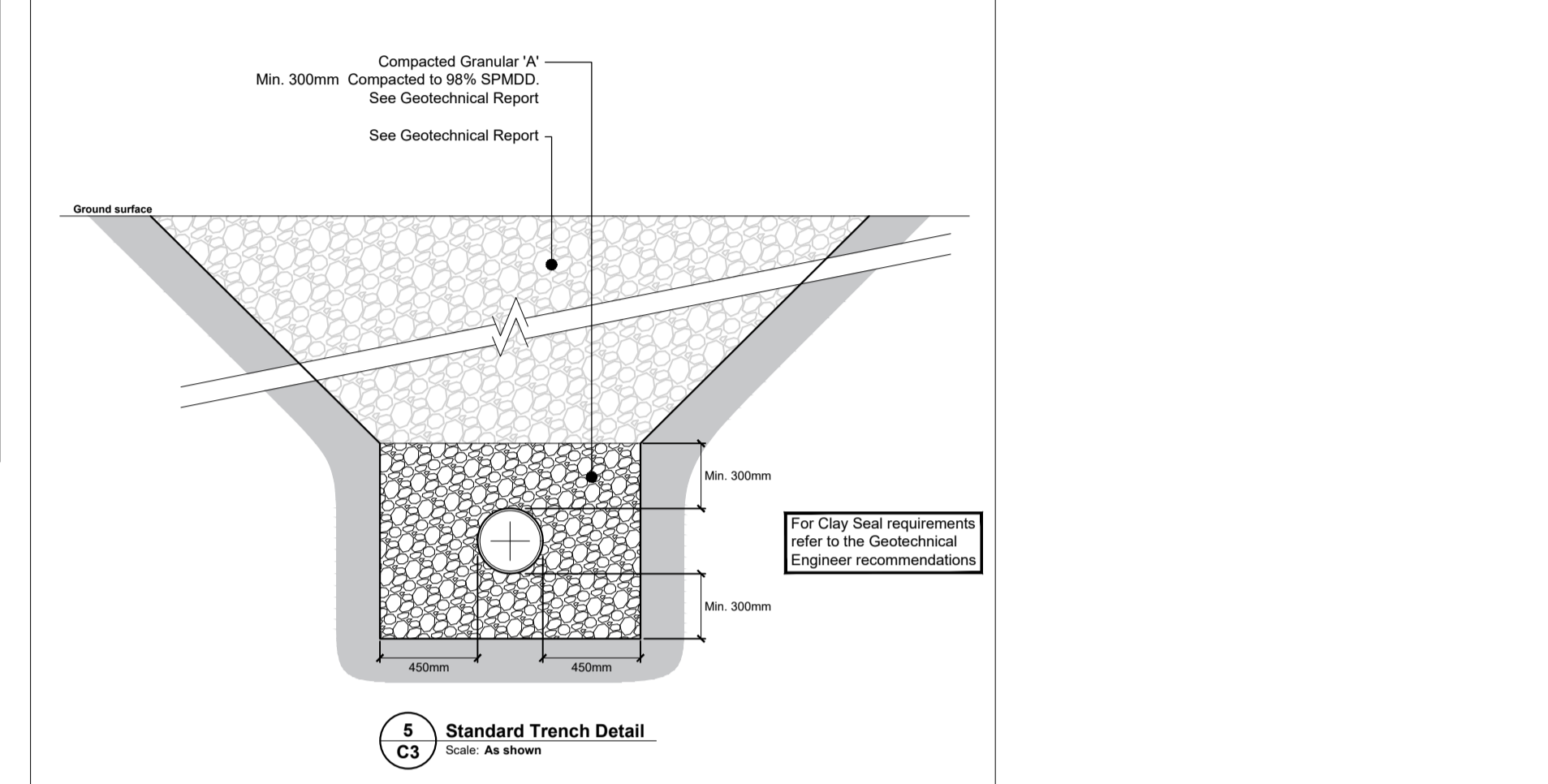
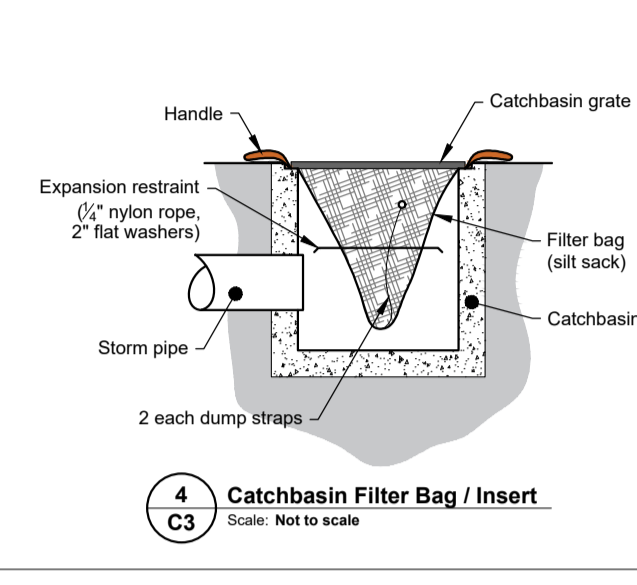
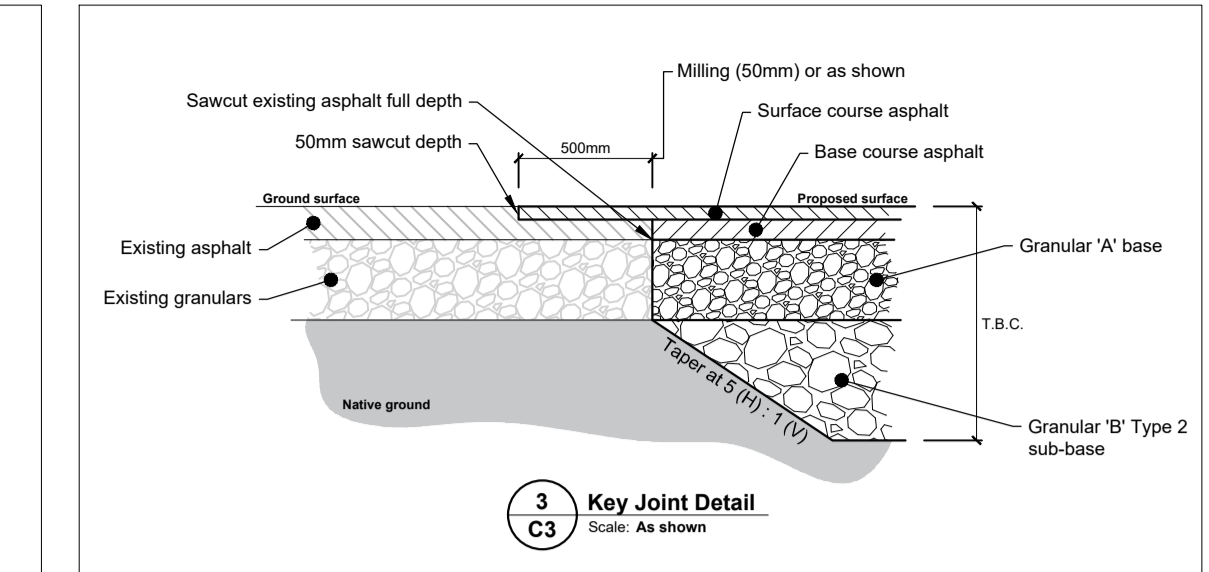
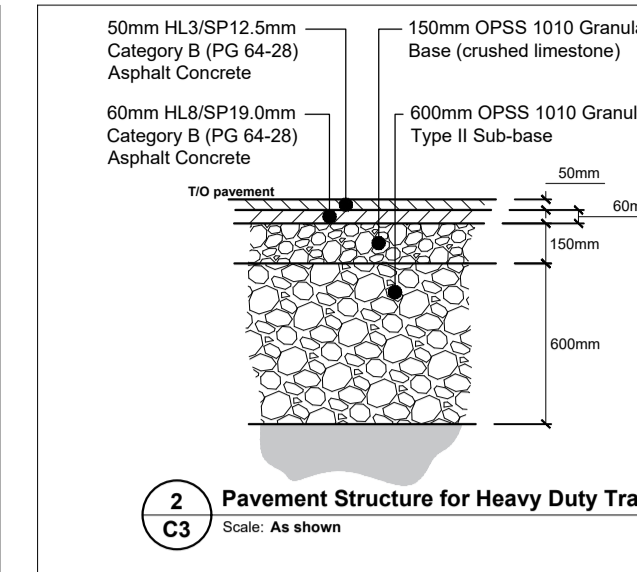
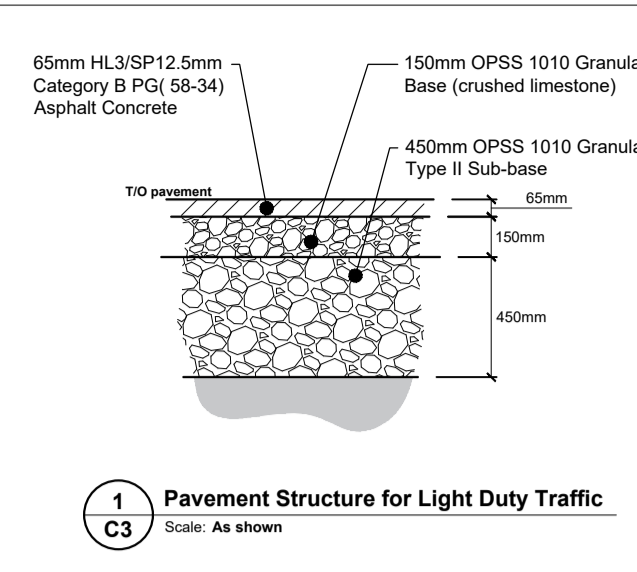
Parking Lot and Work in Public Rights of Way
CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES.
1. PRIOR TO START OF CONSTRUCTION:
1.1. INSTALL SILT FENCE IN LOCATION SHOWN ON DWG C2.

Notes: Watermain
1. ALL WATERMAIN AND WATERMAIN APPURTENANCES, 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.

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.
2. SANITARY SEWER PIPE SIZE: 150mm DIAMETER AND GREATER TO BE PVC-SR-35 UNLESS SPECIFIED OTHERWISE WITH RUBBER GASKET TYPE JOINTS IN CONFORMANCE WITH CSA B-182.2.3.4.

Notes: Storm Sewer and Manholes
1. ALL STORM SEWER MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
2. STORM SEWERS 450mm DIAMETER AND SMALLER SHALL BE PVC-SR-35, WITH RUBBER GASKET PER CSA A-257.3.

Parking Lot and Work in Public Rights of Way
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.

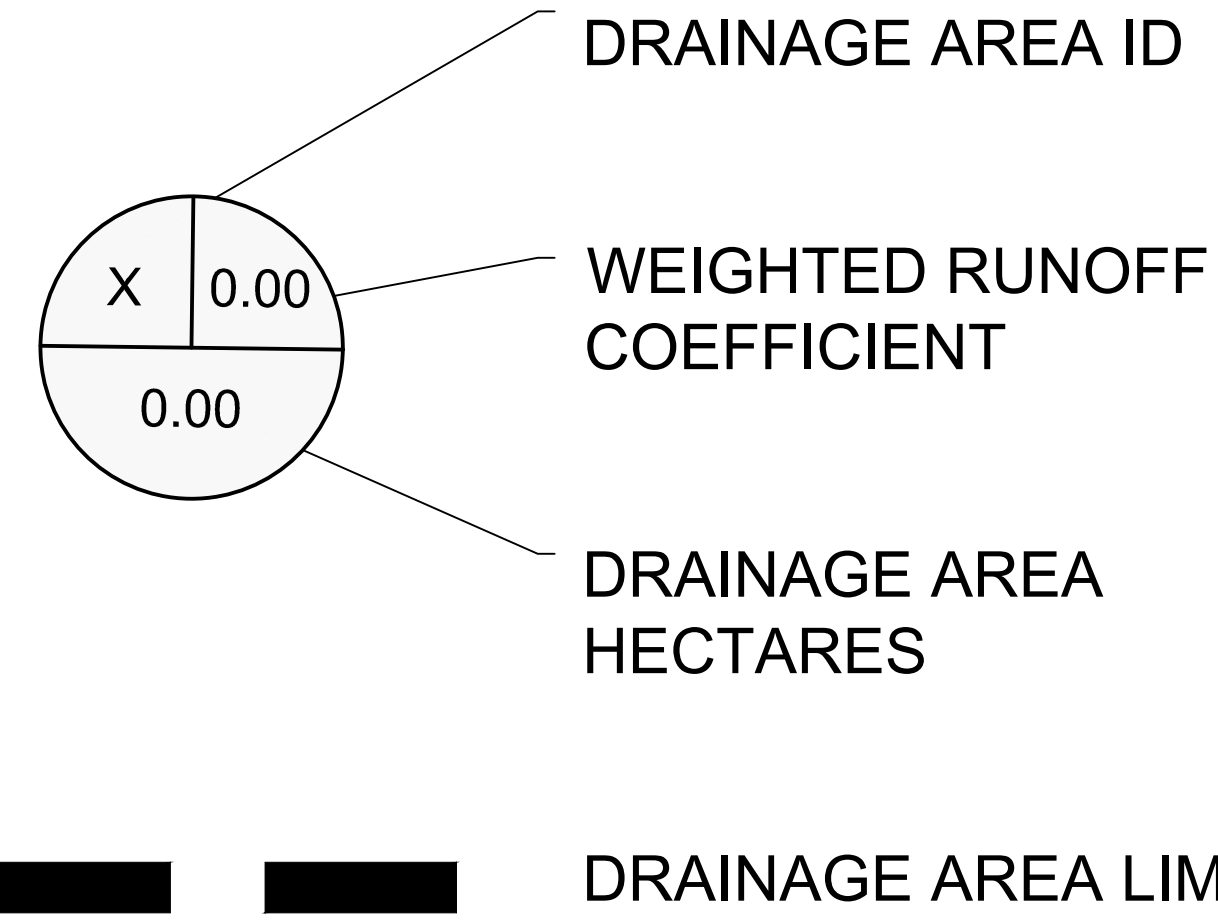


MANHOLE AND CATCHBASIN SCHEDULE table with columns: STRUCTURE ID, TOP OF FRAME ELEVATION (m), PIPE INVERT ELEVATION (m), STRUCTURE SIZE (mm) / OPSD No., FRAME (CITY OF OTTAWA).

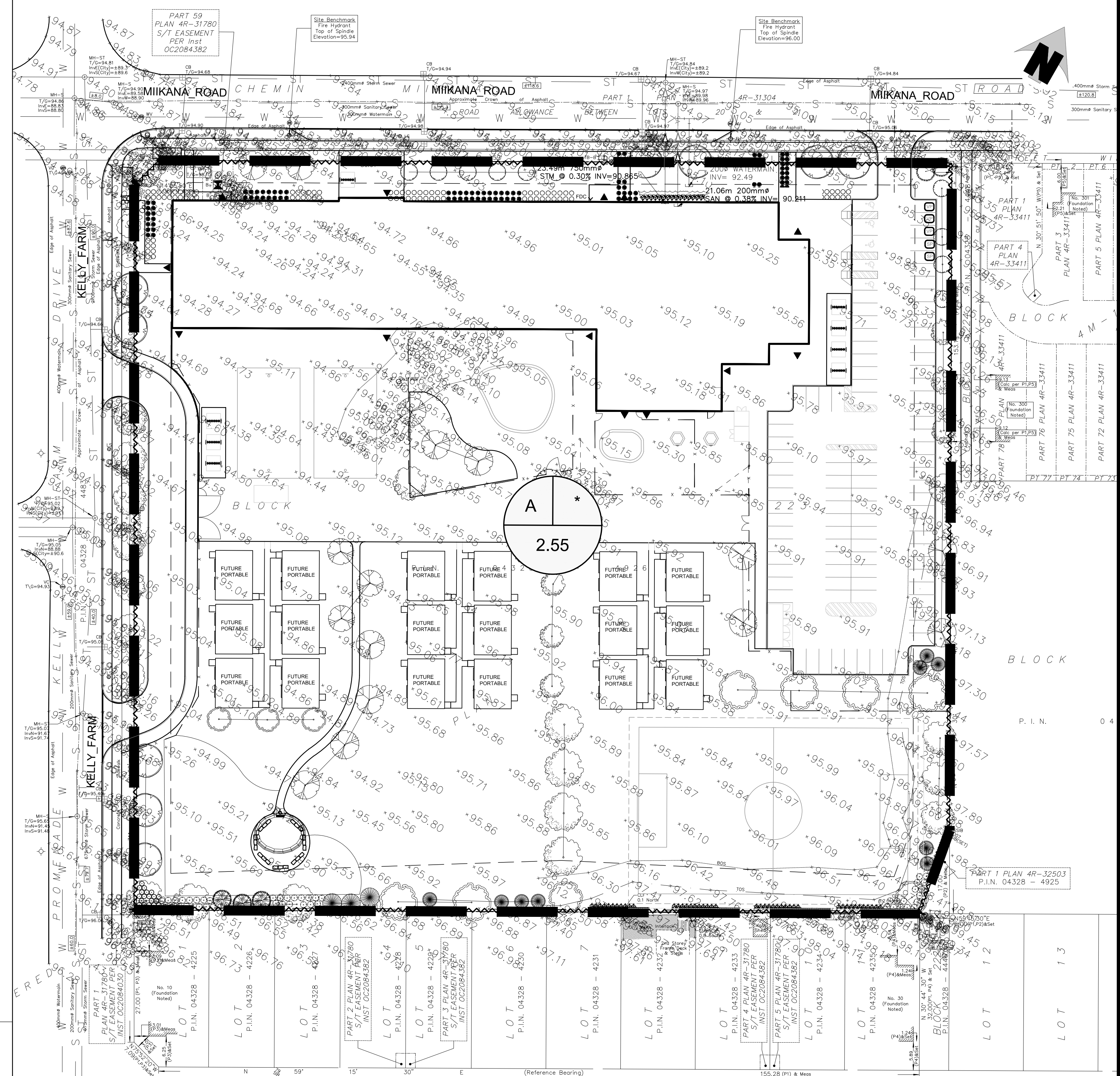
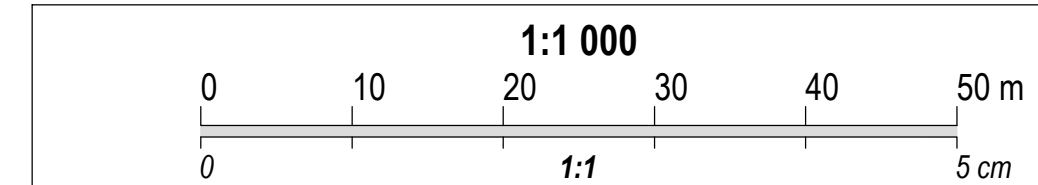
CROSSING TABLE table with columns: LOCATION, OVER / UNDER, T/G, INVERT, OBVERT, CLEARANCE (m).

WATER SERVICE TABLE table with columns: ID, DESCRIPTION, FINISHED GRADE (m), T/O WATERMAIN (m).

LEGEND



* ALLOWABLE RELEASE RATE = 476 l/s .
REFER TO PRE-CONSULTING MEETING NOTES : FEBRUARY 14th,2022 .



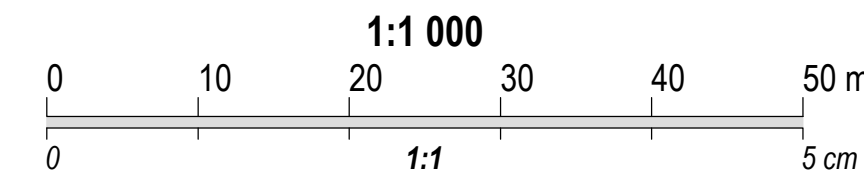
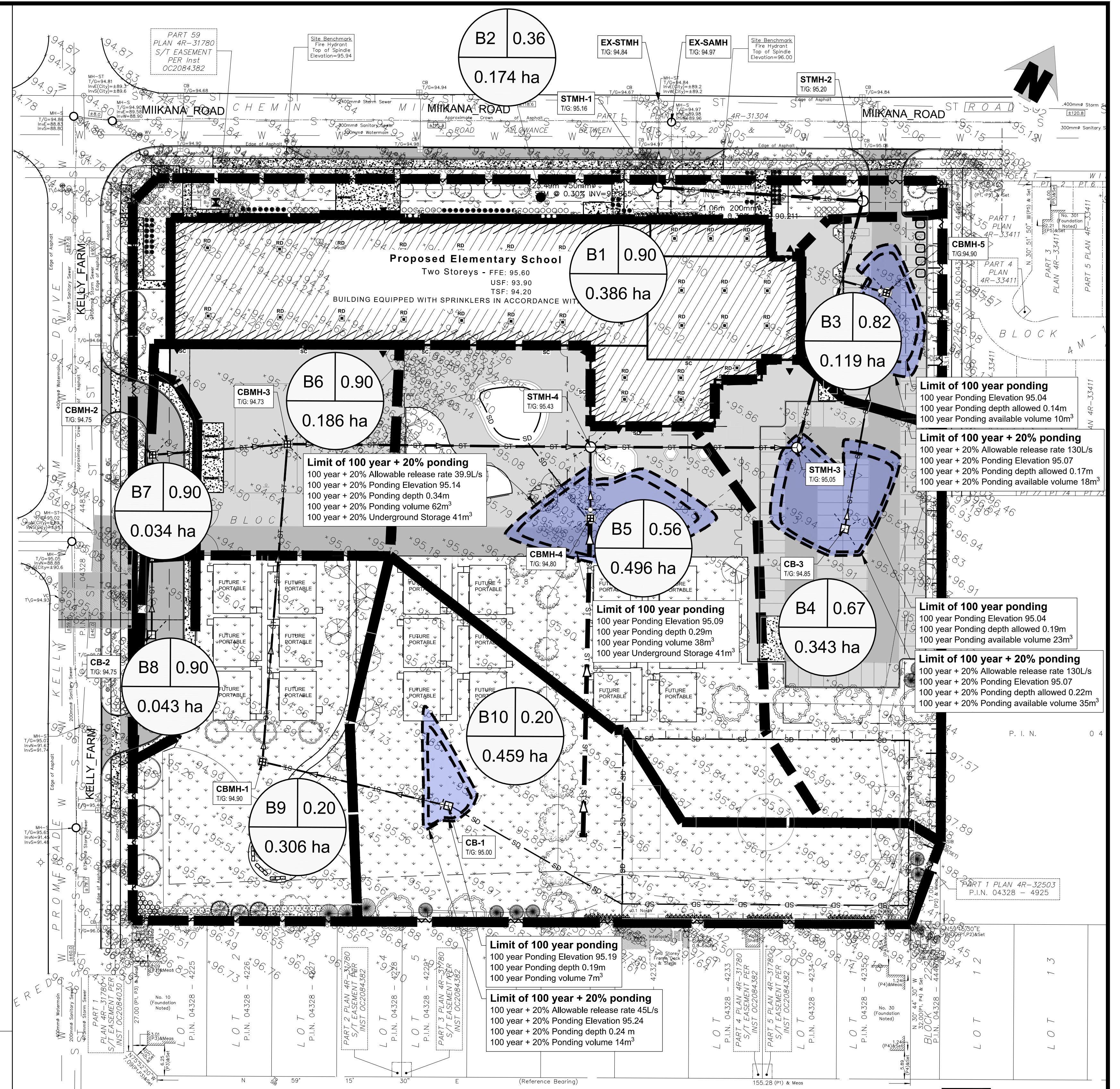
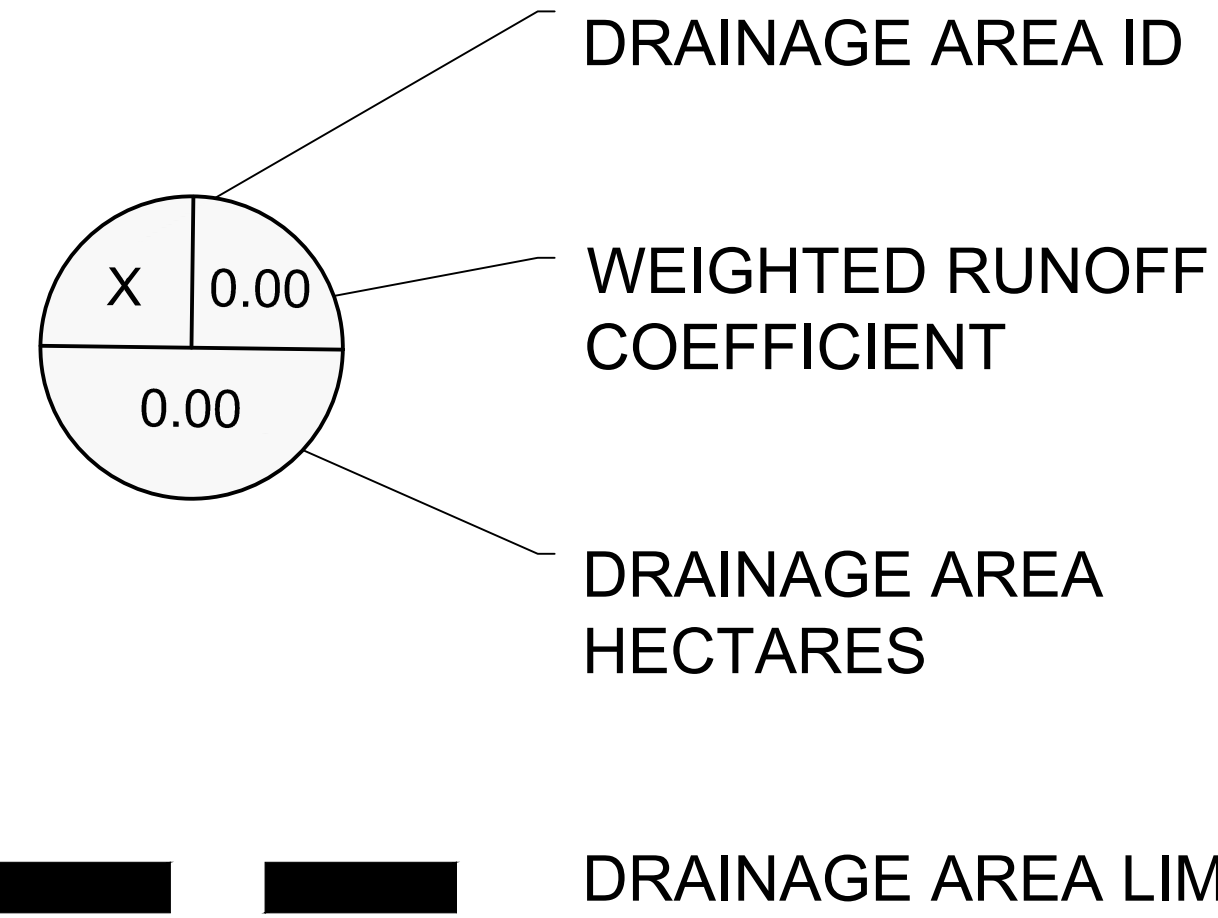
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1150 MORRISON DRIVE, SUITE 410, OTTAWA, ON Phone: (613)828-7800, Fax: (613)828-2600

FINDLAY CREEK #2 PUBLIC SCHOOL
820 MIIKANA ROAD, ONTARIO

FIGURE 1 PRE-DEVELOPMENT DRAINAGE AREAS

DESIGNED: AS	PROJECT No.: 21-5124A
DRAFTED: RI	REVISION DATE:
CHECKED: AS	APPROVED: AS
SCALE: 1:1000	REVISION No.: 1

LEGEND



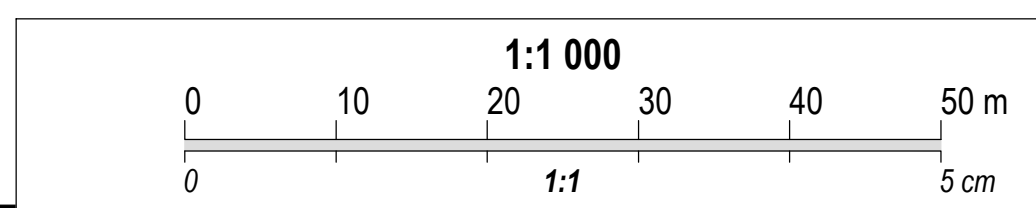
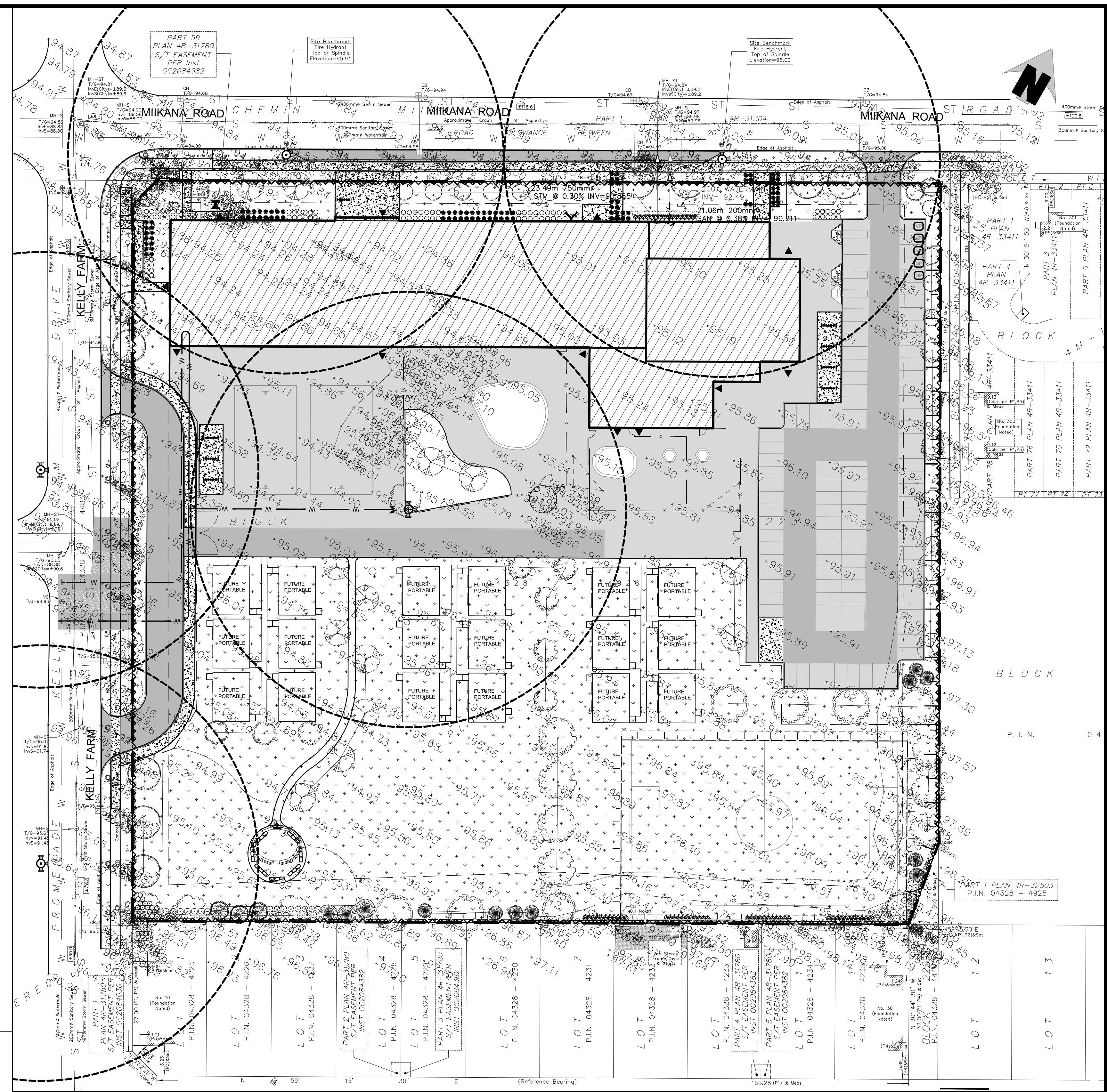
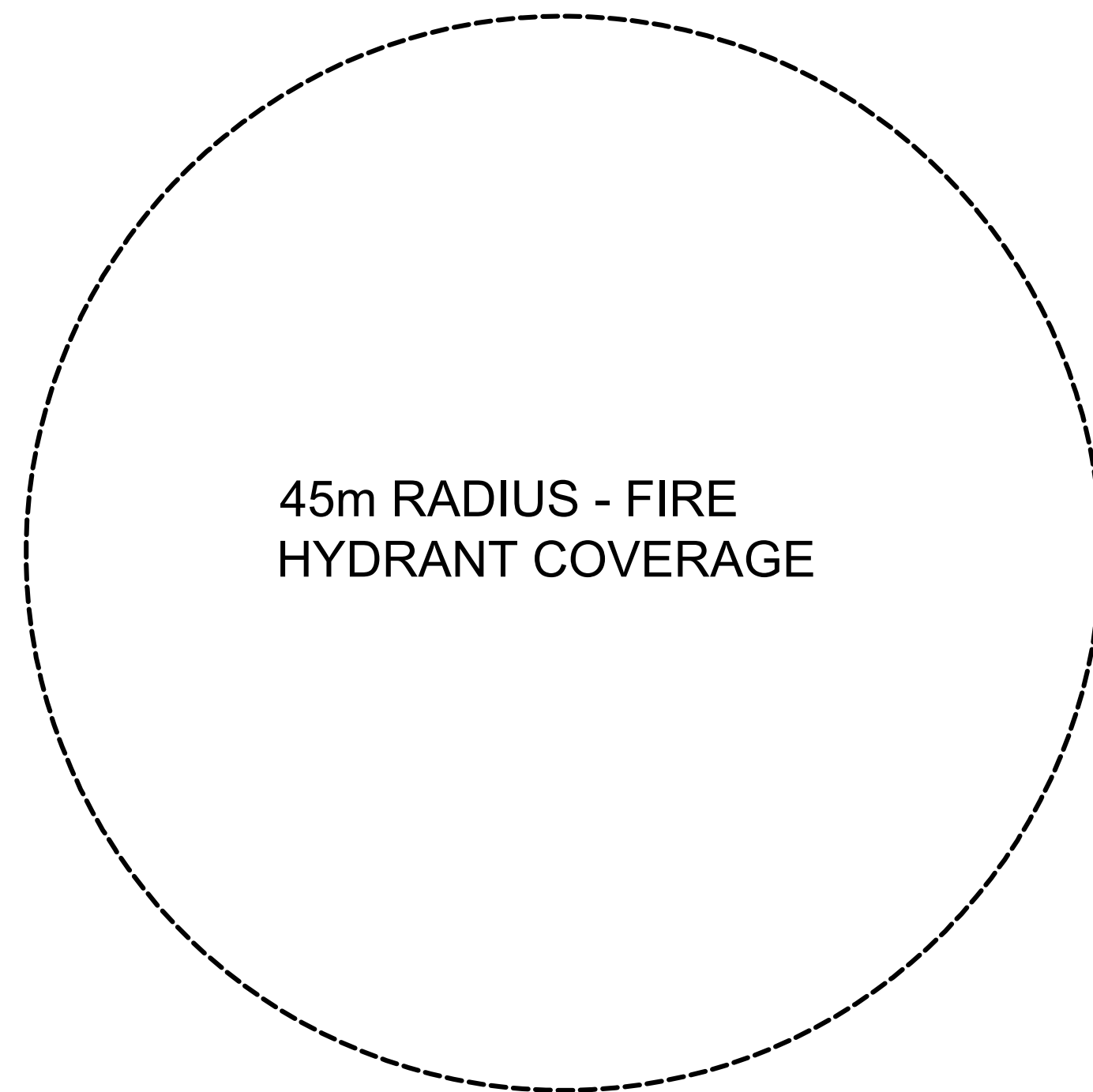
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FINDLAY CREEK #2 PUBLIC SCHOOL
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FIGURE 2 POST-DEVELOPMENT DRAINAGE AREAS

DESIGNED: AS	PROJECT No.: 21-5124A
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SCALE: 1:1000	REVISION No.: 1



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FINDLAY CREEK #2 PUBLIC SCHOOL
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FIGURE 3 FIRE HYDRANT COVERAGE AREA

DESIGNED: AS	PROJECT No.: 21-5124A
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Appendix B - Stormwater Management Calculations

Appendix B - Storm Sewer Design Sheet

B.1.1 - Allowable release rate

ID	Description	Type	Areas (m ²)		Total (m ²)	C _{pre-5-yr}	C _{pre-100-yr} *
			C _{0.90}	C _{0.20}			
A	Property Grounds	uncontrolled	0	25453	25453		
			0	25453	25453		

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

Using the data for the site from the Design Brief Pathways at Findlay Creek 4800 Bank Street (Remer Lands) Phase 1 Leitrim Development Area by IBI Engineering Consultants Ltd. (August 2017), the maximum allowable release rate allocated for this site is:

$Q_{\text{allowable (5-year)}} = 476$ l/s ①
Total Area, A = 2.55 ha

B.1.2 - Post-development release rate

ID	Description	Type	Areas (m ²)		Total (m ²)	C _{post-5-yr}	C _{post-100-yr} *
			C _{0.90}	C _{0.20}			
B1	New School Building Roof	controlled	3862	0	3862	0.90	1.00
B2	Front of School on Mikkana Drive & NW frontage	uncontrolled	406	1337	1742	0.36	0.42
B3	CBMH-5 Parking Lot North	controlled	1051	135	1187	0.82	0.91
B4	CB-3 Parking Lot South	controlled	2288	1147	3434	0.67	0.75
B5	CBMH-4 East Side of School Yard	controlled	2562	2404	4966	0.56	0.64
B6	CBMH-3 West Side of School Yard	uncontrolled	1861	0	1861	0.90	1.00
B7	CBMH-2 Bus Lay by north	uncontrolled	338	0	338	0.90	1.00
B8	CB-2 Bus Lay by south	uncontrolled	429	0	429	0.90	1.00
B9	CBMH -1 Landscaping Area South	uncontrolled	0	3060	3060	0.20	0.25
B10	CB- 1 School Yard & Soccer Field	controlled	0	4592	4592	0.20	0.25
			12795	12676	25471	0.49	0.56

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

Calculations for post-development runoff coefficient

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

Calculations for average weighted runoff coefficient

$C_{\text{post-5-yr}} = 0.49$
 $C_{\text{post-100-yr}} = 0.56$

Estimated time of concentration, $t_c = 10.0$ minutes ***As per City of Ottawa Sewer Design Guidelines (Section 5.4.5.2)
 Based on Ottawa IDF curve, $i_{5\text{-years}} = 998.071 / (t_c + 6.053)^{0.814} = 104.2$ mm/hr
 Based on Ottawa IDF curve, $i_{100\text{-years}} = 1735.688 / (t_c + 6.014)^{0.820} = 178.6$ mm/hr

B.1.2.1a - Uncontrolled overland surface flow

B2 Uncontrolled area, Overland Fronts	0.174	ha	
5-year Runoff coefficient, $C_{5\text{-yr-uncontrolled}}$	0.36		
100-year Runoff coefficient, $C_{100\text{-yr-uncontrolled}}$	0.42		
Uncontrolled overland surface Release Rate 5-year	18.3	l/s	A
Uncontrolled overland surface Release Rate 100-year	36.7	l/s	B

B.1.2.1b - Uncontrolled Network Flow

Total Uncontrolled Network Flow Areas B6, B7, B8, B9	0.569	ha	
5-year Runoff coefficient, $C_{5\text{-yr-uncontrolled}}$	0.52		
100-year Runoff coefficient, $C_{100\text{-yr-uncontrolled}}$	0.60		
Uncontrolled overland surface Release Rate 5-year	86.2	l/s	C
Uncontrolled overland surface Release Rate 100-year	168.4	l/s	D
Total Uncontrolled Release Rate 5-year	104.5	l/s	E = A+C
Total Uncontrolled Release Rate 100-year	205.1	l/s	F = B+D

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

$Q_{\text{net-allowable 5-year}} = 371.0$ l/s $G = 1-E$
 $*Q_{\text{net-allowable 100-year}} = 270.4$ l/s $H = 1-F$ * Must be controlled to net-allowable 100-year

B.1.3 Summary of Release Rates

	Surface	Network			Total Release Rate	
	Uncontrolled	Uncontrolled	Controlled	Total		
5 Year	18.3	86.2	270.4	356.6	374.9	A Used for Pipe Design
100 Year	36.7	168.4	270.4	438.8	475.5	B Used for surface storage design
	1	2	3	4		

$A4 = A2 + A3$
 $B4 = B2 + B3$

B.1.3 - Post-development onsite storage

B.1.3.1 - Estimated detention Roof (B1)

Area	0.386	ha
5-year Runoff coefficient	0.90	
100-year Runoff coefficient	1.00	
Roof Drains	55.5	l/s

Table 1.3.1a - 5-year estimated detention Building Roof

	Time (minutes)	$i_{5\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{\text{allowable}}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
<i>peak V_{stored}</i> →	10	104.2	100.7	55.5	45.2	27.1
	15	83.6	80.7	55.5	25.2	22.7
	20	70.3	67.9	55.5	12.4	14.9
	25	60.9	58.8	55.5	3.3	5.0
	30	53.9	52.1	55.5	-3.4	-6.1
	35	48.5	46.9	55.5	-8.6	-18.1
	40	44.2	42.7	55.5	-12.8	-30.7
	45	40.6	39.3	55.5	-16.2	-43.9
	50	37.7	36.4	55.5	-19.1	-57.4
	55	35.1	33.9	55.5	-21.6	-71.2
	60	32.9	31.8	55.5	-23.7	-85.2
Therefore		27	m ³ estimated roof detention			

Table 1.3.1b - 100-year estimated detention Building Roof

	Time (min)	$i_{100\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{\text{allowable}}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
<i>peak V_{stored}</i> →	10	178.6	191.7	55.5	136.2	81.7
	15	142.9	153.4	55.5	97.9	88.1
	20	120.0	128.8	55.5	73.3	87.9
	25	103.8	111.5	55.5	56.0	84.0
	30	91.9	98.6	55.5	43.1	77.6
	35	82.6	88.7	55.5	33.2	69.6
	40	75.1	80.7	55.5	25.2	60.4
	45	69.1	74.1	55.5	18.6	50.3
	50	64.0	68.7	55.5	13.2	39.5
	55	59.6	64.0	55.5	8.5	28.1
	60	55.9	60.0	55.5	4.5	16.2
Therefore		88	m ³ estimated yard detention			

B.1.3.2 - Estimated detention School Yard & Soccer Field (B10)

Area	0.459	ha
5-year Runoff coefficient	0.20	
100-year Runoff coefficient	0.25	
Install flow control after CB-1	45.0	l/s

Table 1.3.2a - 5-year estimated detention in School Yard

	Time (minutes)	$i_{5\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{\text{allowable}}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
<i>peak V_{stored}</i> →	10	104.2	26.6	45.0	-18.4	-11.0
	15	83.6	21.3	45.0	-23.7	-21.3
	20	70.3	17.9	45.0	-27.1	-32.5
	25	60.9	15.5	45.0	-29.5	-44.2
	30	53.9	13.8	45.0	-31.2	-56.2
	35	48.5	12.4	45.0	-32.6	-68.5
	40	44.2	11.3	45.0	-33.7	-80.9
	45	40.6	10.4	45.0	-34.6	-93.5
	50	37.7	9.6	45.0	-35.4	-106.2
	55	35.1	9.0	45.0	-36.0	-118.9
	60	32.9	8.4	45.0	-36.6	-131.7
Therefore		-11	m ³ estimated yard detention			

Table 1.3.2b - 100-year estimated detention in School Yard

	Time (min)	I _{100-years} (mm/hr)	Q _{actual} (l/s)	Q _{allowable} (l/s)	Q _{stored} (l/s)	V _{stored} (m ³)
peak V _{stored} →	10	178.6	57.0	45.0	12.0	7.2
	15	142.9	45.6	45.0	0.6	0.5
	20	120.0	38.3	45.0	-6.7	-8.1
	25	103.8	33.1	45.0	-11.9	-17.8
	30	91.9	29.3	45.0	-15.7	-28.2
	35	82.6	26.4	45.0	-18.6	-39.2
	40	75.1	24.0	45.0	-21.0	-50.4
	45	69.1	22.0	45.0	-23.0	-62.0
	50	64.0	20.4	45.0	-24.6	-73.8
	55	59.6	19.0	45.0	-26.0	-85.7
	60	55.9	17.8	45.0	-27.2	-97.8

Therefore **7** m³ estimated yard detention

Table 1.3.2b - 100-year +20% estimated detention in School Yard

	Time (min)	I _{100-years} (mm/hr)	Q _{actual} (l/s)	Q _{allowable} (l/s)	Q _{stored} (l/s)	V _{stored} (m ³)
peak V _{stored} →	10	214.3	68.4	45.0	23.4	14.0
	15	171.5	54.7	45.0	9.7	8.8
	20	143.9	45.9	45.0	0.9	1.1
	25	124.6	39.8	45.0	-5.2	-7.8
	30	110.2	35.2	45.0	-9.8	-17.7
	35	99.1	31.6	45.0	-13.4	-28.1
	40	90.2	28.8	45.0	-16.2	-38.9
	45	82.9	26.4	45.0	-18.6	-50.1
	50	76.7	24.5	45.0	-20.5	-61.5
	55	71.5	22.8	45.0	-22.2	-73.1
	60	67.1	21.4	45.0	-23.6	-84.9

Therefore **14** m³ estimated yard detention

B.1.3.3 - Estimated detention CBMH -4 (B5) East Side of School Yard (surface + underground)

Area **0.497** ha
 5-year Runoff coefficient **0.56**
 100-year Runoff coefficient **0.64**
 Install flow control in CBMH-4 **39.9** l/s

Table 1.3.3a - 5-year estimated detention East Side Yard (surface + underground)

	Time (minutes)	I _{5-years} (mm/hr)	Q _{actual} (l/s)	Q _{allowable} (l/s)	Q _{stored} (l/s)	V _{stored} (m ³)
peak V _{stored} →	10	104.2	80.7	39.9	40.8	24.5
	15	83.6	64.7	39.9	24.8	22.3
	20	70.3	54.4	39.9	14.5	17.4
	25	60.9	47.2	39.9	7.3	10.9
	30	53.9	41.8	39.9	1.9	3.4
	35	48.5	37.6	39.9	-2.3	-4.9
	40	44.2	34.2	39.9	-5.7	-13.6
	45	40.6	31.5	39.9	-8.4	-22.8
	50	37.7	29.2	39.9	-10.7	-32.2
	55	35.1	27.2	39.9	-12.7	-41.9
	60	32.9	25.5	39.9	-14.4	-51.8

Therefore **24** m³ estimated yard detention **

Table 1.3.3b - 100-year estimated detention East Side of Yard (surface + underground)

	Time (min)	I _{100-years} (mm/hr)	Q _{actual} (l/s)	Q _{allowable} (l/s)	Q _{stored} (l/s)	V _{stored} (m ³)
peak V _{stored} →	10	178.6	157.0	39.9	117.1	70.3
	15	142.9	125.6	39.9	85.7	77.2
	20	120.0	105.5	39.9	65.6	78.7
	25	103.8	91.3	39.9	51.4	77.1
	30	91.9	80.8	39.9	40.9	73.6
	35	82.6	72.6	39.9	32.7	68.7
	40	75.1	66.1	39.9	26.2	62.8

45	69.1	60.7	39.9	20.8	56.2
50	64.0	56.2	39.9	16.3	49.0
55	59.6	52.4	39.9	12.5	41.3
60	55.9	49.1	39.9	9.2	33.3

Therefore **79** m³ estimated yard detention **

Table 1.3.3b - 100-year 20% estimated detention East Side of Yard (surface + underground)

Time (min)	I _{100-years} (mm/hr)	Q _{actual} (l/s)	Q _{allowable} (l/s)	Q _{stored} (l/s)	V _{stored} (m ³)
10	214.3	188.4	39.9	148.5	89.1
15	171.5	150.8	39.9	110.9	99.8
20	143.9	126.6	39.9	86.7	104.0
peak V _{stored} → 25	124.6	109.6	39.9	69.7	104.5
30	110.2	96.9	39.9	57.0	102.6
35	99.1	87.1	39.9	47.2	99.2
40	90.2	79.3	39.9	39.4	94.5
45	82.9	72.8	39.9	32.9	89.0
50	76.7	67.5	39.9	27.6	82.7
55	71.5	62.9	39.9	23.0	75.9
60	67.1	59.0	39.9	19.1	68.7

Therefore **104** m³ estimated yard detention **

B.1.3.3 - Estimated detention CBMH -4 (B5) East Side of School Yard (surface + underground) for 50% peak flow check

50% peak flow control in CBMH-4 **20.0** l/s

Table 1.3.3a - 5-year estimated detention East Side Yard (surface + underground)

Time (minutes)	I _{5-years} (mm/hr)	Q _{actual} (l/s)	Q _{allowable} (l/s)	Q _{stored} (l/s)	V _{stored} (m ³)
10	104.2	80.7	20.0	60.8	36.5
15	83.6	64.7	20.0	44.8	40.3
peak V _{stored} → 20	70.3	54.4	20.0	34.5	41.4
25	60.9	47.2	20.0	27.2	40.8
30	53.9	41.8	20.0	21.8	39.3
35	48.5	37.6	20.0	17.6	37.0
40	44.2	34.2	20.0	14.3	34.3
45	40.6	31.5	20.0	11.5	31.1
50	37.7	29.2	20.0	9.2	27.6
55	35.1	27.2	20.0	7.3	23.9
60	32.9	25.5	20.0	5.6	20.0

Therefore **41** m³ estimated yard detention **

therefore, to restrict no surface ponding for the 5 year event, underground storage is to be sized to account for the 50% peak flow. Provide 41m³ storage underground

B.1.3.4 - Estimated detention Parking Lot B3 & B4

Total controlled Area B3 & B4 **0.462** ha
 5-year Runoff coefficient **0.71**
 100-year Runoff coefficient **0.79**
 Install flow control in CBMH-5 **130.0** l/s

Table 1.3.4a - 5-year estimated detention in parking area

	Time (minutes)	$I_{5\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{\text{allowable}}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
$peak V_{\text{stored}} \rightarrow$	10	104.2	94.5	130.0	-35.5	-21.3
	15	83.6	75.8	130.0	-54.2	-48.8
	20	70.3	63.7	130.0	-66.3	-79.6
	25	60.9	55.2	130.0	-74.8	-112.2
	30	53.9	48.9	130.0	-81.1	-146.0
	35	48.5	44.0	130.0	-86.0	-180.6
	40	44.2	40.1	130.0	-89.9	-215.9
	45	40.6	36.8	130.0	-93.2	-251.5
	50	37.7	34.1	130.0	-95.9	-287.6
	55	35.1	31.8	130.0	-98.2	-323.9
	60	32.9	29.9	130.0	-100.1	-360.5

Therefore **-21** m^3 estimated yard detention

Table 1.3.4b - 100-year estimated detention in parking area

	Time (min)	$I_{100\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{\text{allowable}}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
$peak V_{\text{stored}} \rightarrow$	10	178.6	181.7	130.0	51.7	31.0
	15	142.9	145.4	130.0	15.4	13.8
	20	120.0	122.0	130.0	-8.0	-9.6
	25	103.8	105.6	130.0	-24.4	-36.5
	30	91.9	93.5	130.0	-36.5	-65.8
	35	82.6	84.0	130.0	-46.0	-96.6
	40	75.1	76.4	130.0	-53.6	-128.5
	45	69.1	70.2	130.0	-59.8	-161.3
	50	64.0	65.1	130.0	-64.9	-194.8
	55	59.6	60.7	130.0	-69.3	-228.8
	60	55.9	56.9	130.0	-73.1	-263.3

Therefore **31** m^3 estimated yard detention

Table 1.3.4b - 100-year +20% estimated detention in parking area

	Time (min)	$I_{100\text{-years}}$ (mm/hr)	Q_{actual} (l/s)	$Q_{\text{allowable}}$ (l/s)	Q_{stored} (l/s)	V_{stored} (m^3)
$peak V_{\text{stored}} \rightarrow$	10	214.3	218.0	130.0	88.0	52.8
	15	171.5	174.4	130.0	44.4	40.0
	20	143.9	146.4	130.0	16.4	19.7
	25	124.6	126.8	130.0	-3.2	-4.8
	30	110.2	112.2	130.0	-17.8	-32.1
	35	99.1	100.8	130.0	-29.2	-61.3
	40	90.2	91.7	130.0	-38.3	-91.8
	45	82.9	84.3	130.0	-45.7	-123.4
	50	76.7	78.1	130.0	-51.9	-155.8
	55	71.5	72.8	130.0	-57.2	-188.8
	60	67.1	68.2	130.0	-61.8	-222.4

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

B.1.4 - Site storage

	5-year required (m3)	100-year required (m3)	100-year +20% required m^3	100 year Ponding depth (m)	Ponding area (m2)	100 Year Available (m3)	100 year Ponding Elev.
Roof Detention	27	88	NA	0.15	3862	193	
CB-1 School Yard & Soccer Field Detention	-11	7	14	0.19	107	7	95.19
CBMH-4 East Side Yard (surface + underground) **	41	79	104	0.29	397	79	95.09
Parking Lot B3 & B4 Detention	-21	31	53	0.19	574	33	95.04
CB-3 Storage				0.19	360	23	95.04

CBMH-5 Storage	0.14	214	10	95.04
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** 100 years available storage surface V1 = 38 cum + 65 meters of underground 900mm dia pipe V2 = 41 cum , V total available storage 100 years required = 79 cum

** No surface storage requirements for 5 years, all storage in underground 900 dia pipe

100+20% Ponding Elevations	5-year required (m3)	100-year required (m3)	100-year +20% required m^3	100 year + 20%Ponding depth (m)	Ponding area (m2)	100 Year + 20% Available (m3)	100 year + 20% Ponding Elev.
Roof Detention	27	88	NA	0.15	3862	193	
CB-1 School Yard & Soccer Field Detention	-11	7	14	0.24	169	14	95.24
CBMH-4 East Side Yard (surface + underground) **	41	79	104	0.34	543	103	95.14
Parking Lot B3 & B4 Detention	-21	31	53	0.22	795	53	95.07
CB-3 Storage				0.22	481	35	95.07
CBMH-5 Storage				0.17	314	18	95.07

100 years available storage surface V1 = 62cum + 65meters of underground 900mm dia pipe V2 = 41 cum , V total available storage 100 years + 20% required = 103 cum

No surface storage requirements for 5 years, all storage in underground 900 dia pipe



B.1.5 - Storm Sewer Pipe Design

<u>Definitions</u>		<u>Rational Method</u>	<u>Notes</u>
Manning's Coefficient =	0.013	Q = 2.78 CIA (l/s), where	1) Used City of Ottawa IDF Curve
Return Frequency (yrs) =	5	C= Runoff Coefficient	2) Min. velocity = 0.8 m/sec
1 acre = 0.4047 hectares		i = Rainfall Intensity (mm/hr)	3) Max. velocity = 6.0 m/sec
		A = Areas in Hectares (ha)	

LOCATION		AREA (ha)		FLOW					SEWER DATA									
From	To	C=	C=	Individual	Cum.	tc	i 5 years	i 100 years	Flow 5 years	Flow 100 years	Dia.	Slope	Length	Capacity	Velocity	Sect.Time	Tot. Time	Utilization
		0.90	0.20	2.78CA	2.78CA	(min.)	(mm/hr)	(mm/hr)	(l/s)	(l/s)	(mm)	(%)	(m)	(full) (l/s)	(full) (m/s)	(minutes)	(minutes)	(%)
CB-2	CBMH-2	0.043	0.00	0.11	0.11	10.0	104.2	178.6	11.2	19.2	300	0.45	37.0	64.9	0.9	0.7	10.7	17
CBMH-2	CBMH-3	0.034	0.00	0.08	0.19	10.7	100.8	172.6	19.7	33.8	375	0.40	28.0	110.9	1.0	0.5	11.1	18
CB-1	CBMH-1	0.000	0.459	0.26	0.45	10.0	104.2	178.6	45	45	300	1.00	65.7	96.7	1.4	0.8	10.8	47
CBMH-1	CBMH-3	0.000	0.306	0.17	0.17	10.0	104.2	178.6	62.7	75.4	375	0.40	39.5	110.9	1.0	0.7	10.7	57
CBMH-3	STMH-4	0.186	0.000	0.47	0.64	10.0	104.2	178.6	130.9	158.5	450	0.40	62.5	180.3	1.1	0.9	10.9	73
CBMH-4	STMH-4	0.256	0.240	0.77	1.41	10.0	104.2	178.6	39.9	39.9	300	0.45	14.5	64.9	0.9	0.3	10.3	62
STMH-4	STMH-3					10.7	100.9	172.8	170.8	158.5	450	1.00	42.5	285.1	1.8	0.4	11.1	60
STMH-3	NODE					11.1	99.0	169.5	170.8	203.5	600	0.50	35.8	434.1	1.5	0.4	11.4	39
CB-3	CBMH-5	0.229	0.115	0.64	0.64	10.0	104.2	178.6	66.3	113.6	300	1.20	49.5	105.9	1.5	0.6	10.6	63
CBMH-5	NODE	0.105	0.014	0.27	0.27	10.0	104.2	178.6	130	130	375	3.00	9.5	303.7	2.7	0.1	10.1	43
NODE	STMH-2					11.4	97.2	166.4	300.8	333.5	600	0.50	16.9	434.1	1.5	0.2	11.6	69
STMH-2	STMH-1					11.6	96.3	165.0	300.8	333.5	600	0.50	42.4	434.1	1.5	0.46	12.1	69
BUILDING	STMH-1	ROOF Drains				10.0	104.2	178.6	55.5	55.5	250	2.00	6.5	84.1	1.7	0.06	10.1	66
STMH-1	EX-STMH					12.1	94.3	161.5	356.3	389.0	750	0.30	18.5	609.7	1.4	0.2	12.3	58

Existing on Miikana Rd.

Flow control installed at outlet

Orifice Diameter Calculation

Design Parameters*

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

Pipe Diameter Formula: $A = (\pi \cdot d^2)/4$
 $d = \sqrt{4 \cdot A/\pi}$

d = Orifice diameter (m)

A = Pipe area (m²)

C = 0.61

g = 9.81 (m/s²)

h = head of ponding from the centroid of the pipe invert (m)

Q = Max. flow through pipe (l/s)

CB-1

Elevation at Top of Ponding	Elevation at Pipe Invert	Size of Outlet Pipe	Head from Centroid (h)
(m)	(m)	(mm)	(m)
95.24	93.53	300.0	1.560

Max Flow (Q)	Coeffieicent (C)	g	Head from Centroid (h)	Pipe Area (A)	Orifice Diameter (d)	Orifice Diameter (d)
(l/s)	-	(m/s ²)	(m)	(m ²)	m	mm
45.0	0.61	9.8	1.56	0.013	0.130	130

CBMH-5

Elevation at Top of Ponding	Elevation at Pipe Invert	Size of Outlet Pipe	Head from Centroid (h)
(m)	(m)	(mm)	(m)
95.07	92.41	375.0	2.473

Max Flow (Q)	Coeffieicent (C)	g	Head from Centroid (h)	Pipe Area (A)	Orifice Diameter (d)	Orifice Diameter (d)
(l/s)	-	(m/s ²)	(m)	(m ²)	m	mm
130.0	0.61	9.8	2.47	0.031	0.197	197

CBMH-4

Elevation at Top of Ponding	Elevation at Pipe Invert	Size of Outlet Pipe	Head from Centroid (h)
(m)	(m)	(mm)	(m)
95.14	92.66	300.0	2.330

Max Flow (Q)	Coeffieicent (C)	g	Head from Centroid (h)	Pipe Area (A)	Orifice Diameter (d)	Orifice Diameter (d)
(l/s)	-	(m/s ²)	(m)	(m ²)	m	mm
39.9	0.61	9.8	2.33	0.010	0.111	111



Appendix C - Sanitary Servicing Calculations

Appendix C - Sanitary Sewer Design Sheet

C.1.1 - Peak Flow Design Based on Site Area

Definitions

Manning's Coefficient (n) = 0.013

Manning's Formula

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

Design Parameters*

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

Location			Residential Flow						Institutional Flow				Infiltration Flow		Total Flow		Sewer Data						
Note	From	To	Area (ha)	Units	Population	Cumulative		Average Flow (l/s)	Peak Flow (l/s)	Area (ha)		Average Flow (l/s)	Peak Flow (l/s)	Area (ha)		Inf. Flow (l/s)	Average Flow (l/s)	Peak Flow (l/s)	Dia. (mm)	Slope	Capacity (full) (l/s)	Velocity (full) (m/s)	Utilization (%)
						Area	Population			Individual	Cumulative			Individual	Cumulative								
School	School	SAMH-1	0.00	0	0	0.00	0	0.00	0.00	2.5	2.5	0.82	1.23	2.54	2.54	0.84	1.66	2.07	200	2.00%	46.4	1.5	4.5
Municipal Connection	SAMH-1	Ex. MH	0.00	0	0	0.00	0	0.00	0.00	0.00	2.5	0.00	1.23	0.00	2.54	0.84	0.84	2.07	200	0.38%	20.2	0.6	10.3



Appendix D - Fire Flow Demand Calculations

Appendix D- Fire Flow Demand Requirements

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

Fire Flow Formula

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

- 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

Designed ZB
Checked AS
Dwg. Reference C1
Jp2g project No 21-5124

New School Building

Design Parameters*

Type of Building Construction = Type II (Noncombustible)
Floor Area*** = 7300.0 m²
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	28.7	m
Length of Exposed Wall =	NA	NA	NA	21.1	m
Length-Height Factor =	NA	NA	NA	21.1	m-storeys (up to a maximum of 5-storeys)

Building Construction	Floor Area*** (m ²)	Coefficient	Adjustments (increases or decreases)										Final Adjusted Fire Flow (L/min)"	Final Adjusted Fire Flow (L/s)	
			A		B = A +/- % Occupancy		C = B x % Sprinkler		D = B x % Exposure***						
			Fire Flow (F) (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)
Type II (Noncombustible)	7,300.0	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

Appendix D- Fire Flow Demand Requirements

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

Fire Flow Formula

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

- 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

Designed ZB
Checked AS
Dwg. Reference C1
Jp2g project No 21-5124

New School Building

Design Parameters*

Type of Building Construction = Type V (Mass Timber)
Floor Area*** = 244.0 m²

Occupancy and Contents Class Limited combustible

Sprinkler System =

Sprinkler Building Coverage = Partial building coverage of X%
Factor of Building Coverage X = 0
Number of Storeys = 1

Exposure Parameters*

	West	North	East	South	
Separation Distance =	18.1	28.7	5.9	over 30m	m
Length of Exposed Wall =	32.0	7.514	32	NA	m
Length-Height Factor =	32.0	15.028	32	NA	m-storeys (up to a maximum of 5-storeys)

Building Construction	Floor Area*** (m ²)	Coefficient	Adjustments (increases or decreases)										Final Adjusted Fire Flow (L/min)**	Final Adjusted Fire Flow (L/s)	
			A		B = A +/- % Occupancy		C = B x % Sprinkler		D = B x % Exposure***						
			Fire Flow (F) (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)
Type V (Mass Timber)	244.0	1.5	5,000.0	-0.15	4,250.0	0%	0.0	11%	0%	16%	0%	27%	1,147.5	5,000.0	83.3

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

***Including all stories

D.1.2 - Existing Water Boundary Conditions

Water Demands

Average Daily Demand:	0.83 l/s
Maximum Daily Demand:	1.25 l/s
Maximum Hour Demand:	2.25 l/s
Fire Flow Demand:	116.67 l/s
Maximum Daily + Fire Flow Demand:	117.92 l/s

Design Parameters

Pipe Diameter:	150 mm
Pipe Material:	PVC
Pipe Length (total network):	85.5 m
Finished Floor Elevation:	95.60
Pavement (R.O.W.) Elevation:	94.60

Boundary Conditions

Max. HGL:	148.9 m
Min HGL:	145.3 m
Max. Day + Fire:	143.7 m

Boundary Condition Check

Check water pressure at municipal connection:

$$\begin{aligned} \text{Min. HGL - Pavement elevation} &= 50.70 \text{ m} \\ &= 72.09 \text{ psi}^* \\ &= 497.07 \text{ kPa}^* \end{aligned}$$

*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):

$$\begin{aligned} \text{Min. HGL - Finished floor elevation - Friction Loss}^{**} &= 49.69 \text{ m} \\ &= 70.66 \text{ psi}^{***} \\ &= 487.16 \text{ kPa}^{***} \end{aligned}$$

**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):

$$\begin{aligned} \text{Min. HGL - Finished floor elevation - Friction Loss}^{**} &= 31.09 \text{ m} \\ &= 44.20 \text{ psi}^{****} \\ &= 304.77 \text{ kPa}^{****} \end{aligned}$$

**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

Water Demands

Average Daily Demand:	0.81 l/s
Maximum Daily Demand:	1.22 l/s
Maximum Hour Demand:	2.20 l/s
Fire Flow Demand at hydrant	95.00 l/s
Maximum Daily + Fire Flow Demand:	96.22 l/s

Design Parameters

Pipe Diameter:	150 mm
Pipe Material:	PVC
Pipe Length (total network):	92.0 m
Finished Floor Elevation:	95.60
Pavement elevation at hydrant:	95.05

Boundary Conditions

Max. HGL:	148.9 m
Min HGL:	145.3 m
Max. Day + Fire:	143.7 m

Boundary Condition Check

Check water pressure at fire hydrant

$$\begin{aligned} \text{Min. HGL - elevation at hydrant- Friction Loss}^{**} &= 37.98 \text{ m} \\ &= 54.01 \text{ psi}^{****} \\ &= 372.36 \text{ kPa}^{****} \end{aligned}$$

****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 - Subdivision Reference Documents and Drawings



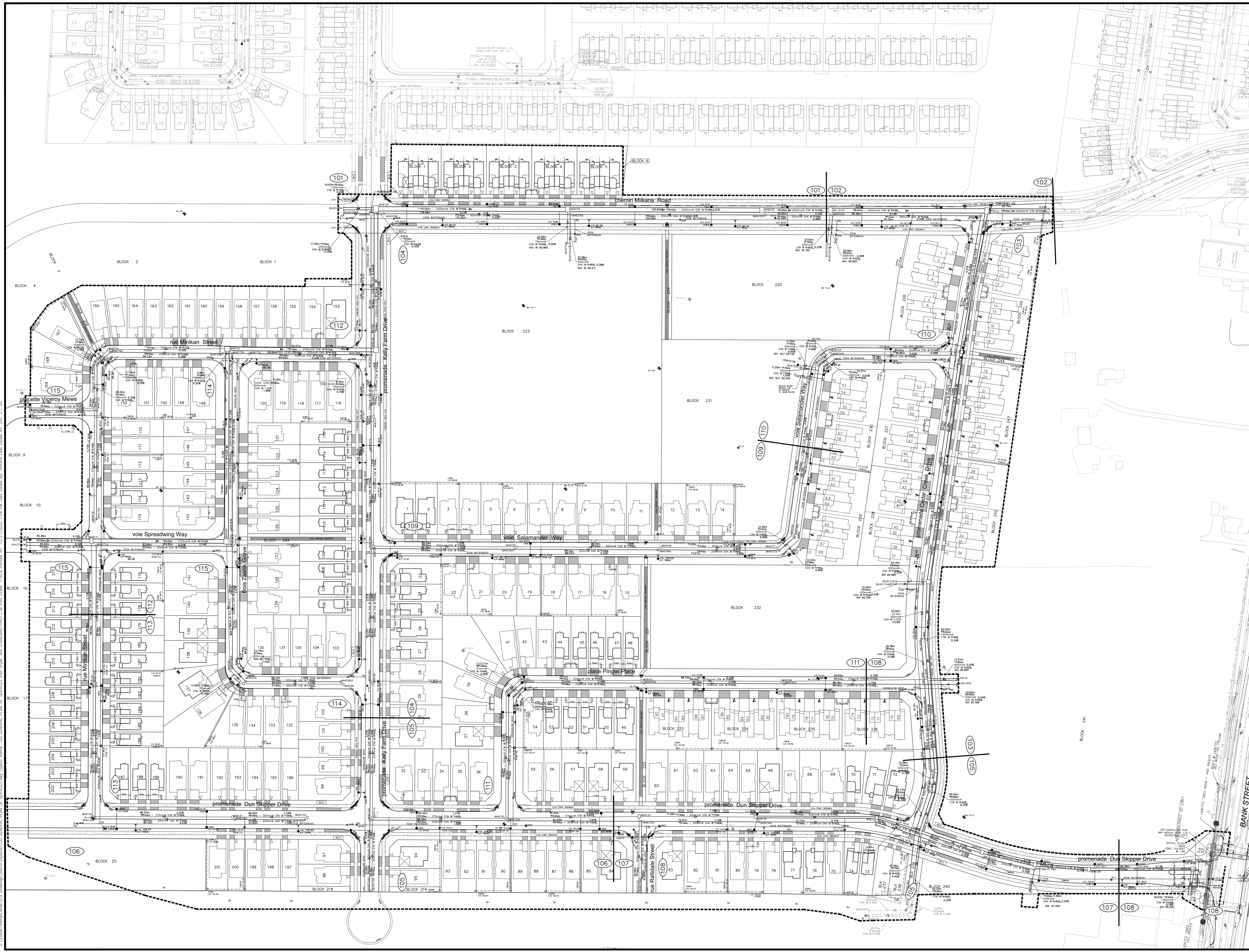
REPORT
Project: 33956-5.2.2

DESIGN BRIEF
PATHWAYS AT FINDLAY CREEK
4800 BANK STREET
(REMER LANDS)
PHASE 1
LEITRIM DEVELOPMENT AREA



Prepared for LEITRIM SOUTH HOLDINGS INC.
by IBI GROUP

REVISED: AUGUST, 2017



REVIEWED BY
DEVELOPMENT REVIEW SERVICES BRANCH

Signed _____
Date _____ 2017
Plan Number _____

16	RECORD DRAWING	J.I.M.	2020-10-27
15	ADD 6mX2m CONCRETE TO 2m ASPHALT WALKWAYS BLOCKS	J.I.M.	2019-08-01
14	REVISED BANK ST. - DUN SKIPPER DR. INTERSECTION GEOMETRY	J.I.M.	2018-05-16
13	REVISED SERVICES FOR PARK BLK 231 REVISED SERVICE LOCATION LOT 184 REVISED ECB15 & TCB126 LOCATIONS	J.I.M.	2018-03-09
12	REVISED SERVICE LOCATION BLOCK 225	J.I.M.	2018-02-09
11	REVISED PER HYDRO OTTAWA DESIGN	J.I.M.	2018-02-02
10	REVISED RYCB 105 TO CBMH 105	J.I.M.	2018-01-23
9	REMOVED RYCB 126, ADD PERF PIPE CB126 TO TCB16, FLIPPED UNITS LOTS 9 & 10, REVISE SERVICE LOCATION LOT 16	J.I.M.	2017-12-11
8	REVISED WATERMAIN DUN SKIPPER DR. STA. 1+160 TO BANK ST.	J.I.M.	2017-12-06
7	ISSUED FOR MYLARS	J.I.M.	2017-11-02
6	ISSUED FOR CONSTRUCTION	J.I.M.	2017-09-21
5	REVISED BLOCK NUMBERS	J.I.M.	2017-08-11
4	RE-SUBMISSION FOR MOECC APPROVAL & REVISED STREET NAMES	J.I.M.	2017-08-02
3	SUBMISSION FOR MOECC APPROVAL	J.I.M.	2017-07-07
2	SUBMISSION No.2 FOR CITY REVIEW	J.I.M.	2017-05-12
1	SUBMISSION No.1 FOR CITY REVIEW	J.I.M.	2016-11-23
No.	REVISIONS	By	Date

LEITRIM SOUTH HOLDINGS INC.

IBI GROUP
400 - 303 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title

Drawing Title **GENERAL PLAN OF SERVICES**

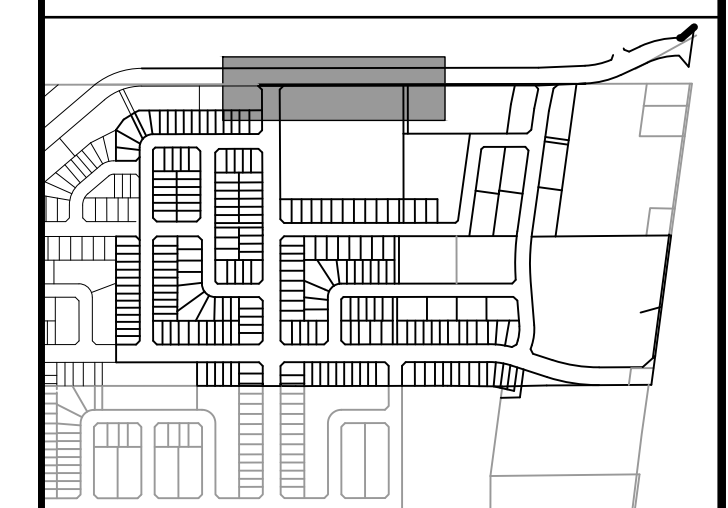
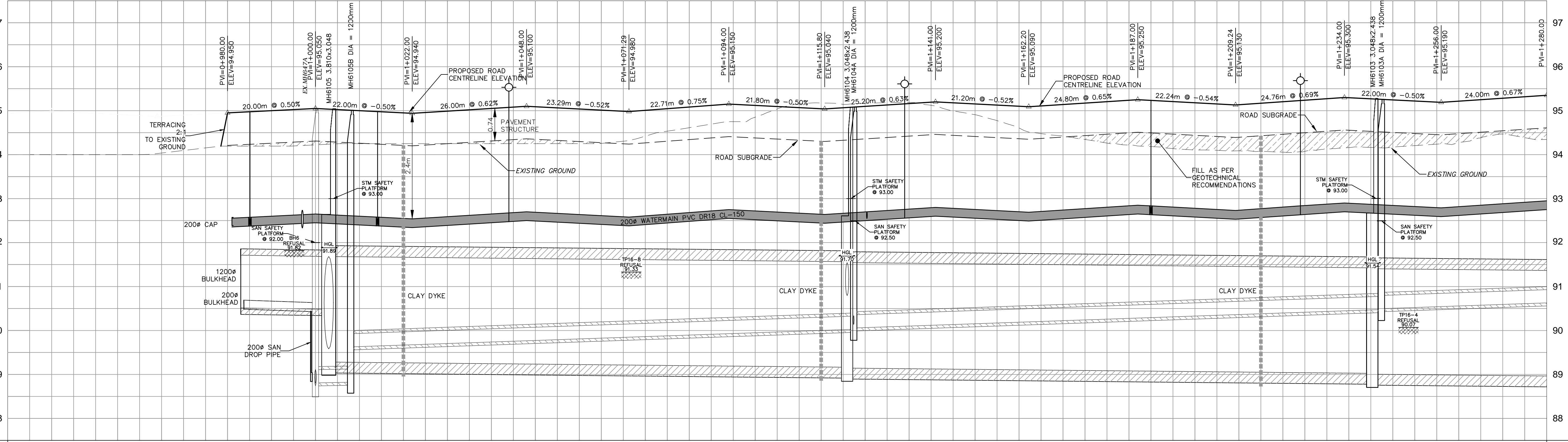
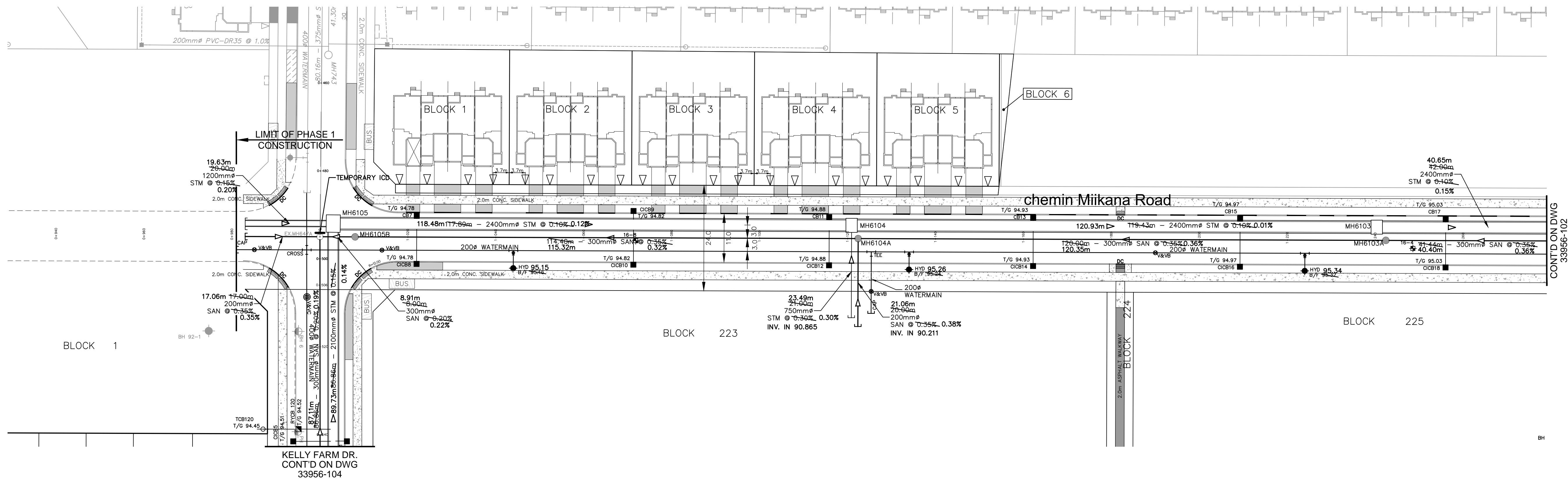
Scale 1:1000

Design	J.I.M.	Date	NOV 2016
Drawn	D.D.	Checked	----
Project No.	33956	Drawing No.	100

D07-16-13-0023

#17367

REVIEWED BY
DEVELOPMENT REVIEW SERVICES BRANCH
Signed _____
Date _____ 2017
Plan Number _____



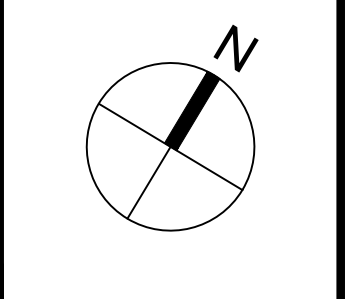
14			
13			
12			
11			
10	RECORD DRAWING	J.I.M.	2020:10:27
9	REVISED SANITARY PIPE MATERIAL TYPE BETWEEN MH6102A AND MH6105B	J.I.M.	2018:02:09
8	REVISED PER HYDRO OTTAWA DESIGN	J.I.M.	2018:02:02
7	ISSUED FOR MYLARS	J.I.M.	2017:11:02
6	ISSUED FOR CONSTRUCTION	J.I.M.	2017:09:21
5	REVISED BLOCK NUMBERS	J.I.M.	2017:08:11
4	RE-SUBMISSION FOR MOECC APPROVAL & REVISED STREET NAMES	J.I.M.	2017:08:02
3	SUBMISSION FOR MOECC APPROVAL	J.I.M.	2017:07:07
2	SUBMISSION No.2 FOR CITY REVIEW	J.I.M.	2017:05:12
1	SUBMISSION No.1 FOR CITY REVIEW	J.I.M.	2016:11:23
No.	REVISIONS	By	Date

LEITRIM SOUTH HOLDINGS INC.

IBI GROUP
400 - 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title
pathways
at FINDLAY CREEK

LICENSURED PROFESSIONAL ENGINEER
J. I. MOFFATT
2018/06/22
PROVINCE OF ONTARIO



MIIKANA ROAD

KELLY FARM DR. TO STA 1+280

Scale
HORIZ. SCALE 1 : 500
VERT. SCALE 1 : 50

Design	J.I.M.	Date	NOV 2016
Drawn	D.D.	Checked	----

Project No.	33956	Drawing No.	101
-------------	-------	-------------	-----

D:\33956-Hemlock\3.3_Drawings\33956\33956-101_B-S-S-ROAD-AB-UTIL-CIB-Pol_Scale: 1:25.4_Plot.dwg At: 10/27/2020 11:31 AM Last Saved By: cmlina Last Saved At: Oct. 27.

D07-16-13-0023
#17367

† Pathways at Findlay Creek Phase 1 West modeled flow is from the DDSWMM output file 33956-PH1W-3CHI2.out, 33956-PH1W-3CHI5.out and 33956-PH1W-3CHI100.out which are all presented on the CD in **Appendix E**.

The assigned size of the inlet control devices (ICDs) for the subject site was optimized using DDSWMM. ICDs are incorporated into the stormwater management design to protect the minor system from surcharge during major storm events. The ICDs used for Phase 1 are provided on **Drawing 010**. It should be noted that due to the increased minor system capture at low points flow, there were a few instances where the flow restriction into the minor system was the capacity of the CB inlet. These include one CB on S6115B, one CB on S6183A, one CB on S6107 (indicated in bold in **Table 4.4**). Calculations demonstrating the capacity of the CBs within a road sag is presented in **Appendix E**. In addition, there are two instances where the CB lead is the restriction for the inflow to the minor system. These include S6115B and S6155B. Calculations supporting the lead size for the inflow restriction are provided in **Appendix E**.

For those areas within Phase 1 which will require a separate site stormwater design and analysis, the following table summarizes the assumed inflow rate and minimum on-site storage required for their design.

Table 4.5 Summary of Minimum On-Site Storage and Minor System Inflow Rate for External Development Lands to Phase 1

Drainage Area		Land Use	IMP Ratio (%)	Minimum On-Site Storage Required (m ³)*	Minor System Inflow Rate (l/s)
Segment ID	Area (ha)				
EXT3	2.50	High Density	79	125.00	469
HD1	1.02	High Density	86	100.00	206
PARK1	0.83	Park	14	150.00	38
HD2	0.94	High Density	86	115.00	190
INST	2.55	School	79	290.00	476
EXT4	4.06	Commercial	79	462.00	760
COM	3.01	Commercial	79	345.00	562

* The on-site storage noted was used to evaluate Phase 1. As a minimum this on-site storage should be provided.

4.9.3 Simulation Results

Minor system hydrographs generated in DDSWMM were downloaded to the XPSWMM model for hydraulic grade line analysis (refer to **Section 4.10**).

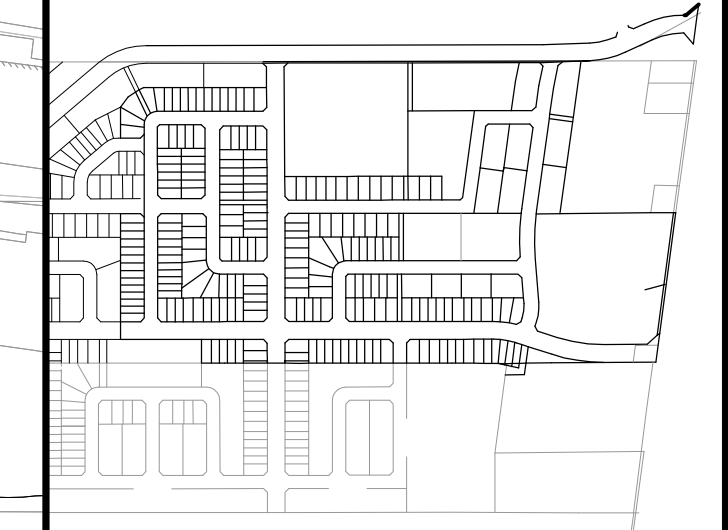
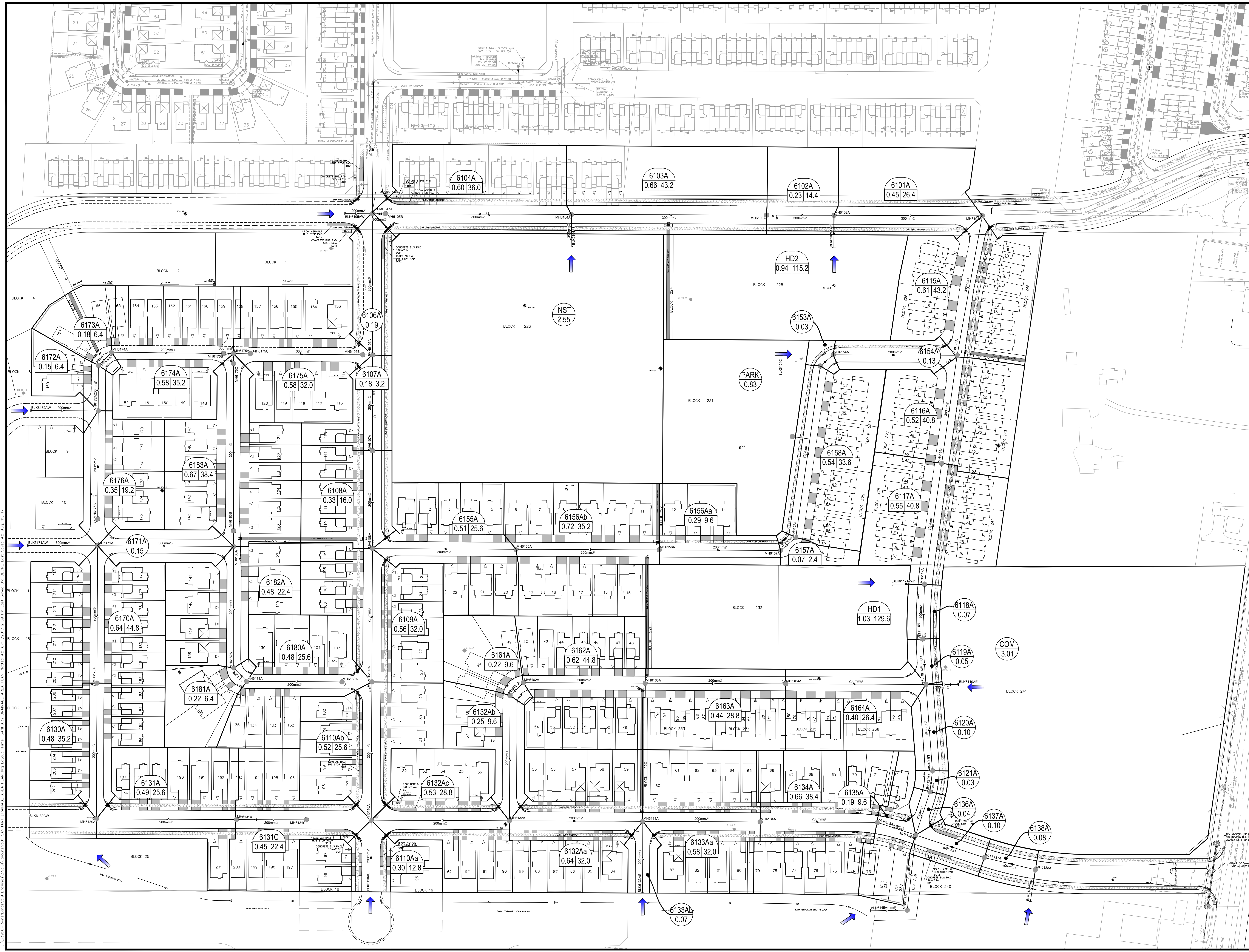
The storage available on-site and its maximum depth and the results of the DDSWMM evaluation for the subject site are presented in **Table 4.6**. Also included in **Table 4.6**, is the duration of ponding and depth of ponding for the 2 year, 5 year, 100 year and July 1, 1979 historical storm events. The ponding plan for the subject site is presented on **Drawing 751**. The DDSWMM output files are presented in **Appendix E**.

LEGEND :

6115A
0.81 | 43.2

AREA NUMBER
POPULATION
AREA IN HECTARES

→ FUTURE FLOW DIRECTION



14		
13		
12		
11		
10		
9		
8		
7		
6		
5	REVISED BLOCK NUMBERS	J.J.M. 2017.08.11
4	RE-SUBMISSION FOR MOECC APPROVAL & REVISED STREET NAMES	J.J.M. 2017.08.02
3	SUBMISSION FOR MOECC APPROVAL	J.J.M. 2017.07.07
2	SUBMISSION No.2 FOR CITY REVIEW	J.J.M. 2017.05.12
1	SUBMISSION No.1 FOR CITY REVIEW	J.J.M. 2016.11.23
No.	REVISIONS	By Date

LEITRIM SOUTH HOLDINGS INC.

IBI IBI GROUP
400 - 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title

pathways
at FINDLAY CREEK

LICENSÉ PROFESSIONNEL ENGENIEUR
J. L. MOFFATT
2017/08/02
PROVINCE OF ONTARIO

Drawing Title

SANITARY DRAINAGE AREA PLAN

Scale 1 : 1000

Design	J.J.M.	Date	NOV 2016
Drawn	D.D.	Checked	----
Project No.	33956	Drawing No.	501

J:\33956-Remainder\3.9_Drawing\3.9_Sanitary_Drainage_Area_Plan\Drawings\501_SANITARY_DRAINAGE_AREA_PLAN.dwg User: J.M. Date: 2017.08.11 11:17

D07-16-13-0023



IBI GROUP
333 PRESTON STREET
OTTAWA, ONTARIO
K1S 5N4

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : LEITRIM SOUTH HOLDINGS INC. - PHASE 1
LEITRIM DEVELOPMENT AREA
LOCATION : CITY OF OTTAWA

FILE: 33956-5.7
DATE PRINTED: 17-Nov-16
DESIGN: L.E.
PAGE: 1 OF 1

NODE	RESIDENTIAL				NON-RESIDENTIAL (ICI)			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND (l/min)
	SINGLE FAMILY UNITS	TOWN HOUSE UNITS	MEDIUM DENSITY (ha)	POPULATION	INDUST. (ha)	COMM. (ha)	INSTIT. (ha)	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	
S6A-110	8			27			2.46	0.11	1.42	1.53	0.28	2.14	2.41	0.61	3.84	4.45	15,000
S6A-120	18			61				0.25		0.25	0.62		0.62	1.36		1.36	10,000
S6A-130	24			82				0.33		0.33	0.83		0.83	1.82		1.82	10,000
S6A-140	12			41				0.17		0.17	0.41		0.41	0.91		0.91	10,000
S6A-145	18			61				0.25		0.25	0.62		0.62	1.36		1.36	10,000
S6A-150	18			61				0.25		0.25	0.62		0.62	1.36		1.36	10,000
S6A-160	8	12	24	103				0.42		0.42	1.04		1.04	2.29		2.29	13,500
S6A-170	12			41				0.17		0.17	0.41		0.41	0.91		0.91	13,500
S6A-175		8		22				0.09		0.09	0.22		0.22	0.48		0.48	13,500
S6A-185		8		22				0.09		0.09	0.22		0.22	0.48		0.48	13,500
S6A-230		11	24	73				0.30		0.30	0.74		0.74	1.62		1.62	13,500
S6A-240		52		140				0.57		0.57	1.42		1.42	3.13		3.13	10,000
S6A-260	12			41				0.17		0.17	0.41		0.41	0.91		0.91	10,000
S6B-110	14			48				0.19		0.19	0.48		0.48	1.06		1.06	10,000
S6B-120	15			51				0.21		0.21	0.52		0.52	1.14		1.14	10,000
S6B-140	12			41				0.17		0.17	0.41		0.41	0.91		0.91	10,000
S6B-150	16			54				0.22		0.22	0.55		0.55	1.21		1.21	10,000
S6B-170	16			54				0.22		0.22	0.55		0.55	1.21		1.21	10,000
S6B-180	11			37				0.15		0.15	0.38		0.38	0.83		0.83	10,000
S7-205		52		140				0.57		0.57	1.42		1.42	3.13		3.13	10,000
S7-330		30		81				0.33		0.33	0.82		0.82	1.80		1.80	10,000
S7-332		17	48	132				0.54		0.54	1.34		1.34	2.95		2.95	13,500
B-200						6.89			3.99	3.99		5.98	5.98		10.77	10.77	15,000
TOTALS	214	190	96	1,413						11.14			22.43			46.10	

POPULATION DENSITY		WATER DEMAND RATES		PEAKING FACTORS		FIRE DEMANDS	
Single Family	3.4 persons/unit	Residential	350 l/cap/day	Maximum Daily		Single Family & Townhouses	10,000 l/min (166.7 l/s)
Semi Detached & Townhouse	2.7 persons/unit	ICI	50,000 l/ha/day	Residential	2.5 x avg. day	3 Story Bldg	13,500 l/min (225 l/s)
Medium Density	1.8 persons/unit			ICI	1.5 x avg. day	ICI	15,000 l/min (250 l/s)
				Maximum Hourly			
				Residential	2.2 x max. day		
				ICI	1.8 x max. day		



Appendix F - Pre-Consultation & Development Servicing Study Checklist

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.

A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

For information and guidance on preparing required studies and plans refer [here](#):

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S	15	1. Site Servicing Plan	2. Site Servicing Study / Assessment of Adequacy of Public Services	S	3
S	15	3. Grade Control and Drainage Plan	4. Geotechnical Study / Slope Stability Study	S	3
■	2	5. Composite Utility Plan	6. Groundwater Impact Study	■	3
■	3	7. Servicing Options Report	8. Wellhead Protection Study	■	3
S	9	9. Transportation Impact Assessment (TIA)	10. Erosion and Sediment Control Plan / Brief	S	3
S	3	11. Storm Water Management Report / Brief	12. Hydro geological and Terrain Analysis	■	3
■	3	13. Hydraulic Water main Analysis	14. Noise / Vibration Study	■	3
■	PDF only	15. Roadway Modification Functional Design	16. Confederation Line Proximity Study	■	3

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
■	15	17. Draft Plan of Subdivision	18. Plan Showing Layout of Parking Garage	■	2
■	5	19. Draft Plan of Condominium	20. Planning Rationale	S	3
S	15	21. Site Plan	22. Minimum Distance Separation (MDS)	■	3
■	15	23. Concept Plan Showing Proposed Land Uses and Landscaping	24. Agrology and Soil Capability Study	■	3
■	3	25. Concept Plan Showing Ultimate Use of Land	26. Cultural Heritage Impact Statement	■	3
S	15	27. Landscape Plan	28. Archaeological Resource Assessment Requirements: S (site plan) A (subdivision, condo)	■	3
S	2	29. Survey Plan	30. Shadow Analysis	■	3
S	3	31. Architectural Building Elevation Drawings (dimensioned)	32. Design Brief (includes the Design Review Panel Submission Requirements)	S	Available online
■	3	33. Wind Analysis		■	

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
A	3	34. Phase 1 Environmental Site Assessment	35. Impact Assessment of Adjacent Waste Disposal/Former Landfill Site	■	3
■	3	36. Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37. Assessment of Landform Features	■	3
■	3	38. Record of Site Condition	39. Mineral Resource Impact Assessment	■	3
■	3	40. Tree Conservation Report	41. Environmental Impact Statement / Impact Assessment of Endangered Species	■	3
■	3	42. Mine Hazard Study / Abandoned Pit or Quarry Study	43. Integrated Environmental Review (Draft, as part of Planning Rationale)	■	3

S/A	Number of copies	ADDITIONAL REQUIREMENTS		S/A	Number of copies
S	1	44. Applicant's Public Consultation Strategy (may be provided as part of the Planning Rationale)	45. Site Lighting Plan	■	3
A	1	46. Site Lighting Certification Letter	47.		

Meeting Date: 02-14-2022

Application Type: *Site Plan Control*

File Lead (Assigned Planner): Katie O'Callaghan

Infrastructure Approvals Project Manager: Tyler Cassidy

Site Address (Municipal Address): 820 Miikana Road

*Preliminary Assessment: 1 2 3 4 5

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

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

Description:

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

Authority to Request a Design Brief:

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

Preparation:

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

When Required:

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

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

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

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

Contents for Design Brief Submissions:

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

* A *Scoped Design Brief* is composed of:

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

SECTION 1 Note: This section may be combined with the Planning Rationale report

Application Submission:

Not Required

Required

State the: type of application, legal description, municipal address, purpose of the application and provide an overall vision statement and goals for the proposal.

Response to City Documents:

Not Required

Required

State the Official Plan land use designation for the subject property and demonstrate how the proposal conforms to the Official Plan as it relates to the design of the subject site. Reference specific policy numbers from the Official Plan to show consistency. Justify areas of non-compliance and explain why there is non-compliance.

State the applicable plans which apply to the subject proposal: community design plan, secondary plan, concept plan and design guideline. Reference the relevant design related policies within the applicable plans/guidelines and provide a comprehensive analysis as to how the proposed development incorporates the objectives or why it does not incorporate the objectives.

Context Plan:

Not Required

Required

Provide a contextual analysis that discusses/illustrates abutting properties, key destinations and linkages within a 100 meter radius (a larger radius may be requested for larger/more complex projects), such as transit stations, transportation networks for cars, cyclists, and pedestrians, focal points/nodes, gateways; parks/open spaces, topography, views towards the site, the urban pattern (streets, blocks), future and current proposals (if applicable), public art and heritage resources.

Photographs to illustrate existing site conditions and surrounding contexts. Include a map pinpointing (with numbers) where each photo is taken and correspond these numbers with the site photos. Arrows illustrating the direction the photo is taken is also useful.

SECTION 2

Design Proposal:

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

Massing and Scale

Not Required Required

- | | | |
|-------------------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p><i>Images which show:</i>
 <u>Building massing</u> – from:</p> <ul style="list-style-type: none"> at least two sides set within its current context (showing the entire height and width of the building) OR all four sides set within its current context (showing the entire height and width of the building). |
| <input type="checkbox"/> | <input type="checkbox"/> | |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p><u>Views</u> – of the entire block, from:</p> <ul style="list-style-type: none"> at least two perspectives to show how the proposed building is set within its current context OR all four perspectives to show how the proposed building is set within its current context. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <p><u>Building transition</u> – to adjacent uses, with labelled explanation of the transition measures used.</p> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p><u>Grading</u> – if grades are an issue.</p> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p><u>Alternative building massing</u> – additional imagery and site layouts considered and provide justification for the ultimate proposal sought.
 <i>Provide rationale for orientation of school fronting onto Miikana and not Kelly Farm.</i></p> |

Public Realm

Not Required Required

- | | | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <p><i>Labelled graphics and a written explanation which show:</i>
 <u>Streetscape</u> – cross sections which illustrate the street design and right of way (referencing the City’s design manuals).</p> |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p><u>Relationship to the public realm</u> – illustrating how the first few storeys of the proposed development responds to and relates to the existing context (e.g. through a podium plan and first floor plan). This is to include detailed explanation on:</p> <ul style="list-style-type: none"> Architectural responses Landscaping details Public art features (in accordance with Official Plan, Section 4.11) For developments in Design Priority Areas, detail the building and site features, (in accordance with Official Plan, Section 4.11) which will enhance the public realm. Provide explanation for features which are not provided. |

Building Design

Not Required

Required

Labelled graphics (e.g. **building elevations** and **floor plans**) and a written explanation which document the proposed exterior architectural details and design (in accordance with Official Plan, Section 5.2.1).

For high-rise development applications, detail the building design and massing and scale elements and how they relate to the proposed high-rise development (in accordance with Official Plan, Section 5.2.1).

Sustainability

Not Required

Required

Any sustainable design features to be incorporated, such as green roofs or walls, sun traps, reflective or permeable surfaces.

Heritage

Not Required

Required

How the building relates to the historic details, materials, site and setting of any existing historic resources on or adjacent to the subject property (if applicable).

Additional Contents:

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

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

Submission Requirements

- Digital copies only

Pre-Application Consultation Meeting Notes

Property Address: 4501 Kelly Farm Drive
Pre-Application Consultation File Number: PC2022-0008
2022-02-14, MS TEAMS

Attendees:

Owner: Ottawa-Carleton District School Board

Applicant: Daniel Fournier (Ottawa-Carleton District School Board); Jean Voth (Ottawa-Carleton District School Board); David Lacelle (Ottawa-Carleton District School Board); Vladimir Popovic (n45); Daniela Veisman (n45); Pamela MacCaull (n45); Nathan Farncombe (n45); Patrick Ha (jp2g); Brad Byvelds (Novatech). **Other OCDSB employees who joined may not be captured in this list, as the invite was forwarded.**

City of Ottawa & External Staff: Aamani Sidhu (Dev South), Tyler Cassidy (Infrastructure Approvals PM); Kelsey Charie (Infrastructure Approvals Intern PM), James Holland (South Nation), Burl Walker (Parks); Matthew Ippersiel (Urban Design); Katie O'Callaghan (Dev South)

Regrets: Forestry (Mark Richardson); Mike Giampa (Transportation PM)

Subject: New two-storey elementary school in Findlay Creek with daycare facility.

NOTE: The municipal address for this subject property has changed to 820 Miikana Road

Meeting notes:

Opening & attendee introduction

- Introduction of meeting attendees
- Overview of proposal (application led): 2-storey early-years elementary school and daycare facility approximately 65,000 square feet. The school is projected to serve 674 students -17 classrooms with a library, student comments and the possibility of an outdoor classroom.
- Projected timing including construction:

High-Level Planning Overview:

1. Existing Official Plan – designated “General Urban Area” on Schedule B of the City of Ottawa’s Official Plan. The General Urban Area permits the development of a full range and choice of housing types to meet the needs of all ages, incomes, and life circumstances, in combination with conveniently located employment, retail, service, cultural, leisure, entertainment and institutional uses.
2. In the New Official Plan, the subject site is identified as a “Suburban” Transect Policy Area. Under Section 5.4.1. (Policy 2), it states that the Suburban Transect is generally characterized by low-rise to mid-density development. Further, the Suburban (Southeast)Transect identifies the site as an “Neighbourhood”. Section 5.4.5 Provides direction to Neighbourhoods located within the Suburban Transect:
 - Generally, provides for up to 3 storeys height permission, and where appropriate 4 storey height permission to allow for higher density low-rise residential development.
 - Provides an emphasis on regulation the maximum built form envelope, based on the context, that frames the public right of way.
3. The New Official Plan also includes City-Wide Policies that relate specifically to School Facilities (Section 4.1) – Policy 4.10.1 includes an emphasis on active travel, low vehicle speeds, covered and shaded bike parking, school lay-byes should be built with visually contrasting materials or colours and Policy 4.10.2 notes the City’s preference to locate schools and other neighbourhood uses close together such as daycares to provide convenient access to residents.

4. The subject property is identified in the Leitrim Community Design Plan, which identified the site as “Institutional” in Section 4.2 of the CDP land use designations. The intent of the institutional designation is to identify specific locations for government, service and community facilities and uses throughout the Community. **Permitted uses include** a wide range of institutional uses, places of worship, **schools**, cemeteries, community centres, government and public utility offices, libraries, retirement homes and **care facilities**.

Community Design Guidelines – Specific to School Site (Section 5.5). The SP maintains that schools are key components in new communities and should be integrated as focal points within the community. The Ottawa area school board has requested a 2.5 ha school site in the south end for the Ottawa Carleton District School Board. The schools have been located along the main north-south spine street as special landmarks in the community. School buildings are envisioned as special buildings that will distinguish the streetscape. Building will be located to form the street edge, with parking located at the side or rear of the building. All the schools have been sited adjacent to neighbourhood parks ranging in size from 0.8 to 1.0ha, which will accommodate facilities such as courts and play structures. The majority of the community’s sports fields will be located in community parks.

The following guidelines have been created for schools:

- a. School buildings should be located close to the street right-of-way to reinforce the street edge, with frontage on at least two streets, and to create a visually dominant feature in the community
 - b. School buildings should be designed as special landmark buildings with high quality design, materials, and finishes. The site should be well landscaped in recognition of their prominent locations and status as landmark buildings.
 - c. Parking should be located at the side or rear of the building.
 - d. Drop-off should be provided for buses and cars at the side of the building but may be located in the front of the building subject to building design and site plan considerations.
 - e. Consideration for a street lay-by should be given for buses and cars.
 - f. The front door of the school should be connected with a walkway to the sidewalk on the street.
4. Zoning Information: Split Zone Site - Minor Institutional Zone (I1) and Residential Fourth Density Zone R4Z [Exception 2370].
 - Under the Urban Exception [2370] (which relates only to R4Z), there is no maximum cumulative floor area for accessory buildings

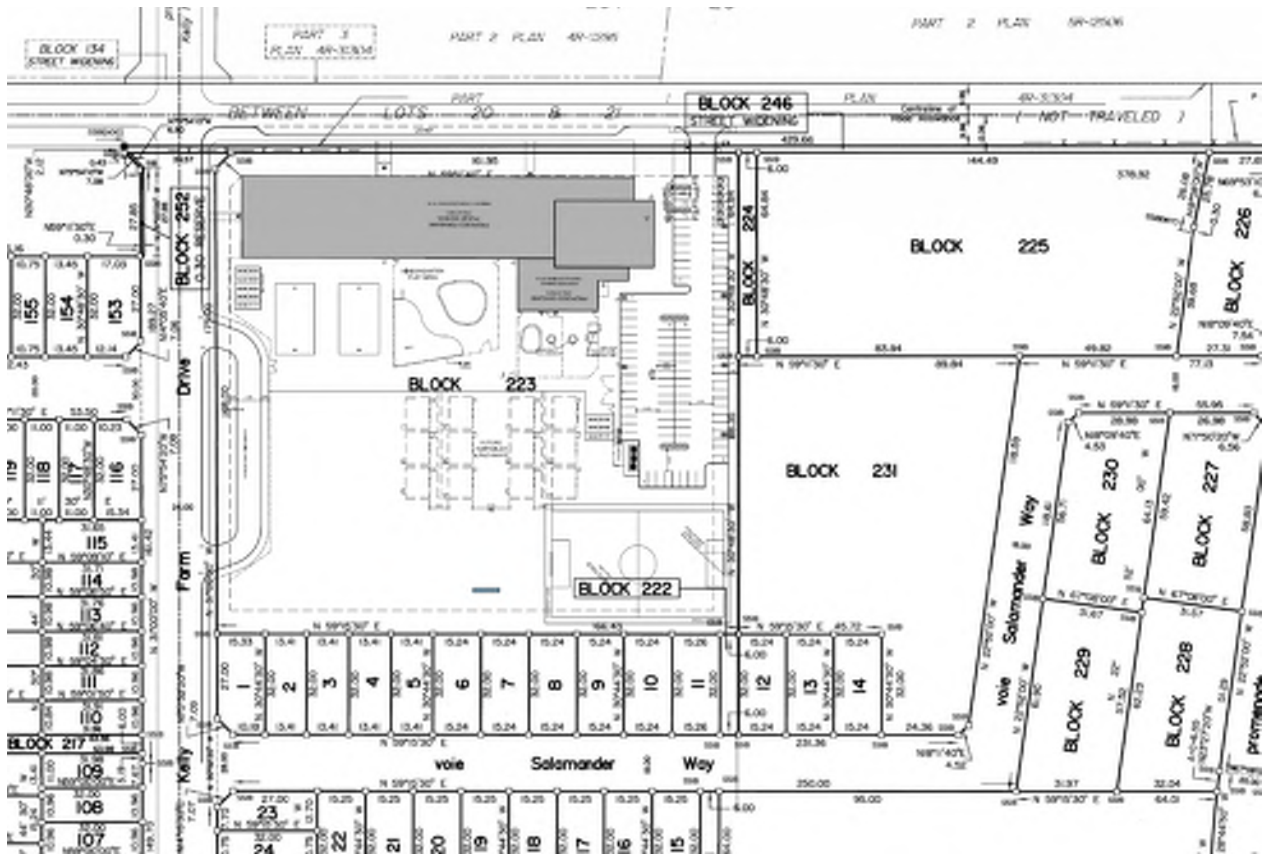


Figure 1: Excerpt of Site Plan for Proposed School Site



Figure 2: Screenshot of Subject Site from GeoOttawa

Preliminary comments and questions from staff and agencies, including follow-up actions:

Infrastructure/Servicing: (Tyler Cassidy /Kelsey Charie):

List of Reports and Plans (Site Plan Control):

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

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

1. The Servicing Study Guidelines for Development Applications are available at the following address:
<https://ottawa.ca/en/city-hall/planning-and-development/how-develop-property/development-application-review-process-2/guide-preparing-studies-and-plans>
2. Servicing and site works shall be in accordance with the following documents:
 - Ottawa Sewer Design Guidelines (October 2012) and all the Technical Bulletins including, Technical Bulletin PIEDTB-2016-01 and ISTB-2018-01
 - Ottawa Design Guidelines – Water Distribution (2010) and Technical Bulletins ISD-2010-2, ISDTB-2014-02 and ISTB-2018-02
 - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
 - City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
 - City of Ottawa Environmental Noise Control Guidelines (January, 2016)
 - City of Ottawa Park and Pathway Development Manual (2012)
 - City of Ottawa Accessibility Design Standards (2012)
 - Ottawa Standard Tender Documents (latest version)
 - Ontario Provincial Standards for Roads & Public Works (2013)
3. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x 44455
4. The Stormwater Management Criteria, for the subject site, is to be as established in the ***Pathways at Findlay Creek Design Brief, prepared by IBI Group, project no. 33956-5.2.2, revised August 2017:***
 - Flows to the storm sewer in excess of the 5-year storm release rate, up to and including the 100-year storm event, must be detained on site.
 - Ensure no overland flow for all storms up to and including the 100-year event. Emergency overflow is to be directed to DDSWM ID S6105A on Miikana Road
 - The 2-yr storm or 5-yr storm event using the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
 - A calculated time of concentration (Cannot be less than 10 minutes).
 - Allocated stormwater release rate of ~475 L/s.
 - Quality control requirements to be provided by South Nation Conservation Authority (SNCA).
5. Deep Services:



- i. A plan view of the approximate services may be seen above. Services should ideally be grouped in a common trench to minimize the number of road cuts. The sizing of available future services is:
 - a. Connections (Miikana Road):
 - i. Existing 750 mm dia. STM (Conc.) stub to MH6104
 - ii. Existing 203 mm dia. Watermain (PVC) stub
 - iii. Existing 200 mm dia. SAN (PVC) stub to MH6104A
 - ii. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.
 - iii. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).

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

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

- a. Std Dwg S11.1 for flexible main sewers – *connections made using approved tee or wye fittings.*
 - b. Std Dwg S11 (For rigid main sewers) – *lateral must be less than 50% the diameter of the sewermain,*
 - c. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – *for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,*
 - d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.
 - e. *No submerged outlet connections.*
6. Civil consultant must request boundary conditions from the City's assigned Project Manager prior to first submission. Water Boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide the following information:
- i. Location of service(s)
 - ii. Type of development and the amount of fire flow required (as per FUS, 1999).
 - iii. Average daily demand: ___ l/s.
 - iv. Maximum daily demand: ___ l/s.
 - v. Maximum hourly daily demand: ___ l/s.
 - vi. Hydrant location and spacing to meet City's Water Design guidelines.
 - vii. Water supply redundancy will be required for more than 50 m³/day water demand.
7. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.
8. MECP ECA Requirements ([Standard](#)) –

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

- a. Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant then determines what type of application is required and the City's project manager confirms. (If the consultant is not clear if an ECA is required, they will work with the City to determine what is required. If the consultant it is still unclear or there is a difference of opinion only then will the City PM approach the MECP.

- b. The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
- c. Standard Works ToR Draft ECA's are sent to the local MECP office (moeccottawasewage@ontario.ca) for information only
- d. Additional ToR draft ECAs require a project summary/design brief and require a response from the local MECP (10 business day window)
- e. Site plan Approval, or Draft Approval, is required before an application is sent to the MECP

9. General/ additional comments:

- i. Only one watermain connection per site. However, looping would be required if proposed demand is 50m³/day or greater.
- ii. A pre and post construction CCTV inspection is required for re-using any existing servicing connections.

Environmental (Matthew Hayley)

- **Urban Heat Island Effect**

Please add features that reduce the urban heat island effect (see New OP 10.3.3) produced by the parking lot, asphalt apron and building footprint. For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, low heat absorbing materials/colours or constructing the parking lot or building differently.

- **Bird-safe Design**

The applicant team needs to consider the bird-safe design guidelines https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf and incorporate those elements into their design. Items to be include actions to make glass/glazing bird-safe, avoiding design traps (e.g., apparent flythroughs, entrapments, corner glass, etc.), consider structural hazards (e.g., glass railings, antennas, grate size, etc), landscaping that doesn't attract birds to hazards, lighting design needs to considers bird-safe design. Some attributes of the building are a reduced amount of glazing (however there are a large number of windows and there is some corner glass). Please have this addressed either through redesign of the building or the use of bird-safe glazing as per the design guidelines.

South Nation Conservation Authority (James Holland)

- **Environmental**

- An Environmental Impact Statement was completed for Phases 1-3 of the Pathways Subdivision. The findings and recommendations of the study are to be implemented through the Site Plan Proposal. Please review this study.
- SNC is not aware of any watercourses on the property. Please note that if a watercourse is identified, interference with the feature may require a permit under O. Reg. 170/06 and restrictions may apply.

- **Stormwater**

- SNC provides a technical review of the stormwater design when it outlets to a watercourse. In this case, stormwater appear to drain to approved municipal infrastructure, and the CA may not undertake a technical review. This will be confirmed when the documents are circulated.
- SNC recommends 80% TSS removal for water quality treatment. This should be demonstrated in the stormwater report.

If there are any questions regarding the details provided here, please contact James Holland at jholland@nation.on.ca

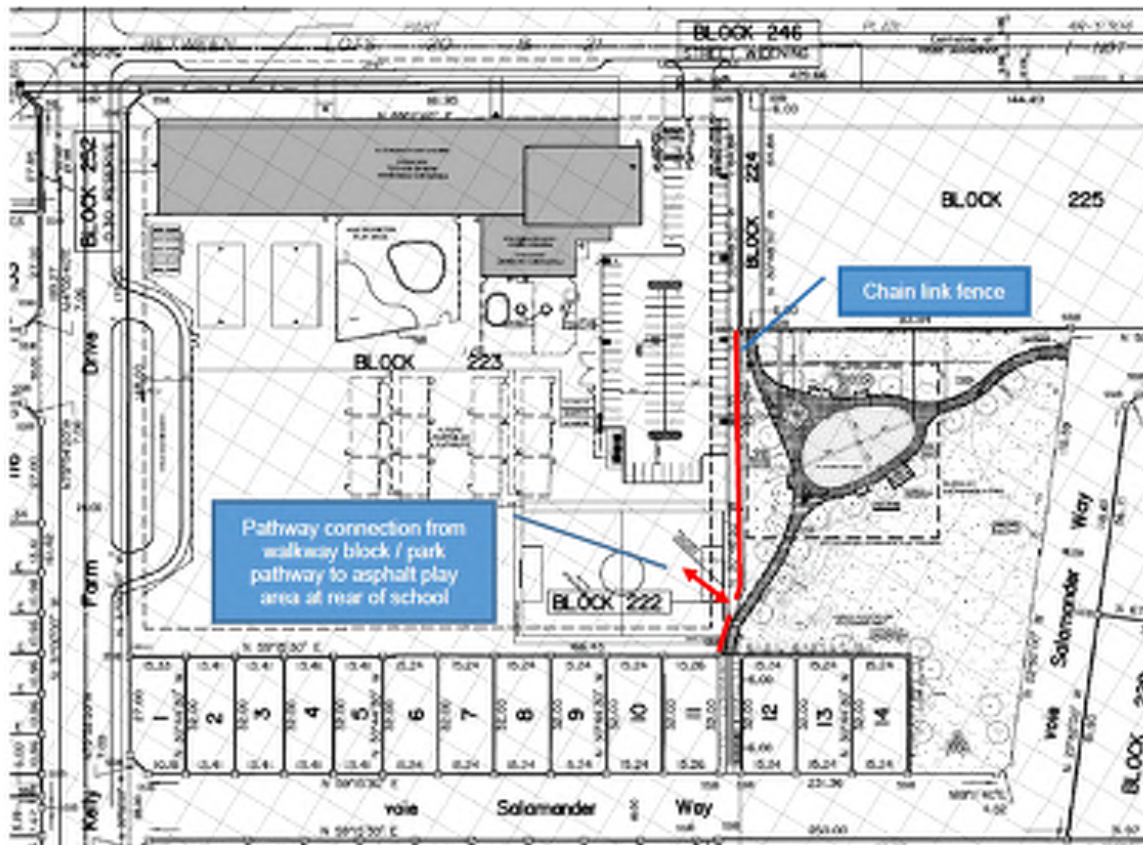
Transportation (Mike Giampa)

- Add the Miikana/Kelly Farm unsignalized intersection to your study area and proceed using the CTS analysis.
- Applicant is not required to develop traffic projections and perform analysis at this intersection but will include the intersection within the existing conditions sections of the parent CTS and review pedestrian connectivity etc. following the development.

[Comments refer to email correspondence between Brad Byvelds and Mike Giampa on Wednesday February 23rd, 2022 – Thursday, February 24th, 2022].

Parks (Burl Walker)

1. Parks and Facilities Planning is currently undertaking a legislated review for the replacement of the City's Parkland Dedication By-law, with the new By-law to be considered by City Council in early July 2022. To ensure the applicant is aware of any potential parkland dedication requirements for the proposed development, we encourage the applicant to familiarize themselves with the existing Parkland Dedication By-law and to sign up for project notifications on the Engage Ottawa project page or by emailing the project lead at Kersten.Nitsche@ottawa.ca.
2. Salamander Park is currently under construction on Park Block 231 adjacent to the east side of the school property. Construction is anticipated to be completed this summer. We have provided the issued for construction drawings to the applicant's landscape architect, Marietta Ruhland.
3. A triangular parcel of land at the southeast corner of School Block 223 was transferred from Leitrim South Holdings Inc. to the City on January 23, 2020. The transfer is registered as Instrument Number OC2186294. The parcel is described as Part 1 on Plan 4R-32503. Please note that a fee simple interest was transferred to the City rather than an easement. The school property boundary will need to be adjusted to exclude this triangular parcel on the plans that will be submitted with the site plan control application.
4. The applicant should confirm if they will be providing a playground area for 5- to 12-year-old children with playground equipment such as a play structure and swings. The concept plan only identifies a kindergarten play area and a day care play area. Will there be a need or desire for the daycare or school children to access the Salamander Park playground during school and daycare hours?
5. Deciduous trees should be planted on the east side of the parking lot adjacent to Salamander Park.
6. The Salamander Park project includes an asphalt pathway between Walkway Block 222 and the playground area. Staff recommend that a pathway be constructed from this pathway to the asphalt school playground area at the rear of the school. A conceptual location for the pathway connection is shown in the diagram below. The proposed sports field location will need to be adjusted to accommodate the pathway.



7. We understand that the applicant is proposing to install a chain link fence adjacent to Salamander Park. The fence will be required to meet City standards. The following condition of site plan approval would be proposed:

The Owner shall install fencing of uniform appearance and quality, with a minimum height of five feet (5') (1.5m) along the common boundary of the School property and the Park Block 231. Fences shall be installed 0.15m on the school property side of the common property line, and the location of the fence shall be verified by an Ontario Land Surveyor. All fences must adhere to the City's fence By-law 2003-462. Fence materials will be of commercial grade and consist of 6-gauge black vinyl coated chain link material and black powder coated schedule 40 pipe rails and posts or an approved alternative.

8. A fence opening will be required where the proposed pathway connects to the walkway block / park pathway. The size of the fence opening and the potential need for a gate should be based on the OCDSB's requirements.

Urban Design (Matthew Ippersiel)

- From an urban design perspective, ensuring porosity between the park and the school is encouraged.
- A connection is planned between Salamander Park and the mid-block walkway on Block 222. It is strongly recommended that a pedestrian pathway be included on-site to link the school to the park and walkway in the south-east corner of the site. This will require shifting the mini soccer field to the west.
- Provide strong connections to planned bus stops. Please be sure to identify nearby bus stop locations on the site plan and/or contextual analysis.
- Ensure that sidewalks are continuous across vehicular apertures.
- Consider that a number of students walking to the school from the neighbourhood from the west may choose to cross where Minikan street terminates. Is a crossing planning in this location? Are there ways in which the design might facilitate pedestrian safety?

- Consider the possibility of sharing the proposed parking facility with the adjacent park.
- Please be sure to reference the Leitrim CDP for any design direction provided.
- Please identify where the outdoor learning area is planned to be located.
- For example, as the design progresses, consider that school buildings are envisioned as “special buildings” that will “distinguish the streetscape”.
- Has an on street lay-by for busses been explored rather than the bus loop? This may free-up additional open space on the site. This would also support the direction of the Leitrim CDP.
- This application is not subject to review by the Urban Design Review Panel.
- An Urban Design Brief is required as a part of your submission. This may be combined with your Planning Rationale report. Please refer to the attached Urban Design Brief Terms of Reference to inform the content of the brief.

Trees (Mark Richardson)

- Our forester has confirmed that all trees should have been removed during the subdivision process and if there are any remaining, they can be removed under that permit.
- If you have any questions, please contact him (I can provide you with his contact info).

Initial Planning Comments (Katie O’Callaghan)

- The City is happy to see the co-location of the daycare facility with the school, this is a positive step as identified in Policy 4.10.2 in the new Official Plan, which encourages co-location of compatible land uses to encourage a walkable 15-minute neighbourhood.
- Through the Building Better and Smarter Suburbs Initiative (Zoning By-law 2008-250: Omnibus Agreements Q3 2017 – Approved September 27, 2017), the City would like to see land efficiency on school sites. Please consider increasing the building height to three storeys to avoid future minor variance and site plan control applications in the future. The zoning, new OP and the CDP allow heights up to 15m (3-storeys) as of right.
- The new OP is encouraging school bus lay-byes and PPDOs to be located on separate frontages, with visually contrasting materials or colours. It’s great to see this being done, please consider making the lay-byes visual and stand out for children and families. Consider ways to reduce the width of the island to gain school yard space and maintain width of sidewalk.
- In the new OP, Policy 4.10.1 includes encouragement of making it safe and easy to walk, bike or take transit to school through supportive site and neighbourhood design. Please consider adding a pedestrian pathway or MUP from the school to the entrance of blocks 11-12 and/or the adjacent park.
- The parking by-law is tied to the number of classroom and daycare spaces. Please include these details on the site plan. Along with accessible stalls and any EV charging locations of preferred green vehicle stalls.
- The site is within Area C on Schedule 1A of the Zoning By-law (Areas for Minimum Parking Space Requirements). Please ensure the minimum parking space rates as set out in Section 101 are met for both school sites AND daycare facilities. There may be opportunities to have shared parking provisions between the school and park facilities, provided a shared parking agreement is in place.
- There is a requirement to provide a minimum amount of bicycle parking spaces on the site, see Section 111 of the Zoning By-law for applicable rates. Please ensure bike parking is covered, shaded and in a safe location and closest to the nearest possible building entrance.

Submission requirements and fees

- A Site Plan Control (Complex) application is needed. Please see webpage here for more [details](#).

- Plans are to be standard A1 size (594 mm x 841 mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- All PDF submitted documents are to be unlocked and flattened.
- Ensure that all plans and studies are prepared as per City guidelines – as available online: <https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans>

Next steps

- Planning staff encourage you to discuss the proposal with your Councillor (Carol Anne Meehan) and any impacted community groups and neighbours.



Appendix G Roof Drain and ICD Product Data Sheets

PRODUCT TECHNICAL SPECIFICATION

General

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

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

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

ICD's shall have no moving parts.

Materials

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

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

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

All hardware will be made from 304 stainless steel.

Dimensioning

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

Installation

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

PRODUCT INFORMATION: TEMPEST HF & MHF ICD

Product Description

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

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

Product Function

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



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



TEMPEST MHF (Medium to High Flow):

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

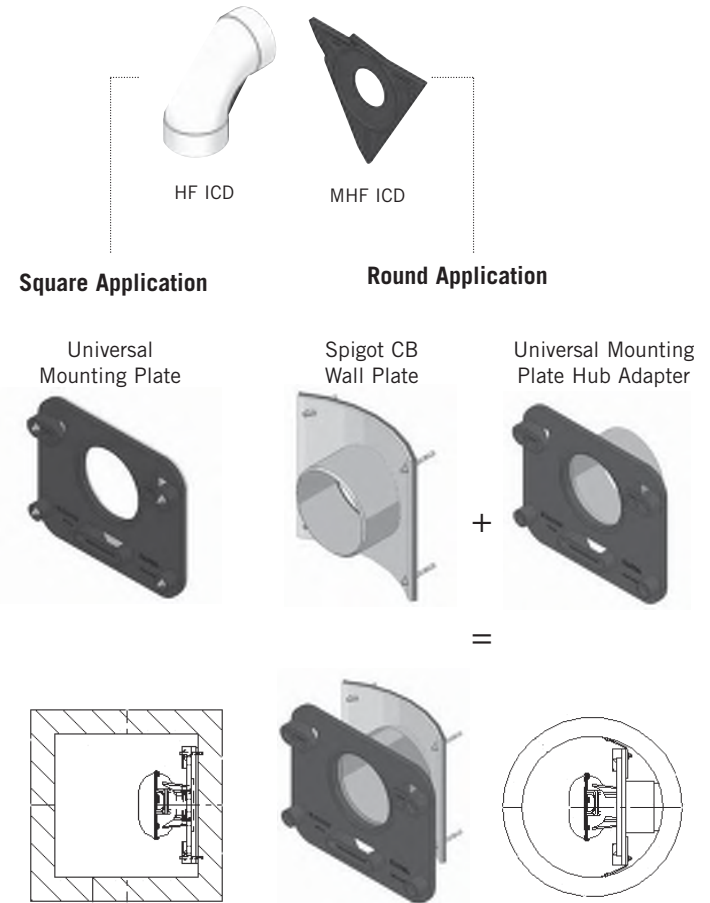


Product Construction

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

Product Applications

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



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

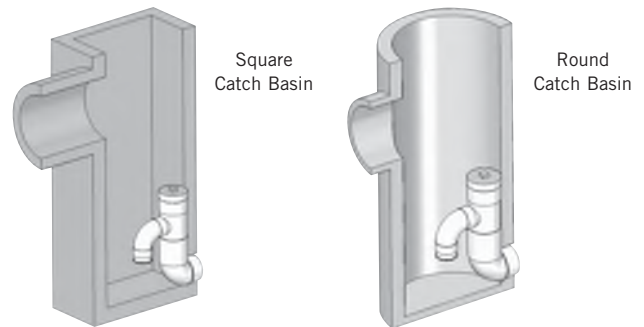
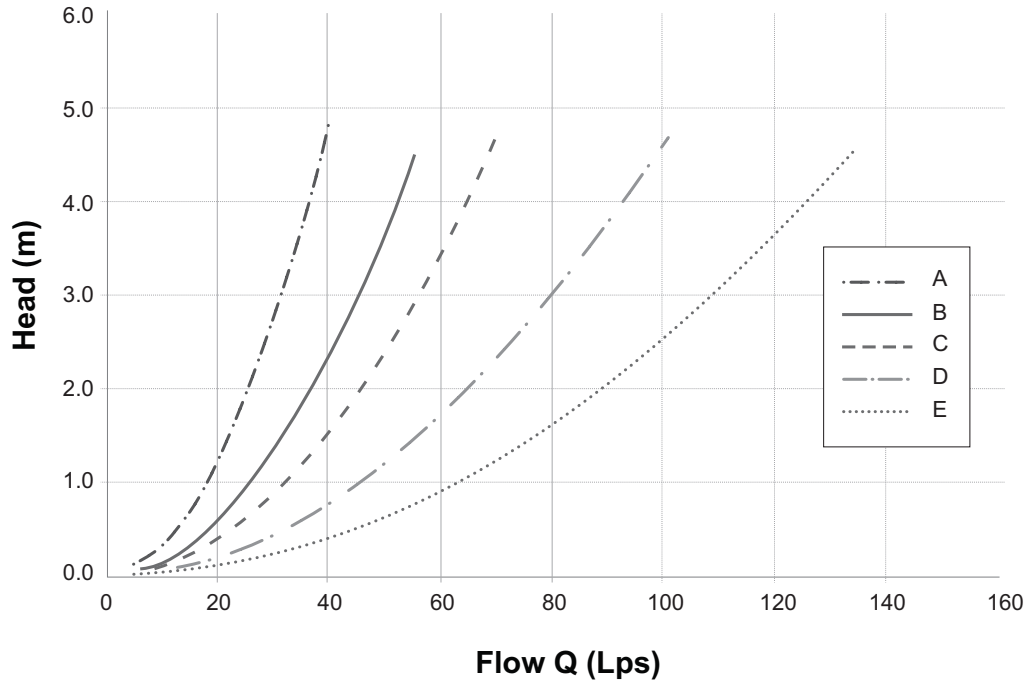


Chart 3: HF & MHF Preset Flow Curves



TEMPEST
 HF & MHF ICD



RD-100

Tag: _____

Large Capacity Roof Drain

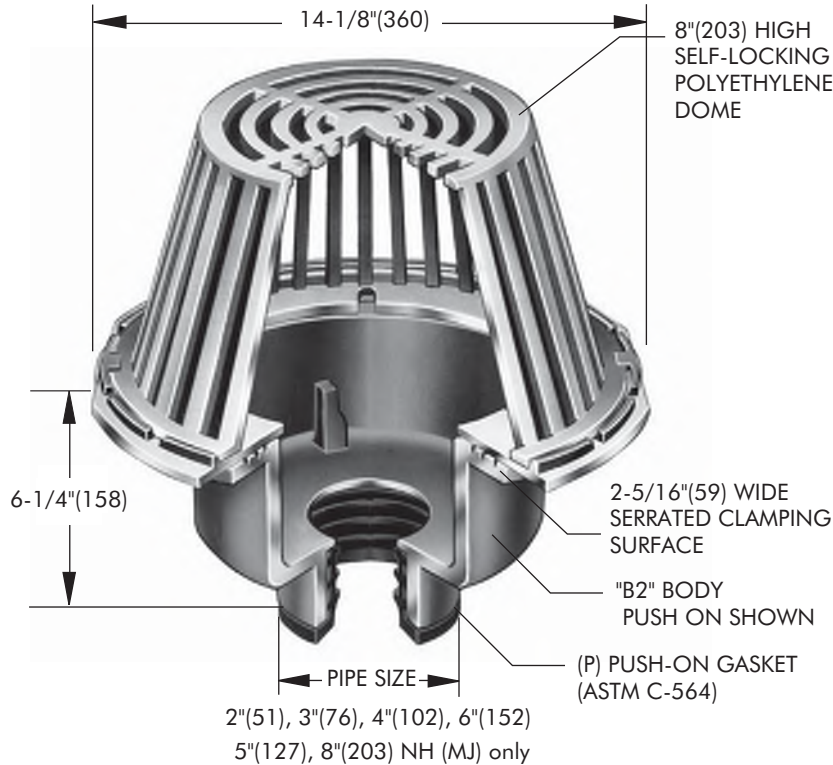
Components:



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

Order Code: RD-10 - -

Ex. RD-102P-K



Free Area Sq. In.
137

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

Pipe Sizing (Select One)		
Suffix	Description	
2	2"(51) Pipe Size	<input type="checkbox"/>
3	3"(76) Pipe Size	<input type="checkbox"/>
4	4"(102) Pipe Size	<input type="checkbox"/>
5	5"(127) Pipe Size	<input type="checkbox"/>
6	6"(152) Pipe Size	<input type="checkbox"/>
8	8"(203) Pipe Size	<input type="checkbox"/>

Outlet Type (Select One)		
Suffix	Description	
NH	No Hub (MJ)	<input type="checkbox"/>
P	Push On	<input type="checkbox"/>
T	Threaded Outlet	<input type="checkbox"/>
X	Inside Caulk	<input type="checkbox"/>

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

Optional Body Material (NH Only)		
Suffix	Description	
-60	PVC Body w/Socket Outlet	<input type="checkbox"/>
-61	ABS Body w/Socket Outlet	<input type="checkbox"/>

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

Job Name _____ Contractor _____

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

Engineer _____ Representative _____

WATTS Drainage reserves the right to modify or change product design or construction without prior notice and without incurring any obligation to make similar changes and modifications to products previously or subsequently sold. See your WATTS Drainage representative for any clarification. Dimensions are subject to manufacturing tolerances.



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

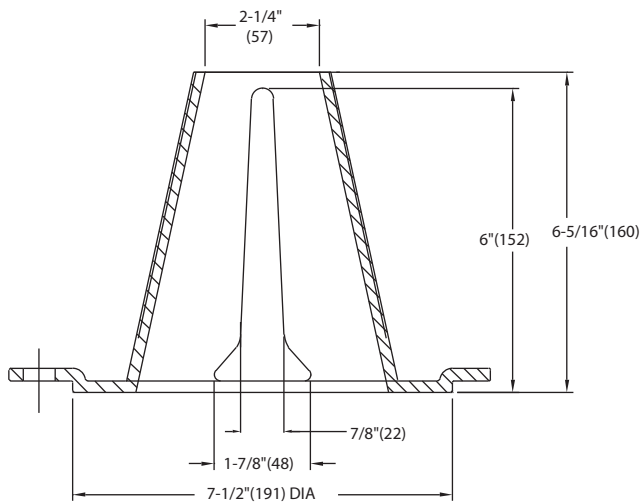


ACCUTROL WEIR FLOW CONTROL

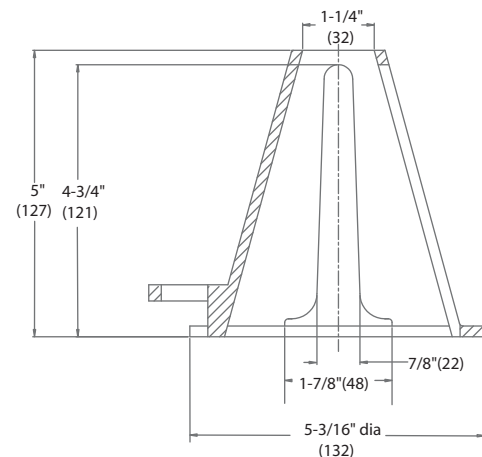
SPECIFICATION: Watts Drainage Products epoxy coated cast iron Accutrol Weir is designed with parabolic openings which limit the flow of rain water off a roof. Each weir slot controls flow to 5 gpm per inch of head to a maximum of 30 gpm at 6" head (for large sump), 25 gpm at 5" head (for small sump).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

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

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



LARGE SUMP ACCUTROL WEIR



SMALL SUMP ACCUTROL WEIR

Job Name _____ Contractor _____

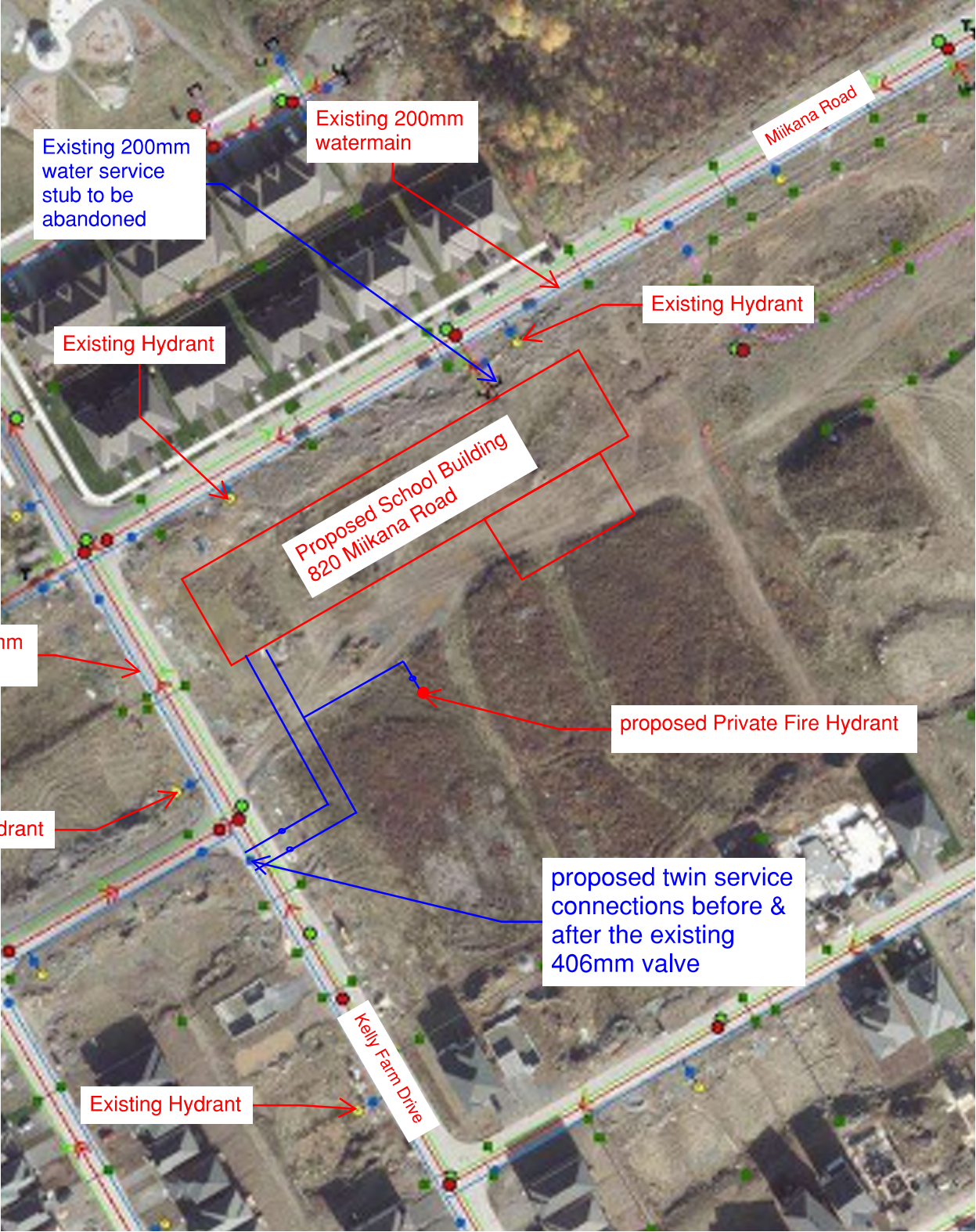
Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

WATTS Drainage reserves the right to modify or change product design or construction without prior notice and without incurring any obligation to make similar changes and modifications to products previously or subsequently sold. See your WATTS Drainage representative for any clarification. Dimensions are subject to manufacturing tolerances.



Appendix H - Boundary Conditions



Boundary Conditions 4501 Kelly Farm Drive

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	49	0.81
Maximum Daily Demand	73	1.22
Peak Hour	132	2.20
Fire Flow Demand #1	7,000	116.67

Location



Results – Existing Conditions

Connection 1 – Kelly Farm Dr.

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	154.6	85.4
Peak Hour	145.2	72.0
Max Day plus Fire 1	132.0	53.2

Ground Elevation = 94.6 m

Connection 2 – Kelly Farm Dr.

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	154.6	85.3
Peak Hour	145.2	71.9
Max Day plus Fire 1	132.0	53.2

Ground Elevation = 94.6 m

Results – SUC Zone Reconfiguration

Connection 1 – Kelly Farm Dr.

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	148.9	77.2
Peak Hour	145.3	72.1
Max Day plus Fire 1	143.7	69.9

Ground Elevation = 94.6 m

Connection 2 – Kelly Farm Dr.

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	148.9	77.2
Peak Hour	145.3	72.0
Max Day plus Fire 1	143.7	69.8

Ground Elevation = 94.6 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.

D.1.2 - Existing Water Boundary Conditions

Water Demands

Average Daily Demand:	0.81 l/s
Maximum Daily Demand:	1.22 l/s
Maximum Hour Demand:	2.20 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):	85.5 m
Finished Floor Elevation:	95.60
Pavement (R.O.W.) Elevation:	94.60

Boundary Conditions

Max. HGL:	148.9 m
Min HGL:	145.3 m
Max. Day + Fire:	143.7 m

Boundary Condition Check

Check water pressure at municipal connection:

$$\begin{aligned} \text{Min. HGL - Pavement elevation} &= 50.70 \text{ m} \\ &= 72.09 \text{ psi}^* \\ &= 497.07 \text{ kPa}^* \end{aligned}$$

*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):

$$\begin{aligned} \text{Min. HGL - Finished floor elevation - Friction Loss}^{**} &= 49.69 \text{ m} \\ &= 70.66 \text{ psi}^{***} \\ &= 487.16 \text{ kPa}^{***} \end{aligned}$$

**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):

$$\begin{aligned} \text{Min. HGL - Finished floor elevation - Friction Loss}^{**} &= 31.09 \text{ m} \\ &= 44.20 \text{ psi}^{****} \\ &= 304.77 \text{ kPa}^{****} \end{aligned}$$

**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



Appendix I - TSS and Quality Control

Zachary Bauman

From: Cassidy, Tyler <tyler.cassidy@ottawa.ca>
Sent: Wednesday, June 15, 2022 9:53 AM
To: James Holland; Ali Sammour
Cc: David Nguyen; Sevigny, John
Subject: RE: PC 2022-0008, New OCDSB Findlay Creek School - 820 Miikana Road, Block 223 (Jp2g # 21-5124A)

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

Hi Ali & James,

I can confirm that the site is treated downstream for quality control by the Findlay Creek Village Stormwater Facility to an enhanced level of service (80% TSS removal).

Please let me know if you require any additional information.

Thank you,

Tyler Cassidy, EIT

Infrastructure Project Manager,
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique - South Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 12977, Tyler.Cassidy@ottawa.ca

From: James Holland <jholland@nation.on.ca>
Sent: June 15, 2022 9:34 AM
To: Ali Sammour <alis@jp2g.com>
Cc: David Nguyen <davidn@jp2g.com>; Cassidy, Tyler <tyler.cassidy@ottawa.ca>; Sevigny, John <John.Sevigny@ottawa.ca>
Subject: RE: PC 2022-0008, New OCDSB Findlay Creek School - 820 Miikana Road, Block 223 (Jp2g # 21-5124A)

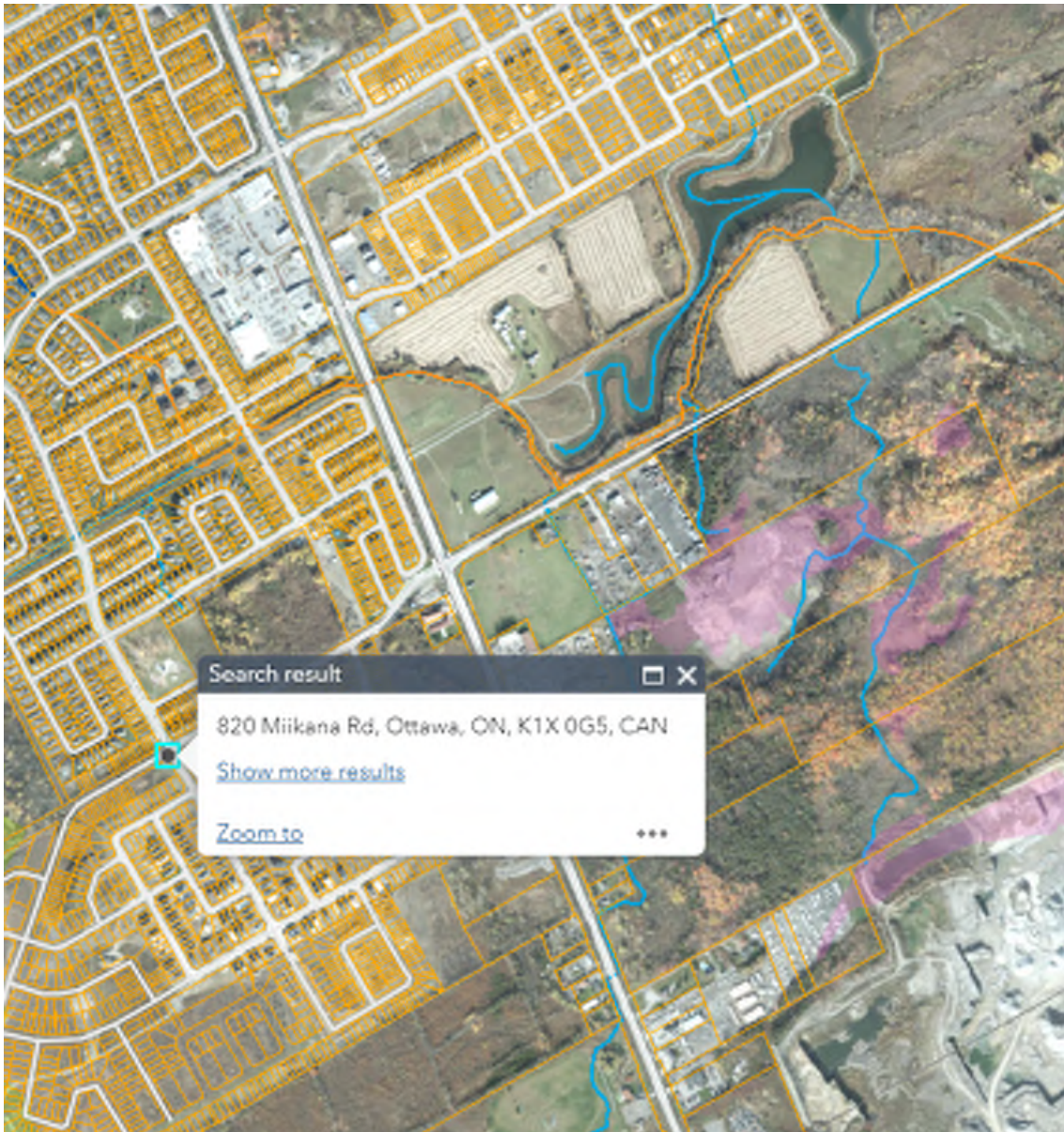
CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hi Ali,

I ask that it be confirmed in the report if treatment is already provided downstream of the outlet. The storm pond to the northeast may provide this treatment, but I don't know this for certain. If it doesn't drain to a treatment pond, we ask that it be provided on-site.

Thanks
James



From: Ali Sammour <AliS@jp2g.com>
Sent: Tuesday, June 14, 2022 5:41 PM
To: James Holland <jholland@nation.on.ca>
Cc: David Nguyen <DavidN@jp2g.com>
Subject: PC 2022-0008, New OCDSB Findlay Creek School - 820 Miikana Road, Block 223 (Jp2g # 21-5124A)

External email - if you don't know or can't confirm the identity of the sender, please exercise caution and do not open links or attachments.

Hi James,

This is pertaining to the Pre-Application Consultation File Number: PC2022-0008. New two-storey elementary school in Findlay Creek, 820 Miikana Road. (pre-consultation meeting notes attached for ease of reference).

The pre-consultation notes and a location map are attached for ease of reference (NE corner of Miikana Road and Kelly Farm Dr.).

The Stormwater Management of the site is being developed to drain into the 750mm dia. municipal infrastructure Storm sewer stub as illustrated on the attached location map.

We would like to confirm if a quality control of minimum 80% Total Suspended Solids TSS removal will have to be provided **On Site**.

Regards,

Ali Sammour, M.Eng., P.Eng., PMP
Project Manager | Civil Engineer
Jp2g Consultants Inc.

Email: AliS@jp2g.com | Web: www.jp2g.com

T: 613.828.7800 | F: 613.828.2600 | C:613.890.2666

1150 Morrison Drive, Suite 410, Ottawa, Ontario, K2H 8S9

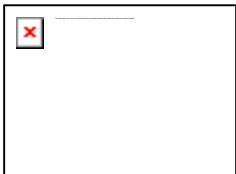


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Keep it Clean - Go Green



James Holland | M.Sc. RPP, Senior Planner

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

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

nation.on.ca | [make a donation](#) A row of five small, broken social media icons, each with a red 'x' in the bottom-right corner.

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Notre environnement local, protégeons-le ensemble.

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MISE À JOUR COVID-19: Nos bureaux sont ouverts au public sur rendez-vous, veuillez envoyer un courriel à info@nation.on.ca. Nos aires de conservation restent ouvertes pour les loisirs passifs. Plus d'informations sur : www.nation.on.ca/coronavirus.

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