Larga Baffin Limited.

1470 Hunt Club Road

Design Brief

June 27th, 2024

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Design Brief
City of Ottawa
Development Application File: D07-XX-XX-XXXX

June 27th, 2024

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1 Introduction

1.1 Scope

Arcadis has been retained by Larga Baffin Limited to prepare the necessary engineering plans, specifications and documents to support the proposed Site Plan Application for the subject lands in accordance with the policies set out by the Planning and Development Branch of the City of Ottawa. This Brief will present a detailed grading and servicing scheme to support development of the property, and will include sections on site grading, water supply, wastewater management, minor and major stormwater management along with erosion and sediment control.

1.2 Subject Site

The proposed development is located between Hunt Club Road and Sieveright Avenue, with the closest intersection being Hunt Club Road and Cahill Drive northeast of the site. The proposed care facility development is approximately 2 hectares in size and is bounded by Hunt Club Road to the north, Sieveright Ave to the south, a dental centre and residential properties to the east, commercial properties to the west, and residential properties south of Sieveright. Please refer to **Figure 1** for more information regarding the site location.

Figure 1-1 Subject Site Location

The proposed project will consist of a 5-storey care-residence including dedicated parking spaces and landscaping areas, vehicular access is provided with connections to Hunt Club Road and Sieveright Ave, . The southern area

bordering Sieveright Ave. is reserved for potential future phase of the development. A site plan of the envisioned development is included in **Appendix A**.

1.3 Previous Studies

An engineering pre-consultation with the City of Ottawa was held on September 24, 2020, regarding the proposed development. Notes from this meeting is included in Appendix A.

1.4 Geotechnical Considerations

Paterson Group Inc. was retained to prepare a geotechnical investigation for the site. The objectives of the investigation were to prepare a report to:

- Determine the subsoil and groundwater conditions at the site by means of test pits and boreholes
- To provide geotechnical recommendations pertaining to the design of the proposed development including construction considerations

The geotechnical investigation report PG5499-1 Dated September 29, 2020 confirmed that the site consists of a layer of topsoil/fill overlaying the native sand layer, over a deep deposit of stiff grey silty clay. Which is further underlain by layers of sandy silt and silty sand throughout the north and central portion of the site. Based on the undrained shear strength testing results, the permissible grade raise was restricted to 2.0m across the site for design purposes. Grade raise exceeding the limits would require further geotechnical investigation.

The report contains recommendations which include but are not limited to the following:

- Fill used for grading beneath the proposed development to meet OPSS Granular ‘A’ or Granular ‘B’ Type II placed in lifts no greater than 300 mm compacted to 98% SPMDD

Table 1-1 Pavement Structure – Car Only Parking Areas

Local Road	Thickness
12.5 Asphaltic Concrete	50 mm
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	300 mm

Table 1-2 Pavement Structure – Access Lanes and Heavy Truck Parking Areas

Local Road	Thickness
12.5 Asphaltic Concrete	40 mm
19.0 Asphaltic Concrete	50 mm

Local Road	Thickness
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	450 mm

The report contains recommendations which include but are not limited to the following:

- Pipe bedding and cover: The pipe bedding for water and pipes placed on a relatively dry, undisturbed subgrade surface should consist of at least 150 mm of OPSS Granular A material. Where the bedding is located upon silty clay the thickness of the bedding material should be increased to a minimum of 300 mm of OPSS Granular A. The bedding layer should extend to the spring line of the pipe. Cover material, from the spring line to at least 300 mm above the obvert of the pipe should consist of OPSS Granular A or Granular B Type II. The bedding and cover materials should be placed in maximum 300 mm thick lifts compacted to a minimum of 95% of the material's SPMDD.
- The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level

2 Water Supply

2.1 Existing Conditions

As previously noted, the 2 ha Care Facility site is located with Hunt Club Road to the north, Sieveright Ave to the south. The subject site is flanked on both streets by existing watermains. An existing PVC 406 mm diameter watermain is located within the Hunt Club Road right of way and a 305 mm watermain in the Sieveright Ave right of way. Both watermains fall within the City of Ottawa's pressure district Pressure Zone 2C which will provide the water supply to the site.

2.2 Design Criteria

2.2.1 Water Demands

Water demands have been calculated for the full development. This site consists of a 5-storey building, containing an area of 2.16 ha of Commercial Area. Per unit population density and consumption rates are taken from Tables 4.1 and 4.2 at the Ottawa Design Guidelines – Water Distribution and are summarized as follows:

- Commercial Shopping Center 2500 l/1000m^2/day
- Other Commercial 28,000 l/gross ha/day
- ICI Average Day Demand 28,000 l/gross ha/day
- ICI peak Daily Demand 42,000 l/gross ha/day
- ICI Peak Hour Demand 75,600 l/gross ha/day

A watermain demand calculation sheet is included in **Appendix B** and the total water demands are summarized as follows:

- Average Day 0.70 l/s
- Maximum Day 1.05 l/s
- Peak Hour 1.89 l/s

2.2.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 480 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required

for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rates

The Larga Baffin Care Facility site plan contains a 5-storey building with an automatic sprinkler system. All buildings will fall under OBC Section 3.10 “Care Occupancies”, B-3 Occupancy and limited-combustible. The sprinkler system will be designed and installed in accordance with NFPA-13 requirements. The sprinkler system will be supplied from the city water connection and the demand will be calculated using the hazard classification plus the appropriate inside/outside hose allowances.

Calculations using the Fire Underwriting Survey (FUS version 2020) were conducted to determine the fire flow requirement for the site. Results of the analysis provides a maximum fire flow rate of 10,000 l/min or 166.7 l/s is required which is used in the hydraulic analysis. A copy of the FUS calculations is included in **Appendix B**.

2.2.4 Boundary Conditions

The City of Ottawa has provided the hydraulic boundary conditions at both the 406 mm watermain on Hunt Club Road and the 305 mm watermain on Sieveright Ave. A copy of the boundary conditions is included in **Appendix B** and summarized as follows:

Table 2-1 Hydraulic Boundary Conditions

Criteria	Hydraulic Head – Hunt Club Rd	Hydraulic Head - Sieveright Ave
Max HGL (Basic Day)	125.6 m	125.6 m
Peak Hour	130.2 m	130.2 m
Max Day + Fireflow (10,000 L/m)	126.4 m	126.4 m

Ground elevation: 61.7 m

2.2.5 Hydraulic Model

A computer model for the subject site has been developed using the InfoWater program by Innovyze. The model includes the existing watermain and boundary condition at Hunt Club Road and Sieveright Ave.

2.3 Proposed Water Plan

2.3.1 Hydraulic Analysis

A 200 mm watermain is proposed through the site connection to the existing 400mm watermain at Hunt Club Road and the existing 300 mm watermain at Sieveright Ave. A 150mm water service is proposed to the building. Refer to the general plan of services **Drawing C-001** in **Appendix B** for detailed watermain layout for the subject site.

The hydraulic model was run under basic day conditions to determine the maximum pressure for the site. The minimum pressure for the site is determined in the peak hour analysis using the provided boundary condition.

Results of the analysis for the site are summarized in Section 2.3.2 and the water model schematic and model results are included in **Appendix B**.

2.3.2 Modeling Results

The hydraulic model was run under basic day, maximum day with fire flows and under peak hour conditions. Results of the hydraulic model are included in **Appendix B** and summarized as follows:

- Basic Day (Max HGL) Pressure Range 388.05 to 390.01 kPa
- Peak Hour (Min HGL) Pressure Range 342.97 to 344.93 kPa
- Max Day Pressure Range 350.81 to 352.77 kPa

A comparison of the results and design criteria is summarized as follows:

Maximum Pressure	All nodes in basic day scenario exceed 552 kPa (80 psi), therefore pressure reducing control is required for all buildings in this development. Pressure reducing valves (PRVs) are shown in both General Plan of Services Drawing C-001 and Grading Plan C-200.
Minimum Pressure	All nodes in the model exceed the minimum value of 276 kPa (40 psi).
Fire Flow	The required fire flow will be provided through the public hydrants and the addition of one new private hydrant within the site. There are 4 public hydrants around the site, 2 located on Hunt Club Road, 2 on Sieveright Avenue. All 5 hydrants are rated Class AA, which can provide 1500 GPM (5678 L/min) and above flow rate. The building is covered with 3 hydrants within 76m and 2 hydrants within 152m. According to Table 18.5.4.3 Maximum Fire Flow Hydrant Capacity - Ottawa Design Guidelines, a total of 3 x 5678 L/min + 2 x 3785 L/min = 24604 L/min fire flow can be provided, which is larger than required fire flow 10000 L/min. Therefore, the existing public can provide sufficient fire flow for the site.

3 Wastewater Disposal

3.1 Existing Conditions

There is an existing 250mm diameter sanitary sewer along Hunt Club Road, which flows west till it discharges into the Albion Rd South Trunk sanitary sewer.

3.2 Design Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Some of the key criteria will include the following:

- Average commercial flow = 28,000 l/s/ha
- Peak ICI flow factor = 1.5 if ICI area is ≤ 20% total area
  1.0 if ICI area is > 20% total area
- Inflow and Infiltration Rate = 0.33 l/s/ha
- Minimum Full Flow Velocity = 0.60 m/s
- Maximum Full Flow Velocity = 3.0 m/s
- Minimum Pipe Size = 200 mm diameter

3.3 Recommended Wastewater Plan

The on-site sanitary system will consist of 200mm PVC sewer installed at normal depth and slope and will provide 200mm service connections to the building. The sewers have been designed using the criteria noted above in section 3.2 and outlet via a connection to the sanitary sewer within the Hunt Club Road right of way to the north of the site. A copy of the sanitary sewer design sheet and Sanitary sewer Tributary Area plan are provided in **Appendix C.** Please refer to the General Plan of Services **Drawing C-001** for additional details.

4 Site Stormwater Management

4.1 Existing Conditions

The existing undeveloped subject lands currently drains largely to the south, towards Sieveright Avenue. There is an existing 1050 mm diameter storm sewer along Sieveright Avenue sewer which provides storm water outlet to service the site. This sewer eventually outlets to the SWM facility at Hunt Club and Last Mile Drive which discharges to McEwan Creek.

4.2 Design Criteria

The stormwater system was designed following the principles of dual drainage, making accommodations for both major and minor flow.

Some of the key criteria include the following:

- Design Storm — 1:5year return (Ottawa)
- Rational Method Sewer Sizing
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Landscaped Areas — C = 0.30
  - Asphalt/Concrete — C = 0.90
  - Roof — C = 0.90
- Pipe Velocities — 0.80 m/s to 6.0 m/s
- Minimum Pipe Size — 250 mm diameter (200 mm CB Leads)

4.3 Proposed Minor System

The minor storm sewers for the subject site will be sized based on the rational method and the City of Ottawa 2-year event. Minor storm flow to the downstream storm sewer network will be controlled by Inlet Control Devices (ICDs) and a proposed Underground Storage tanks (UGS) to limit peak flow and control sewer surcharging downstream.

A detailed storm sewer design sheet and the associated storm sewer drainage area plan, and proposed UGS tank, OGS, and ICD sheets are included in **Appendix D**. The sites outletting sewers, downstream of ICD's, have been sized to convey the 5 yr flow even if the fixed flow released by each respective ICD is less then the 5 yr flow. The General Plan of Services, depicting all on-site storm sewers can be found in **Appendix A**.

4.4 Stormwater Management

The subject site will be limited to a release rate established using the criteria described in section 4.2. This will be achieved through a combination of inlet control devices (ICD's) at inlet locations and a combination of surface and underground storage.

Flows generated that are in excess of the site's allowable release rate will be stored on site in strategic surface storage areas or underground storage and gradually released into the minor system so as not to exceed the site's release rate.

The maximum surface retention depth located within the developed areas will be limited to 300mm during a 100-year event. Overland flow routes will be provided in the grading to permit emergency overland flow, in excess of the 100-year event, from the site.

At certain locations within the site, the opportunity to store runoff is limited due to grading constraints and building geometry. These locations are generally located at the perimeter of the site where it is necessary to tie into public boulevards and adjacent properties or in areas where ponding stormwater is undesirable. These "uncontrolled" areas – 0.02 hectares in total, have a C value of 0.39. Based on 100-year storm uncontrolled flows, the uncontrolled areas generate 3.87 l/s runoff (refer to Section 4.5 for calculation).

The site grading and ponding has been designed to control water generated during the 1:100-year event, with no overflow leaving the site. Please refer to the SWM calculations in **Appendix D**.

4.5 Inlet Control

The allowable release rate for the 1.98 Ha site can be calculated as follows:

$\mathbf{Q_{allowable}}$ = **2.78** x **C** x $\mathbf{i_{2yr}}$ x **A** where:

C = 0.5 (pre-development C maximum)

$\mathbf{I_{5yr}}$ = Intensity of %-year storm event (mm/hr)

= $998.071 \times (T_c + 6.053)^{0.814}$ = 104.19 mm/hr; where T_c = 10 minutes

A = Area = 1.98 Ha

= **286.76 L/s**

As noted in Section 4.4, the landscaped area along south which will into the storm sewer uncontrolled.

Based on a 100-year event, the flow from the 0.02 Ha uncontrolled area can be determined as:

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A** where:

C = Average runoff coefficient of uncontrolled area = 0.31 x 1.25 = 0.39

$\mathbf{i_{100yr}}$ = Intensity of 100-year storm event (mm/hr)

= $1735.688 \times (T_c + 6.014)^{0.820}$ = 178.56 mm/hr; where T_c = 10 minutes

A = Uncontrolled Area = 0.02 Ha

Therefore, the uncontrolled release rate can be determined as:

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A**

= 2.78 x 0.39 x 178.56 x 0.02

= **3.87 L/s**

The maximum allowable release rate from the remainder of the site can then be determined as:

$Q_{max\ allowable}$ = $Q_{restricted} - Q_{uncontrolled}$

= 286.76 L/s – 3.87 L/s

= **282.89 L/s**

Based on the flow allowance at the various inlet locations, a combination of various sizes of inlet control devices (ICDs) were chosen in the design. The design of the inlet control devices is unique to each drainage area and is determined based on various factors, including hydraulic head and allowable release rate. The inlet control devices were sized according to the manufacturer's design charts. In some areas restrictions will cause the on-site landscape catchbasins and manholes to surcharge, generating surface ponding in landscaped areas. Ponding locations and elevations are summarized on the Ponding Plan **Drawing C-600**, and included in **Appendix D**.

4.6 On-Site Detention

The site was designed to limit runoff to the allowable release rate up to the 100-year storm event. Flows exceeding the 5-year storm, up to the 100-year storm will be contained on-site via surface and underground in-line storage. Orifices in manholes will be employed to control runoff from parking, access and landscape areas. To determine the resulting storage volumes a 5-year and 100-year storm was applied, starting at 2 minutes with time steps of 5 minutes interval until a peak storage volume requirement was attained for the sub-area being controlled. Available ponding volumes at each inlet were calculated using in-line structure volumes during the 100-year events.

The modified rational method was used to calculate maximum storage required for a given release rate. As per accepted convention, when underground storage is considered available storage the ICD release rate is to be reduced by 50% to account for the loss of head during the initial part of the rainfall event while the underground portion of the storage fills with runoff.

Major flow up to the 100-year storm is contained on-site and is gradually released to the minor system, aside from the small uncontrolled areas, major flow does not leave the site via overland flow.

The stormwater management for the site has ensured that there will be no surface ponding during the 2-year storm.

A stormwater management summary sheet and the results of the on-site storage volume requirements are included in **Appendix D**.

A summary of the ICD type for each drainage area and corresponding storage details is provided in Table 4.1 below.

Table 4-1 Post-Development Storage Summary Table

Post – Development Flows							
Location	ICD Type	Drainage Area (Ha)	Restricted / Uncontrolled Flow (L/s)	Storage Required (m^3)	Storage Provided (m^3)		
			100 - Year	100 - Year	Surface	U/G	Total
Uncontrolled Flow							
UN	N/A	0.02	3.87	N/A	N/A	N/A	N/A
Controlled Storm Sewer System							
Areas Trib. To UGS	IPEX Custom	1.09	213	312.27	N/A	409.02	409.02
Area Trib. To CBMH11	IPEX LMF	0.16	6	12.76	42.10	N/A	42.10
Area Trib. To CB13	IPEX LMF	0.05	3	1.92	4.54	N/A	4.54
Area Trib. To CBMH01	IPEX MHF	.66	57	16.80	50.2	N/A	50.2
Total Restricted Release Rate							
		1.96	279	343.75	96.84	409.02	505.86

UGS is areas BLDG+MH100+MH105+MH113+CBMH02+CBMH03+CBMH12

4.7 100 Year + 20% Stress Test

A cursory review of the 100 year event + 20% has been performed using the modified rational method. The Peak flow from each area during a 100 year event has been increased by 20%. The calculations have been included in **Appendix D.**

A summary of the require storage volumes and required volumes is provided below, the 100+20% is fully contained.

Table 4-2 Post-Development Storage Summary Table

Drainage Area	ICD Restricted Flow (L/s)	100 Year + 20% Storage Required (m^3)	Total Storage Provided	100 – Year + 20% Overflow (m^3)
Area Trib. To UGS	213	406.67	409.02	0.0
Area Trib. To CBMH11	6	16.97	42.10	0.0
Area Trib. To CB13	3	2.67	4.54	0.0
Area Trib. To CBMH01	59	24.27	50.2	0.0

UGS is areas BLDG+MH100+MH105+MH113+CBMH02+CBMH03+CBMH12

The emergency overland flow from the site is generally directed to Sieveright Avenue, within the area's abutting Hunt Club emergency overland flow is directed to Hunt Club.

It should be noted the southern portion of the site will be subject to future development, and an area has been reserved for potential underground storage, however should the building type allow for roof top storage that may be employed in combination with underground storage. Conceptual calculation of volume required is provided in appendix D however the actual will be determined at SPA.

4.8 Quality Control

To provide sufficient water quality control, an OGS is proposed before the storm outlet to the street. An 80% of TSS removal is provided by the OGS. **Appendix D** includes an info sheet for the use of a Stormceptor unit to meet the 80% TSS removal.

5 Grading and Roads

5.1 Site Grading

The existing grades within portions of the proposed development lands vary due to the existing topography of the site. The grading plan will require the balancing of various requirements including but not limited to geotechnical constraints, minimum/maximum slopes, overland routing of stormwater, all to ensure the site is graded in accordance with municipal standards.

Refer to the grading plan provided in **Appendix E**.

No retaining wall or terracing is anticipated to be needed within the site. The existing perimeter of the site will tie into the proposed grading. The undeveloped southern portion of the site will be graded on an interim basis to provide positive drainage to the storm sewer inlet.

5.2 Road Network

No public roads are proposed through the site. Minimum 9.0m wide drive aisle have been provided, as shown on the Site Plan in **Appendix A.** An internal Fire route has been shown where fire truck access is required, as determined by the site architect.

There are 40 parking stalls provided on the site, of which 1 are barrier free.

Noise attenuation features and indoor noise clause provisions will not be required commercial use lands for road noise generated by the adjacent roads.

6 Source Controls

6.1 General

Since an end of pipe treatment facility is already provided for the development lands, stormwater site management for the subject lands will focus on site level or source control management of runoff. Such controls or mitigative measures are proposed for this development not only for final development but also during construction and build out. Some of these measures are:

- Flat site grading where possible
- Vegetation planting
- Groundwater recharge in landscaped areas

6.2 Lot Grading

Where possible, all of the proposed blocks within the development will make use of gentle surface slopes on hard surfaces such as asphalt and concrete. In accordance with local municipal standards, all grading will be between 0.5 and 5.0 percent for hard surfaces and 2.0 and 7.0 percent for all landscaped areas. Significant grade changes will be accomplished through the use of terracing (3:1 max slope), ramps and/or retaining walls. All street and parking lot catchbasins shall be equipped with 3.0m subdrains on opposite sides of a curbside catchbasin running parallel to the curb, and with 3.0m subdrains extending out from all 4 sides of parking lot catchbasins.

6.3 Vegetation

As with most site plans, the developer will be required to complete a vegetation and planting program. Vegetation throughout the development including planting along roadsides and within the individual blocks provides opportunities to re-create lost vegetation.

6.4 Groundwater Recharge

Groundwater recharge targets have not been identified for this site. Perforated sub-drain systems will be implemented at capture locations in all vegetated areas. This will promote increased infiltration during low flow events before water is collected by the storm sewer system.

7 Conveyance Controls

7.1 Generals

Besides source controls, the development also proposes to use several conveyance control measures to improve runoff quality. These will include:

- Vegetated swales
- Catchbasin sumps and manhole sumps

7.2 Catchbasins and Maintenance Hole Sumps

All catchbasins within the development, either rear yard or street, will be constructed with minimum 600 mm deep sumps. These sumps trap pollutants, sand, grit and debris which can be mechanically removed prior to being flushed into the minor pipe system. Both rear yard and street catchbasins will be to OPSD 705.02. All storm sewer maintenance holes serving local sewers less than 900 mm diameter shall be constructed with a 300 mm sump as per City standards.

8 Sediment and Erosion Control Plan

8.1 General

During construction, existing stream and conveyance systems can be exposed to significant sediment loadings. Although construction is only a temporary situation, it is proposed to possibly introduce a number of mitigative construction techniques to reduce unnecessary construction sediment loadings. These may include:

- Until the local storm sewer is constructed, groundwater in trenches will be pumped into a filter mechanism prior to release to the environment
- Vegetated swale sediment capture filter socks will remain on open surface structures such as maintenance holes and catchbasins until these structures are commissioned and put into use
- Silt fence on the site perimeter will be installed.

8.2 Trench Dewatering

Any trench dewatering using pumps will be discharged into a filter trap made up of geotextile filters and straw bales similar in design to the OPSD 219.240 Dewatering Trap. These will be constructed in a bowl shape with the fabric forming the bottom and the straw bales forming the sides. Any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filters as needed, including sediment removal and disposal and material replacement as needed. It should be noted that that the contractor will be responsible for the design and management of the trap(s).

8.3 Seepage Barriers

In order to further reduce sediment loading to the stormwater management facility, seepage barriers will be installed on any surface water courses at appropriate locations that may become evident during construction. These barriers will be Light Duty Straw Bale Barriers per OPSD 219.100 and Heavy-Duty Silt Fence Barriers per OPSD 219.130; locations are shown on the Sediment and Erosion Control Plan included in **Appendix E**. They are typically made of layers of straw bales or geotextile fabric staked in place. All seepage barriers will be inspected and maintained as needed.

8.4 Surface Structure Filters

All catchbasins, and to a lesser degree, manholes, convey surface water to sewers. Until streets are asphalted and curbed, all catchbasins and manholes will be constructed with sediment capture inserts or equivalent located between the structure frame and cover. These will stay in place and be maintained during construction and build until it is appropriate to remove same.

9 Conclusion

This report has illustrated that the proposed development can be serviced via existing municipal services. The water network will be extended to provide necessary service. All sanitary and storm sewer designs for this development will be completed in conformance with City of Ottawa standards while acknowledging downstream constraints. By limiting flow into the minor storm sewer system as per the applicable local stormwater management criteria and allowing for excess surface storage on-site, all stormwater management requirements will be met. Adherence to the Sediment and Erosion Control Plan during construction will minimize harmful impacts on surface water.

Based on the information provided within this report, the plans prepared for the subject development can be serviced to meet City of Ottawa requirements.

Demetrius Yannoulopoulos, P. Eng.
Director – Office Lead

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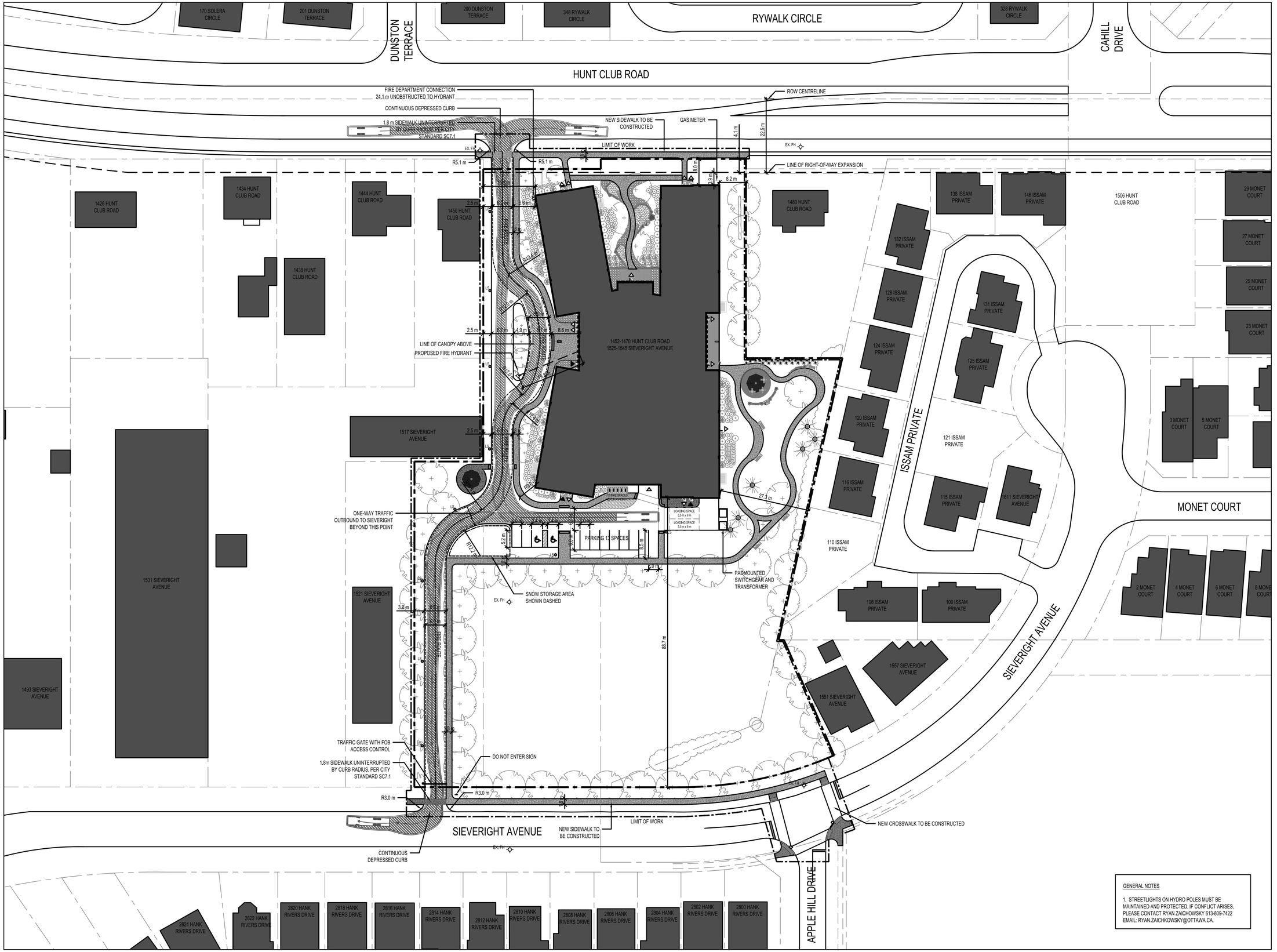
Engineering Intern

Appendix A

- **Site Plan**
- **Site Servicing Plan**
- **Pre-Consultation Notes**
- **Pre-Consultation Meeting Minutes**
- **Survey AOV 2024-07-09**



LEGEND

- PROPERTY LINE
- LIMIT OF WORK LINE
- EX. FH — EXISTING FIRE HYDRANT
- FH — PROPOSED FIRE HYDRANT
- LS — LIGHT STANDARD, REFER TO ELECTRICAL
- NEW CONCRETE SIDEWALK
- TWSI WITH CONTINUOUS DEPRESSED CURB
- BUILDING ENTRANCE
- BUILDING EXIT
- P — PARKING ENTRANCE

SURVEY CREDIT

LOT REFERENCE: PART OF LOTS 4 AND 5 REGISTERED PLAN 141 CITY OF OTTAWA

AS PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.

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DATED JULY 9th, 2021

NO.	DATE	DESCRIPTION
6	2024-04-24	SPA PHASE 3 REVIEW
5	2024-03-07	SPA PHASE 3 REVIEW
4	2023-10-06	COSTING - CLASS D 60%
3	2022-05-17	OPA / ZBLA FINAL
2	2022-03-18	OPA / ZBLA REVISED

ISSUE RECORD

GENERAL NOTES

1. STREETLIGHTS ON HYDRO POLES MUST BE MAINTAINED AND PROTECTED. IF CONFLICT ARISES, PLEASE CONTACT RYAN ZAICHOWSKY 613-809-7422 EMAIL: RYAN.ZAICHKOWSKY@OTTAWA.CA.

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\MT_SPA Stamp.jpg

LARGA BAFFIN

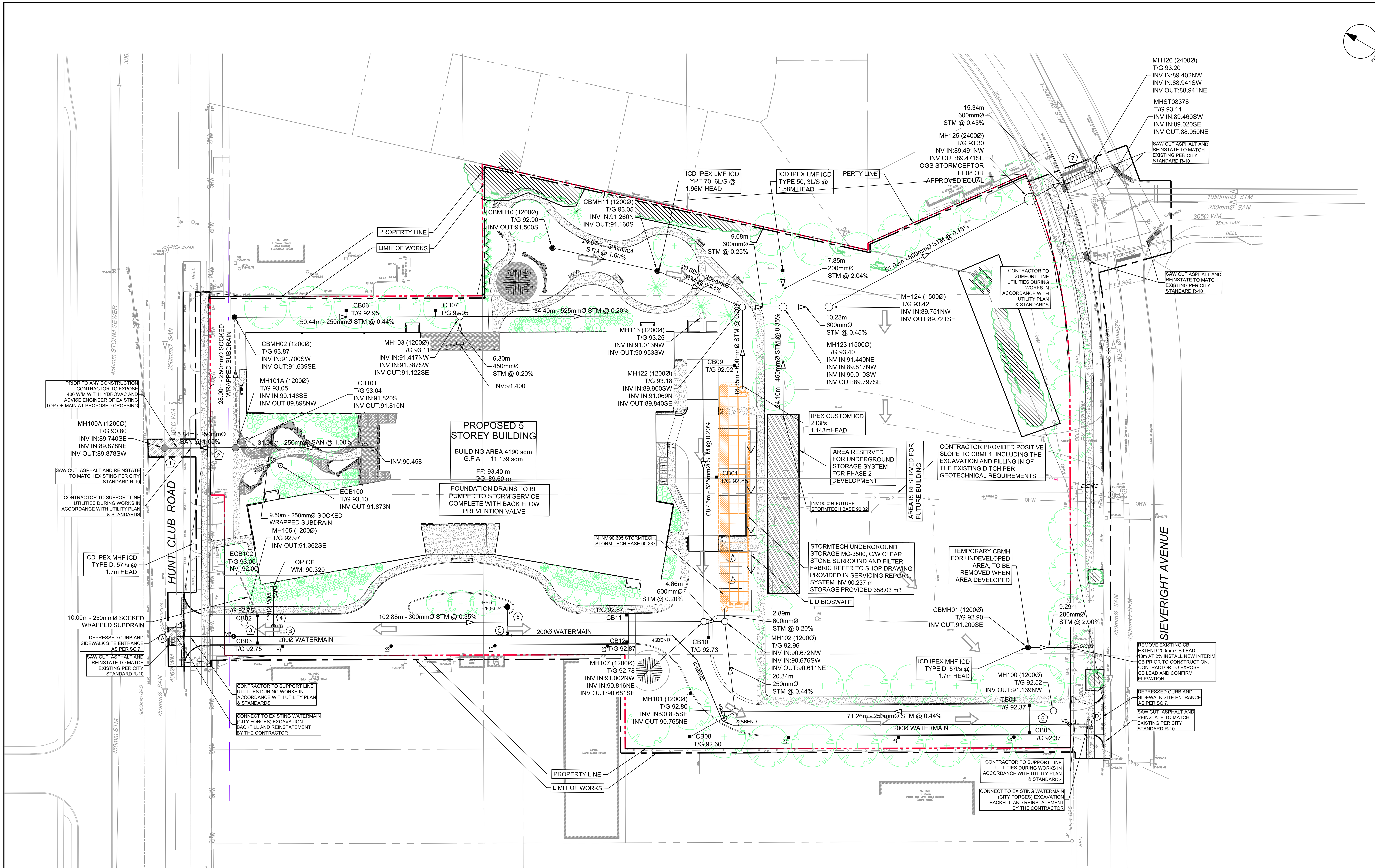
1452-1470 Hunt Club Road
1525-1545 Sieveright Avenue
Ottawa, Ontario, Canada

DRAWING TITLE:

SITE PLAN

PRINT DATE: 2024-07-10
SCALE: 1:500
PROJECT NO. 17-029
DRAWN BY: NP/FC
CHECKED BY: MT

A100



WATERMAIN SCHEDULE						
	Station	Description	Finished Grade	Top of Watermain	Watermain Cover	As Built Watermain
A	0+000.00	CONNECT TO EXISTING 406mmØ TVS	92.840	90.340	2.50	
	0+010.81		92.953	90.453	2.50	
	0+012.80	200V&VB	92.885	90.385	2.50	
B	0+021.75	BUILDING TEE	92.844	90.344	2.50	
C	0+074.07	HYDRANT TEE	93.054	90.554	2.50	
	0+110.90	45 BEND	92.904	90.404	2.50	
	0+118.76	22.5 BEND	92.876	90.376	2.50	
	0+133.59	45 BEND	92.707	90.207	2.50	
	0+136.09	22.5 BEND	92.706	90.206	2.50	
	0+211.45	200V&VB	92.619	90.119	2.50	
D	0+215.73	CONNECT TO EXISTING 305mmØ TVS	92.534	90.034	2.50	

REVISED 2024-04-18

CROSSING SCHEDULE

1	EX 406 WM Ø 0.1m CLEARANCE OVER 250Ø SAN
2	250Ø SAN 1.54m CLEARANCE OVER 250Ø STM
3	200Ø STM 1.10m CLEARANCE OVER 200Ø WM
4	300Ø STM 1.21m CLEARANCE OVER 200Ø WM
5	300Ø STM 0.60m CLEARANCE OVER 200Ø WM
6	250Ø STM 1.00m CLEARANCE OVER 200Ø WM
7	300Ø WM 0.5m CLEARANCE OVER 600Ø STM

CLIENT

PHOENIX HOMES

Arcadis Professional Services (Canada) Inc.
formerly IBI Group Professional Services (Canada) Inc.

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2024-04-1_
2	REVISED PER CITY COMMENTS	2024-07-0_

NOT FOR CONSTRUCTION

SEE 010 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

KEY PLAN

SITE

1:400

SEAL

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2024/07/01
PROVINCE OF ONTARIO

CONFIRM PRIME CONSULTANT

ARCADIS
333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

LARGA BAFFIN

1452-1470 HUNT CLUB RD.
1525-1545 SEIVERIGHT AVE.

PROJECT NO: 126884	
DRAWN BY: D.D.	CHECKED BY: A.B.
PROJECT MGR: D.G.Y.	APPROVED BY: D.G.Y.

SHEET TITLE

GENERAL PLAN OF SERVICES

SHEET NUMBER C-001

ISSUE 2

D07-XX-XX-XXXX

File Location: J:\126884_Phoenix_Home\7.0_Production\7.03_Design\04_Civil\Sheets\C-001 GENERAL PLAN OF SERVICES.dwg Last Saved: July 8, 2024, by ddore Plotted: Tuesday, July 9, 2024 2:04:26 PM by Denis Dore

SCALE CHECK 1in 10mm XXXXX

Jacob Bolduc

From: Ezzio, Sarah <sarah.ezzio@ottawa.ca>
Sent: October 9, 2020 9:49 AM
To: Jacob Bolduc
Cc: Emilie Coyle; Sharif, Golam; Giampa, Mike; Wang, Randolph
Subject: Pre-Consultation Follow Up - 1470 Hunt Club Road
Attachments: DesignBrief_TOR_1470 Huntclub.pdf; 1470 Huntclub UD Comments.pdf; tor_planning_en.pdf; Pre-con Applicant's Study and Plan Identification List.pdf

Good evening Jacob,

Please refer to the below notes regarding the Pre-Application Consultation Meeting held on September 24, 2020 for the site at 1470 Hunt Club Road. During this meeting, a proposal to develop the site with two buildings, a six-storey medical boarding house on the southern portion of the site and a four storey commercial/office building on the north portion of the site was discussed. Associated parking will be provided by a surface level parking lot internal on the site.

Below are staff's preliminary comments:

Policies/Designations of the site

- Official Plan – designated General Urban Area (Section 3.6.1)
- Community Design Plan – The site is subject to the South Keys to Blossom Park – Bank Street Community Design Plan
    - A portion of the site abutting Hunt Club Road is designated General Mixed Use (building heights of 6 stories permitted)
    - A portion of the site abutting Sieveright Avenue is designated Future Land Use Study (height limit varies as per existing zoning)
- Secondary Plan- The site is subject to the South Keys to Blossom Park – Bank Street Secondary Plan. The land use designations and height limits are the same as those imposed by the CDP.
- Zoning:
    - A portion of the site abutting Hunt Club Road is zoned GM16[2294]
    - A portion of the site abutting Sieveright Avenue is zoned IL2H(14)
    - Required Parking Rates are as per Area C (Suburban)
    - Bicycle Parking Rates as per Section 111 of the Zoning By-law, calculations are to be broken down by land use
    - Zoning By-Law provisions for Rooming Houses apply, see Part 5, Section 132

Planning

- The CDP and SP policies are clear than an application in the Sieveright Future Land Use Study area would trigger the need for the entire area. The policy allows the applicant to lead the study, and sets out the objectives of the study:
    1. Determine locations that may be appropriate for higher or lower buildings compared to the existing zoned maximum permitted building height and in consideration of proximity to and the existing character of adjacent residential areas and to Bank Street.

2. Determine the appropriate land use and zoning for the area and if light industrial uses should continue to be permitted,
3. Determine appropriate first storey finishes (windows and doors) for building walls to create a human-scale along the roadway and to prevent blank facades facing residential areas.
4. Determine if parkland should be dedicated as land or cash-in-lieu in consideration of permitted uses of land.
5. Consider potential transportation impacts related to increased density and measures to mitigate such impacts, and
6. Implement any required changes to this Plan, to the Community Design Plan and to the Zoning By-law arising from the study.

The Land Use Study is a requirement for this proposal due to two reasons: the CDP and SP provide clear direction for the study, and the proposed six-storey building height along Sieveright is not permitted under OP policies for building heights in the General Urban Area (3.6.1, policy 4), and heights would require a Secondary Plan Amendment to support it. Planning Staff are happy to discuss scoping of this requirement further.

- The medical boarding house fits within the direction hinted at by the CDP: "*Light industrial area along Sieveright and Hunt Club offers an opportunity to update land use and zoning to be more compatible with surrounding residential neighbourhoods*"
- 6-storey building heights are more desirable along Hunt Club Road as the current zoning permits as-of-right. If proposed along Sieveright, the Land Use study will need to show why this area is appropriate and how heights will transition to uses at the rear of the site.
- This is a site that is well-located in respect to transit an existing community amenities, please ensure there are good opportunities for pedestrian circulation provided on the site and that there are walkway connections to existing sidewalks.
- Please provide street trees and landscaping along Sieveright to match the existing context of this street.
- At time of site plan submission, please provide the following on the plan:
    - A zoning matrix table showing required and proposed zoning provisions
    - Snow storage locations
    - Please provide accessible parking spaces as per AODA guidelines
    - Garbage enclosure details
- The proposed residential boarding use appears to fall under the by-law definitions of rooming units in a rooming house. Please confirm in the application submission, and note section 132 of the Zoning By-Law applies.
- When proposing the zoning for the site, please ensure that consideration is made to permit all proposed accessory uses to the medical boarding facility use (e.g. office, community centre, etc.)
- As per the CDP, a dense form of development with minimal setbacks from the street are preferred along Hunt Club, with parking at the rear of the building.
- It is recommended to discuss the details of the proposal with ward 10 Councillor, Diane Deans, as well as property owners of neighbouring sites, before submitting an application.
- We appreciate the project, and the use of the proposed development to provide access to healthcare to northern regions. Staff would be happy to facilitate future meetings as needed as development proposal progresses.

Engineering

- 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
- 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)
- 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).
- The Stormwater Management Criteria, for the subject site, is to be based on the following:
  - i. 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.
  - ii. For separated sewer system built pre-1970 the design of the storm sewers are based on a 2 year storm.
  - iii. The pre-development runoff coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).
  - iv. A calculated time of concentration (Cannot be less than 10 minutes).
  - v. 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.
  - vi. For a combined sewer system the maximum C= 0.4 or the pre-development C value, whichever is less. In the absence of other information the allowable release rate shall be based on a 2 year storm event.
  - vii. There may be area specific SWM Criteria within SWM &/or Sub-watershed studies that may apply, please check.
- Deep Services (Storm, Sanitary & Water Supply)

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. Hunt Club Road):
        i. Sanitary – 250 mm.
        ii. Storm – 300 mm (connection depend on the subwatershed boundary.
        iii. Water – 400 mm.
    b. Seiveright Ave (Preferred connections):
        i. Sanitary – 250 mm.
        ii. Storm – 525 mm (connection depend on the subwatershed boundary.
        iii. Water – 300 mm.

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. *Connections to trunk sewers and easement sewers are typically not permitted.*
iv. *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).*
v. *Review provision of a high-level sewer.*
vi. *Provide information on the type of connection permitted*

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

a. Std Dwg S11.1 for flexible main sewers – *connections made using approved tee or wye fittings.*
b. Std Dwg S11 (For rigid main sewers) – *lateral must be less that 50% the diameter of the sewermain,*
c. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – *for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,*
d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.
e. *No submerged outlet connections.*

- 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
  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.
- 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.
- General comments –
  - Water supply redundancy will be required for more than 50 m3/day water demand. Provide watermain connection with isolation valve to meet this requirement.
  - All the stormwater and servicing requirements must follow the "Sawmill Creek Subwatershed Study", Please contact RVCA for specific water quality requirement.
  - Proposed area falls within the Sawmill Creek Subwatershed, therefore stormwater discharge must be investigated to proper outlet.
  - Should you have any questions or require additional information, please contact me directly by email at sharif.sharif@ottawa.ca.

Urban Design

With respect to **public realm,** please consider the following:

- Incorporating significant landscaping along Huntclub Road with a continuous tree canopy.
- Supporting the transformation of Sieveright into a more pedestrian friendly environment through the provision of sidewalk, street trees and appropriate design of the building.

With respect to **site organization:**

- Locating the office building on Huntclub Road and the residential building at the back is appropriate from an urban design perspective.

- Considerations should be given to the location of vehicular entrances to avoid potential through traffic. One possibility is to locate the south entrance to the east side of the site, potentially aligned with Apple Hill (see attached diagram).
- Consideration should also be given to incorporate a pedestrian/multiuse pathway through the site connecting Hunt Club Road and the neighbourhood through an easement (see attached diagram).

With respect to **built form design**, please consider:

- Appropriate built form transition. Consider the following if a 6-storey building is pursued:
    a. Locating the building to the west part of the site, as further away from the existing residential area as possible (see attached diagram);
    b. Articulating the building to comprise a base, a middle and a top. The base of the building should reflect the scale and rhythm of the adjacent low-rise residential buildings. The top floors should step back.
- Livability of for future residents. The preliminary design shows a small and potentially dark courtyard. Considerations should be given to re-orienting and enlarging the courtyard, and potentially articulating the building massing to have a lower portion on the south side and higher portion on the north side to maximize solar exposure (see attached diagram).

Environmental

- EIS not required
- Phase I ESA required, Phase II ESA and RSC also likely required due to the proposed change in land use, but this is dependent on the outcomes of the Phase I ESA.

Transportation

- Proceed to Step 2 (and eventually Step 3 forecasting) of the TIA prior to application.
- The access on Hunt Club will be a right-in/right-out and may require a right-turn auxiliary lane – this requirement may be based on volume and/or operating speeds and must be analyzed in the TIA.
- Current throat length at this site is significantly below standard – refer to TAC guidelines for appropriate length. No queueing of any kind will be permitted on Hunt Club.
- A Noise Study will be required.

Planning Forestry

- a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City; an approved TCR is a requirement of Site Plan or Plan of Subdivision approval.
- any removal of privately-owned trees 10cm or larger in diameter requires a tree permit issued under the Urban Tree Conservation Bylaw; the permit is based on the approved TCR
- any removal of City-owned trees will require the permission of Forestry Services who will also review the submitted TCR
- the TCR must list all trees on site by species, diameter and health condition
- the TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained – please provide a plan showing retained and removed treed areas
- the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.

- Please ensure newly planted trees have an adequate soil volume for their size at maturity. Here are the recommended soil volumes:

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

- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca

This proposal is subject to a **Site Plan Control, Complex (manager approval)** application, a **Major Zoning By-Law Amendment** application, and an **Official Plan Amendment** (Secondary Plan Amendment) application to permit proposed heights and implement required changes to the as a result of the future land use study. The required Plans & Study List for application submission is attached to this email.

Please refer to the links to "Guide to preparing studies and plans" and fees for general information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

I am happy to discuss any comments or requirements further, and would be happy to set up a meeting to do so as needed.

All the best,

Sarah Ezzio
Planner I | Urbaniste I
Development Review (South Services) | Examen des projets d'aménagement (services sud)
Planning, Infrastructure and Economic Development | Services de planification, d'infrastructure et de développement économique

City of Ottawa | Ville d'Ottawa
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ottawa.ca/planning / ottawa.ca/urbanisme

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Pre-Application Consultation Meeting Notes

File No. PC2023-0078

Application Type: Site Plan Control

Property: 1452, 1560, 1470 Hunt Club Road and 1525, 1531 and 1545 Sieveright Avenue

Date: April 5, 2023, at 1 pm

Attendees:
Mélanie Gervais – City of Ottawa, Planning
Siobhan Kelly – City of Ottawa, Planning
Bruce Bramah – City of Ottawa, Infrastructure Program Manager
Phil Castro – City of Ottawa, Parks Planner
Patrick McMahon – City of Ottawa, Transportation
Mark Elliot – City of Ottawa
Selma Hassan – Urban Design

Jacob Bolduc - Fotenn
Patricia Warren – Fotenn
Michael Boucher – Phoenix Homes
Bill McCurdy – CREVA Group
Megan Torza – Architect
David Hook – IBI

Regrets:
Hayley Murray, City of Ottawa, Forester

Subject: Pre-Application Consultation Meeting – Site Plan Control Application

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Proposal:

- Larga Baffin Inc. and Phoenix Homes are proposing the redevelopment of the site to include a six (6) storey (22 metres) residential care facility. The facility will provide temporary accommodations for people from Baffin Island
- Phasing of Site Plan Control – separate application for residential development
- Council Motions:
    - Access on Siveright Avenue & limiting through traffic
    - Traffic Controls – monitoring program because of the development
    - Height of the mechanical penthouse

Meeting Notes & Comments:

Planning – Mélanie Gervais

The City's recommendation is to wait until the Zoning By-law Amendment is approved and in full force and effect prior to submitting the site plan control application.

Preliminary Comments:

- Revise conceptual plans removing references to 'Office Use'
- Explore opportunities to create an active façade along Hunt Club Road

- Some concerns remain with the proposed intersection with Sieveright – to be evaluated upon receipt of the TIA update
- A sidewalk along the north side of Sieveright will be required.

Questions regarding the above comments can be directed to the File Planner, Mélanie Gervais at melanie.gervais@ottawa.ca

Transportation – Patrick McMahon

- Traffic Impact Assessment Guidelines
    - An update to previously submitted materials to address the design review components applicable to the site plan application is acceptable as an alternative to a full TIA submission if no other changes are proposed.
- Noise Impact Studies required for the following:
    - Road
    - Aircraft (within the airport vicinity development zone)
- Site Plan:
    - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
    - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
    - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
    - Show lane/aisle widths.
    - Sidewalk is to be continuous across the Hunt Club access as per City Specification 7.1.
- As the proposed site is institutional and for public use, AODA legislation applies. Consider using the City's Accessibility Design Standards.
- Hunt Club Road has a protected right of way of 44.5m along the site's frontage, a widening may be required to be conveyed at no cost to the City.
- Consider how pedestrians will cross from the Sieveright access to the sidewalk on the south side of Sieveright and address this as part of the TIA update. A pedestrian connection to cross Sieveright will certainly be a priority.
- The intersection of Sieveright and Bank Street will not be on the City's DC Bylaw update as it will not be eligible for DC funding. It may be considered and placed into priority queue of the New Traffic Control Devices program if warrants are met.

Questions regarding the above comments can be directed to the Transportation Project Manager, Patrick McMahon at patrick.mcmahon@ottawa.ca

Infrastructure – Bruce Bramah

- The Servicing Study Guidelines for Development Applications are available at the following address: https://ottawa.ca/en/planning-development-and-construction/developing-property/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#servicing-study-guidelines-development-applications
- Servicing and site works shall be in accordance with the following documents:
    - Ottawa Sewer Design Guidelines (October 2012)

- Ottawa Design Guidelines – Water Distribution (2010)
- 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)

- 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).
- Stormwater Management Criteria, for the subject site, is to be based on the following:
  i. The 2/5-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.
  ii. The pre-development runoff coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).
  iii. A calculated time of concentration (Cannot be less than 10 minutes).
  iv. Flows to the storm sewer in excess of the pre-development 5-year storm release rate, up to and including the 100-year storm event, must be detained on site.
  v. On site quality control will be required (80% TSS removal).
  vi. No surface ponding within parking areas during the 2-year event.
  vii. The site outlets to the McEwan Creek and there may be area specific SWM Criteria that may apply. Check for any related SWM &/or Sub-watershed studies that may have been completed.
- Deep Services (Storm, Sanitary & Water Supply)
  i. 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.
  ii. Connections to trunk sewers and easement sewers are typically not permitted.
  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. Review provision of a high-level sewer.
  v. Provide information on the type of connection permitted

  Sewer connections to be made above the springline of the sewermain as per:
  a. Std Dwg S11.1 for flexible main sewers – *connections made using approved tee or wye fittings.*
  b. Std Dwg S11 (For rigid main sewers) – *lateral must be less that 50% the diameter of the sewermain,*
  c. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – *for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,*
  d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

e. *No submerged outlet connections.*

- 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
  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.
- 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.

Questions regarding the above comments can be directed to the Project Manager, Bruce Bramah at bruce.bramah@ottawa.ca

Urban Design – Selma Hassan

- A Design Brief (DB) is required with the submission. The Terms of Reference for the DB is attached; all elements highlighted in yellow must be addressed. Section 2 of the DB should be a separate document from the Planning Rationale.
- As noted in the pre-consult, additional labelling of the elevations, to clarify which elevations face Hunt Club in particular, is requested.
- As noted in the pre-consult, means to activate the Hunt Club frontage of the building should be explored. Possibilities mentioned include art, banners, murals etc.
- The renderings displayed during the pre-consultation showed a pedestrian path from the building to Sieveright. This connection is important and is expected on the future plans.
- If the north courtyard retains the play area function, it is suggested that the fence move closer to Hunt Club so that a much larger space can be given for kids' play. It will, however, remain important that the play area is securely separated from Hunt Club. This could include a tall, decorative fence with a deep shrub border.
- Whether the courtyard remains a play space or not, it will be viewed by many residents and a thoughtful landscape treatment is needed.
- Conceptually, the trees shown on the Conceptual Site Plan are good. The plan prepared by a landscape architect should:
  a. Not reduce the number of trees shown on the conceptual site plan
  b. Maximize the planting of large species wherever possible
  c. Include a mix of deciduous and coniferous trees
  d. Provide a generous street tree planting along Hunt Club
  e. Plant generously in the 27m setback area and, again, maximize the planting of large species

Note: The above UD Comments are for the 6-storey residential care facility and comments were not provided on the future low-rise residential building.

Questions regarding the above comments can be directed to the Urban Designer, Selma Hassan at Selma.Hassan@ottawa.ca

Environmental Comments – Mark Elliot

- There are no features near the proposed development at 1470 Hunt Club that trigger the need for an Environmental Impact Statement.
- The current design will need to incorporate the mitigation measures recommended in the Bird Safe Design Guidelines. Of note are the glass staircases on the northern face of the development. Though other features, such as windows, vents, and antennae should also be assessed with these guidelines in mind.
- A tree conservation report will be required but can be incorporated into the landscape plan. Though the site is mostly devoid of vegetation, there are some trees along the boundary with 1480 Hunt Club that appear to be both of significant size and potentially on the neighbouring property
- In accordance with the tree canopy goals expressed in 4.8.2 of the Official Plan and the climate change and extreme heat mitigation goals in section 10.3, the applicant is encouraged to seek out sites for additional tree plantings. Some suggestions include the between the buildings and Hunt Club road the open space on the eastern portion of the site. I would also recommend that the applicant consider the addition of a green roof on this site. This would help to provide a cooling microclimate and potentially a unique amenity space for residents visiting from Baffin Island.

Questions regarding the above comments can be directed to the Environmental Planner, Mark Elliot at mark.elliott@ottawa.ca

Parks Planning – Phil Castro

- As currently proposed, the application will be required to make a Cash-in-Lieu of Parkland payment in accordance with the active parkland dedication rate in force at that time, as well as the fee for appraisal services. The value of the land will be determined in accordance with the Planning Act, as of the day before the day the building permit is issued in respect of the development or redevelopment or, where more than one building permit is required for the development or redevelopment, as of the day before the day the first permit is issued. The value of the land shall be determined by market appraisal approved by the City, and appraisals submitted to or obtained by the City for the purposes of this by-law shall be considered valid for a maximum period of one year from the date the appraisal was completed, or such lesser time as may be specified in the appraisal.
- The inclusion of an outdoor play area is appreciated. Please provide further details with your submission and specify the exact size of the outdoor area and consider adding more area.
- Please reconsider the vehicular connection to Sieveright Ave. as this may have an impact on the Park located at 2999 Sable Ridge Drive.
- Additionally, the offset intersection proposed adjacent to Apple Hill Drive may cause issue with the pedestrian circulation in and around the Park.

Questions regarding the above comments can be directed to the Parks Planner, Phil Castro at phil.castro@ottawa.ca

Forestry – Hayley Murray

- A Tree Conservation Report (TCR) and Landscape Plan (LP) are required for this site plan application. The plans can be combined.
- The row of trees between 1480 and 1470 Hunt Club, if in good condition, are to be prioritized for retention over removal and replacement.
- The draft site plan shows trees will be planted between the development and the adjacent residential properties to the east. Providing enough space for large canopy species in this area is encouraged for privacy and to provide much needed canopy cover on the site.

TCR Requirements:

1. The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
    a. please identify trees by ownership – private onsite, private on adjoining site, city owned, boundary (trees on a property line)
2. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
3. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
4. The location of tree protection fencing must be shown on the plan
5. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
6. For more information on the process or help with tree retention options, contact Hayley Murray hayley.murray@ottawa.ca or on City of Ottawa

LP Tree Planting Requirements:
Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree Specifications

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

Soil Volume

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines
- Please document on the LP that adequate soil volumes can be met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9

Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

Tree Canopy

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

Questions regarding the above comments can be directed to the City Forester, Hayley Murray at hayley.murray@ottawa.ca

Waste Services – Andrew Laplante

- New multi-unit residential development, defined as containing six (6) or more units, intending to receive City waste collection services will be required, as of June 1, 2022, to participate in the City's Green Bin program in accordance with Council's approval of the multi-residential waste diversion strategy. The development must include adequate facilities for the proper storage of allocated garbage, recycling, and green bin containers and such facilities built in accordance with the approved site design.

Questions regarding this change and requirements can be directed to Andre.Laplante@ottawa.ca.

City Surveyor

- The determination of property boundaries, minimum setbacks and other regulatory constraints are a critical component of development. An Ontario Land Surveyor (O.L.S.) needs to be consulted at the outset of a project to ensure properties are properly defined and can be used as the geospatial framework for the development.
- Topographic details may also be required for a project and should be either carried out by the O.L.S. that has provided the Legal Survey or done in consultation with the O.L.S. to ensure that the project is integrated to the appropriate control network.

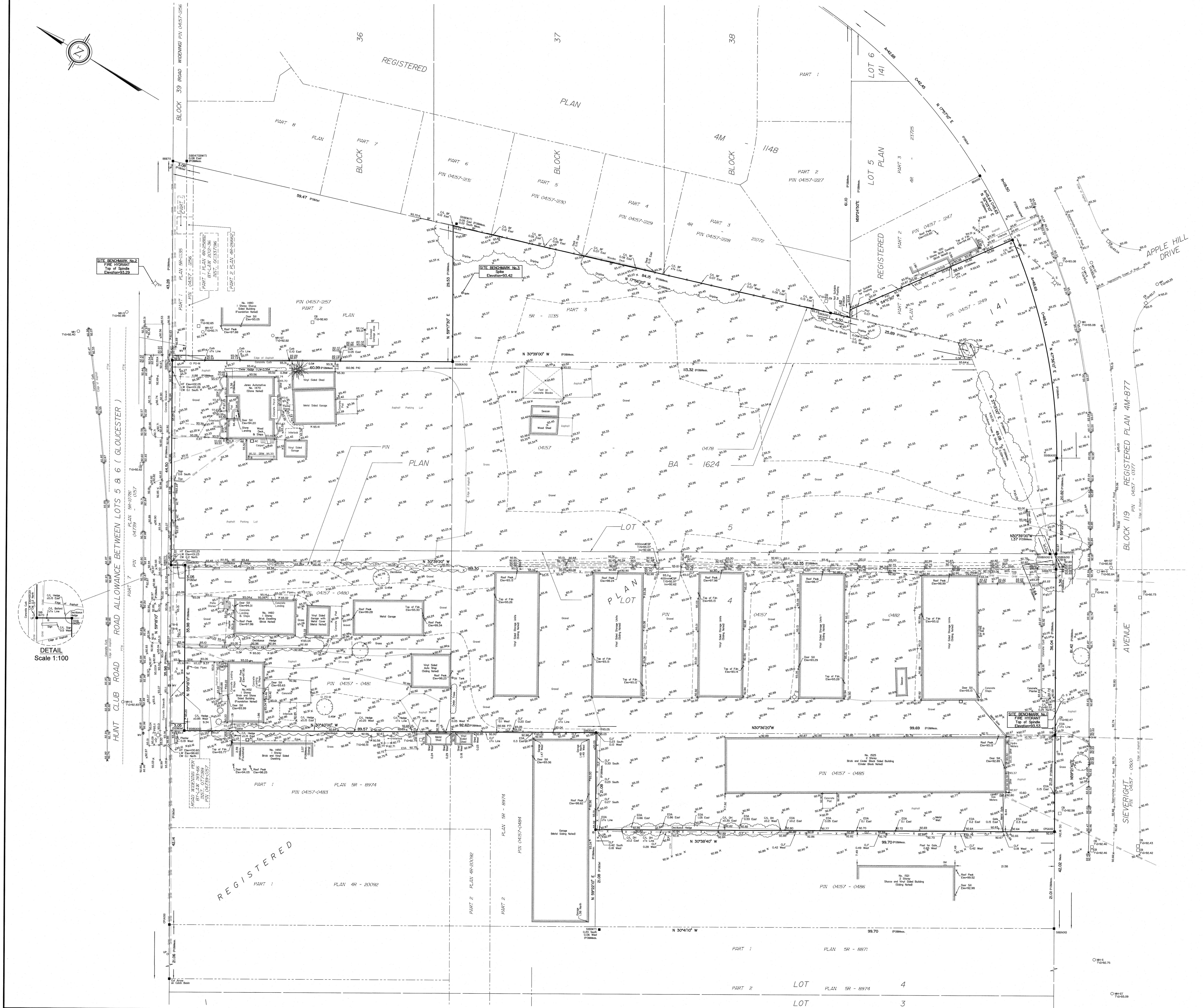
Questions regarding the above requirements can be directed to the City's Surveyor, Bill Harper, at Bill.Harper@ottawa.ca

Submission Requirements and Fees

- Please refer to the **Applicant's Study and Plan Identification List** for submission requirements
- Additional information regarding fees related to planning applications can be found here.
- Plans are to be standard A1 size (594 mm x 841 mm) or Arch D size (609.6 mm x 914.4 mm) sheets, dimensioned in metric and utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- All PDF submitted documents are to be unlocked, flattened and not saved as a portfolio file.

Next steps

- It is anticipated that, because of the *More Homes for Everyone Act, 2022*, for applications for site plan approval and zoning by-law amendments, new processes in respect of pre-application consultation will be put in place. The new processes are anticipated to require a multiple phase pre-application consultation approach before an application will be deemed complete. Applicants who have not filed a complete application by the effective date may be required to undertake further pre-application consultation(s) consistent with the provincial changes. The by-laws to be amended include By-law 2009-320, the Pre-Consultation By-law, By-law 2022-239, the planning fees by-law and By-law 2022-254, the Information and Materials for Planning Application By-law.



TOPOGRAPHICAL PLAN OF SURVEY OF

PART OF LOTS 4 AND 5
REGISTERED PLAN 141
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 250

10 7.5 5.0 2.5 0 5 10 Metres

Metric

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

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 31st day of May, 2021.

July 9/21
Date

T. Hartwick
Ontario Land Surveyor

Notes & Legend

	Denotes	
—□—	"	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
CP	"	Concrete Pin
(WIT)	"	Witness
Acc.	"	Accepted
(AOG)	"	Annis O'Sullivan Vollebekk Ltd.
(PI)	"	(AOG) Plan of Survey dated September 17, 2020
	"	Deciduous Tree
	"	Coniferous Tree
	"	Shrub
FH	"	Fire Hydrant
WV	"	Water Valve
SP	"	Water Stand Post
MH-ST	"	Maintenance Hole (Storm Sewer)
MH-S	"	Maintenance Hole (Sanitary)
MH	"	Maintenance Hole (Unidentified)
VC	"	Valve Chamber (Watermain)
OHW	"	Overhead Wires
CB	"	Catch Basin
CBI	"	Catch Basin Inlet
CSP	"	Corrugated Steel Pipe
M-W	"	Monitoring Well
V-P	"	Vent Pipe
GV	"	Gas Valve
GM	"	Gas Meter
HM	"	Hydro Meter
HH	"	Handhole
TB-B	"	Bell Terminal Box
TB	"	Unidentified Terminal Box
B	"	Bollard
S	"	Sign
HT	"	Hydro Transformer
LW	"	Lowest Wire
CW	"	Closest Wire
MC	"	Moveable Curb
CBRW	"	Concrete Block Retaining Wall
SRW	"	Stone Retaining Wall
EOA	"	Edge of Asphalt
T/G	"	Top of Grate
T/P	"	Top of Pipe
Elev	"	Elevation
Fdn	"	Foundation
DH	"	Deciduous Hedge
PTW	"	White Paint Lines
PVC	"	Plastic Fence
CLF	"	Chain Link Fence
BF	"	Board Fence
P&W	"	Post and Wire
	"	Gate
PO-W	"	Wood Pole
PO-M	"	Metal Pole
UP	"	Utility Pole
AN	"	Anchor
LS	"	Light Standard
MB	"	Mail Box
W	"	Well Cap
AC	"	Air Conditioner
Ø	"	Diameter
+ 65.00	"	Location of Elevations
+ 65.00	"	Top of Concrete Curb Elevation
+ 65.00	"	Top of Wall Elevation
C/L	"	Centreline
———	"	Property Line

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinates are derived from Can-Net 2016 Real Time Network GPS observations referenced to Specified Control Points 01919680105 and 01918434761, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinate values are to urban accuracy in accordance with O. Reg. 216/10.

. 01919680105	Northing	5024915.16	Easting	373971.65
. 019198434761	Northing	5036178.12	Easting	372436.11

Caution: Coordinates cannot, in themselves, be used to re-establish corners or boundaries shown on this plan.

For comparison purposes, bearings on plans P3 and P7 have been rotated 0°36'00" counter clockwise.

SITE AREA = 1.9969 ha

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-13607
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Ontario Land Surveyors
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com

Job No. 20719-21 LargaBaffin PrtLts4-5 RP141 T F | DG

Appendix B

- **Water Demands Sheet**
- **Water Model Results**
- **FUS Fireflow Calculations**
- **FUS Design Decleration**
- **Smith + Andersen Design Decleration**
- **Water Boundary Conditions**

ARCADIS IBI GROUP
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
ibigroup.com

WATERMAIN DEMAND CALCULATION SHEET

1470 Hunt Club Road | Larga Baffin
126884-6.0 | Rev #0 | 2023-09-20
Prepared By: AB | Checked By: DY

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	3 bedroom UNITS	2 bedroom UNITS	POPULATION	INDUST. (ha)	COMM. (ha)	INSTIT. (ha)	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	
Site							2.16		0.70	0.70		1.05	1.05		1.89	1.89	10,000
TOTAL							**2.16**			**0.70**			**1.05**			**1.89**	

ASSUMPTIONS

POPULATION DENSITY

Single Family	3.4 persons/unit
3 Bedroom Units	2.7 persons/unit
2 Bedroom Units	1.8 persons/unit

WATER DEMAND RATES

Residential	350 l/cap/day
Other Commercial	28,000 L/gross ha/day

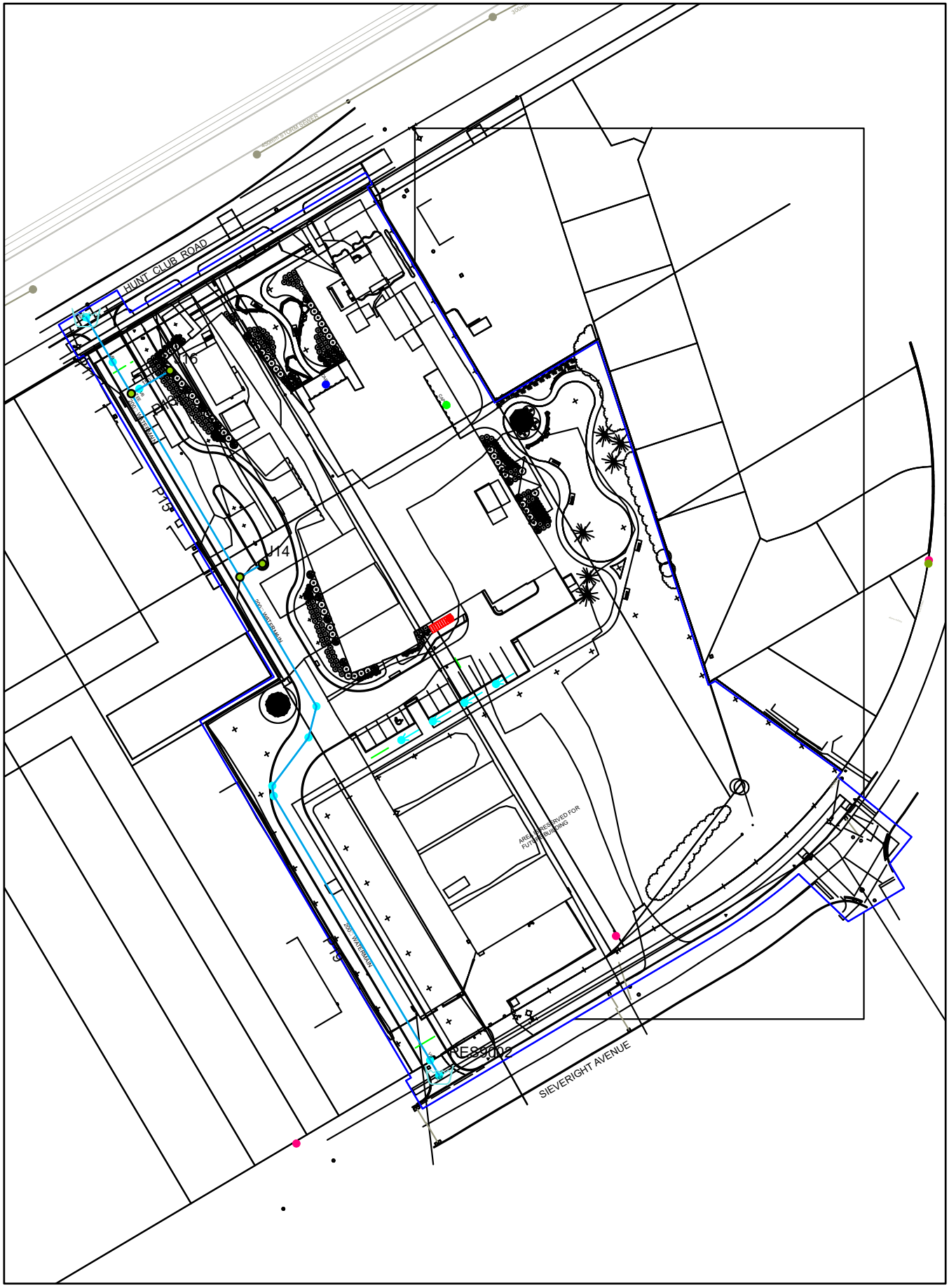
PEAKING FACTORS

Maximum Daily		
	Residential	2.5 x avg. day
	Institutional	1.5 x avg. day
Maximum Hourly		
	Residential	2.2 x max. day
	Institutional	1.8 x max. day

FIRE DEMANDS

Single Family	10,000 l/min (166.7 l/s)
Semi Detached & Townhouse	10,000 l/min (166.7 l/s)
Medium Density	15,000 l/min (250 l/s)

Larga Baffin Water Model Layout



		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	90.40	130.20	390.01
2	☐	J12	0.00	90.60	130.20	388.05
3	☐	J14	0.00	90.60	130.20	388.05
4	☐	J16	0.70	90.40	130.20	390.01

		ID	Static Demand (L/s)	Static Pressure (kPa)	Static Head (m)	Fire-Flow Demand (L/s)	Residual Pressure (kPa)
1	☐	J14	0.00	350.81	126.40	166.70	301.48

		ID	Hydrant Available Flow (L/s)	Hydrant Pressure at Available Flow (kPa)	Junctions with Pressure Violation
1	☐	J14	365.54	139.96	0

		ID	Node with the Lowest Pressure Violation	Lowest Pressure Violation (kPa)	Average Pressure Violation (kPa)
1	☐	J14			

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	90.40	126.40	352.77
2	☐	J12	0.00	90.60	126.40	350.81
3	☐	J14	0.00	90.60	126.40	350.81
4	☐	J16	1.05	90.40	126.40	352.77

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	90.40	125.60	344.93
2	☐	J12	0.00	90.60	125.60	342.97
3	☐	J14	0.00	90.60	125.60	342.97
4	☐	J16	1.89	90.40	125.60	344.92

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500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
ibigroup.com

FIRE UNDERWRITERS SURVEY

1470 Hunt Club Road | Larga Baffin
126884-6.0 | Rev #0 | 2023-09-20
Prepared By: AB | Checked By: DY

STEP	Contents	Description		Adjustment Factor		Result	
1	**Building A** (6-storey)	1st Floor Area		Height 4.4m	1	4192	m2
		2nd Floor Area		Height 3.4m	1	3491	m2
		50% of 3rd Floor Area		Height 3.4m	1	1746	m3
		50% of 4th Floor Area		Height 3.4m	1	1746	m4
		50% of 5th Floor Area		Height 3.4m	1	1737	m5
		50% of 6th Floor Area		Height 3.4m	1	1737	m6
	Total Effective Floor Area					**14647**	m2
2	**Type of Construction**	**Type V** Wood Frame	1.5	Type II Noncombustible Construction	0.8		
		Type III Ordinary Construction	1.0				
		Type II Noncombustible Construction	0.8				
		Type I Fire Resistive Construction	0.6				
3	**Required Fire Flow**	RFF = 220C$\sqrt{A}$				**21300**	L/min
4	**Occupancy and Contents**	Noncombustible Contents	-25%	Limited - B3 Occupancies Care	-15%	-3195	L/min
		Limited Conbustible Contents	-15%				
		Combustible Contents	0%				
		Free Burning Contents	15%				
		Rapid Burning Contents	25%				
	Fire Flow					**18105**	L/min
5	**Automatic Sprinkler Protection**	Automatic Sprinkler Conforming to NFPA 13	-30%	Yes	-30%	-5432	L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	Yes	-10%	-1811	L/min
		Fully Supervised System	-10%	Yes	-10%	-1811	L/min
	Total Adjustment					**-9053**	L/min
6	**Exposure Adjustment**	Based on **Table 6** Exposure Adjustement Charges for Subject Building					
	North	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type II				
	South	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	0				
		Construction Type	Type II				
	East	Separation (m)	16	With unprotected opening	3%	543	L/min
		Length X Height Factor (m.storeys)	10.75				
		Construction Type	Type II				
	West	Separation (m)	19	With unprotected opening	4%	724	L/min
		Length X Height Factor (m.storeys)	39.35				
		Construction Type	Type II				
	Fire Flow					**10320**	L/min
7	**Total Required Fire Flow**	Rounded to Nearest 1000 L/min				**10000**	L/min
						167	L/s

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

FUS CLASSIFICATION DECLARATION FOR MULTI-STOREY BUILDINGS

Project Name and Civic Address: Larga Baffin – 1470 Hunt Club Road Number of Floors: 6

Development Review PM: _____ City File No. _____

The building's FUS calculation has been determined using the following criteria: (check one of the following).

C = 1.5 ☐	**Type V Wood Frame Construction** A building is considered to be of Wood Frame construction (Type V) when structural elements, walls, arches, floors, and roofs are constructed entirely or partially of wood or other material. Note: Includes buildings with exterior wall assemblies that are constructed with any materials that do not have a fire resistance rating that meets the acceptance criteria of CAN/ULC-S114. May include exterior surface brick, stone, or other masonry materials where they do not meet the acceptance criteria. Total Effective Area (A) = 100% of all Floor Areas
C = 0.8 ☐ C = 0.9 ☐ C = 1.0 ☐ C = 1.5 ☐	**Type IV Mass Timber** Mass timber construction, including Encapsulated Mass Timber, Heavy Timber and other forms of Mass Timber are considered as one of the following sub-types relating to the fire resistance ratings of assemblies as follows: • Type IV-A Mass Timber Construction (Encapsulated Mass Timber) • Type IV-B Mass Timber Construction (Rated Mass Timber) • Type IV-C Mass Timber Construction (Ordinary Mass Timber) • Type IV-D Mass Timber Construction (Un-Rated Mass Timber) *Refer to Water Supply for Public Fire Protection, latest revision, for further Mass Timber Construction definitions and how to calculate Total Effective Area (A).
C = 1.0 ☐	**Type III Ordinary Construction** A building is considered to be of Ordinary construction (Type III) when exterior walls are of masonry construction (or other approved material) with a minimum

	1-hour fire resistance rating, but where other elements such as interior walls, arches, floors and/or roof do not have a minimum 1 hour fire resistance rating. Total Effective Area (A) = 100% of all Floor Areas
C = 0.8 ☒	**Type II Noncombustible Construction** A building is considered to be of Noncombustible construction (Type II) when all structural elements, walls, arches, floors, and roofs are constructed with a minimum 1-hour fire resistance rating and are constructed with noncombustible materials. Total Effective Area (A) = ☐ if any vertical openings in the building (ex. interconnected floor spaces, atria, elevators, escalators, etc.) are unprotected**, consider the two largest adjoining floor areas plus 50% of all floors immediately above them up to a maximum of eight; or ☐ if all vertical openings and exterior vertical communications are properly protected* in accordance with the National Building Code, consider only the single largest Floor Area plus 25% of each of the two immediately adjoining floors.
C = 0.6 ☐	**Type I Fire Resistive Construction** A building is considered to be of Fire-resistive construction (Type I) when all structural elements, walls, arches, floors, and roofs are constructed with a minimum 2-hour fire resistance rating, and all materials used in the construction of the structural elements, walls, arches, floors, and roofs are constructed with noncombustible materials. Total Effective Area (A) = ☐ if any vertical openings in the building (ex. interconnected floor spaces, atria, elevators, escalators, etc.) are unprotected**, consider the two largest adjoining floor areas plus 50% of all floors immediately above them up to a maximum of eight; or ☐ if all vertical openings and exterior vertical communications are properly protected* in accordance with the National Building Code, consider only the single largest Floor Area plus 25% of each of the two immediately adjoining floors.

Note: If a building cannot be defined within a single Construction Coefficient, the Construction Coefficient is determined by the predominate Construction Coefficient that makes up more than 66% of the Total Floor Area.

*Protected openings:

a) Enclosures shall have walls of masonry or other limited or non-combustible construction with a fire resistance rating of not less than one hour.
b) Openings including doors shall be provided with automatic closing devices
c) Elevator doors shall be of metal or metal-covered construction, so arranged that the doors must normally be closed for operation of the elevator.

**Unprotected openings:

a) Any opening through horizonal separations that are unprotected or otherwise have closures that do not meet the minimum requirements for protected openings, above.

The building's FUS calculation has been determined using the following criteria: (check all that apply)

30% ☒	**Automatic sprinkler protection designed and installed in accordance with NFPA 13** The initial credit for Automatic Sprinkler Protection is a maximum of 30% based on the system being designed and installed in accordance with the applicable criteria of NFPA 13, Standard for Installation of Sprinkler Systems, NFPA 13R, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies, or NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes and being maintained in accordance with the applicable criteria of NFPA 25, Standard for the Inspections, Testing and Maintenance of Water-Based Fire (see Recognition of Automatic Sprinkler Protection).
10% ☒	**Water supply is standard for both the system and Fire Department hose lines** a) Sprinkler system is supplied by a pressurized water supply system (public or private) that is designed and built with no major non-conformance issues (i.e. water supply system is designed in accordance with Part 1 of the Water Supply for Public Fire Protection to qualify for fire insurance grading recognition). b) Calculated demand for maximum sprinkler design area operation in addition to hose stream requirements are below the available water supply curve (at the corresponding flow rate and pressure). An appropriate safety margin is used to take into account the difference between the available water supply curve at the time of hydrant flow testing as compared to the available water supply curve during Maximum Day Demand. c) Volume of water available is adequate for the total flow rate including the maximum sprinkler design area operation plus required hose streams plus Maximum Day Demand for the full duration of the design fire event. d) Residual pressure at all points in the water supply system can be maintained at not less than 150 kPa during the flowing of the sprinkler and required hose streams (plus Maximum Day Demand).
10% ☒	**Fully supervised system** a) a distinctive supervisory signal to indicate conditions that could impair the satisfactory operation of the sprinkler system (a fault alarm), that is to sound and be displayed, either at a location within the building that is constantly attended by qualified personnel (such as a security room), or at an approved remotely located receiving facility (such as a monitoring facility of the sprinkler system manufacturer); and

	b) a water flow alarm to indicate that the sprinkler system has been activated, which is to be transmitted to an approved, proprietary alarm-receiving facility, a remote station, a central station, or the fire department.

Note: Where only part of a building is protected by Automatic Sprinkler Protection, credit should be interpolated by determining the percentage of the Total Floor Area being protected by the automatic sprinkler system.

☐ Fully Supervised sprinkler system (per above description)

PROFESSIONAL SEAL APPLIED BY:

Civil Consultant:	Amy Zhuang
Consultancy:	Arcadis Canada Inc.
Phone Number:	613-225-1311
Address:	500 - 333 Preston Street, Ottawa, Ontario K1S 5N4

Engineer's Seal

wz **(initial)**	The FUS design parameters will be carried into the building's design

PROFESSIONAL SEAL APPLIED BY:

Architect or Building Engineer:	Megan Torza
Consultancy:	DTAH Architects Limited
Phone Number:	416-968-9479 x 240
Address:	50 Park Road, Toronto, Ontario M4W 2N5

Architect's or Building Engineer's Seal

	The FUS design parameters will be carried into the building's design

(initial)	

Smith + Andersen

530 – 1600 Carling Ave., Ottawa ON K1Z 1G3
t 613 230 1186 f 613 230 2598 smithandandersen.com

2023-09-19

DTAH
50 Park Road
Toronto, Ontario
M4W 2N5

Attention: Megan Torza

RE: 1470 HUNT CLUB ROAD - LARGA BAFFIN
S+A PROJECT # 21217.000
FUS CALCULATION DESIGN DECLARATION

Dear Megan:

This letter is to confirm the following anticipated provisions for the fire protection system at 1470 Hunt Club Road, Ottawa, Ontario:

1) The building will have an automatic sprinkler protection system designed and installed in accordance with NFPA 13.
2) The water supply provided from the civil connection will be supplemented with pumping systems as required to suit the flow and pressure requirements indicated within the Ontario Building code.
3) The fire protection system will be a fully supervised system, inclusive of a water flow alarm that will indicate that the sprinkler system has been activated.

Yours truly,

SMITH + ANDERSEN

Elaine Guenette, P.Eng.
Principal

2023.09.19 21217.000 L01 FUS Declaration

C.C. Adrianne Mitani – Smith + Andersen

Beresniewicz, Arthur

From: Beresniewicz, Arthur
Sent: Wednesday, November 1, 2023 2:04 PM
To: Bramah, Bruce
Subject: RE: 1470 Hunt Club Road - Larga Baffin - Boundary Conditions Request

Hi Bruce,

Thank you for the boundary condition information!

Best,

Arthur Beresniewicz EIT
Engineering Intern
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 225 1311 ext 64073
www.arcadis.com

ARCADIS

From: Bramah, Bruce <bruce.bramah@ottawa.ca>
Sent: Tuesday, October 31, 2023 10:39 AM
To: Beresniewicz, Arthur <arthur.beresniewicz@arcadis.com>
Subject: RE: 1470 Hunt Club Road - Larga Baffin - Boundary Conditions Request

Hi Arthur,

Please see the boundary conditions below:

The following are boundary conditions, HGL, for hydraulic analysis at 1470 Hunt Club Road (zone 2W2C) assumed to be looped with a 203mm, connected to the 406 mm watermain on Hunt Club Road and the 305mm watermain on Sieveright Avenue (see attached PDF for location).

Both Connections:

Minimum HGL = 125.6 m

Maximum HGL = 130.2 m

Max Day + Fire Flow (166.7 L/s) = 126.4 m

These are for current conditions and are based on computer model simulation.

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.

Thanks,

--

Bruce Bramah, P.Eng
Project Manager
Planning, Real Estate and Economic Development Department
Development Review - 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 29686, Bruce.Bramah@ottawa.ca

From: Beresniewicz, Arthur <arthur.beresniewicz@arcadis.com>
Sent: October 12, 2023 3:36 PM
To: Bramah, Bruce <bruce.bramah@ottawa.ca>
Subject: 1470 Hunt Club Road - Larga Baffin - Boundary Conditions Request

Hi Bruce,

We are requesting watermain boundary conditions for the proposed 1470 Hunt Club – Larga Baffin project. The location of the watermain connections are shown on the attached figure.

Please find attached the water demands for 1470 Hunt Club.

- Daily average demand – 0.70 l/s
- Maximum daily demand – 1.05 l/s
- Maximum hourly demand – 1.89 l/s

- Required Fireflow of 10,000 l/min or 166.7 l/s

Also attached are the FUS Fire flow calculations.

Let me know if you need any other information.

Thank you,

Arthur Beresniewicz EIT
Engineering Intern
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 225 1311 ext 64073
www.arcadis.com

Appendix C

- **Sanitary Sewer Plan**
- **Sanitary Drainage Area Plan**

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SANITARY SEWER DESIGN SHEET

1470 Hunt Club Road
Larga Baffin
City of Ottawa

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		RES PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						ICI PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH		SF	TH/SD	1 Bed APT	2 Bed APT		IND	CUM			INSTITUTIONAL		COMMERCIAL		INDUSTRIAL				IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
														IND	CUM	IND	CUM	IND	CUM															
Front Courtyard		BLDG	MH101A							0.0	0.0	3.80	0.00	1.98	1.98	0.00	0.0	0.00	0.0	1.50	0.96	1.98	1.98	0.65	0.00	0.0	1.62	62.04	31.00	250	1.00	1.224	60.42	97.40%
Front Courtyard		MH101A	MH100A							0.0	0.0	3.80	0.00	0.00	1.98	0.00	0.0	0.00	0.0	1.50	0.96	0.00	1.98	0.65	0.00	0.0	1.62	62.04	15.84	250	1.00	1.224	60.42	97.40%

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u				
TH/SD	2.7	p/p/u	INST	28,000	L/Ha/day	
1 Bed	1.4	p/p/u	COM	28,000	L/Ha/day	
2 Bed	2.1	p/p/u	IND	35,000	L/Ha/day	MOE Chart
Other	60	p/p/Ha		17000	L/Ha/day	

Notes:

1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 200 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+(P/1000)^0.5))0.8
   where K = 0.8 Correction Factor
5. Commercial and Institutional Peak Factors based on total area, 1.5 if greater than 20%, otherwise 1.0

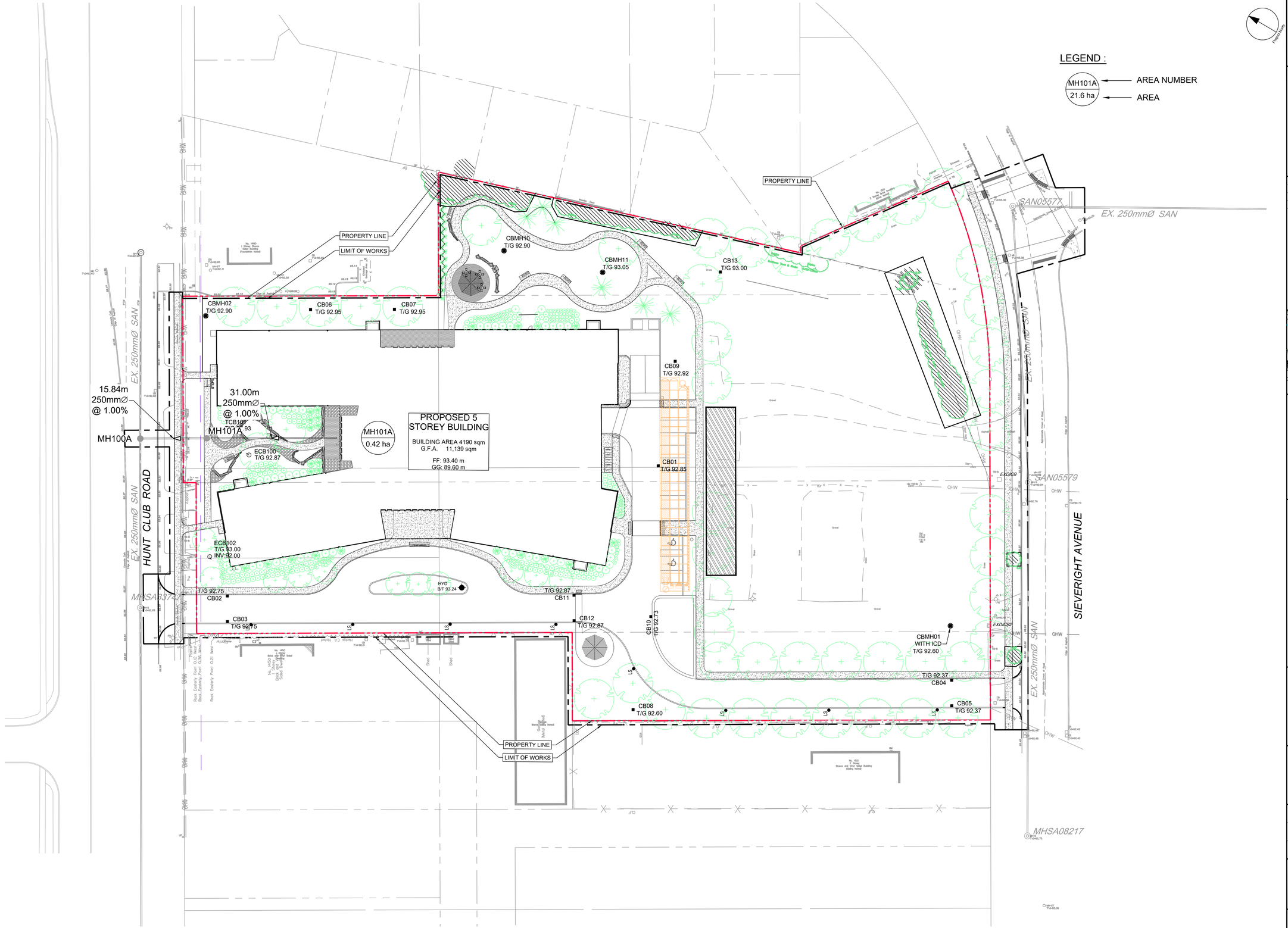
Designed: AB

Checked: DY

Dwg. Reference: 126884-400

No.	Revision	Date
1.	Servicing Brief - Submission No. 1	2024-04-17
2	Servicing Brief - Submission No. 2	2024-05-27

File Reference:		Date:	Sheet No:
126884-6.04.04		2024-04-17	1 of 1



CLIENT

PHOENIX HOMES

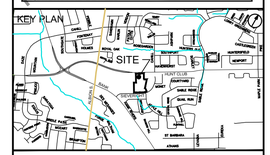
ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2024.04.18
2	REVISED PER CITY COMMENTS	2024.07.01

NOT FOR CONSTRUCTION

SEE C00 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

KEY PLAN



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SEAL

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2024/07/01
PROVINCE OF ONTARIO

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www.arcadis.com

PROJECT

LARGA BAFFIN

1452-1470 HUNT CLUB RD.
1525-1545 SEIVERIGHT AVE.

PROJECT NO: 126884	
DRAWN BY: **D.D.**	CHECKED BY: **A.B.**
PROJECT MGR: **D.G.Y.**	APPROVED BY: **D.G.Y.**

SHEET TITLE

SANITARY DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
C-400	2

SCALE CHECK 1 in

File Location: J:\126884_Phoenix_Hornet\7.0_Production\7.03_Design\04_Civil\Sheets\C-400 SANITARY DRAINAGE AREA PLAN.dwg Last Saved: July 3, 2024, by ddore Plotted: Tuesday, July 9, 2024 2:06:42 PM by Dentis Dore

D07-XX-XX-XXXX

Appendix D

- **Storm Design Sheet**
- **Storm Drainage Area Plan**
- **Ponding Plan**
- **Storm Water Management Sheet**
- **UGS Stormtech Detail Sheet**
- **Stormtech Info Sheet**
- **OGS Stormceptor Info Sheet**
- **Tempest ICD Info Sheet**

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STORM SEWER DESIGN SHEET

1470 Hunt Club Road
Larga Baffin
City of Ottawa

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW														SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.25	C= 0.40	C= 0.50	C= 0.57	C= 0.65	C= 0.69	C= 0.76	C= 0.80	C= 0.90	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW IND	FIXED FLOW CUM	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	PIPE SIZE (mm) W	PIPE SIZE (mm) H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
Interim	CBMH01	CBMH 01	EXDICB	0.66										0.37	0.37	10.00	0.10	10.10	76.81	104.19	122.14	178.56	28.18	38.23	44.82	65.52	0.00	0.00	38.23	48.39	9.29	200			2.00	1.492	10.15	20.99%
Ultimate	CBMH01	UGS 2	MH123									0.66		1.47	1.47	10.10	0.37	10.48	76.41	103.65	121.50	177.62	112.16	152.14	178.34	260.71	0.00	0.00	152.14	175.96	24.10	450			0.35	1.072	23.83	13.54%
Landscape Area	CB13	CB13	MH123	0.05										0.03	0.03	10.00	0.09	10.09	76.81	104.19	122.14	178.56	2.14	2.90	3.40	4.96	0.00	0.00	2.90	48.39	7.85	200			2.00	1.492	45.49	94.01%
East Courtyard	CB10	CBMH10	CBMH11		0.09									0.06	0.06	10.00	0.38	10.38	76.81	104.19	122.14	178.56	4.80	6.52	7.64	11.17	0.00	0.00	6.52	34.22	24.07	200			1.00	1.055	27.70	80.95%
East Courtyard	CB11	CBMH11	MH122		0.07									0.05	0.11	10.38	0.42	10.80	75.38	102.23	119.83	175.16	8.38	11.37	13.32	19.48	0.00	0.00	11.37	41.15	20.69	250			0.44	0.812	29.78	72.38%
South Driveway	MH100	MH100	MH101								0.16			0.34	0.34	10.00	1.46	11.46	76.81	104.19	122.14	178.56	25.96	35.22	41.29	60.36	0.00	0.00	35.22	41.15	71.26	250			0.44	0.812	5.93	14.41%
South Driveway		MH101	MH102											0.00	0.34	11.46	0.42	11.88	71.61	97.05	113.74	166.21	24.21	32.81	38.45	56.19	0.00	0.00	32.81	41.15	20.34	250			0.44	0.812	8.34	20.27%
Building	BLDG	ROOF	MH103										0.42	1.05	1.05	10.00	0.13	10.13	76.81	104.19	122.14	178.56	80.71	109.49	128.35	187.64	0.00	0.00	109.49	133.02	6.30	450			0.20	0.810	23.53	17.69%
Front Court Yard	ECB100	ECB100	CBMH02								0.07			0.15	0.15	10.00	0.78	10.78	76.81	104.19	122.14	178.56	11.36	15.41	18.06	26.41	0.00	0.00	15.41	41.15	37.80	250			0.44	0.812	25.74	62.55%
Landscape Area	CBMH02, MH103	CBMH02	MH103								0.06			0.13	0.27	10.78	1.04	11.81	73.95	100.27	117.52	171.77	20.31	27.54	32.28	47.18	0.00	0.00	27.54	41.15	50.44	250			0.44	0.812	13.61	33.08%
East Courtyard		MH103	MH113											0.00	1.33	11.81	1.01	12.82	70.49	95.51	111.92	163.54	93.43	126.60	148.35	216.78	0.00	0.00	126.60	200.65	54.40	525			0.20	0.898	74.05	36.90%
South Parking Lot	MH113	MH113	MH107								0.19			0.40	1.73	12.82	1.27	14.09	67.44	91.33	107.00	156.32	116.47	157.72	184.78	269.95	0.00	0.00	157.72	200.65	68.45	525			0.20	0.898	42.92	21.39%
North Driveway	MH105	MH105	MH107								0.19			0.40	0.40	10.00	2.10	12.10	76.81	104.19	122.14	178.56	30.83	41.83	49.03	71.68	0.00	0.00	41.83	59.68	102.88	300			0.35	0.818	17.86	29.92%
South Parking Lot		MH107	MH102											0.00	2.13	14.09	0.08	14.17	64.00	86.61	101.45	148.17	136.21	184.34	215.92	315.36	0.00	0.00	184.34	286.47	4.66	600			0.20	0.982	102.12	35.65%
South Parking Lot		MH102	UGS 1											0.00	2.47	14.17	0.05	14.22	63.80	86.34	101.12	147.69	157.35	212.94	249.41	364.27	0.00	0.00	212.94	286.47	2.89	600			0.20	0.982	73.52	25.67%
South Parking Lot		UGS 1	MH122											0.00	2.47	14.17	0.31	14.48	63.80	86.34	101.12	147.69	157.35	212.94	249.41	364.27	0.00	0.00	212.94	286.47	18.35	600			0.20	0.982	73.52	25.67%
Landscape Area		MH122	MH123											0.00	2.58	14.22	0.14	14.36	63.67	86.17	100.92	147.40	164.13	222.11	260.14	379.94	0.00	0.00	222.11	320.28	9.08	600			0.25	1.097	98.17	30.65%
Landscape Area		MH123	MH124											0.00	4.07	14.36	0.12	14.47	63.33	85.69	100.36	146.58	257.95	349.05	408.81	597.06	0.00	0.00	349.05	429.70	10.28	600			0.45	1.472	80.65	18.77%
Landscape Area		MH124	MH125											0.00	4.07	14.47	0.58	15.05	63.04	85.30	99.90	145.90	256.77	347.44	406.91	594.28	0.00	0.00	347.44	429.70	51.09	600			0.45	1.472	82.26	19.14%
Sieveright Ave		MH125	CNCT											0.00	4.07	15.05	0.17	15.23	61.65	83.39	97.65	142.60	251.10	339.67	397.77	580.87	0.00	0.00	339.67	429.70	15.34	600			0.45	1.472	90.03	20.95%
				0.05	0.16	0.00	0.00	0.00	0.00	0.00	0.67	0.66	0.42	1.96																		1050						
				0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.51	0.53	0.38	1.47																								
														0.75																								

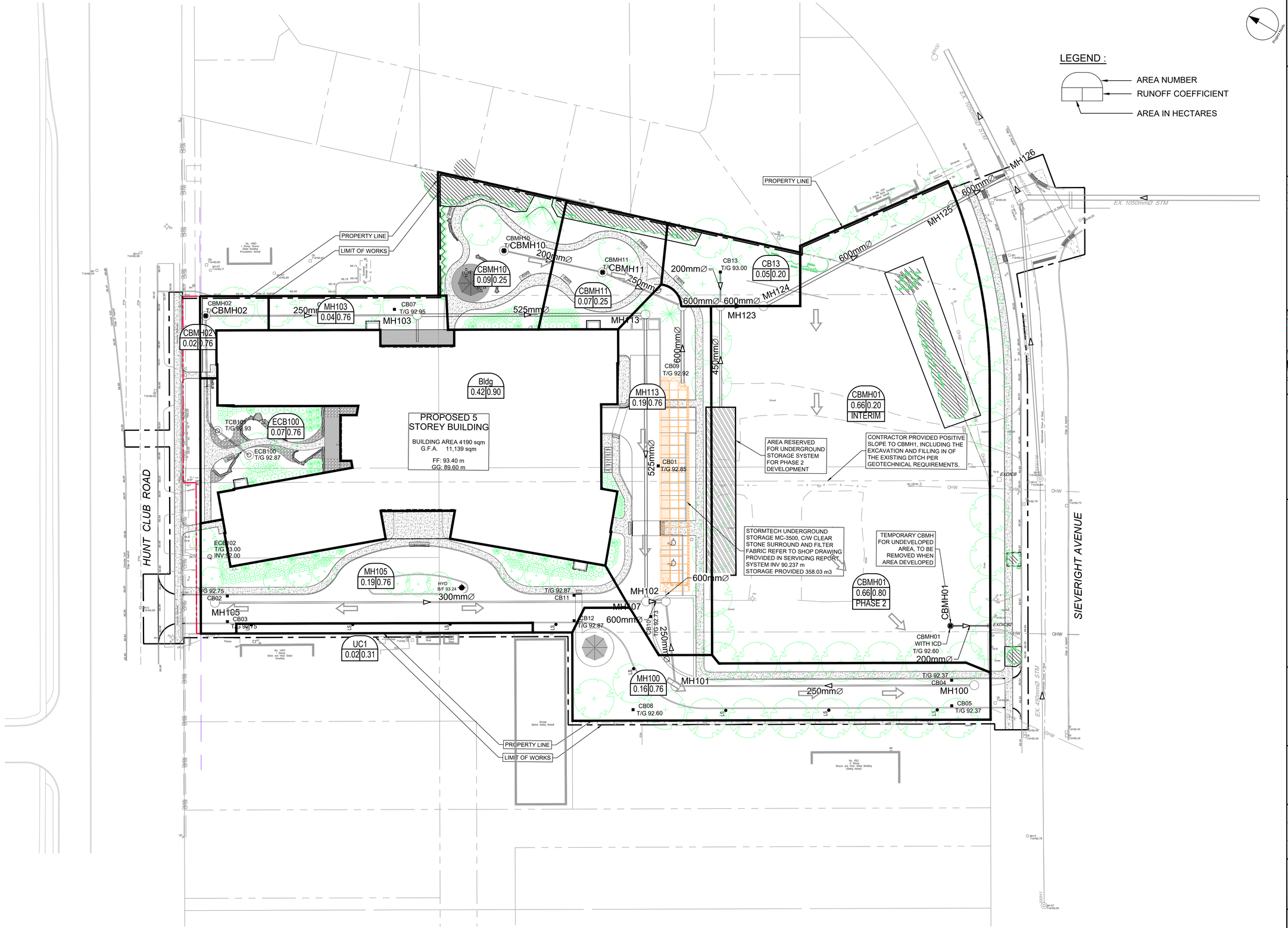
Definitions:
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 732.951 / (TC+6.199)^0.810] 2 YEAR
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.013

Designed: AB
Checked: DY
Dwg. Reference: 126884-500

No.	Revision	Date
1.	Servicing Brief	2024-04-16
2	revision 1	2024-05-28

File Reference:	Date:	Sheet No:
126884-6.04.04	2024-04-16	1 of 1



CLIENT

PHOENIX HOMES

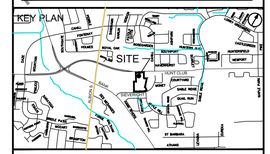
ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2024.04.18
2	REVISED PER CITY COMMENTS	2024.07.01

NOT FOR CONSTRUCTION

SEE G10 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

KEY PLAN



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SEAL

LICENSED PROFESSIONAL ENGINEER
D. G. Yannoulopoulos
2024/07/01
PROVINCE OF ONTARIO

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PROJECT

LARGA BAFFIN

1452-1470 HUNT CLUB RD.
1525-1545 SEIVERIGHT AVE.

PROJECT NO: 126884	
DRAWN BY: **D.D.**	CHECKED BY: **A.B.**
PROJECT MGR: **D.G.Y.**	APPROVED BY: **D.G.Y.**

SHEET TITLE

STORM DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
C-500	2

SCALE CHECK 1 cm XXXXX

D07-XX-XX-XXXX

File Location: J:\126884_Phoenix_Htomi\7.0_Production\7.03_Design\04_Civil\Sheets\C-500 STORM DRAINAGE AREA PLAN.dwg Last Saved: July 3, 2024, by ddore Plotted: Tuesday, July 9, 2024 2:07:27 PM by Denis Dore

PONDING LEGEND

0.5% / 1.3%	PROPOSED DITCH C/W FLOW DIRECTION AND SLOPE
	SLOPE C/W FLOW DIRECTION
	MAJOR OVERLAND FLOW ROUTE
104.62	PROPOSED SPOT GRADE
x104.40 (S)	PROPOSED SWALE GRADE
x104.50 (SWP)	PROPOSED SWALE HIGH POINT GRADE
104.60 / 103.58	LOT CORNER GRADE C/W EXISTING GRADE
96.79	FULL STATIC AND 100YR PONDING GRADE
96.79	PONDING GRADE (WHERE 100YR IS LESS THAN STATIC)
	TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE
PRV	PRESSURE REDUCING VALVE
FF :	FINISHED FLOOR ELEVATION

POND ID	CBMH11
TOP OF GRATE (m)	93.05
STATIC ELEV (m)	93.25
STATIC DEPTH (m)	0.20
STATIC VOLUME (m³)	42.1
100yr ELEV (m)	93.21
100yr VOLUME (m³)	21.17

POND ID	CB13
TOP OF GRATE (m)	93.00
STATIC ELEV (m)	93.15
STATIC DEPTH (m)	0.15
STATIC VOLUME (m³)	4.54
100yr ELEV (m)	93.13
100yr VOLUME (m³)	2.67

POND ID	CB01
TOP OF GRATE (m)	92.85
STATIC ELEV (m)	92.95
STATIC DEPTH (m)	0.10
STATIC VOLUME (m³)	5.58

POND ID	CB02
TOP OF GRATE (m)	92.75
STATIC ELEV (m)	92.90
STATIC DEPTH (m)	0.15
STATIC VOLUME (m³)	7.07

POND ID	CBMH01
TOP OF GRATE (m)	92.60
STATIC ELEV (m)	93.00
STATIC DEPTH (m)	0.40
STATIC VOLUME (m³)	52.9
100yr ELEV (m)	92.99
100yr VOLUME (m³)	51.21

POND ID	CB04
TOP OF GRATE (m)	92.35
STATIC ELEV (m)	92.55
STATIC DEPTH (m)	0.21
STATIC VOLUME (m³)	20.7

PROPOSED 5 STOREY BUILDING

BUILDING AREA 4190 sqm
G.F.A. 11,139 sqm

FF: 93.40 m
GG: 89.60 m

AREA RESERVED FOR UNDERGROUND STORAGE SYSTEM FOR PHASE 2 DEVELOPMENT

CONTRACTOR PROVIDED POSITIVE SLOPE TO CBMH1, INCLUDING THE EXCAVATION AND FILLING IN OF THE EXISTING DITCH PER GEOTECHNICAL REQUIREMENTS.

STORMTECH UNDERGROUND STORAGE MC-3500, C/W CLEAR STONE SURROUND AND FILTER FABRIC REFER TO SHOP DRAWING PROVIDED IN SERVICING REPORT. SYSTEM INV 90.237 m STORAGE PROVIDED 358.03 m3

TEMPORARY CBMH FOR UNDEVELOPED AREA, TO BE REMOVED WHEN AREA DEVELOPED

PROPERTY LINE

LIMIT OF WORKS

HUNT CLUB ROAD

SIEVERIGHT AVENUE

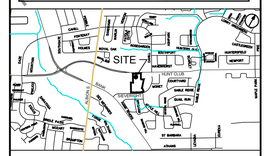
CLIENT
PHOENIX HOMES

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2024.04.18
2	REVISED PER CITY COMMENTS	2024.07.05

NOT FOR CONSTRUCTION

SEE D0 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



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SEAL

LICENSED PROFESSIONAL ENGINEER
I.D. #: Tannoulopoulos
2024/07/01
PROVINCE OF ONTARIO

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PROJECT
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PROJECT NO: 126884	
DRAWN BY: **D.D.**	CHECKED BY: **A.B.**
PROJECT MGR: **D.G.Y.**	APPROVED BY: **D.G.Y.**

SHEET TITLE
PONDING PLAN

SHEET NUMBER	ISSUE
C-600	2

SCALE CHECK: 1 cm

File Location: J:\126884_Phoenix_Home?\0_Production\7.03_Design\04_Civil\Sheets\C-600 PONDING PLAN.dwg Last Saved: July 3, 2024, by ddore Plotted: Tuesday, July 9, 2024 2:08:11 PM by Denis Done

D07-XX-XX-XXXX

XXXXX 10mm

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Ottawa, Ontario K1S 5N4 Canada
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Formulas and Descriptions

i_{2yr} = 1:2 year Intensity = 732.951 / $(T_c+6.199)^{0.810}$
i_{5yr} = 1:5 year Intensity = 998.071 / $(T_c+6.053)^{0.814}$
i_{100yr} = 1:100 year Intensity = 1735.688 / $(T_c+6.014)^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

Maximum Allowable Release Rate

Restricted Flowrate ($Q_{restricted} = 2.78*C*i_{5yr}*A_{site}$ based on C=0.50, Tc=10min)

C =	0.5	
T_c =	10	min
i_{5yr} =	104.19	mm/hr
A_{site} =	1.980	Ha
$Q_{restricted}$ =	286.76	L/s

Uncontrolled Release ($Q_{uncontrolled} = 2.78*C*i_{100yr}*A_{uncontrolled}$)

C =	0.39	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.02	Ha
$Q_{uncontrolled}$ =	3.87	L/s

Maximum Allowable Release Rate ($Q_{max\ allowable} = Q_{restricted} - Q_{uncontrolled}$)

$Q_{max\ allowable}$ =	282.89	L/s

SWM Statistics of Modified Site Areas

Controlled		Area	Flow
	0	1.090	213.000
CBMH11		0.160	6.000
CB13		0.050	3.000
	0.000	0.660	57.000
Sum		1.96	279.00
Uncontrolled		**Area**	**Flow**
XZ		0.020	0.00
YY		0.000	0.00
Sum		**0.02**	**3.87**
Total Sum		**1.980**	**282.872**
Allowable			**282.89**
			TRUE

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Ottawa, Ontario K1S 5N4 Canada
ibigroup.com

MODIFIED RATIONAL METHOD (100, 100+20%, & 2-Year Ponding)

Drainage Area BLDG, MH100, MH105, MH113, CBMH02, 03, & 12

Area (Ha)	1.090	Restricted Flow ICD $_{Actual}$ (L/s)=	213.00	
C =	1.00	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	106.50	50% reduction for sub-surface storage

100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	$100YRQ_p$ 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
15	142.89	433.00	106.50	326.50	293.85			
20	119.95	363.47	106.50	256.97	308.37			
25	103.85	314.68	106.50	208.18	**312.27**	377.61	271.11	**406.67**
30	91.87	278.38	106.50	171.88	309.38			
35	82.58	250.23	106.50	143.73	301.83			

Storage (m^3)					100+20		
Overflow	Required	Inline	Sub-surface	Balance	Overflow	Required	Balance
0.00	312.27	50.99	358.03	0.00	0.00	406.67	0.00
			409.02		convert to flow with peak Tc (L/s)		0.00

overflows to: Offsite

Drainage Area BLDG, MH100, MH105, MH113, CBMH02, 03, & 12

Area (Ha)	1.090		
C =	0.81	Restricted Flow Q_r (L/s)=	106.50

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
6	96.64	237.20	106.50	130.70	47.05
7	90.66	222.53	106.50	116.03	48.73
8	85.46	209.75	106.50	103.25	**49.56**
9	80.87	198.50	106.50	92.00	49.68
10	76.81	188.51	106.50	82.01	49.21

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	49.56	50.99	358.03	0.00

overflows to: Offsite

Drainage Area CBMH11

Area (Ha)	0.160	Restricted Flow ICD $_{Actual}$ (L/s)=	6.00	
C =	0.31	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	6.00	50% reduction for sub-surface storage

100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	$100YRQ_p$ 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
13	155.11	21.56	6.00	15.56	12.14			
18	128.08	17.80	6.00	11.80	12.75			
23	109.68	15.25	6.00	9.25	**12.76**	18.29	12.29	**16.97**
28	96.27	13.38	6.00	7.38	12.40			
33	86.03	11.96	6.00	5.96	11.80			

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	12.76	42.10	0	0.00	0.00	16.97	0.00
					convert to flow with peak Tc (L/s)		0.00

overflows to: Offsite

Drainage Area CBMH11

Area (Ha)	0.160		
C =	0.25	Restricted Flow Q_r (L/s)=	6.00

0.25					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
5	103.57	11.52	6.00	5.52	1.66
6	96.64	10.75	6.00	4.75	1.71
7	90.66	10.08	6.00	4.08	**1.71**
8	85.46	9.50	6.00	3.50	1.68
9	80.87	8.99	6.00	2.99	1.62

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	1.71	42.10	0	0.00

overflows to: Offsite

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Drainage Area	*CB13*		
Area (Ha)	0.050	Restricted Flow ICD $_{Actual}$ (L/s)=	3.00
C =	0.25	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	3.00

50% reduction for sub-surface storage

100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	$100YRQ_p$ 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
0	398.62	13.85	3.00	10.85	0.00			
5	242.70	8.43	3.00	5.43	1.63			
10	178.56	6.20	3.00	3.20	**1.92**	7.45	4.45	**2.67**
15	142.89	4.97	3.00	1.97	1.77			
20	119.95	4.17	3.00	1.17	1.40			

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	1.92	4.54	0	Balance	0.00	2.67	0.00
					convert to flow with peak Tc (L/s)		0.00

overflows to: Offsite

Drainage Area	*CB13*		
Area (Ha)	0.050		
C =	0.20	Restricted Flow Q_r (L/s)=	3.00

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
0	167.22	4.65	3.00	1.65	0.00
1	148.14	4.12	3.00	1.12	0.07
2	133.33	3.71	3.00	0.71	**0.08**
3	121.46	3.38	3.00	0.38	0.07
4	111.72	3.11	3.00	0.11	0.03

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	0.08	4.54	0	0.00

overflows to: Offsite

Drainage Area	*CBMH01 (INTERIM)*		
Area (Ha)	0.660	Restricted Flow ICD $_{Actual}$ (L/s)=	57.00
C =	0.25	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	57.00

50% reduction for sub-surface storage

100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	$100YRQ_p$ 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
0	398.62	182.85	57.00	125.85	0.00			
3	286.05	131.21	57.00	74.21	13.36			
6	226.01	103.67	57.00	46.67	**16.80**	124.40	67.40	**24.27**
9	188.25	86.35	57.00	29.35	15.85			
12	162.13	74.37	57.00	17.37	12.51			

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	16.80	50.20	0		0.00	24.27	0.00
					convert to flow with peak Tc (L/s)		0.00

overflows to: Offsite

Drainage Area	*CBMH01 (INTERIM)*		
Area (Ha)	0.660		
C =	0.20	Restricted Flow Q_r (L/s)=	57.00

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
0	167.22	61.36	57.00	4.36	0.00
1	148.14	54.36	57.00	-2.64	-0.16
2	133.33	48.93	57.00	-8.07	**-0.97**
3	121.46	44.57	57.00	-12.43	-2.24
4	111.72	41.00	57.00	-16.00	-3.84

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	-0.97	50.20	0	0.00

overflows to: Offsite

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Drainage Area CBMH01 (PHASE 2)

Area (Ha)	0.660	Restricted Flow ICD $_{Actual}$ (L/s)=	57.00	
C =	1.00	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	28.50	50% reduction for sub-surface storage

100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p =2.78xCi_{100yr} A (L/s)	Q_r (L/s)	Q_p -Q_r (L/s)	Volume 100yr (m^3)	100YRQ_p 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m^3)
45	69.05	126.69	28.50	98.19	265.12			
50	63.95	117.34	28.50	88.84	266.53			
55	59.62	109.40	28.50	80.90	**266.96**	131.28	102.78	**339.16**
60	55.89	102.56	28.50	74.06	266.60			
65	52.65	96.60	28.50	74.06	265.57			

Storage (m^3)					100+20		
Overflow	Required	ROOF	Sub-surface	Balance	Overflow	Required	Balance
0.00	266.96	150.00	250		0.00	339.16	0.00
					convert to flow with peak Tc (L/s)		0.00

overflows to: Offsite

Drainage Area CBMH01 (PHASE 2)

Area (Ha)	0.660		
C =	0.80	Restricted Flow Q_r (L/s)=	28.50

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p =2.78xCi_{2yr} A (L/s)	Q_r (L/s)	Q_p -Q_r (L/s)	Volume 2yr (m^3)
20	52.03	76.37	28.50	47.87	57.45
21	50.48	74.09	28.50	45.59	57.44
22	49.02	71.96	28.50	43.46	**57.36**
23	47.66	69.95	28.50	41.45	57.20
24	46.37	68.07	28.50	39.57	56.98

Storage (m^3)				
Overflow	Required	ROOF	Sub-surface	Balance
0.00	57.36	150.00	250	0.00

overflows to: Offsite

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

Advanced Drainage Systems, Inc.

SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

LARGA BAFFIN

OTTAWA, ON, CANADA

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 75 mm (3").
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 150 mm (6") SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 300 mm (12") INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE WELL GRADED BETWEEN ¾" AND 2" (20-50 mm)..
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

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

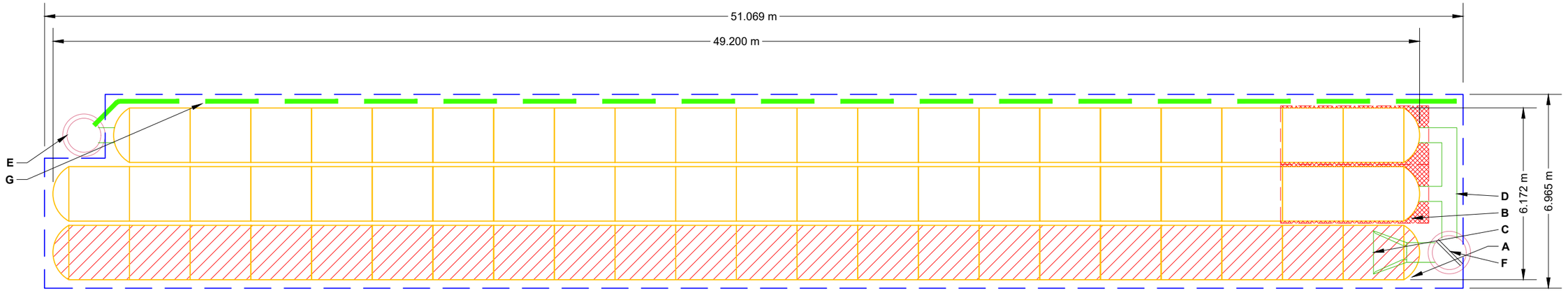
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT		CONCEPTUAL ELEVATIONS:	
65	STORMTECH MC-3500 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	3.810
6	STORMTECH MC-3500 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	1.981
305	STONE ABOVE (mm)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	1.829
229	STONE BELOW (mm)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	1.829
40	STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	1.829
358.1	INSTALLED SYSTEM VOLUME (m^3) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)	TOP OF STONE:	1.676
		TOP OF MC-3500 CHAMBER:	1.372
		600 mm ISOLATOR ROW PLUS INVERT:	0.281
		450 mm x 450 mm BOTTOM MANIFOLD INVERT:	0.274
350.7	SYSTEM AREA (m^2)	450 mm BOTTOM CONNECTION INVERT:	0.274
116.1	SYSTEM PERIMETER (m)	BOTTOM OF MC-3500 CHAMBER:	0.229
		UNDERDRAIN INVERT:	0.000
		BOTTOM OF STONE:	0.000

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	600 mm BOTTOM CORED END CAP, PART#: MC3500IEPP24BC / TYP OF ALL 600 mm BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	52 mm	
PREFABRICATED END CAP	B	450 mm BOTTOM CORED END CAP, PART#: MC3500IEPP18BC / TYP OF ALL 450 mm BOTTOM CONNECTIONS	45 mm	
FLAMP	C	INSTALL FLAMP ON 600 mm ACCESS PIPE / PART#: MCFLAMP		
MANIFOLD	D	450 mm x 450 mm BOTTOM MANIFOLD, ADS N-12	45 mm	
CONCRETE STRUCTURE	E	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		113 L/s OUT
CONCRETE STRUCTURE W/WEIR	F	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		311 L/s IN
UNDERDRAIN	G	150 mm ADS N-12 DUAL WALL PERFORATED HDPE UNDERDRAIN		



ISOLATOR ROW PLUS
(SEE DETAIL)

PLACE MINIMUM 5.334 m OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

LARGA BAFFIN
OTTAWA, ON, CANADA
DRAWN: AB
CHECKED: N/A
DATE:
PROJECT #:

DATE	DRW	CHK	DESCRIPTION

StormTech®
Chamber System
888-892-2694 | WWW.STORMTECH.COM

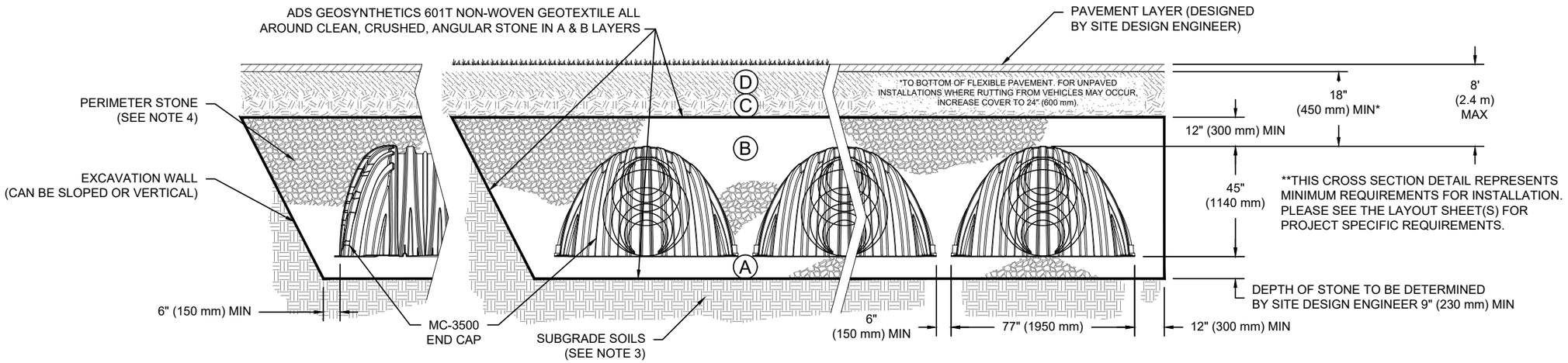
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SCALE = 1 : 150

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

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

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



NOTES:

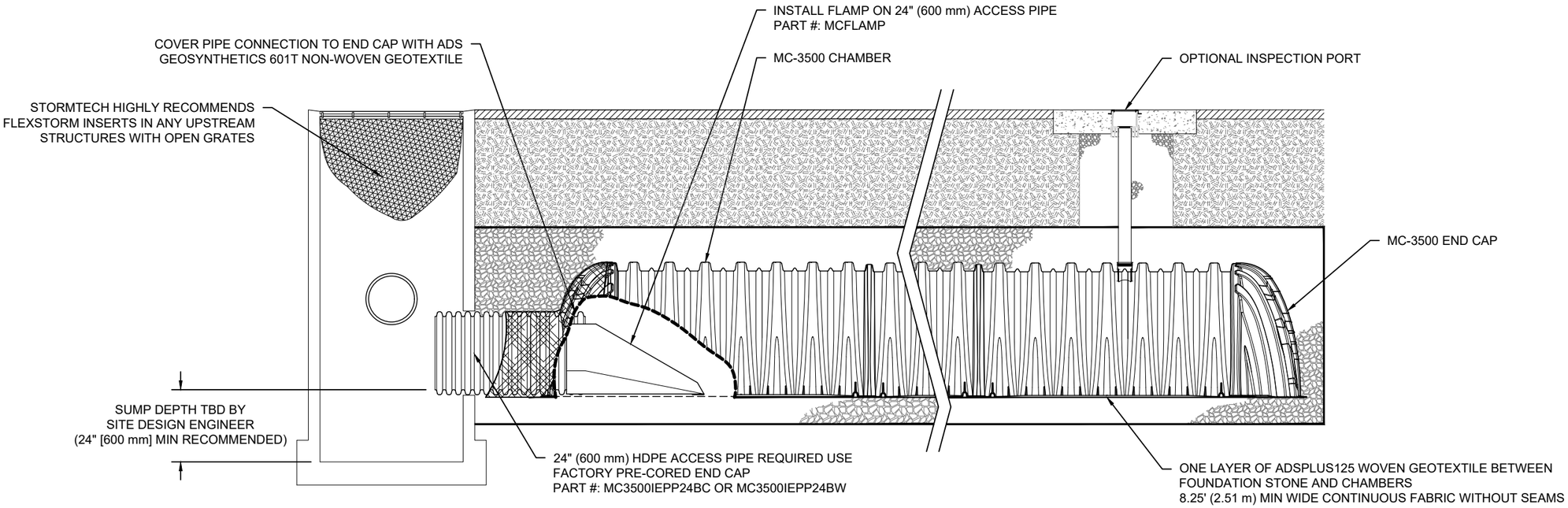
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

LARGA BAFFIN
OTTAWA, ON, CANADA
DRAWN: AB
CHECKED: N/A
DATE:
PROJECT #:

DATE	DRW	CHK	DESCRIPTION

StormTech®
Chamber System
888-892-2694 | WWW.STORMTECH.COM

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



MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

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

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

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

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

NOTES

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

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

LARGA BAFFIN
OTTAWA, ON, CANADA
DATE:
DRAWN: AB
PROJECT #:
CHECKED: N/A

DATE	DRW	CHK	DESCRIPTION

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HILLIARD, OH 43026
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Chamber System

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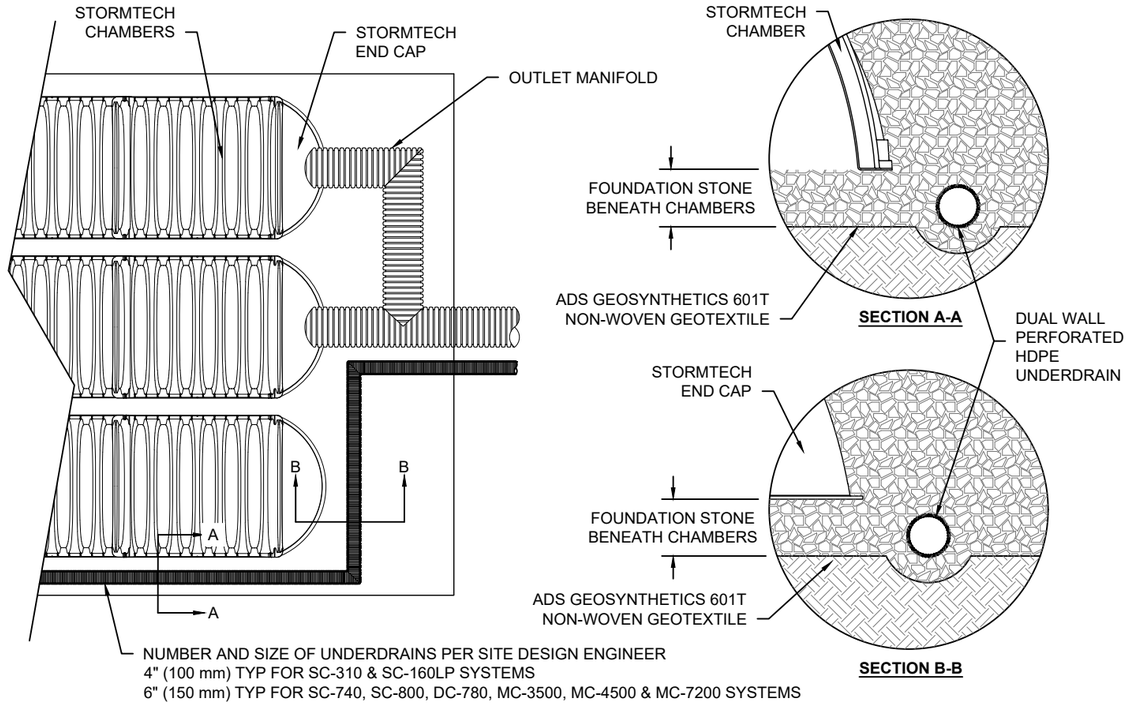
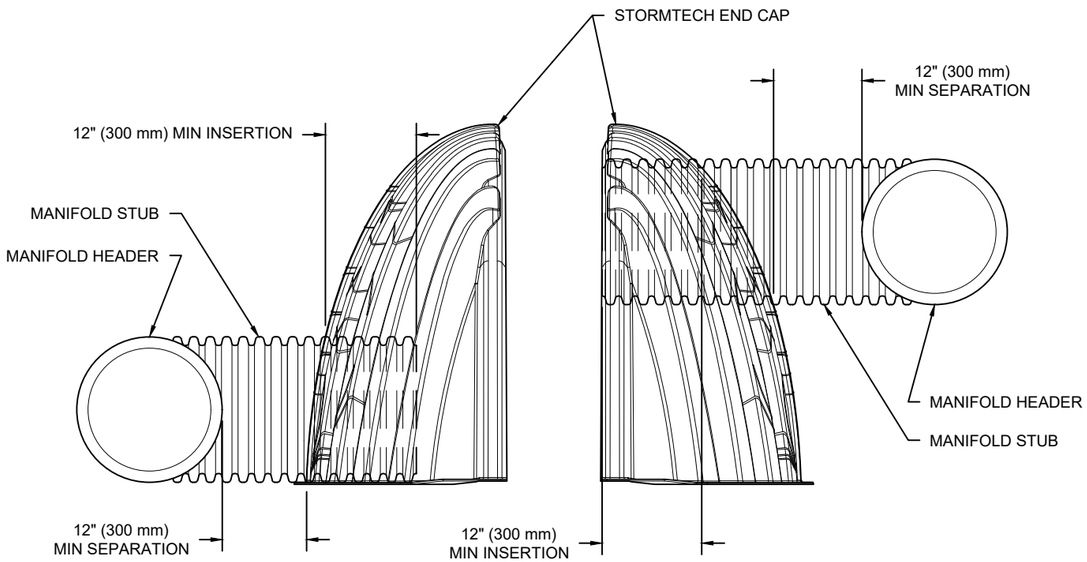
UNDERDRAIN DETAIL

NTS



MC-SERIES END CAP INSERTION DETAIL

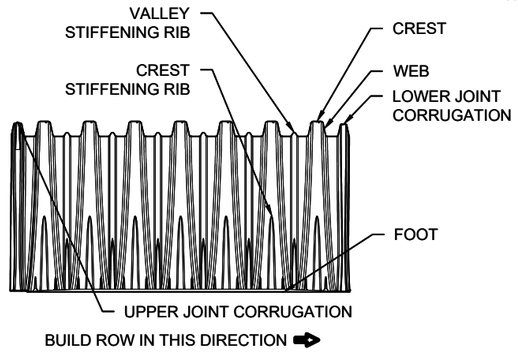
NTS

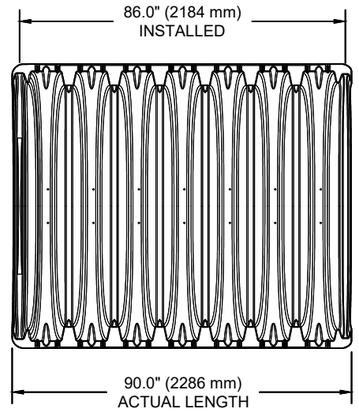


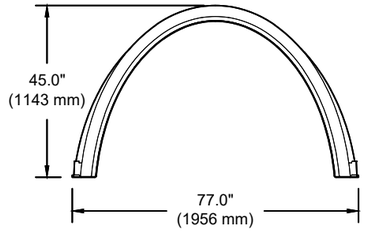
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

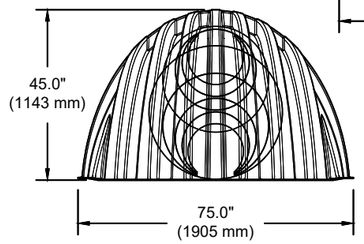
MC-3500 TECHNICAL SPECIFICATION

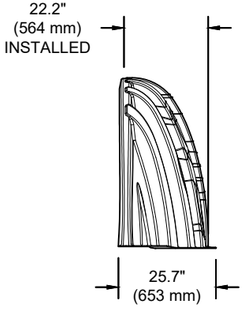
NTS











NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

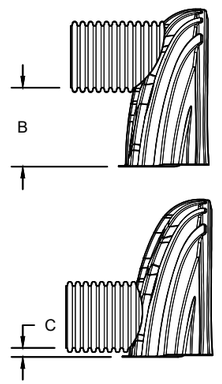
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

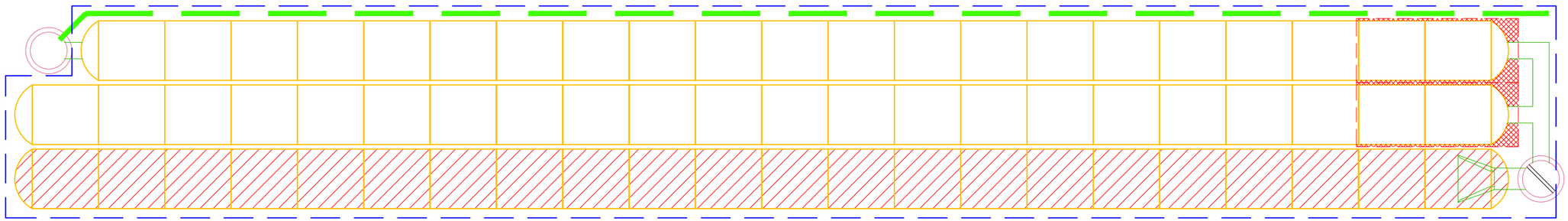


CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

LARGA BAFFIN
OTTAWA, ON, CANADA
DATE: | DRAWN: AB | PROJECT #: | CHECKED: N/A

DATE	DRW	CHK	DESCRIPTION

StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473



User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	Yes
Project Name:	
Engineer:	N/A
Project Location:	
Measurement Type:	Metric
Required Storage Volume:	350.00 cubic meters.
Stone Porosity:	40%
Stone Foundation Depth:	229 mm.
Stone Above Chambers:	305 mm.
Average Cover Over Chambers:	458 mm.
Design Constraint Dimensions:	(9.01 m. x 50.00 m.)

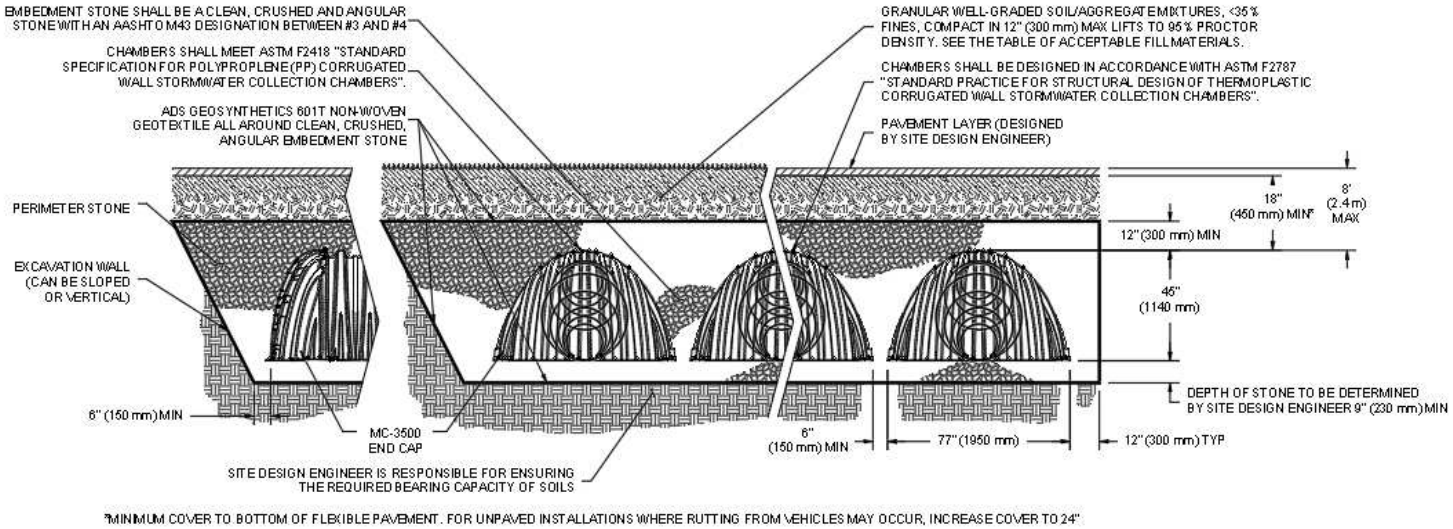
Results

System Volume and Bed Size

Installed Storage Volume:	358.04 cubic meters.
Storage Volume Per Chamber:	3.12 cubic meters.
Number Of Chambers Required:	65
Number Of End Caps Required:	6
Chamber Rows:	3
Maximum Length:	51.07 m.
Maximum Width:	6.97 m.
Approx. Bed Size Required:	350.68 square meters.

System Components

Amount Of Stone Required:	384 cubic meters
Volume Of Excavation (Not Including Fill):	588 cubic meters
Total Non-woven Geotextile Required:	1076 square meters
Woven Geotextile Required (excluding Isolator Row):	1 square meters
Woven Geotextile Required (Isolator Row):	158 square meters
Total Woven Geotextile Required:	158 square meters
Impervious Liner Required:	0 square meters



Stormceptor®

Rinker MATERIALS® A QUIKRETE® COMPANY

Stormceptor® EF Sizing Report

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

06/12/2024

Province:	Ontario
City:	Ottawa
Nearest Rainfall Station:	OTTAWA CDA RCS
Climate Station Id:	6105978
Years of Rainfall Data:	20

Site Name:	1470 Hunt Club Rd.

Drainage Area (ha):	2
Runoff Coefficient 'c':	0.75

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0
Required Water Quality Runoff Volume Capture (%):	90.0

Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	

Project Name:	1470 Hunt Club Rd.
Project Number:	-
Designer Name:	Brandon O'Leary
Designer Company:	Rinker Pipe
Designer Email:	brandon.oleary@RinkerPipe.com
Designer Phone:	905-630-0359
EOR Name:	Demetrius Yannoulopoulos
EOR Company:	ARCADIS Canada Inc.
EOR Email:	demetrius.yannoulopoulos@arcadis.com
EOR Phone:	613-447-0504

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	64
EFO6	78
EFO8	86
EFO10	91
EFO12	94

Recommended Stormceptor EFO Model: EFO8

Estimated Net Annual Sediment (TSS) Load Reduction (%): 86

Water Quality Runoff Volume Capture (%): > 90

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THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

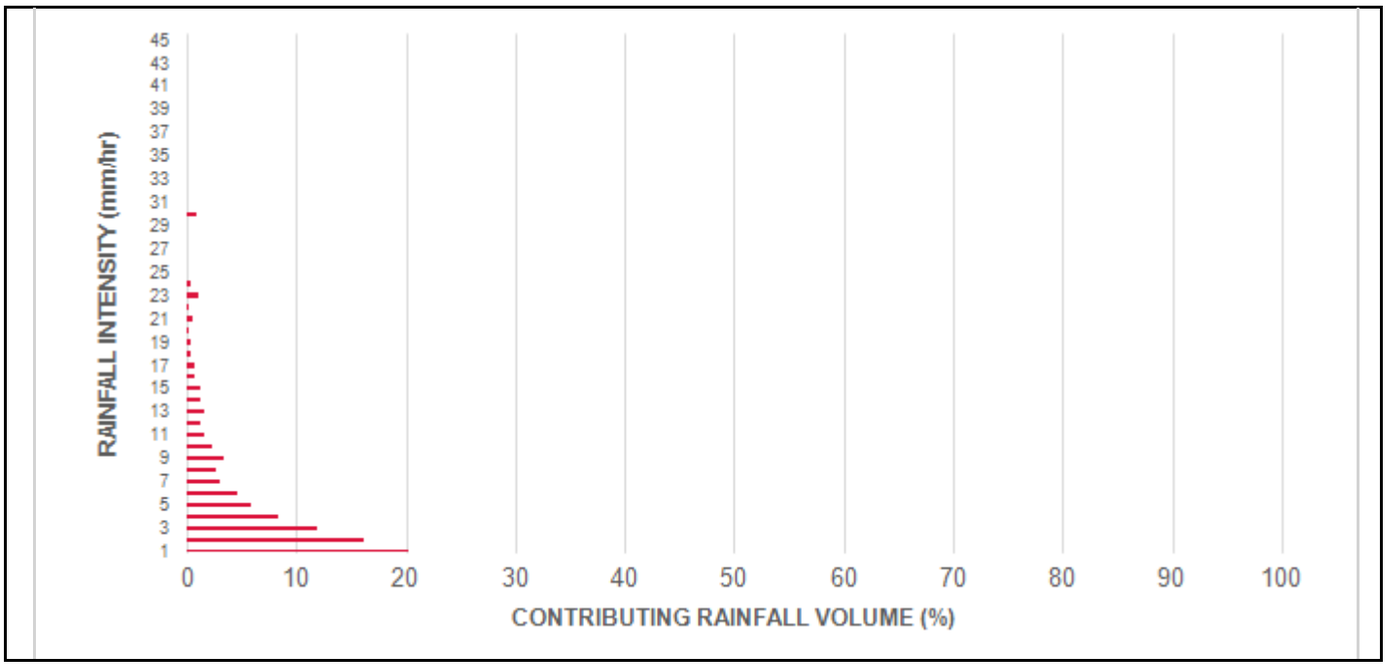
Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Stormceptor® EF Sizing Report

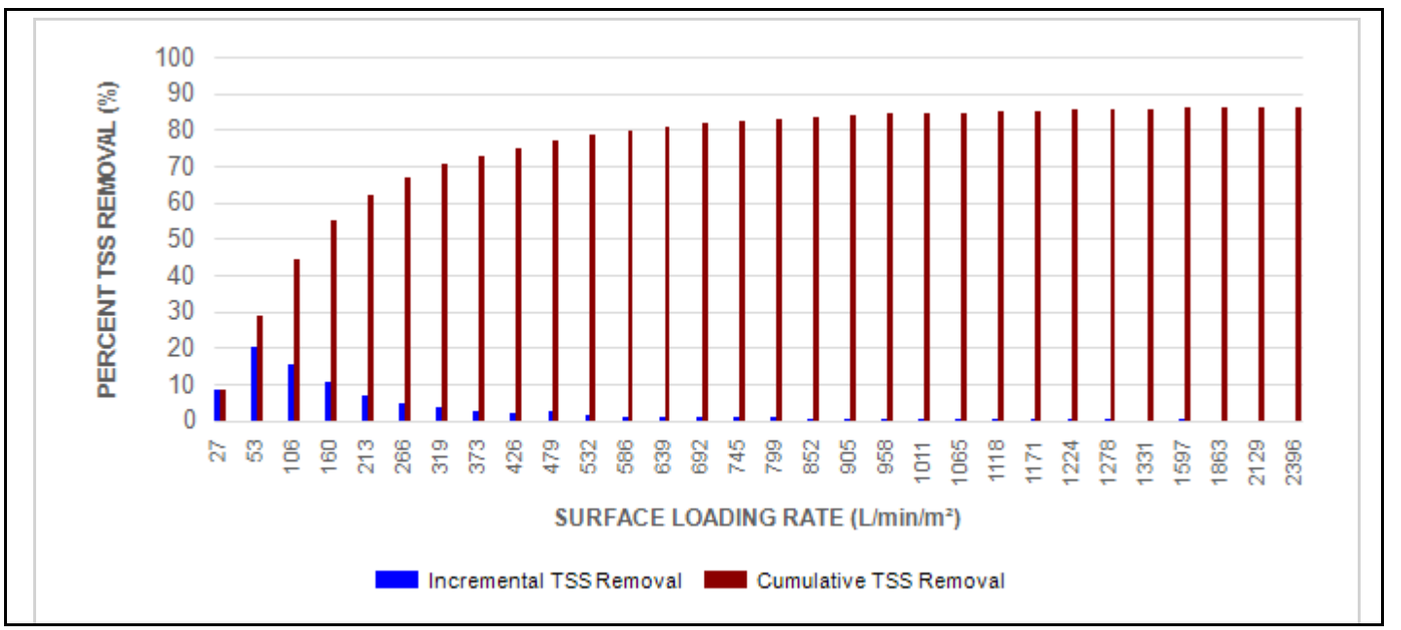
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	2.09	125.0	27.0	100	8.6	8.6
1.00	20.3	29.0	4.17	250.0	53.0	100	20.3	29.0
2.00	16.2	45.2	8.34	500.0	106.0	96	15.6	44.5
3.00	12.0	57.2	12.51	751.0	160.0	88	10.6	55.1
4.00	8.4	65.6	16.68	1001.0	213.0	83	7.0	62.1
5.00	5.9	71.6	20.85	1251.0	266.0	80	4.8	66.8
6.00	4.6	76.2	25.02	1501.0	319.0	78	3.6	70.4
7.00	3.1	79.3	29.19	1751.0	373.0	75	2.3	72.7
8.00	2.7	82.0	33.36	2002.0	426.0	73	2.0	74.7
9.00	3.3	85.3	37.53	2252.0	479.0	70	2.3	77.1
10.00	2.3	87.6	41.70	2502.0	532.0	68	1.6	78.6
11.00	1.6	89.2	45.87	2752.0	586.0	66	1.0	79.7
12.00	1.3	90.5	50.04	3002.0	639.0	64	0.8	80.5
13.00	1.7	92.2	54.21	3253.0	692.0	64	1.1	81.6
14.00	1.2	93.5	58.38	3503.0	745.0	64	0.8	82.4
15.00	1.2	94.6	62.55	3753.0	799.0	63	0.7	83.1
16.00	0.7	95.3	66.72	4003.0	852.0	63	0.4	83.6
17.00	0.7	96.1	70.89	4253.0	905.0	62	0.5	84.0
18.00	0.4	96.5	75.06	4504.0	958.0	62	0.2	84.3
19.00	0.4	96.9	79.23	4754.0	1011.0	61	0.3	84.5
20.00	0.2	97.1	83.40	5004.0	1065.0	60	0.1	84.7
21.00	0.5	97.5	87.57	5254.0	1118.0	59	0.3	84.9
22.00	0.2	97.8	91.74	5504.0	1171.0	58	0.1	85.1
23.00	1.0	98.8	95.91	5755.0	1224.0	56	0.6	85.6
24.00	0.3	99.1	100.08	6005.0	1278.0	55	0.1	85.8
25.00	0.0	99.1	104.25	6255.0	1331.0	54	0.0	85.8
30.00	0.9	100.0	125.10	7506.0	1597.0	46	0.4	86.2
35.00	0.0	100.0	145.95	8757.0	1863.0	39	0.0	86.2
40.00	0.0	100.0	166.80	10008.0	2129.0	34	0.0	86.2
45.00	0.0	100.0	187.65	11259.0	2396.0	31	0.0	86.2
Estimated Net Annual Sediment (TSS) Load Reduction =								**86 %**

Climate Station ID: 6105978 *Years of Rainfall Data*: 20

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL
FOR THE RECOMMENDED STORMCEPTOR® MODEL



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Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

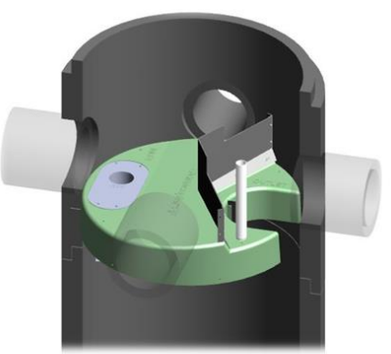
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

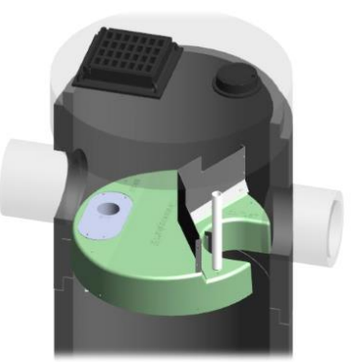
DESIGN FLEXIBILITY

►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

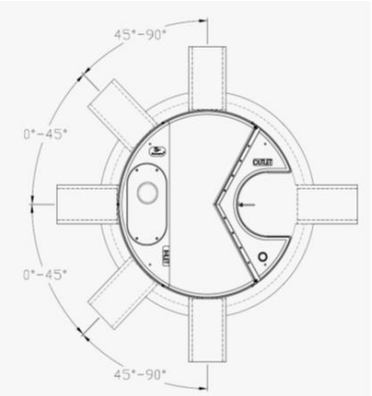
OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.





imbrium



INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

imbrium®

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in

accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

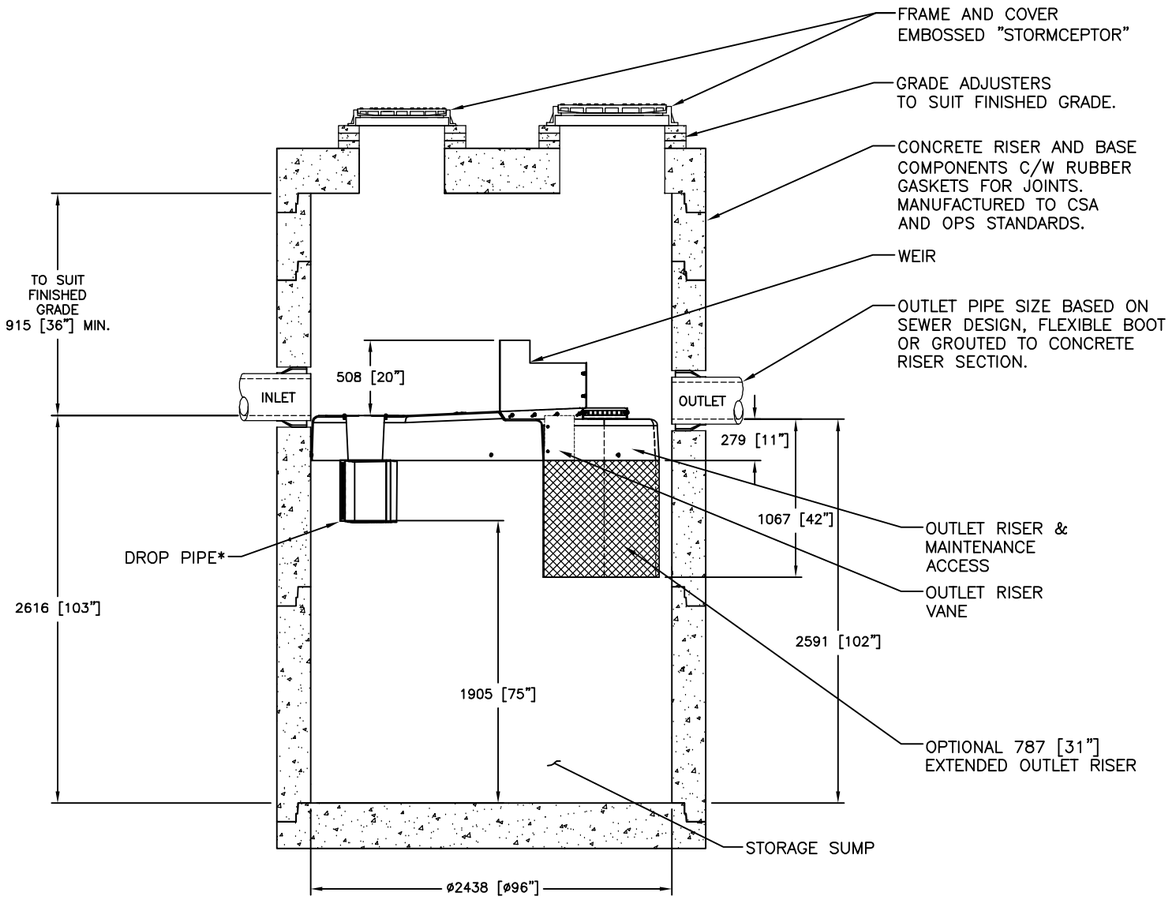
3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

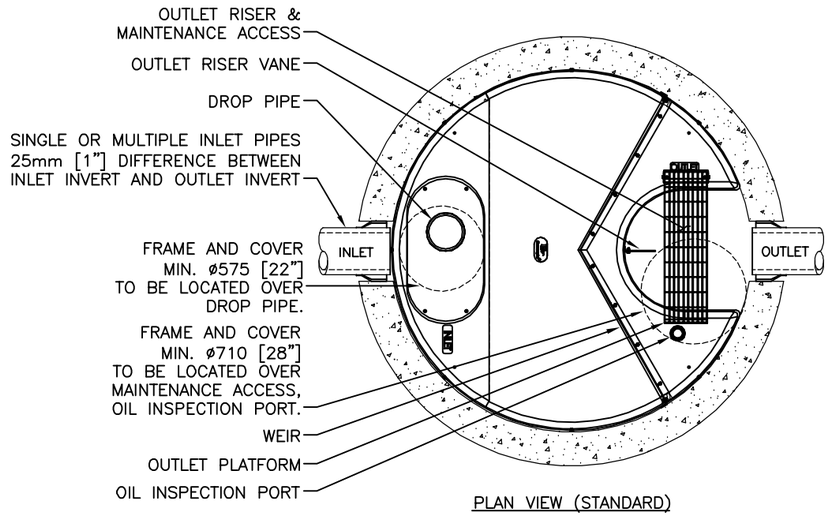
The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

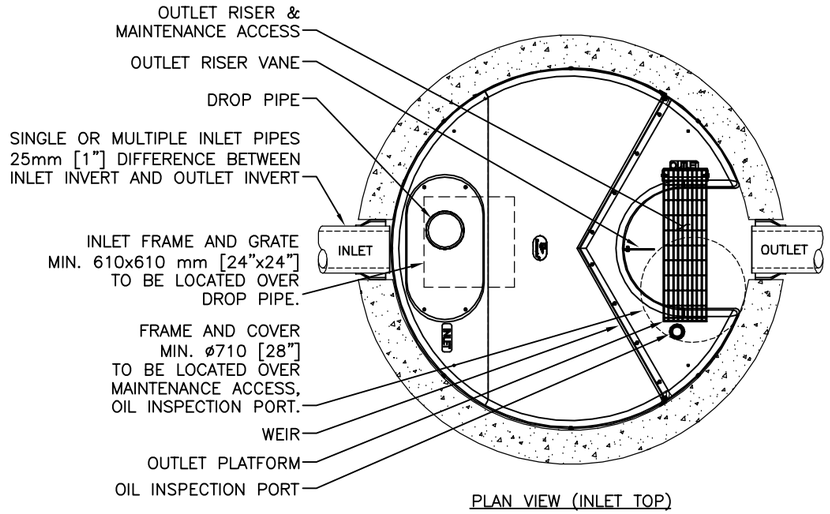
DRAWING NOT TO BE USED FOR CONSTRUCTION



SECTION VIEW



PLAN VIEW (STANDARD)



PLAN VIEW (INLET TOP)

GENERAL NOTES:

* MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m^2 (27.9 gpm/ft^2) FOR STORMCEPTOR EF8 AND 535 L/min/m^2 (13.1 gpm/ft^2) FOR STORMCEPTOR EFO8 (OIL CAPTURE CONFIGURATION).

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS.

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL STORMCEPTOR REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE (IF REQUIRED).

STANDARD DETAIL
NOT FOR CONSTRUCTION

SITE SPECIFIC DATA REQUIREMENTS

STORMCEPTOR MODEL	EFO8				
STRUCTURE ID					*
HYDROCARBON STORAGE REQ'D (L)					*
WATER QUALITY FLOW RATE (L/s)					*
PEAK FLOW RATE (L/s)					*
RETURN PERIOD OF PEAK FLOW (yrs)					*
DRAINAGE AREA (HA)					*
DRAINAGE AREA IMPERVIOUSNESS (%)					*
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

* PER ENGINEER OF RECORD

If discrepancies between the supplied information upon which this drawing is based and actual conditions are encountered, please notify Imbrium immediately. discrepancies must be reported to Imbrium immediately for re-evaluation of the design. Imbrium accepts no responsibility for any deviations from this drawing or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY
1	6/8/18	OUTLET PLATFORM	JSK
0	5/26/17	INITIAL RELEASE	JSK

Stormceptor® EF

SCALE = NTS

imbrium®
7601 RIDGE ROAD, SUITE 350, HANOVER, MD 21076
USA 888-279-8528 CA 800-388-4601 INTL +1-410-880-8800

DATE: 10/13/2017

DESIGNED:	DRAWN:
JSK	JSK
CHECKED:	APPROVED:
BSF	*
PROJECT No.:	SEQUENCE No.:
EFO8	*

SHEET: 1 OF 1

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Chart 1: LMF 14 Preset Flow Curves

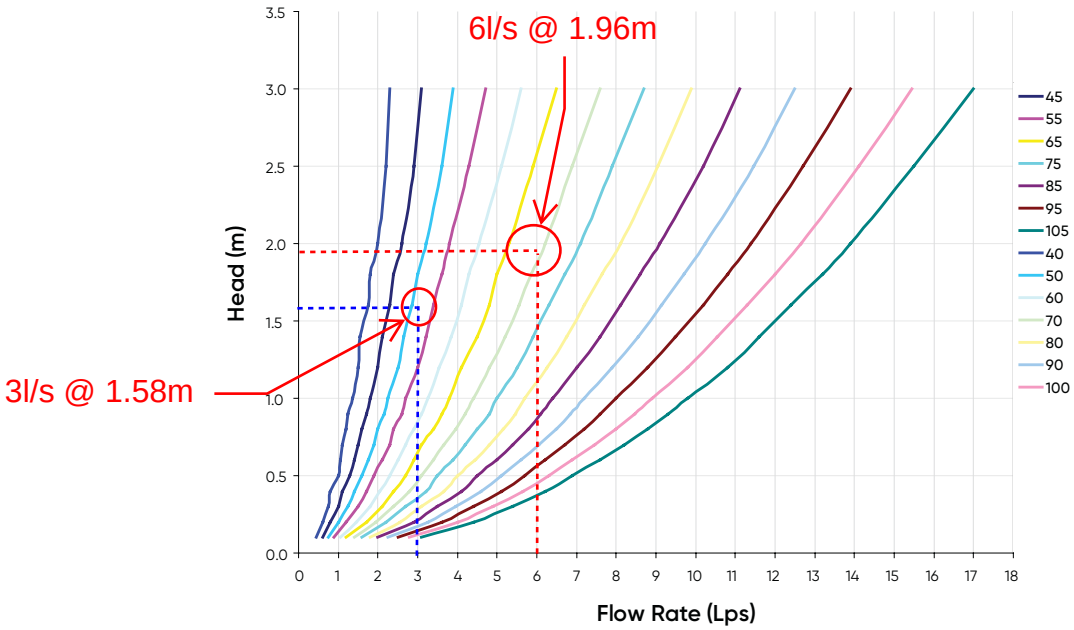


Chart 2: LMF Flow vs. ICD Alternatives

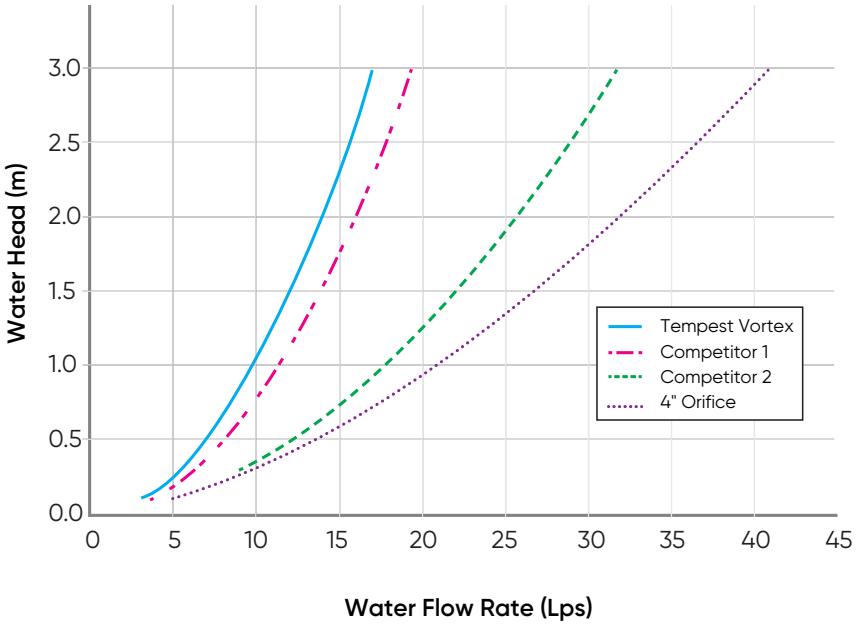
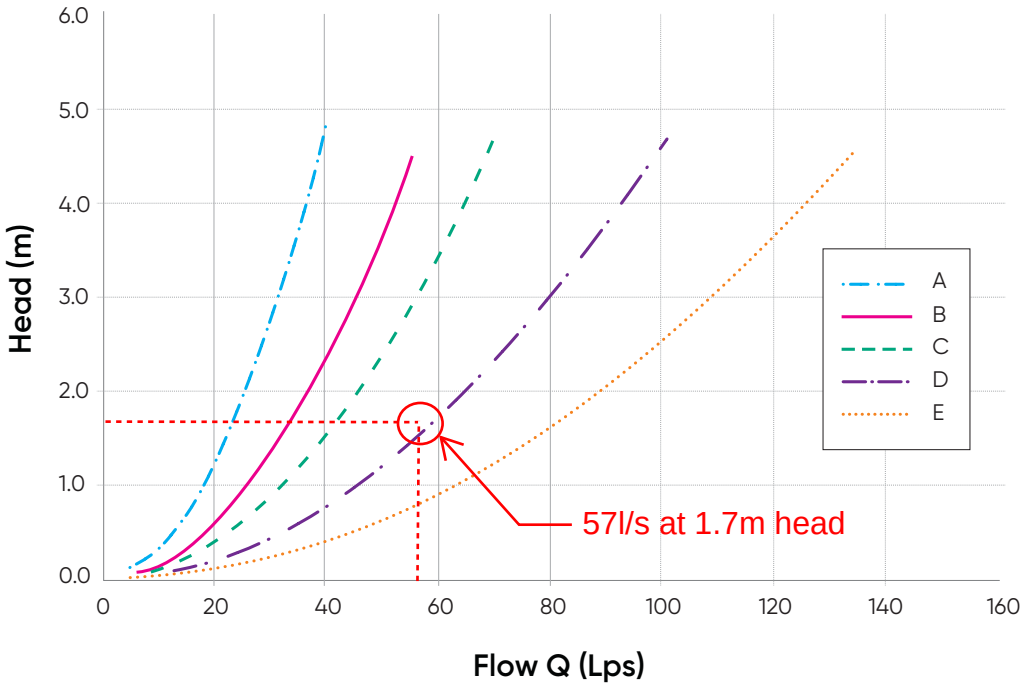
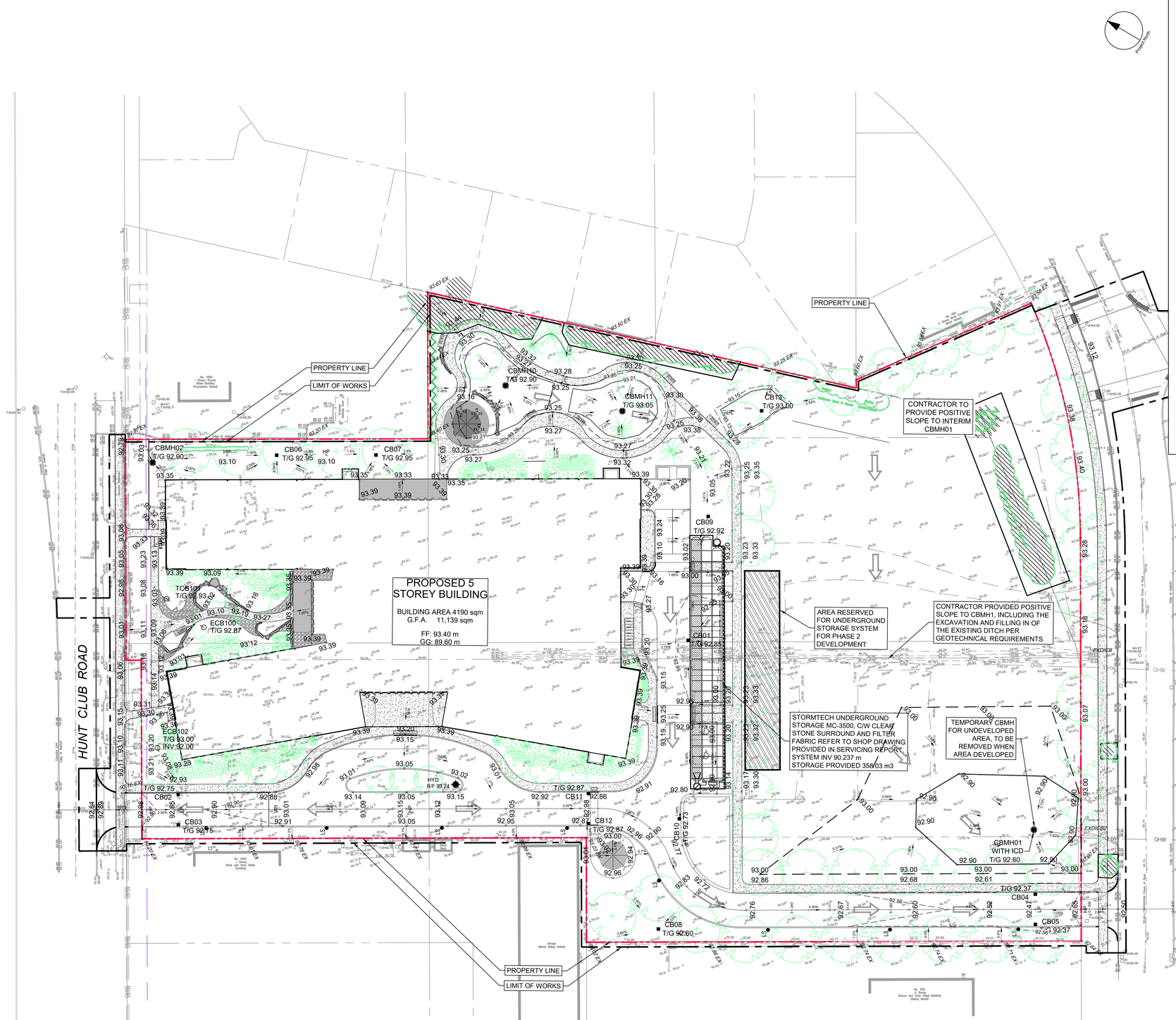


Chart 3: HF & MHF Preset Flow Curves



Appendix E

- **Grading Plan**
- **Erosion and Sediment Plan**



GRADING LEGEND

- PROPOSED DITCH C/W FLOW DIRECTION AND SLOPE
- SLOPE C/W FLOW DIRECTION
- MAJOR OVERLAND FLOW ROUTE
- PROPOSED SPOT GRADE
- PROPOSED SWALE GRADE
- PROPOSED SWALE HIGH POINT GRADE
- LOT CORNER GRADE C/W EXISTING GRADE
- FULL STATIC PONDING GRADE
- RETAINING WALL C/W TOP OF WALL AND GRASS GRADE
- TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE
- PRESSURE REDUCING VALVE
- FINISHED FLOOR ELEVATION
- TOP OF FOUNDATION ELEVATION
- UNDERSIDE OF FOOTING ELEVATION
- MINIMUM UNDERSIDE OF FOOTING (Based on the higher of the sewer obverts, or hydraulic grade line)
- MINIMUM GARAGE GRADE
- WU — WALKUP UNIT
- WO — WALKOUT UNIT
- NS — NON-STANDARD FOUNDATION (Frost cover not provided for standard unit)
- HB — HIGHBACK UNIT (1.5m frost cover on footings)
- NOISE BARRIER LOCATION
- NOISE BARRIER GATE
- RIP-RAP
- TOWN HOUSE SPLITS
- 2hr FIREWALL — 2 hr FIREWALL

1:400 (0, 4, 12, 20m)

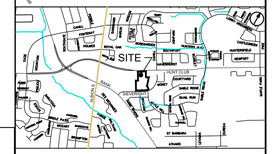
CLIENT
PHOENIX HOMES

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2024.04.18
2	REVISED PER CITY COMMENTS	2024.07.01

NOT FOR CONSTRUCTION

SEE 000 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



SEAL
LICENSED PROFESSIONAL ENGINEER
L.D. (Dennis) Yannoulopoulos
2024/07/01
PROVINCE OF ONTARIO

PRIME CONSULTANT
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PROJECT
LARGA BAFFIN
1452-1470 HUNT CLUB RD.
1525-1545 SEIVERIGHT AVE.

PROJECT NO: 126884	
DRAWN BY: **D.D.**	CHECKED BY: **A.B.**
PROJECT MGR: **D.G.Y.**	APPROVED BY: **D.G.Y.**

SHEET TITLE
GRADING PLAN

SHEET NUMBER	ISSUE
C-200	2

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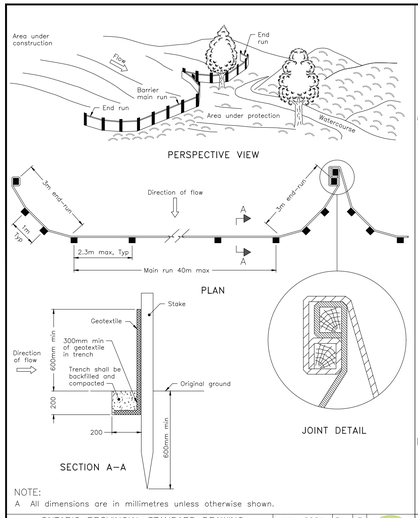
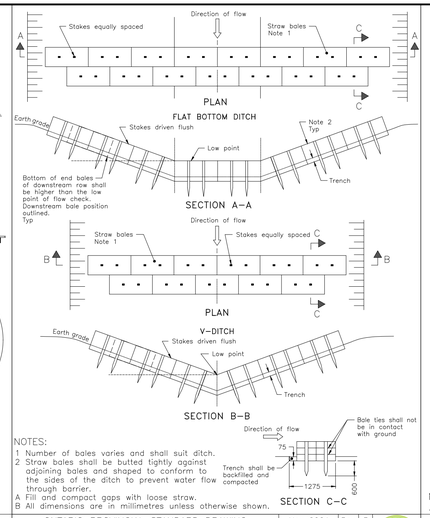


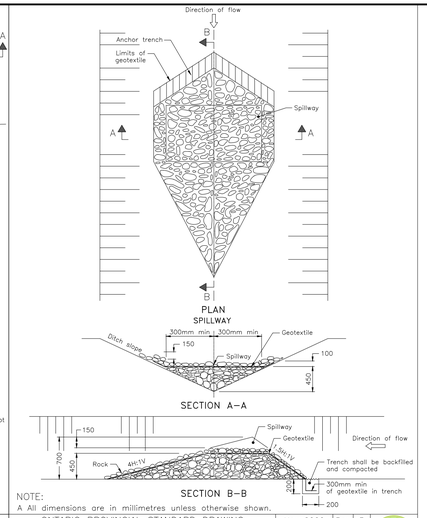
NOTE:
A All dimensions are in millimetres unless otherwise shown.

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



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

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



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

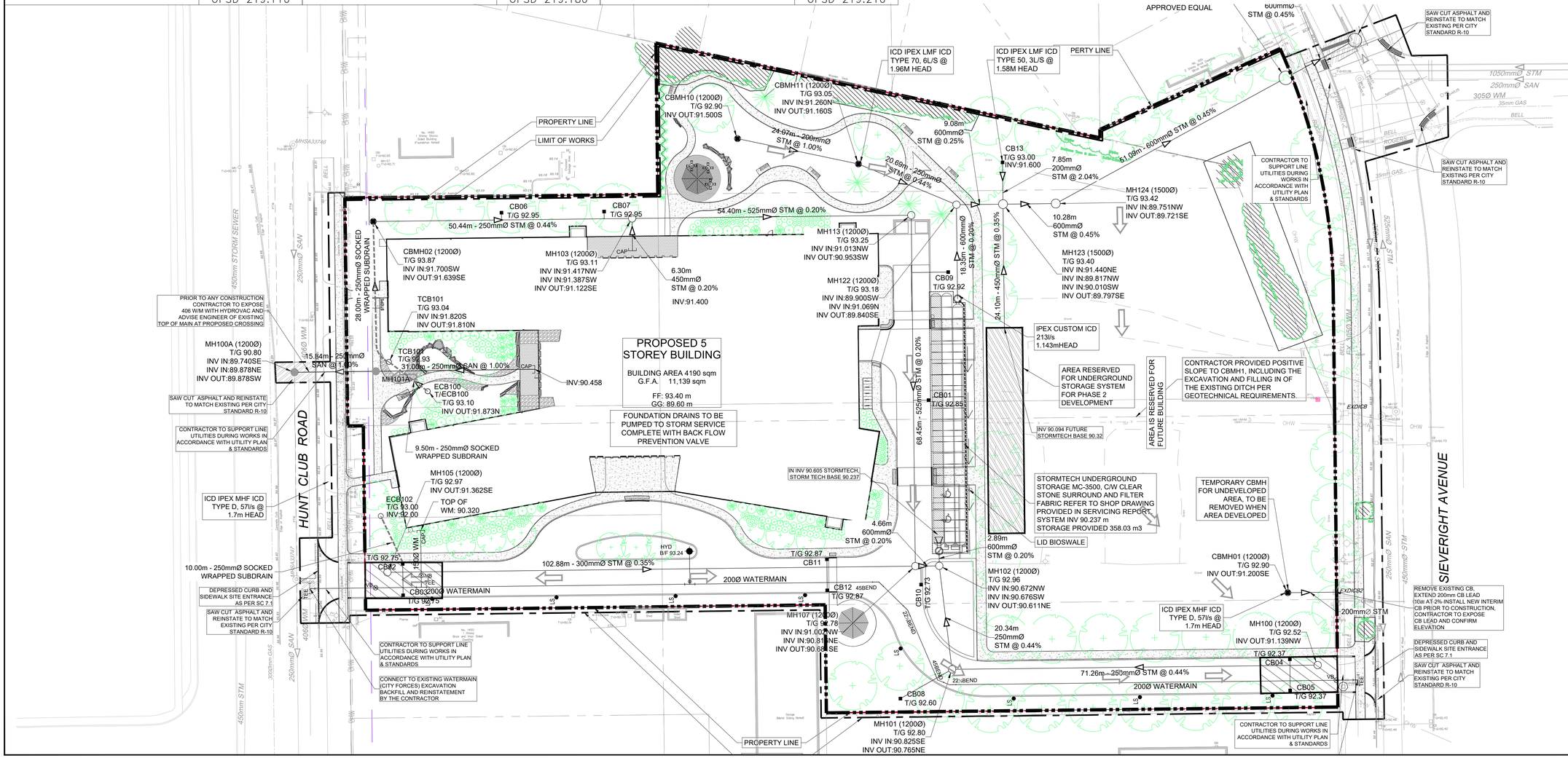
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2022	Rev 3
TEMPORARY ROCK FLOW CHECK DAM V–DITCH		OPSD 219.210

NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY,
2. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
3. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. SILT SACK TO BE PLACED AND MAINTAINED UNDER COVER OF ALL CATCHBASINS. GEOTEXTILE SILT SACK IN STREET CBs TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. GEOTEXTILE FABRIC IN RYCBs TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
5. CONTRACTOR TO PROVIDE DETAILS ON LOCATION(S) AND DESIGN OF DEWATERING TRAP(S) PRIOR TO COMMENCING WORK. CONTRACTOR ALSO RESPONSIBLE FOR MAINTAINING TRAP(S) AND ADJUSTING SIZE(S) IF DEEMED REQUIRED BY THE ENGINEER DURING CONSTRUCTION.
6. CONTRACTOR TO PROTECT EXISTING CATCHBASINS WITH FILTER CLOTH UNDER THE COVERS TO TRAP SEDIMENTATION. REFER TO IDENTIFIED STRUCTURES.
7. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
8. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT

LEGEND:

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- SNOW FENCE
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- ROCK CHECK DAM AS PER OPSD-219.210
- SILT SACK PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH (15.0)



CLIENT
PHOENIX HOMES

Arcadis Professional Services (Canada) Inc.
formerly IBI Group Professional Services (Canada) Inc

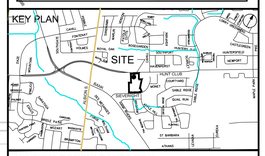
ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2024-04-18
2	REVISED PER CITY COMMENTS	2024-07-01

NOT FOR CONSTRUCTION

SEE C00 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

KEY PLAN



SEAL

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PROJECT
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1452-1470 HUNT CLUB RD.
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PROJECT NO:
126884

DRAWN BY:	CHECKED BY:
D.D.	A.B.
PROJECT MGR:	APPROVED BY:
D.G.Y.	D.G.Y.

SHEET TITLE
SEDIMENT - EROSION PLAN

SHEET NUMBER	ISSUE
C-900	2

SCALE CHECK 1 cm 10mm

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