REPORT

SITE SERVICING & STORMWATER MANAGEMENT DESIGN BRIEF
30-48 CHAMBERLAIN AVENUE
CITY OF OTTAWA

Project: 125564-6.04.04

Prepared for Scarabelli Realties Inc.
By ARCADIS IBI Group
May 11, 2023

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1 INTRODUCTION

1.1 Scope

Arcadis IBI Group Inc. (IBI) has been retained by Hobin Architecture Inc. on the behalf of Scarabelli Realties Inc. to prepare the necessary engineering plans, specifications and documents to support the redevelopment of the subject lands in accordance with the policies set out by the Planning and Development Branch of the City of Ottawa. The developer is proposing to construct a 16-storey apartment building with 2 levels of underground parking complete with associated landscape and vehicle access areas. The design brief is prepared in support of a Site Plan Application for the proposed redevelopment.

This brief will present a detailed servicing scheme to support the development of the property including sections on water supply, wastewater management, minor and major stormwater management along with erosion and sediment control.

A pre-consult meeting was held with City of Ottawa staff on December 2nd, 2022 to outline the requirements for development of the site, notes of that meeting can be found in **Appendix A**.

This brief has been prepared in accordance with current Servicing Study guidelines for development applications in the City of Ottawa.

1.2 Subject Site

The property is approximately 0.22 hectares in area and is located at the following current municipal addresses, 30 to 48 Chamberlain Ave. The site is bound by Chamberlain Avenue to the north, existing residential to the south and west and existing commercial lands to the east. Please refer to **Figure 1 – Location** plan for more details.

Scarabelli Realties Inc. proposes to construct a 16-storey mixed use building with 160 residential units along with 3,370 square feet (313 square metres) of ground floor retail space fronting along Chamberlain Avenue. The proposed development also includes 2 levels of underground parking. Vehicular access to the site will be from Chamberlain Ave. Please refer to **Figure 2 – Site Plan** for more information.

The site currently consists of vacant lots along with two existing low rise commercial structures. All existing structures within the subject property will be demolished to facilitate the proposed development.

Figure 1 - Property Location

1.3 Pre-consultation

It should be noted that a pre-consultation with the Ministry of the Environment (MECP) will be conducted and the necessity of an Environmental Compliance Application will be determined based upon the MECP's review of the proposed servicing scheme.

1.4 Geotechnical Considerations

The following geotechnical investigation report has been prepared by Paterson Group Inc:

- Report No. PG5332-1, Rev 1, dated January 12, 2023 for the subject site;

Among other items, the reports comment on the following:

- Site grading
- Foundation design
- Pavement structure
- Grade raise restriction
- Design for earthquakes
- Corrosion potential
- Infrastructure construction

The above noted geotechnical report has recommended a maximum grade raise of 2.0m is permissible for the site.

2 WATER DISTRIBUTION

2.1 Existing Conditions

The subject site is located within Pressure Zone 1W of the City of Ottawa's water distribution system. Existing 1220mm and 152mm watermains are located within the Chamberlain Avenue ROW. As per City of Ottawa guidelines, it is proposed for the subject site to be connected to the 152mm watermain as connections to large diameter feedermains are generally discouraged.

2.2 Design Criteria

2.2.1 Water Demands

Water demands are based on Table 4.2 of the Ottawa Design Guidelines – Water Distribution. As previously noted, the development consists of a 16 storey apartment building with 160 apartments. The population for apartment buildings is assumed at 1.8 persons per unit as found in Table 4.1 of the Design Guidelines. A watermain demand calculation sheet is included in **Appendix A** and the total water demands are summarized as follows:

	30-48 Chamberlain Ave.
Average Day	0.84 l/s
Maximum Day	2.35 l/s
Peak Hour	5.16 l/s

2.2.2 System Pressure

The 2010 City of Ottawa Water Distribution Guidelines 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 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in 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	Maximum pressure at any point in the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls may 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 fire flow rate has been calculated using the Fire Underwriters Survey (FUS) method. The method takes into account the type of building construction, the building occupancy, the use of sprinklers and the exposures to adjacent structures. A calculation was performed for the proposed 16 storey mixed-use apartment building. Assuming fire resistive construction and a sprinkler system a fire flow rate of 6,000 l/min or 100.0 l/s has been calculated. A copy of the calculation is included in **Appendix A**.

2.2.4 Boundary Conditions

In 2020 a boundary condition was provided by the City of Ottawa for the 152 mm diameter watermain on Chamberlain Ave. adjacent to the development. This boundary condition was determined with demands for a lower unit count and a larger commercial area. A new boundary condition request has been submitted to the city and will be included in the next submission. A copy of the 2020 boundary conditions is included in **Appendix A** and summarized as follows:

BOUNDARY CONDITIONS	
SCENARIO	HGL (m) Chamberlain(proposed connection)
Maximum HGL	114.7m
Minimum HGL (Peak Hour)	106.2m
Max Fire Flow	136 L/s

2.3 Proposed Water Plan

The minimum water pressure inside the building at the connection is determined by the difference between the water entry elevation of 65.2m and the minimum HGL condition. Based on the 202 boundary conditions,the calculations result in a pressure 402.2 kPa [(106.2 m - 65.2 m)x9.81 m/s^2] which exceeds the minimum requirement of 276 kPa per the guidelines. Because the pressure at the 16th floor under minimum HGL conditions is less than the minimum requirement of 276 kPa, a domestic water pump will be necessary for this building.

Maximum water pressure is determined by the difference between the water entry elevation of 65.2m and the maximum HGL condition resulting in a pressure of 485.6 kPa [(114.7 m – 65.2 m) x 9.81 m/s^2], which is less than the 552 kPa threshold in the guideline in which pressure control is required. Based on this result, pressure control is not required for this building.

During the preparation of the 2020 boundary conditions the City of Ottawa completed a multi-hydrant analysis for the 2 existing hydrants on Chamberlain Ave adjacent to the site. The analysis resulted in a total aggregate fire flow of 136 litres per second, which is greater than the calculated required fire flow noted in section 2.1.3. A copy of the hydrant analysis is included in **Appendix A**.

To service the property twin 152mm dia. water services, separated by a valve box off Chamberlain are proposed, see site servicing plan 125564-C-001 in **Appendix D.** The proposed 152mm dia services will provide adequate supply to the building to meet demands while twining the service will provide service redundancy for this building.

3 WASTEWATER

3.1 Existing Conditions

Currently adjacent to the site is a 300mm clay sanitary sewer, draining eastward, located in the Chamberlain Ave ROW. This sewer has been chosen as the outlet for the subject development.

3.2 Design Criteria

In accordance with the City of Ottawa's Sewer Design Guidelines, the following design criteria has been utilized in order to predict wastewater flows generated by the subject site.

- Minimum Velocity 0.6 m/s
- Maximum Velocity 3.0 m/s
- Manning Roughness Coefficient 0.013
- Total # residential of units @ (1.8 p/p/u) 160
- Total Commercial Area 0.03 ha
- Residential Average Flow 280 l/p/d
- Residential Peaking Factor Harmon Formula (max 4, min 2)
- Infiltration Allowance 0.33 L/s/Ha
- Minimum Sewer Slopes - 200 mm diameter 0.32%

Given the above criteria, total wastewater flow from the proposed development will 3.25 l/s, the detailed sanitary sewer calculations are included in **Appendix B**.

3.3 Existing Sewer Capacity

The sanitary sewer to which a connection is proposed runs within the Chamberlain Ave ROW from Lyon Street to Bank St at which point flows empty into a larger trunk sewer. This sewer begins at 225mm dia and then transitions to 300mm diameter before the subject site and continues at that diameter until the connection to Bank St. The gradient of this sewer is approximately 0.6% throughout the run.

The capacity of the 300mm sewer at 0.6% slope is 78.14 L/s.

The extent of the lands tributary to this sewer, excluding the subject, is 0.51 Ha and is a mix of commercial and residential land use. The subject property, 0.22 Ha represents 30% of the total tributary area.

Based on the above, a 30% share of the 78.14 L/s sewer capacity would be 23.44 L/s. The sanitary flows noted in section 3.2 are less than this amount.

3.4 Proposed Wastewater Plan

A 200mm dia sanitary service lateral is proposed to connect to the existing sanitary sewer in Chamberlain Ave. to service this site. Please refer to the site servicing plan 125564-C-001 in **Appendix D** for connection location details.

4 STORMWATER SYSTEM

4.1 Existing Conditions

There is no storm sewer currently adjacent to the site.

Given that the sanitary sewer in Chamberlain Ave has significant residual capacity and said sanitary sewer outlets to a combined sewer at Bank Street, it is proposed to connect the on-site storm sewer to the sanitary sewer within Chamberlain Ave. Until such time as a storm sewer is constructed within Chamberlain Ave.

4.1.1 Existing Sewer Capacity

Section 4.1 noted that a connection to the sanitary sewer was recommended as no storm sewer exists adjacent to the site. Furthermore, section 3.3 established the capacity of the existing sanitary sewer located within Chamberlain Ave. and allocated an approximate share to the subject site of 23.44 L/s.

The total combined flows from the subject site to the sanitary sewer would be 3.25 L/s sanitary flow + 18.79 L/s storm = 21.91 L/s which is less than the maximum proportional flow share allocated to the subject site of 20.19 L/s (23.44 L/s – 3.25 L/s = 20.19 L/s).

4.2 Design Criteria

Criteria for the stormwater management of existing infill sites within the City of Ottawa are as follows;

- Assume existing storm sewers designed to a 2 year level of service
- Site to be designed to limit the 100 year post development flow to a maximum of the 2 year pre development flow
- Pre development flow to use a maximum C of 0.4 and a minimum TC of 10 min.

The stormwater system will be 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 — 1:2 year 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 detailed design for this site shows a 250 mm storm sewer connection along with some minor uncontrolled surface drainage entering into the 300mm combined sanitary sewer within Chamberlain Ave ROW.

Using the above-noted criteria, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated storm sewer drainage area plan are included in **Appendix C**.

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 an inlet control device (ICD) at the outlet of the cistern.

Flows generated that are in excess of the site`s allowable release rate will be stored within the cistern located in the buildings P1 parking level. The cistern has currently been sized to accommodate up 90 cubic metres. The final cistern sizing will be adjusted pending City review of the proposed.

Rear-yard catchbasins are used throughout the landscaping within the site to reduce the amount of uncontrolled run-off and collect the majority of the stormwater to the cistern. 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, and it is not always feasible to capture or store stormwater runoff. These “uncontrolled” areas, 0.008 hectares in total, have a weighted average C value of 0.69. Based on 1:100 year storm uncontrolled flows, the uncontrolled areas generate 0.27 l/s runoff (refer to Section 4.5 for calculation).

The cistern 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 C**

4.5 Release Rate

The allowable release rate for the 0.22 Ha site can be calculated as follows:

$\mathbf{Q_{allowable}}$	= **2.78** x **C** x $\mathbf{i_{2yr}}$ x **A** where:
C	= 0.4 (pre-development C maximum)
$\mathbf{I_{2yr}}$	= Intensity of 2-year storm event (mm/hr)
	= 732.951 x $(T_c + 6.199)^{0.81}$ = 76.81 mm/hr; where T_c = 10 minutes
A	= Area = 0.22 Ha
	= **18.79 L/s**

The maximum allowable release rate from the site is established as: **18.79 L/s**

As noted in Section 4.4, a small portion of the site will be left to discharge to Chamberlain Ave at an uncontrolled rate.

Based on a 1:100 year event, the flow from the 0.008 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 = 0.69
$\mathbf{i_{100yr}}$	= Intensity of 100-year storm event (mm/hr)

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

A = Uncontrolled Area = 0.008 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 0.68 x 178.56 x 0.008

= **0.27 L/s**

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

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

= 18.79 L/s – 0.27 L/s

= **18.52 L/s**

4.6 On-Site Detention

As noted in section 4.4 any excess storm water up to the 100-year event is to be stored on-site within the building cistern in order to not surcharge the downstream municipal storm sewer system.

4.6.1 Site Inlet Control

The following Table summarizes the on-site storage requirements during both the 1:2-year and 1:100-year events.

ICD AREA	TRIBUTARY AREA	AVAILABLE STORAGE (M^3)	100-YEAR STORM		2-YEAR STORM	
			RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)	RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)
Restricted	0.212	90.00	9.26	59.70	9.26	17.19
Unrestricted	0.08					
TOTAL	**0.22**	**90.00**	**9.26**	**59.70**	**9.26**	17.19

In all instances the required storage is met with the building cistern. It should be noted that when sizing the cistern as per City of Ottawa accepted convention the release rate was reduced by 50% to calculate the storage required using the modified rational method.

4.6.2 Overall Release Rate

As demonstrated above, the site uses an inlet control device to restrict the 100 year storm event to the criteria approved by the City of Ottawa. Restricted stormwater will be contained onsite by the building cistern. In the 100 year event, there will be no overflow off-site from restricted areas.

The sum of restrictions on the site is 9.26 l/s, which is less than the allowable release of 20.19 l/s noted in section 4.1.1.

5 SEDIMENT AND EROSION CONTROL PLAN

During construction, existing stream and storm water conveyance systems can be exposed to significant sediment loadings. A number of construction techniques designed to reduce unnecessary construction sediment loadings may be used such as;

- Filter socks will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use;
- Installation of silt fence, where applicable, around the perimeter of the proposed work area.

During construction of the services, any trench dewatering using pumps will be fitted with a “filter sock.” Thus, any pumped groundwater will be filtered prior to release to the existing storm sewers. The contractor will inspect and maintain the filter sock as needed including sediment removal and disposal.

All catchbasins, and to a lesser degree manholes, convey surface water to sewers. Consequently, until the surrounding surface has been completed these structures will be protected with a sediment capture filter sock to prevent sediment from entering the minor storm sewer system. These will stay in place and be maintained during construction and build-out until it is appropriate to remove them.

The Sediment and Erosion Control Plan 125564-C-010 is included in **Appendix E**.

6 CONCLUSIONS

Municipal water, wastewater and stormwater systems required to accommodate the proposed development are available to service the proposed development. Prior to construction, existing sewers are to be CCTV inspected to assess sewer condition.

This report has demonstrated sanitary and storm flows from and water supply to the subject site can be accommodated by the existing infrastructure. Also, the proposed servicing has been designed in accordance with MECP and City of Ottawa current level of service requirements.

A Hydro Ottawa pole line runs along the frontage of the site. It appears that the current site plan respects the existing infrastructure and will maintain the required Hydro Ottawa setbacks; however, during the Site Plan Application process it is anticipated that review and approval from Hydro Ottawa will be requested by the proponent.

The use of lot level controls, conveyance controls and end of pipe controls outlined in the report will result in effective treatment of surface stormwater runoff from the site. Adherence to the sediment and erosion control plan during construction will minimize harmful impacts on surface water.

Based on the information provided herein, the development can be serviced to meet City of Ottawa requirements.

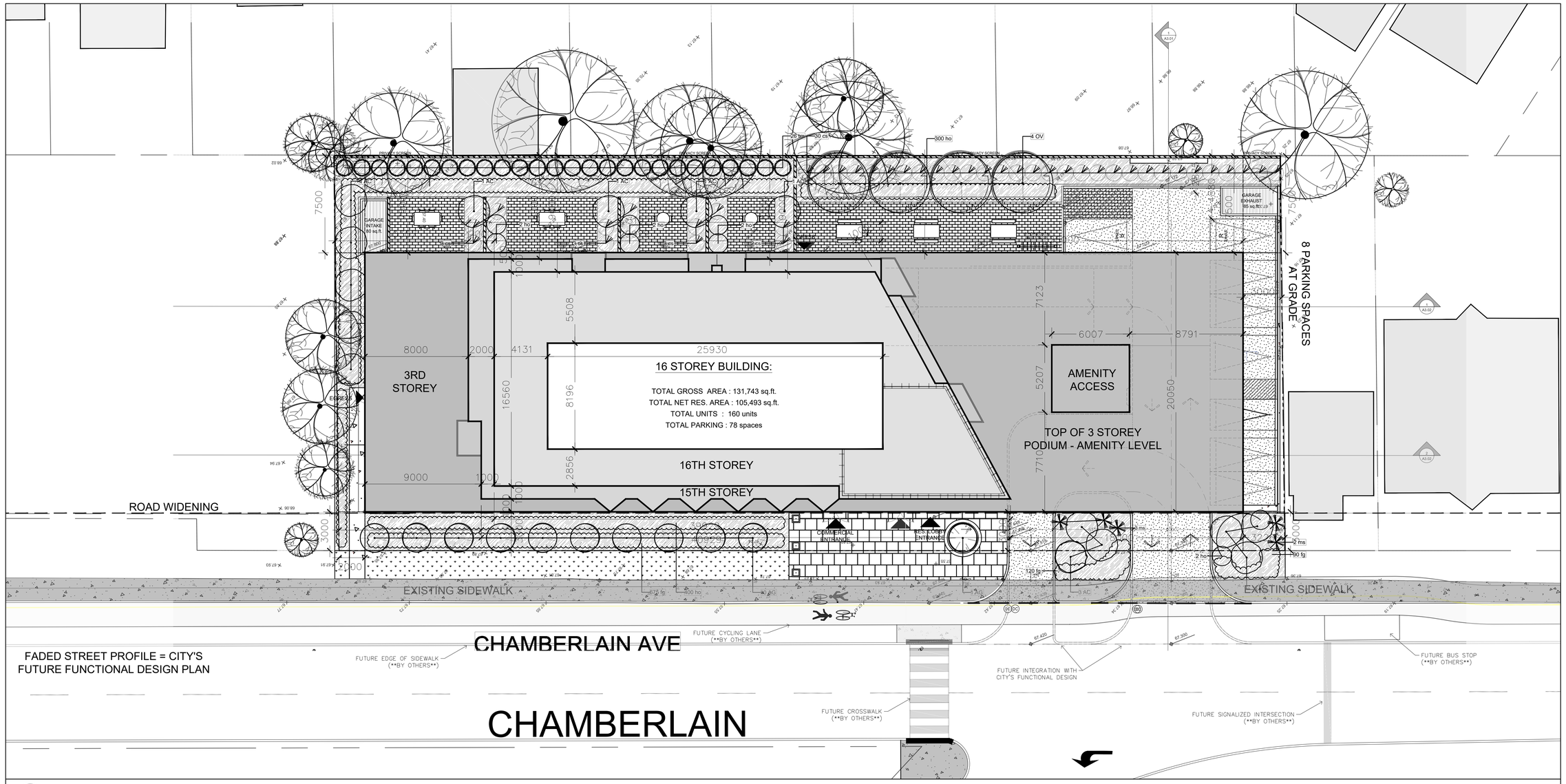
Report prepared by:

Terry Brule, P. Eng.
Associate Director, Practice Lead

Arthur Beresniewicz,
Engineering Intern

APPENDIX A

- Site Plan
- Site Servicing Plan Drawing No. 125564-C-001
- Pre-Consultation Notes
- FSD Survey 2020-07-20



1 A1.00 SITE PLAN
1 :100

LOCATION PLAN

ZONING NOTES:

CURRENT ZONING: **GM4[2735]S448**

LOT AREA : 2,233 m²
LOT WIDTH : 73.15 m
LOT DEPTH. : 30.53 m

LEGAL DESCRIPTION
LOTS 30, 38, 42 & 48
REGISTERED PLAN XXXXXX
CITY OF OTTAWA

DEVELOPMENT STATS	REQUIRED	PROPOSED
LOT OF AREA 'A'	NO MINIMUM	2,233 m²
% OF LANDSCAPED AREA	30%	30.5%
TOTAL UNITS		160
SETBACK ALONG FRONT YARD (CHAMBERLAIN AVE.)	3 m	3 m
SETBACK ALONG SIDE YARD (FACING EAST)	2 m	2 m
SETBACK ALONG SIDE YARD (FACING WEST)	3 m	3 m
SETBACK ALONG REAR YARD	7.5 m	7.5 m
MAXIMUM HEIGHT	52 m	51.1 m
NUMBER OF STOREYS		16
BUILDING GFA		12,221 m²
ZONING GFA (as per city zoning def.)		9,567 m²

NOTE:

ALL EXISTING SITE INFORMATION AS PER SITE SURVEY PLAN DATED JUNE 18, 2020 AND PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD.

PARKING REQUIREMENTS

1. VEHICLE PARKING

	REQUIRED PARKING	PROVIDED PARKING
RESIDENTIAL PARKING 160 UNITS (– 12UNITS) (X 0.37)	0.37 / UNIT 54.8 SPACES	1.0 / UNIT 56 SPACES
VISITOR PARKING 160 UNITS (– 12UNITS) (X 0.1)	0.1 / UNITS 14.8 SPACES	0.1 / UNITS 15 SPACES
COMMERCIAL PARKING 313m²	2/100m² 7 SPACES	7 SPACES
TOTAL PARKING	77 SPACES	78 SPACES
PARKING DISTRIBUTION AT GRADE LEVEL P2 LEVEL P1 TOTAL		8 SPACES 32 SPACES 38 SPACES 78 SPACES

2. BICYCLE PARKING

REQUIRED BICYCLE PARKING SPACES
RESIDENTIAL : 1 SPACE/UNIT – 160 SPACES REQUIRED FOR 160 UNITS

PROVIDED BICYCLE PARKING SPACES
163 TOTAL BIKE STALLS
(15 AT GRADE + 76 ON P1 + 72 ON P2)

AMENITY REQUIREMENTS

REQUIRED AMENITY SPACE REQUIRED = 6 m² PER UNIT

160 UNITS X 6 SQ.M. = 960 SQ.M. TOTAL AMENITY REQUIRED
REQUIRED AMENITY SPACE TO BE COMMON (50%) = 480 SQ.M.

PROVIDED AMENITY SPACE BREAKDOWN:

– INTERIOR COMMON AMENITY	170 m²
– EXTERIOR COMMON AMENITY	350 m²
– PRIVATE BALCONY & TERRACE AMENITY	500 m²
TOTAL AMENITY SPACE PROVIDED	1,020 m²

LEGEND

- PROPOSED FIRE ROUTE
- PROPOSED BUILDING
- BUILDING TO BE DEMOLISHED
- HMH EXISTING TRAFFIC MAN HOLE
- TMH EXISTING TRAFFIC MAN HOLE
- MH EXISTING MAN HOLE
- TSP EXISTING TRAFFIC LIGHT
- FH EXISTING FIRE HYDRANT
- CONC. CURB DETAIL TO CITY OF OTTAWA STANDARDS
- BP BIKE PARKING SPACE
- EDGE OF SIDEWALK
- PROPERTY LINE
- SETBACK
- DC PROPOSED DEPRESSED CURB DETAIL TO CITY OF OTTAWA STANDARD SC-7
- EXTENT OF PRIVATELY OWNED PUBLIC SPACE
- CURB TO BE REBUILT
- ROLL CURB
- UP EXISTING UTILITY POLE
- FDC FIRE DEPARTMENT CONNECTION
- PTD PARKING TICKET DISPENCER
- PDS EXISTING PAY & DISPLAY
- BS EXISTING TRANSIT STOP
- CB EXISTING CATCH BASIN
- CB PROPOSED CATCH BASIN
- AS SIGNAGE FOR ACCESSIBLE PARKING SPACE
- FRS SIGNAGE FOR FIRE ROUTE ACCESS
- S EXISTING SIGN
- B EXISTING BOLLARD
- EXISTING LIGHT POLE
- NEW LIGHT POLE
- PROPOSED WALL MOUNTED LIGHT
- SL EXISTING STREET LIGHTING BOX
- TB EXISTING TRAFFIC SIGNAL BOX

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HOBIN ARCHITECTURE

PROJECT/LOCATION:
30-48 CHAMBERLAIN AVE.

DRAWING TITLE:
SITE PLAN

DRAWN BY:	DATE:	SCALE:
DA	2023-05-05	1:150

PROJECT: 1928

DRAWING NO.: A1-00

REVISION NO.:

DATE-PLOT
DWGNAME

NOTES :

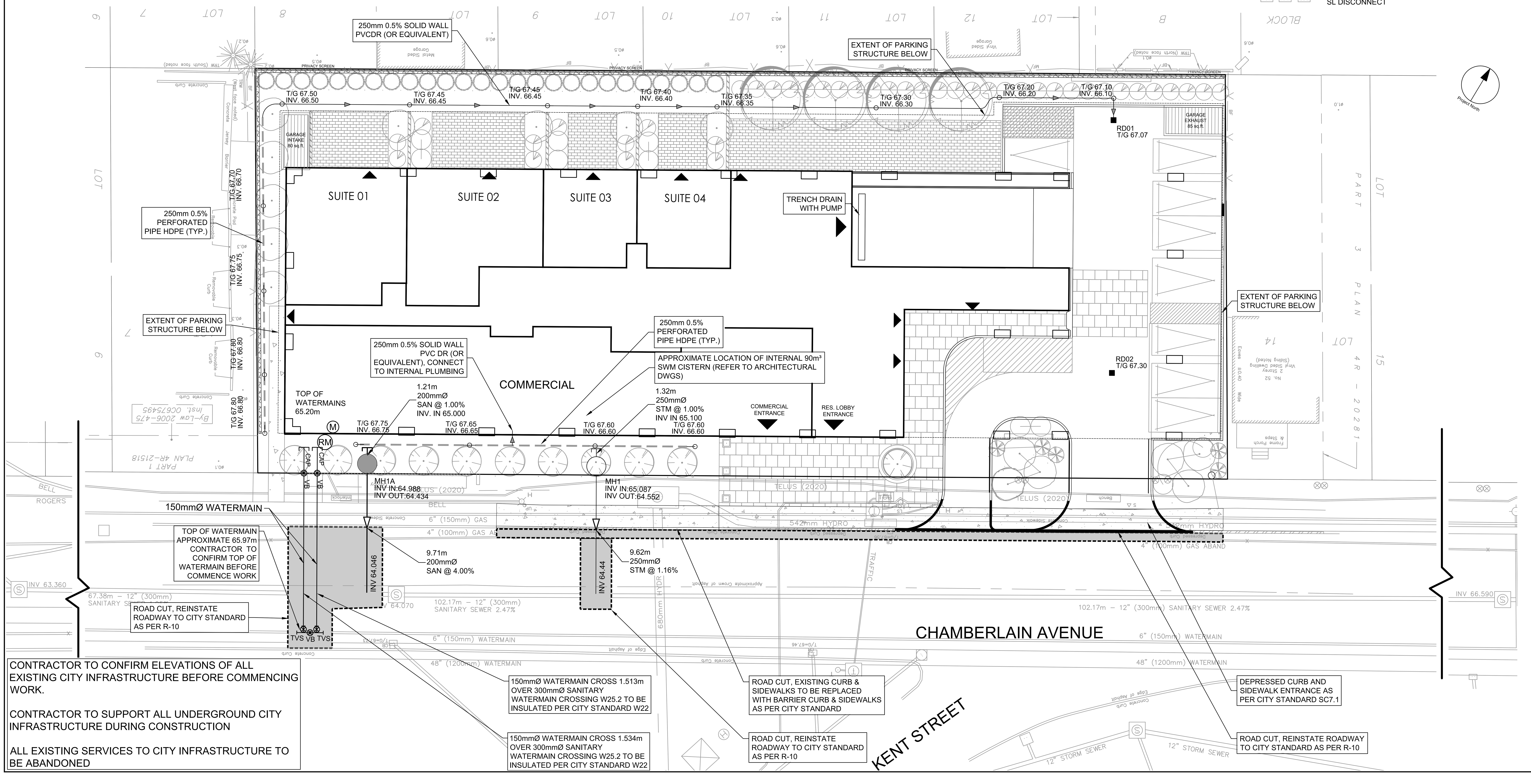
1. ALL MATERIALS AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE CURRENT CITY OF OTTAWA STANDARD DRAWINGS & SPECIFICATIONS OR OPSD/OPSS IF CITY DRAWINGS AND SPECIFICATIONS DO NOT APPLY.
2. THE POSITION OF UNDERGROUND AND ABOVEGROUND SERVICE, UTILITIES AND STRUCUTRES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH SERVICE, UTILITIES AND STRUCTURES IS NOT GUARENTEED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL REPORT ALL CONFLICTS, DISCOVERIES OF ERROR AND DESCREPENCIES TO THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AND ASSUME RESPONSIBILITY FOR ALL UTILITIES WHETHER OR NOT SHOW ON THESE DRAWINGS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL LANDS BEYOND THE SITE LIMITS. ANY AREAS BEYOND THE SITE LIMITS, WHICH ARE DISTURBED DURING CONSTRUCTION, SHALL BE REPAIRED AND RESTORED TO ORIGINAL CONDITION OR BETTER, TO THE SATISFACTION OF THE ADJACENT LAND OWNER, THE OWNER, THE OWNERS REPRESENTATIVES AND/OR THE AUTHORITY HAVING JURSIDICTION AT THE EXPENSE OF THE CONTRACTOR.
6. WHERE NECESSARY, THE CONTRACTOR SHALL IMPLEMENT A TRAFFIC MANAGEMENT PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE LATEST VERSION OF THE M.T.O. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. ALL TEMPORARY TRAFFIC CONTROL MEASURES MUST BE REMOVED UPON THE COMPLETION OF THE WORKS.
7. SHOULD ANY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL NOTIFY THE OWNER TO CONTACT THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATE, AND WORK WITHIN THE AREA SHALL BE CEASED UNTIL FUTHER NOTICE.
8. FOR GEOTECHNICAL INFORMATION REFER TO GEOTECHNICAL REPORT PG5332-1, REV 1, 2023-01-12 PREPARED BY PATERSON GROUP.
9. FOR GEODETIC **BENCHMARK** AND GEOMETRIC LAYOUT OF STREET AND LOTS, REFER TO TOPOGRAPHICAL SURVEY AND PLAN OF SUBDIVISION PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD BENCHMARK BASED ON CAN--NET VIRTUAL REFERENCE SYSTEM NETWORK.
10. FOR SITE PLAN INFORMATION, REFER TO SITE PLAN PREPARED BY HOBIN ARCHITECTURE
11. THESE DRAWINGS ARE NOT TO BE SCALED OR USED FOR LAYOUT PURPOSES
12. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES TO THE COMMENCEMENT OF ANY SITE CONSTRUCTION. ALL EROSION AND SEDIMENT CONTRAL MEASURES SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, OR ANY REGULATORY AGENCY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL VEGETATION IS ESTABLISH OR UNTIL THE START OF A SUBSEQUENT PHASE.
13. CONTRACTORS SHALL BE RESPONSIBLE FOR KEEPING CLEAN ALL ROADS WHICH BECOME COVERED IN DUST, DEBRIS AND/OR MUD AS A RESULT OF ITS CONSTRUCTION OPERATIONS.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE SHOULD THE MAXIMUM OPSD TRENCH WIDTH BE EXCEEDED.
15. ALL PIPE, CULVERTS, STRUCTURES REFER TO NOMINAL INSIDE DIMENSIONS.
16. SHOULD CLAY SEALS BE REQUIRED, THEY SHALL BE INSTALLED AS PER THE RECOMMENDATIONS WITHIN THE GEOTECHNICAL REPORT.
17. UNLESS SPECIFICALLY NOTED OTHERWISE, PIPE MATERIALS SHALL BE AS FOLLOWS;
-WATERMAINS TO BE PVC DR18
-SANITARY SEWER TO BE PVC DR35
-PERFORATED STORM SEWERS IN REAR YARDS AND LANDSCAPE AREAS TO BE HDPE
-STORM SEWERS 375MM DIAMETER AND LESS TO BE PVC DR35
-STORM SEWERS 450MM DIAMETER AND GREATER TO BE CONCRETE, CLASS AS PER OPSD 807.010 OR 807.030, OR HIGHER
18. ALL CONNECTIONS TO EXISTING WATERMAINS ARE TO BE COMPLETED BY CITY FORCES. CONTRACTOR IS TO EXCAVATE, BACKFILL, COMPACT AND REINSTATE.
19. ANY WATERMAIN WITH LESS THAN 2.4M, AND ANY SEWER WITH LESS THAN 2.0M DEPTH OF COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR AS APPROVED BY THE ENGINEER.
20. ALL FIRE HYDRANTS AS PER CITY STANDARD W19, c/w 150mmØ LEAD UNLESS OTHERWISE SPECIFIED.
21. ALL STUBBED SEWERS SHALL HAVE PRE-MANUFACTURED CAPS INSTALLED.
22. ALL CATCHBASINS SHALL HAVE A 600MM SUMP. ALL CATCHBASIN MANHOLES, AND ALL STORM MANHOLES WITH OUTLETTING PIPE SIZES LESS THAN 900MM, SHALL HAVE A 300MM SUMP.
23. ALL SANITARY MANHOLES SHALL BE EQUIPPED WITH A WATERTIGHT COVER.
24. EACH BUILDING SHALL BE EQUIPPED WITH A SANITARY AND STORM SEWER BACKWATER VALVE AND CLEAN-OUT ON ITS PRIMARY SERVICE, AS PER ONTARIO BUILDING CODE REQUIREMENTS (BY OTHERS).
25. THE SUBGRADE OF ALL STRUCTURES, PIPE, ROADS, SIDEWALKS, WALKWAYS, AND BUILDINGS SHALL BE INPSECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
26. UPON COMPLETION OF THE RETAINING WALL, THE CONTRACTOR SHALL REQUEST A CONFORMANCE CERTIFICATE FROM THE QUALIFIED ENGINEER RESPONSIBLE FOR THE WALL DESIGN.

SERVICING LEGEND

- MH118A — SANITARY MANHOLE
- 200mmØ SAN — SANITARY SEWER
- MH109 / MH118 — STORM MANHOLE
- 825mmØ STM — STORM SEWER - LESS THAN 900Ø
- 200Ø WATERMAIN — WATERMAIN
- CB100 T/G 104.10 — STREET CATCHBASIN C/W TOP OF GRATE
- T/G 104.35 INV 103.35 — REAR YARD "TEE" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.50 INV 103.50 — REAR YARD "END" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.35 INV 103.35 — REAR YARD "CUSTOM ANGLED " CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.35 INV 103.35 — REAR YARD "THREE WAY" CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
- VB — VALVE AND VALVE BOX
- HYD 104.35 — FIRE HYDRANT C/W BOTTOM OF FLANGE ELEVATION
- 2 VBENDS — VERTICAL BEND LOCATION
- SIAMESE CONNECTION (IF REQUIRED)
- M — METER (IF REQUIRED)
- RM — REMOTE METER (IF REQUIRED)
- DOOR ENTRANCE
- RD01 — ROOF DRAIN C/W TOP OF GRATE

EXISTING LEGEND

- Inv. — INVERT
- T/G — TOP OF GRATE
- U/Eave — UNDERSIDE OF EAVE
- TpFdn — TOP OF FOUNDATION
- C/L — CENTRELINE
- 65.00 — LOCATION OF ELEVATIONS
- *65.00* — TOP OF CONCRETE CURB ELEVATION
- City — PLAN 6943P&P02
- UP — UTILITY POLE
- AN — ANCHOR
- LS — LIGHT STANDARD
- CB — CATCH BASIN
- SP — WATER STAND POST
- GM — GAS METER
- B — BOLLARD
- S — SIGN
- AC — AIR CONDITIONER
- BF — BOARD FENCE
- MF — METAL FENCE
- CRW — CONCRETE RETAINING WALL
- TRW — TIMBER RETAINING WALL
- DECIDUOUS TREE
- WATER VALVE, VALVE CHAMBER, FIRE HYDRANT
- SEWER MANHOLE, CATCH BASIN MANHOLE
- CATCH BASIN / DRAINAGE, WING WALL, HEAD WALL
- POLE, POLE W/ LIGHT, DECORATIVE, LAWN LIGHT
- POWER SUPPLY, PANEL, PEDESTAL, TRANSFORMER, TOWER, REGULATOR
- AMP, HAND HOLE, VAULT, GAS VALVE
- BUS — OC TRANSPO: BUS SHELTER-NO POWER, ENERGIZED, ISOLATED
- TGS — STREETSCAPE: PLANTER BOX, GRATE SQUARE, ENG. SOIL
- TCB TDB SDB — TRAFFIC CONNECT BOX / DISCONNECT BOX, SL DISCONNECT



CONTRACTOR TO CONFIRM ELEVATIONS OF ALL EXISTING CITY INFRASTRUCTURE BEFORE COMMENCING WORK.

CONTRACTOR TO SUPPORT ALL UNDERGROUND CITY INFRASTRUCTURE DURING CONSTRUCTION

ALL EXISTING SERVICES TO CITY INFRASTRUCTURE TO BE ABANDONED

CLIENT

SCARABELLI REALTIES INC.

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ISSUES

No.	DESCRIPTION	DATE
01	ISSUED FOR RE-ZONING APPLICATION	20:11:13

NOT FOR CONSTRUCTION

KEY PLAN

CONSULTANTS

1:150

SEAL

LICENSED PROFESSIONAL ENGINEER T. R. BRULE 20/11/13 PROVINCE OF ONTARIO

IBI GROUP
Suite 400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 / 613 241 3300 fax 613 225 9868
ibigroup.com

PROJECT

30-48 CHAMBERLAIN AVE.

PROJECT NO: 125564	
DRAWN BY: EH	CHECKED BY: TRB
PROJECT MGR: TRB	APPROVED BY: TRB

SHEET TITLE

Services Plan

SHEET NUMBER 001 — ISSUE 1

Pre-Application Consultation Meeting Notes

Property Address: 30-48 Chamberlain Avenue
PC2022-0301
December 2, 2022; 1:30 PM – 2:30 PM – Microsoft Teams

Attendees:

City of Ottawa:

Jean-Charles Renaud – *File Lead, Planner III*
Christopher Moise – *Urban Designer*
Reza Bakhit – *Infrastructure PM*
Amy Whelan – *Infrastructure*
Wally Dubyk – *Transportation PM*
Amber Chen – *Student Planner*

Applicants:

Timothy Beed – *Fotenn*
Brian Casagrande – *Fotenn*
Barry Hobin – *Hobin Architecture*
David Anderson – *Hobin Architecture*
Greg Moore – *Property Owner*

Community Representatives:

N/A

Regrets:

Mark Richardson – *Forester, City of Ottawa*

Subject: 30-48 Chamberlain Avenue

Meeting notes:

Opening & attendee introduction

- Introduction of meeting attendees

Overview of Proposal

- The site is currently occupied by surface parking and office buildings.
- 16-storey mixed-use building with ground floor commercial and 150 residential units (numbers may change).
- Vehicle access is provided along Chamberlain Avenue on the west portion of the site.
- 200 underground parking spaces are provided.

Planning – Jean-Charles Renaud

- Please confirm, the submission, that the Section 37 contributions are reflected in the proposal.
- One of the parking spaces seems to be a front yard parking space – front yard parking is not permitted in the GM zone.
- What is the ratio of bike parking?
    - 1:1, 150 bike parking spaces in total.
- Tree Conservation Report will be required.

Urban Design – Christopher Moise

- Although this proposal does not abut one of the City's Design Priority Areas and does not require attendance at the City's UDRP, we recommend the proposal attend an Informal visit (prior to a full submission which is not a public meeting), with the City's UDRP to further discuss and evaluate the refinement of the design now that the zoning has been changed to match the proposal.
- Front yard parking: We recommend that no surface parking be provided in the front yard so the public realm can be further supported by landscaped spaces.
- A scoped Design Brief is a required submittal (and separate from any UDRP submission) for all Site Plan/Re-zoning applications and can be combined with the Planning Rationale. Please see the Design Brief Terms of Reference provided and consult the City's website for details regarding the UDRP schedule.
    - ***Note. The Design Brief submittal should have a section which addresses these pre-consultation comments;***

Engineering – Reza Bakhit

General

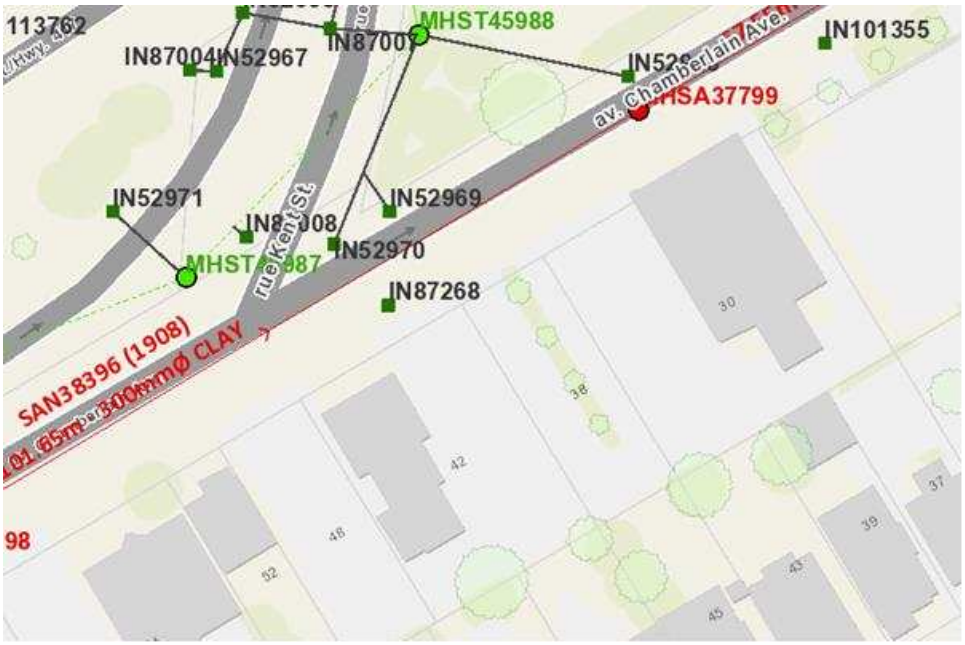
- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided, and all easements shall be shown on the engineering plans.
- **Concern** about Sanitary sewer capacity, please provide the new Sanitary sewer discharge and we confirm if sanitary sewer main has the capacity. Also provide the size proposed sanitary service.
- An application to consolidate the parcels (30-48 Chamberlain Avenue) of land will be required otherwise the proposed stormwater works will be servicing more than one parcel of land and thus does not meet the exemption set out in O.Reg. 525/98. This would mean an **ECA would be required** regardless of who owns the parcels.
- **Concern** about protection of 900mm watermain. Vibration and settlement monitoring plan will be required.
- A deep excavation and dewatering operations have the potential to cause damages to the neighboring adjacent buildings/ City infrastructure. Document that construction activities (excavation, dewatering, vibrations associated with construction, etc.) will not have an impact on any adjacent buildings and infrastructure.

- The subject site is located within a combined sewer shed therefore the approval exemption under O.Reg. 525/98 would not apply, and an Environmental Compliance Approval (ECA) application will be required.
- Ontario Regulation 525/98:
- 3. Subsection 53(1) and (3) of the Act do not apply to the use, operation, establishment, alteration,
- extension or replacement of or a change in a storm water management facility that,
- (a) is designed to service one lot or parcel of land;
- (b) discharges into a storm sewer that is not a combined sewer;
- (c) does not service industrial land or a structure located on industrial land; and
- (d) is not located on industrial land.
- The ECA applications will be a Direct Submission for Private Sewage Works discharging to a combined sewer.

- A **Record of Site Condition (RSC) in accordance with O.Reg.** 153/04 will be required to be filed and acknowledged by the Ministry prior to issuance of a building permit due to a change to a more sensitive property use.
- Existing buildings require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements. Located services to be placed on site servicing plans.

- Reference documents for information purposes:
- Ottawa Sewer Design Guidelines (October 2012)
- Technical Bulletin PIEDTB-2016-01
- Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
- Ottawa Design Guidelines - Water Distribution (2010)
- Technical Bulletin ISTB-2021-03
- 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 Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
- 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) 580-424 x.44455).

Please note that this is the applicant's responsibility to refer to the latest applicable guidelines while preparing reports and studies.



Disclaimer:

The City of Ottawa does not guarantee the accuracy or completeness of the data and information contained on the above image(s) and does not assume any responsibility or liability with respect to any damage or loss arising from the use or interpretation of the image(s) provided. This image is for schematic purposes only.

Stormwater Management Criteria and Information:

- **Water Quantity Control:** In the absence of area specific SWM criteria please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a 2-year pre-development level.** The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.5. [**If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.4**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].
- Any storm events greater than the established **2-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Please note that foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**
- **Water Quality Control:** Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal

application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.

- Please note that as per *Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14)* **there shall be no surface ponding on private parking areas during the 2-year storm rainfall event**.
- **Underground Storage:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

  When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.**

  In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

  Please provide information on UG storage pipe. Provide required cover over pipe and details, chart of storage values, capacity etc. How will this pipe be cleaned of sediment and debris?

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

  Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2- and 100-year event storage requirements.

  In regard to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

  Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.

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

- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution**.
- **If rooftop control** and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and documented in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.
- If **Window wells** are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.
- There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.
- Rear yard on grade parking to be permeable pavement. Refer to City Standard Detail Drawings SC26 (maintenance/temp parking areas), SC27 or permeable asphalt materials. No gravel or stone dust parking areas permitted.

Combined Sewer:

- A 300 mm dia. CLAY Sanitary sewer (1908) is available within Chamberlain Avenue**.**
- Please provide the new Sanitary sewer discharge and we confirm if sanitary sewer main has the capacity. An analysis and demonstration that there is sufficient/adequate residual capacity to accommodate any increase in wastewater flows in the receiving and downstream wastewater system is required to be provided. Needs to be demonstrated that there is adequate capacity to support any increase in wastewater flow.
- Please apply the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01.*
- Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- A backwater valve is required on the sanitary service for protection.

Water:

- A 152 mm dia. UDI watermain (1905) is available within Chamberlain Avenue**.**
- A 1200 backbone watermain is located within the ROW on Chamberlain Avenue. **(No connection is permitted)**
- Existing residential service to be blanked at the main.
- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m^3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the

Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration.

- Please **review Technical Bulletin ISTB-2018-0**, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection for the proposal**. Two or more public hydrants are anticipated to be required to handle fire flow.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
    - Type of Development and Units
    - Site Address
    - A plan showing the proposed water service connection location.
    - **Average Daily Demand** (L/s)
    - **Maximum Daily Demand** (L/s)
    - **Peak Hour Demand** (L/s)
    - **Fire Flow** (L/min)

[*Fire flow demand requirements shall be based on **Fire Underwriters Survey (FUS)** Water Supply for Public Fire Protection 1999*]

[Fire flow demand requirements shall be based on ISTB-2021-03]

Note: The OBC method can be used if the fire demand for the private property is less than 9,000 L/min. If the OBC fire demand reaches 9000 L/min, then the FUS method is to be used.

Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).

- **Hydrant capacity shall be assessed to demonstrate the RFF can be achieved**. Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.

Snow Storage:

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

Trees:

Please note that a new Tree By-law is now in effect.

Gas pressure regulating station

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

Regarding Quantity Estimates:

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

Road Reinstatement

Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

Permits and Approvals:

- Please note that this project will be subject to an Environmental Compliance Approval (ECA) for Private Sewage Works. (Any connection to a combined Sewer system required the Ministry (MECP) approval)

Required Engineering Plans and Studies:

PLANS:

- Existing Conditions and Removals Plan
- Site Servicing Plan
- Grade Control and Drainage Plan
- Erosion and Sediment Control Plan
- Roof Drainage Plan
- Foundation Drainage System Detail
- Topographical survey

REPORTS:

- Site Servicing and Stormwater Management Report
- Geotechnical Study/Investigation
- Noise Control Study
- Phase I ESA
- Phase II ESA (Depending on recommendations of Phase I ESA)
- RSC (Record of the site Conditions)

- ECA
- Site lighting certificate
- Wind analysis
- Shadow Study

Please refer to the **City of Ottawa Guide to Preparing Studies and Plans [Engineering]:**

Specific information has been incorporated into both the Guide to Preparing Studies and Plans for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.

Added to the general information for servicing and grading plans is a note that an **O.L.S**. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

Phase One Environmental Site Assessment:

- A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
- The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
- Official Plan Section 4.8.4:

https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-plan/section-4-review-development-applications#4-8-protection-health-and-safety

RSC (Record of the site Conditions)

- An RSC is required when changing the land use (zoning) of a property to a more sensitive land use.

Submitting a record of site condition | Ontario.ca

Geotechnical Investigation:

- A Geotechnical Study/Investigation shall be prepared in support of this development proposal.
- Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long term damages associated with lowering the groundwater in this area.
- Geotechnical Study shall be consistent with the **Geotechnical Investigation and Reporting Guidelines for Development Applications**.

https://documents.ottawa.ca/sites/documents/files/geotech_report_en.pdf

Noise Study:

- A **Transportation Noise Assessment** is required as the subject development is located within 100m proximity of an Arterial Road
- A **Stationary Noise Assessment** is required in order to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines.

https://documents.ottawa.ca/sites/default/files/documents/enviro_noise_guide_en.pdf

Wind analysis:

When greater than 9 storeys in height Wind Study for all buildings/dwellings.

- A wind analysis must be prepared, signed and stamped by an engineer who specializes in pedestrian level wind evaluation. Where a wind analysis is prepared by a company which do not have extensive experience in pedestrian level wind evaluation, an independent peer review may be required at the expense of the proponent.

Terms of Reference: Wind Analysis (ottawa.ca)

Shadow Study

When greater than 9 storeys in height, a Shadow Study required for all buildings/dwellings.

Exterior Site Lighting:

- Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must meet the criteria for Full Cut-off Classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES) and must result in minimal light spillage onto adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). In order to satisfy these criteria, the please provide the City with a **Certification (Statement) Letter** from an acceptable professional engineer stating that the design is compliant.

Fourth (4th) Review Charge:

Please be advised that additional charges for each review, after the 3rd review, will be applicable to each file. There will be no exceptions.

Construction approach – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead on this request.

Please note that these comments are considered preliminary based on the information available to date and therefore maybe amended as additional details become available and presented to the City. It is the responsibility of the applicant to verify the above information. The applicant may contact me for follow-up questions related to engineering/infrastructure prior to submission of an application if necessary.

Transportation – Wally Dubyk

****Please note that these comments are the same as those that have been offered during the rezoning process****

Transportation Engineering

Section 8.1 Design for Sustainable Modes

- Indicate how the proposed access will accommodate/interact with the adjacent bus stop on Chamberlain.

Section 8.2 Circulation and Access

- Address how short-term loading vehicles/municipal services are anticipated to be accommodated. Include any related truck turning templates.
- While the implementation of the Chamberlain Avenue, Catherine Street, and Isabella Street project may not be completed by 2029, ensure that the ROW previously requested by Vanessa Black on August 25, 2020, via email, is provided for this project. Illustrate the new ROW on the site plan.

Section 9.1 Parking Supply

- While some of the parking supply is permitted to be shared between the residential and commercial land uses, the commercial parking spaces have not been discussed in the report. Exemptions for ground-floor retail in mixed-use developments is only permitted if it is less than 200 square metres.
- Indicate where bicycle parking is located and how will it be accessed by cyclists; the TDM-supportive Development Design and Infrastructure Checklist indicates that bicycle parking will be in a highly visible and lighted area.

Section 11.1 Location and Design of Access

- Include all access parameters (width, grade, corner radii, throat length) and whether they meet requirements. Indicate the location of the pedestrian signal on the site plan.
- Given that 25% of the site's volumes are attributed to/from the north, clearly indicate how the western RIRO access will restrict the through movement to the Hwy 417 on ramp.

Section 11.3.4 Recommended Design Elements

- Describe/illustrate the relocated bus stop location.

Section 12.3 TDM Program

- The TDM-supportive Development Design and Infrastructure Checklist should be referenced and discussed in section 8.1.

Section 15 Summary of Improvements Indicated and Modifications Options

- Revise the boundary street design portion. The Chamberlain Avenue, Catherine Street and Isabella Street Functional Design Study identifies separated cycling facilities along

the development's frontage, improving BLOS. The expectation is that the site frontage will align with the proposed functional design.

Traffic Signal Operations

2.2 Existing Conditions

- The speed limit on Bank Street changes within the study area.
- Fix descriptions of existing intersections: Bank and Catherine and Lyon and Catherine.

2.2.8 Collision Analysis

***Lyon and Catherine**:*

- Please clarify the following statement: “The majority of the angle collisions are shown by the data to be due to southbound drivers disobeying traffic control and colliding with westbound drivers who were obeying traffic law. Restricting westbound left turns on red at this location, may reduce collisions”. If westbound drivers are obeying traffic laws, how would restricting their movement help?
- As well, this statement must be supported by OTM Book 12 guidelines, “adjusting the all-red timing on the southbound movement may reduce collisions at this location.” Please elaborate under OTM Book 12 guidelines for determining the all-red time.

***Bank and Chamberlain/Isabella**:*

- “It is recommended that the City install an “advanced” arrow light for the southbound direction that can turn on during the lagging left-turn phase to alleviate driver confusion and frustration, likely improving collisions and queuing at this intersection.”
- A left turn phase exists here. Please clarify this statement.

***Kent**:*

- Section mentions Argyle Street. Please clarify.

<u>15 Summary of Improvements</u>

- This section mentions the accesses to be east of Kent Street, but this does not appear to be accurate.

Synchro Notes

- Advance walks must be separated from the corresponding phases. A 5s interval must be shown in which vehicles are not permitted to travel. This can be done by coding a ‘hold’ phase for the duration.
- Bank and Flora and Bank and Strathcona are now Ped recalled in all directions during peak periods.

Bank and Strathcona:

- Justify the use of the normal AM & PM Peak plans and not the school plans.
- The location of both private accesses appears to be located within the signalized intersection. This is unacceptable and must be relocated elsewhere. The right-in-right-out access may be able to be relocated west of the stop bar; the second right-out access

must be eliminated. Thought must be given to determine and mitigate safety concerns with drivers accessing Kent St northbound.

Traffic Signal Design

- From the attached 30-48 Chamberlain Avenue Site Plan - D02-02-20-0119.pdf, it is rather unclear where the accesses are located in proximity to the traffic signal.
- Locating the access east of the stop line of the traffic signal is unacceptable and the access will have to be relocated elsewhere.

Transit Services

- Section 2.2.5 Existing Transit: highlight that existing bus stop #6850 is located on the site frontage at 48 Chamberlain.
- Site Plan: show existing bus stop #6850 on the site plan, located on the site frontage at 48 Chamberlain. It appears to conflict with the proposed two-way RIRO access and may need to be adjusted.
- Recent residential tower developments have included a one-year transit fare requirement per residential unit, provided on first move-in.

367965, 5030038

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TOPOGRAPHIC PLAN OF SURVEY OF

LOTS 8, 9, 10, 11, 12 & 13 (SOUTH CHAMBERLAND AVENUE) REGISTERED PLAN 71572 CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2020

Scale 1: 150

0 1.5 3 6 9 12 15 metres

Metric Note

Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Bearing Note

Bearings hereon are grid bearings derived from the Smart-Net Real Time Network and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) Nad-83 (Original).

For bearing comparisons, a rotation of 0°36'43" counter-clockwise was applied to bearings on P1, P2 & P6.
For bearing comparisons, a rotation of 0°01'05" clockwise was applied to bearings on P4.

Elevation Notes

1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978. (FSD File No. 17-17)
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. Underground utility data derived from City of Ottawa utility sheet reference: F-12-16, F-12-17, 6943p&p02 & F11a.
4. Sanitary and storm sewer grades and inverts were derived\compiled from: Field measurement \ City of Ottawa
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Notes & Legend

Symbol		
—□—	Denotes	Survey Monument Planted
—■—	"	Survey Monument Found
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
IBØ	"	Round Iron Bar
(Wit)	"	Witness
Meas	"	Measured
(P1)	"	Registered Plan 71572
(P2)	"	Plan 4R-20281
(P3)	"	Plan 4R-21518
(P4)	"	Plan by (1287) dated July 24, 2003 (Job no. 240-03)
(P5)	"	Plan by (AOG) dated July 3, 2019 (Job no. 17750-19)
(P6)	"	Plan by (AOG) dated October 4, 1988
○ MH–ST	"	Maintenance Hole (Storm)
○ MH–S	"	Maintenance Hole (Sanitary)
○ MH–T	"	Maintenance Hole (Traffic)
○ MH–H	"	Maintenance Hole (Hydro)
VC	"	Valve Chamber (Watermain)

Notes & Legend

Inv.	Denotes	Invert
T/G	"	Top of Grate
U/Eave	"	Underside of Eave
TpFdn	"	Top of Foundation
C/L	"	Centreline
+65.00	"	Location of Elevations
+65.00	"	Top of Concrete Curb Elevation
City	"	Plan 6943p&p02
○ UP	"	Utility Pole
○ AN	"	Anchor
○ LS	"	Light Standard
□ CB	"	Catch Basin
∘ SP	"	Water Stand Post
▭ GM	"	Gas Meter
∘ B	"	Bollard
△ S	"	Sign
AC	"	Air Conditioner
BF	"	Board Fence
MF	"	Metal Fence
CRW	"	Concrete Retaining Wall
TRW	"	Timber Retaining Wall
— ST —	"	Underground Storm Sewer
— S —	"	Underground Sanitary Sewer
— W —	"	Underground Water
— P —	"	Underground Power
— G —	"	Underground Gas
— B —	"	Underground Bell
— OHW —	"	Overhead Wires
(tree symbol)	"	Deciduous Tree

REVISION NOTE:

This plan was revised to show existing tree location.

July 20/20
Date

Daniel Robinson
Ontario Land Surveyor

ASSOCIATION OF ONTARIO LAND SURVEYORS PLAN SUBMISSION FORM

2123499

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR
In accordance with Regulation 1026, Section 29 (3).

Surveyor's Certificate

I certify that :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Regulations made under them.
2. The survey was completed on the 10th day of June, 2020.

June 18/20
Date

Daniel Robinson
Ontario Land Surveyor

FARLEY, SMITH & DENIS SURVEYING LTD.

ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS

190 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J5
TEL. (613) 727-8226 FAX. (613) 727-1826

FILE No. : 172-20

J:\2020\172-20_ 30 - 48 Chamberlain Ave_topo\Final\172-20 30-48 Chamberland Ave_LT8-13 RP71572_T_F2.dwg

APPENDIX B

- 2020 Watermain Boundary Conditions from City of Ottawa
- Watermain Demand Calculation
- Fire Underwriters Survey - Fire Flow Calculation
- FUS Design Declaration

RE: 30 - 48 Chamberlain Boundary Condition Request

Wu, John <John.Wu@ottawa.ca>

Tue 10/27/2020 11:24 AM

To: James Battison <James.Battison@ibigroup.com>

1 attachments (84 KB)

30-48 Chamberlain Avenue October 2020.pdf;

Here is the result:

A multi-hydrant analysis was performed for 30-48 Chamberlain Avenue (see attached figure for location). The total available flow is (136 L/s) from the hydrants listed below which exceeds the required fire flow (133 L/s).

Hydrant	Available Flow
368029H172	73 L/s
368029H002	63 L/s
Total	**136 L/s**

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.

John

From: James Battison <James.Battison@ibigroup.com>
Sent: October 23, 2020 6:26 AM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Terry Brule <tbrule@ibigroup.com>
Subject: Re: 30 - 48 Chamberlain Boundary Condition Request

Good Morning John,

In the past we have had the City's water department run a multi-hydrant analysis for some sites, especially when there are fire flow concerns. We would like to do this one the 30-48 Chamberlain site as well.

Multi-hydrant analysis with all hydrants located within 150m of property, we would like two scenarios run, we are looking for maximum fire flow available for;

- run based on hydrants in front on municipal addresses #14 Chamberlain and #62 Chamberlain
- run based on the two hydrants above and a new hydrant connected to the 152mm watermain in Chamberlain and located directly in front of the subject site at 30-48 Chaberlain.

If you have any questions please let us know.

Thanks for your help thus far.

James Battison C.E.T.

mob +1 613 314 7920

A Message from IBI Group's CEO on COVID-19: https://www.ibigroup.com/covid19-response

IBI GROUP

400-333 Preston Street

Ottawa ON K1S 5N4 Canada

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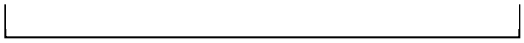

From: Wu, John <John.Wu@ottawa.ca>
Sent: Tuesday, September 8, 2020 10:22 AM

To: James Battison <James.Battison@ibigroup.com>
Subject: RE: 30 - 48 Chamberlain Boundary Condition Request

Here it is :

******The following information may be passed on to the consultant, but do NOT forward this e-mail directly.******

The following are boundary conditions, HGL, for hydraulic analysis at 30-48 Chamberlain Avenue (zone 1W) assumed to be connected to the 152mm on Chamberlain (see attached PDF for location).

Minimum HGL = 106.2m

Maximum HGL = 114.7m

MaxDay + Available Fire Flow = 70L/s

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.

John

From: James Battison <James.Battison@ibigroup.com>
Sent: September 3, 2020 8:39 AM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Terry Brule <tbrule@IBIGroup.com>
Subject: Re: 30 - 48 Chamberlain Boundary Condition Request

Hi John,

Any update on the boundary condition request for this file?

Thanks.

James Battison C.E.T.

mob +1 613 314 7920

A Message from IBI Group's CEO on COVID-19: https://www.ibigroup.com/covid19-response

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From: James Battison
Sent: Wednesday, August 19, 2020 1:31 PM
To: john.wu@ottawa.ca <john.wu@ottawa.ca>

Cc: Terry Brule <tbrule@IBIGroup.com>
Subject: 30 - 48 Chamberlain Boundary Condition Request

Hi John,

Hope all is well with you.

IBI Group is working on a site currently identified as 30-48 Chamberlain Ave.

At this time we are inquiring as to water boundary conditions and sewer capacity adjacent to the site.

Water Boundary Conditions

Double connection to the 152mm watermain in Chamberlain Ave.

18-storey Mixed Suites Residential Building, 150 Units in total

Amount of fire flow required: **133** l/s (Calculation as per the FUS Method).

Average daily demand: **0.89** l/s

Maximum daily demand: **2.21** l/s

Maximum hourly daily demand: **4.85** l/s

The water demand and FUS Fireflow calculation are also attached.

Sewer Capacity Request

We are requesting the City confirm the capacity of the 300mm sanitary sewer in Chamberlain Ave adjacent to the site (see attached location figure for storm and sanitary connection). We are proposing to connect both the site sanitary and storm services (as separate pipes) to this sewer, as there is no storm sewer here.

Sanitary Flow

3.12 L/s based on current City of Ottawa guidelines. Design sheet attached.

Storm Flow

Maximum release rate of 23.85 L/s based on the following;

- C =0.5
- TC = 10min
- 2 year intensity
- Site area - .22Ha

Please let us know if you have any questions, otherwise we look forward to hearing back.

James Battison C.E.T.

mob +1 613 314 7920

A Message from IBI Group's CEO on COVID-19: https://www.ibigroup.com/covid19-response

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

WATERMAIN DEMAND CALCULATION SHEET
30 - 48 Chamberlain Ave | Hobin Architecture Inc.
125564-6.0 | Rev #1 | 2023-04-27
Prepared By: AB | Checked By: TRB

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	TOWNHOUSE	APARTMENT	POPULATION	INDUST. (ha)	COMM. (ha)	INSTIT. (ha)	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	
Site			160	288.00		0.031		0.93	0.01	0.94	2.33	0.01	2.35	5.13	0.02	5.16	6,000
TOTAL			**160**	**288.00**		**0.03**				**0.94**			**2.35**			**5.16**	

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	280 l/cap/day
Commercial Shopping Center	2,500 L/(1000m2)/day

PEAKING FACTORS

Maximum Daily		
	Residential	2.5 x avg. day
	Commercial	1.5 x avg. day
Maximum Hourly		
	Residential	2.2 x avg. day
	Commercial	1.8 x avg. 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)

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FIREFLOW CALCULATIONS

30 - 48 Chamberlain Ave | Hobin Architecture Inc.
125564-6.0 | Rev #1 | 2023-05-01
Prepared By: AB | Checked By: TRB

Fire Flow Requirement from Fire Underwriters Survey

30 - 48 Chamberlain Ave - Building 1

Building Total Effective Floor Area - Protected Openings

Floors	Floor Area	Area %	Effective Area
Floor 1	947.6 m^2	25%	236.9 m^2
Floor 2	1364.6 m^2	100%	1364.6 m^2
Floor 3	1364.6 m^2	25%	341.2 m^2
Total Effective Area			1942.7 m^2

$F = 220C\sqrt{A}$

C	0.8		C =	1.5 wood frame
A	1,943	m^2		1.0 ordinary
				0.8 non-combustile
F	7,757	l/min		0.6 fire-resistive
use	8,000	l/min		

Occupancy Adjustment

	-25%	non-combustile
	-15%	limited combustile
Use -15%	0%	combustile
	+15%	free burning
Adjustment -1200 l/min	+25%	rapid burning
Fire flow 6,800 l/min		

Sprinkler Adjustment

Use 30%

Adjustment -2040 l/min

Exposure Adjustment

Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length (m)	Stories	L*H Factor	
North	-	-	-	-	0%
East	30+	-	-	-	0%
South	15.0	55.0	3	165	8%
West	12.5	8.0	2	16	4%
Total					**12%**

Adjustment	816	l/min
Total adjustments	(1,224)	l/min
Fire flow	5,576	l/min
Use	6,000	**l/min**
	100.0	**l/s**

Exposure charges from Water Supply For Public Protection in Canada 2020
* Techinical Bulletin ISTB 2021-03

FUS CLASSIFICATION DECLARATION FOR MULTI-STOREY BUILDINGS

Project Name and Civic Address: 30-48 Chamberlain Ave Number of Floors: 16

Development Review PM: _____ City File No. D07-

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)** = 1362.7 + 0.25*(947.7 + 1362.7) **= 1940.3 m^2** ☐ 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

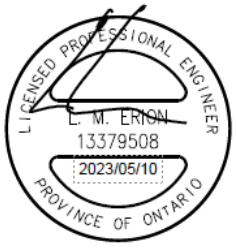
	b) a water flow alarm to indicate that the sprinkler system has been activated, which is to be transmitted to an approved, proprietary alarm-receiving facility, a remote station, a central station, or the fire department.

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:	Lance Erion, P.Eng.
Consultancy:	Arcadis IBI Group Inc.
Phone Number:	613 225 1311
Address:	500-333 Preston Street



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

PROFESSIONAL SEAL APPLIED BY:

Architect or ~~Building Engineer~~:	Marc Thivierge, B.Arch, OAA
Consultancy:	Hobin Architecture Inc.
Phone Number:	613-238-7200
Address:	63 Pamilla Street, Ottawa

Architect's or Building Engineer's Seal

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

APPENDIX C

- Sanitary Sewer Design Sheet

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

SANITARY SEWER DESIGN SHEET

30 - 48 Chamberlain Ave
Hobin Architecture Inc.
City of Ottawa

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units	UNIT TYPES			AREA w/o Units	POPULATION		RES PEAK FACTOR	PEAK FLOW	AREA (Ha)						ICI PEAK FACTOR	PEAK FLOW	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH	(Ha)	SF	TH/SD	APT	(Ha)	IND	CUM		(L/s)	INSTITUTIONAL IND	INSTITUTIONAL CUM	COMMERCIAL IND	COMMERCIAL CUM	INDUSTRIAL IND	INDUSTRIAL CUM		(L/s)	IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(full) (m/s)	L/s	(%)
Street No. 1		Building	MH1A	0.22			160		288.0	288.0	3.47	3.24	0.00	0.0	0.03	0.03	0.00	0.0	1.00	0.01	0.25	0.3	0.00	0.00	0.0	3.25	34.22	1.21	200	1.00	1.055	30.97	90.5%
Street No. 2		MH1A	Chamberlain						0.0	288.0	3.47	3.24	0.00	0.0	0.00	0.03	0.00	0.0	1.00	0.01	0.00	0.3	0.00	0.00	0.0	3.25	68.43	9.71	200	4.00	2.110	65.19	95.25%
																												0.00	300	0.00				

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u				
TH/SD	2.7	p/p/u	INST	28,000	L/Ha/day	
APT	1.8	p/p/u	COM	28,000	L/Ha/day	
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart
				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: TRB

Dwg. Reference: 125564-400

No.	Revision	Date
1	Servicing Brief - Submission No. 1	2022-04-28

File Reference: 125564-6.04.04

Date: 2023-04-28

Sheet No: 1 of 1

APPENDIX D

- Storm Sewer Design Sheet
- Stormwater Management Calculations
- Stormwater C-Value Calculation
- Stormwater C-Value Area Plan
- Flow Control Roof Drainage Declaration

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STORM SEWER DESIGN SHEET

30 - 48 Chamberlain Ave
Hobin Architecture Inc.
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= 0.68	C= 0.70	C= 0.76	C= 0.80	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (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) (%)
Street No. 1		Building	MH1							0.22				0.42	0.42	10.00	0.02	10.02	76.81	104.19	122.14	178.56	31.94	43.33	50.80	74.26	0.00	0.00	31.94	62.04	1.32	250			1.00	1.224	30.10	48.51%
Street No. 2		MH1	Chamberlain											0.00	0.42	10.02	0.12	10.14	76.74	104.10	122.03	178.39	31.91	43.29	50.75	74.19	0.00	0.00	31.91	66.82	9.62	250			1.16	1.319	34.90	52.24%
																															300					

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: TRB
Dwg. Reference: 125564-500

No.	Revision	Date
1.	Servicing Brief - Submission No. 1	2023-04-28

File Reference: 125564-6.04.04
Date: 2023-04-28
Sheet No: 1 of 1

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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=0.40, Tc=10min)

C =	0.4	
T_c =	10	min
i_{5yr} =	76.81	mm/hr
A_{site} =	0.220	Ha
$Q_{restricted}$ =	18.79	L/s

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

C =	0.069	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.008	Ha
$Q_{uncontrolled}$ =	0.27	L/s

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

$Q_{max\ allowable}$ =	18.52	L/s

SWM Statistics of Modified Site Areas

Controlled	Area	ICD Flow
Cistern	0.220	18.516
Sum	**0.22**	**18.52**

Uncontrolled	Area	Flow
Drive Aisle Entrance	0.008	0.00
Sum	**0.01**	**0.27**
Total Sum	**0.228**	**18.790**
Allowable		**18.79**
		FALSE

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MODIFIED RATIONAL METHOD (100-Year, 5-Year & 2-Year Ponding)

Drainage Area	*Cistern*			
Area (Ha)	0.220	Restricted Flow ICD $_{Actual}$ (L/s)=	18.52	
C =	0.75	Restricted Flow $Q_{r\ for\ swm\ calc}$ (L/s)=	9.26	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	31.67	9.26	22.42	60.52			
50	63.95	29.34	9.26	20.08	60.23			
55	59.62	27.35	9.26	18.09	**59.70**	32.82	23.56	**77.75**
60	55.89	25.64	9.26	16.38	58.97			
65	52.65	24.15	9.26	14.89	58.08			

	Storage (m^3)					100+20		
	Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
	0.00	59.70	0.00	90	0.00	0.00	77.75	0.00
						convert to flow with peak Tc (L/s)		0.00

Drainage Area	*Cistern*		
Area (Ha)	0.220		
C =	0.75	Restricted Flow Q_r (L/s)=	9.26

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)
23	47.66	21.86	9.26	12.60	17.39
24	46.37	21.27	9.26	12.01	17.30
25	45.17	20.72	9.26	11.46	**17.19**
26	44.03	20.20	9.26	10.94	17.06
27	42.95	19.70	9.26	10.44	16.92

Storage (m^3)				
Overflow	Required	Surface	Sub-surface	Balance
0.00	17.19	0.00	90	0.00

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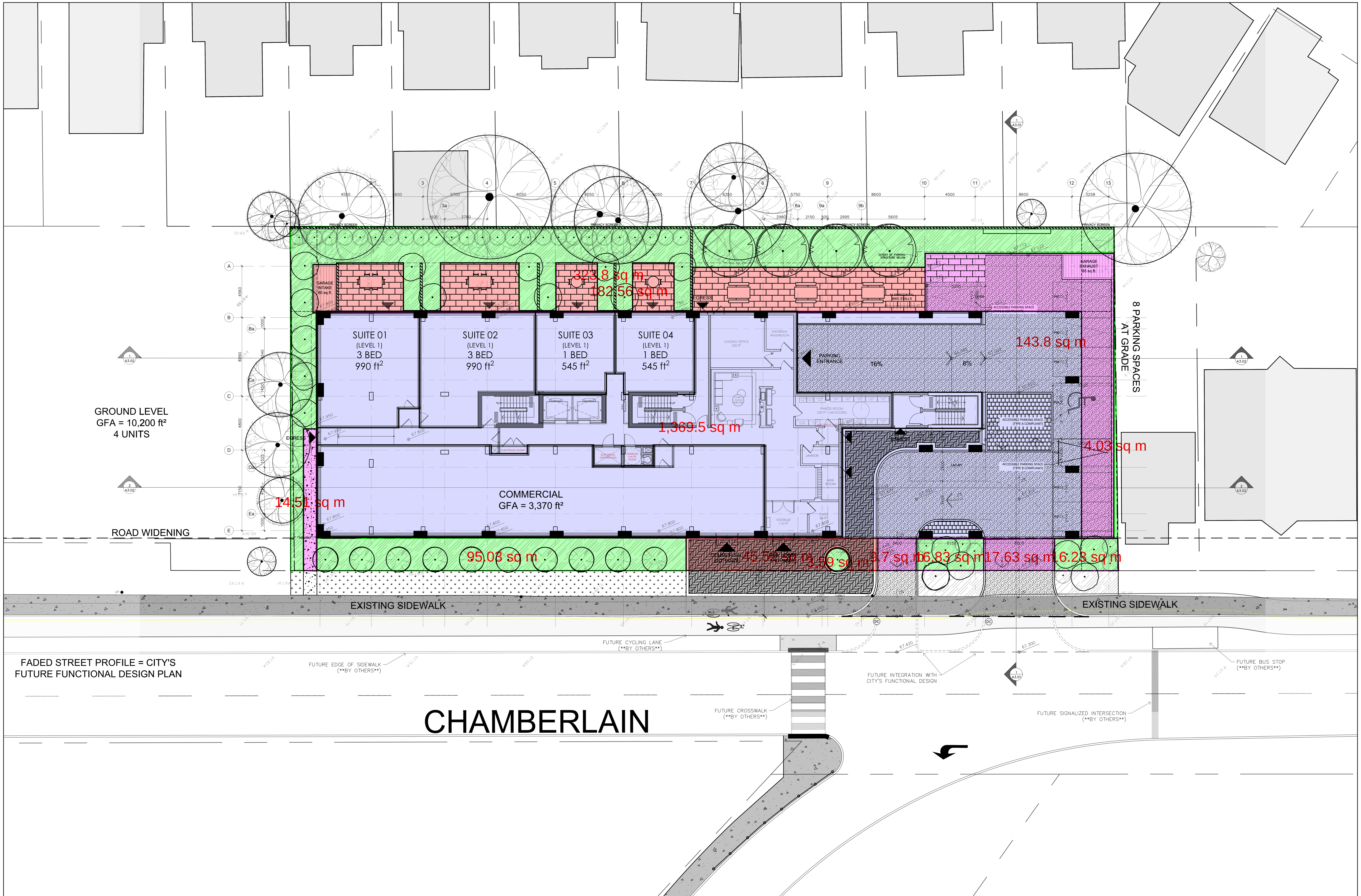
C-VALUE CALCULATION

30 - 48 Chamberlain Ave | Hobin Architecture Inc.
125564-6.0 | Rev #1 | 2023-04-27
Prepared By: AB | Checked By: TRB

STORMWATER MANAGEMENT

Post Development Weighted Average C Value				
Drainage Area ID	**Cont. vs Uncont.**	**Area (ha)**	**C Value**	**Weighted C**
ROOF	Controlled	0.1370	0.90	0.55
PARKING	Controlled	0.0144	0.90	0.06
DRIVE AISLE 1	Controlled	0.0010	0.90	0.00
DRIVE AISLE 2	Controlled	0.0018	0.90	0.01
INTERLOCK1	Uncontrolled	0.0046	0.80	0.02
INTERLOCK 2	Controlled	0.0182	0.80	0.06
WALKWAY	Controlled	0.0015	0.90	0.01
LANDSCAPE 1	Controlled	0.0099	0.20	0.01
LANDSCAPE 2	Uncontrolled	0.0017	0.20	0.00
LANDSCAPE 3	Uncontrolled	0.0016	0.20	0.00
LANDSCAPE 4	Controlled	0.0324	0.20	0.03
LANDSCAPE 5	Controlled	0.0004	0.20	0.00
RESULTS		**0.22**		**0.75**

Uncontrolled Weighted Average C Value					
Drainage Area ID	**Cont. vs Uncont.**	**Area (ha)**	**C Value**	**C Value x 1.25**	**Weighted C**
INTERLOCK1	Uncontrolled	0.0046	0.80	1	0.58
LANDSCAPE 2	Uncontrolled	0.0017	0.20	0.25	0.05
LANDSCAPE 3	Uncontrolled	0.0016	0.20	0.25	0.05
RESULTS		**0.008**			**0.69**



1 GROUND FLOOR PLAN
A2.01 1 : 150

PROJECT TEAM

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no.	date	revision
1	230428	ISSUED FOR SPC

It is the responsibility of the appropriate contractor to check and verify all dimensions on site and report all errors and/or omissions to the architect.

All contractors must comply with all pertinent codes and by-laws.

Do not scale drawings.

This drawing may not be used for construction until signed.

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PROJECT/LOCATION:
30-48 CHAMBERLAIN AVE.

DRAWING TITLE:
GROUND FLOOR PLAN

DRAWN BY:	DATE:	SCALE:
DA	2023-04-28	1:150

PROJECT: 1928

DRAWING NO.: A2-01

REVISION NO.:

FLOW CONTROL ROOF DRAINAGE DECLARATION

THIS FORM TO BE COMPLETED BY THE MECHANICAL AND STRUCTURAL ENGINEERS RESPONSIBLE FOR DESIGN

Permit Application No.

Project Name: 30-48 Chamberlain

Building Location: 30-48 Chamberlain, Ottawa, ON

Municipality: Ottawa

The roof drainage system has been designed in accordance with the following criteria: (please check one of the following).

M1. ☑ Conventionally drained roof (no flow control roof drains used).

M2. ☐ Flow control roof drains meeting the following conditions have been incorporated in this design:

(a) the maximum drain down time does not exceed 24h,
(b) one or more scuppers are installed so that the maximum depth of water on the roof cannot exceed 150mm,
(c) drains are located not more than 15m from the edge of roof and not more than 30m from adjacent drains, and
(d) there is at least one drain for each 900 sq.m.

M3. ☐ A flow control drainage system that does not meet the minimum drainage criteria described in M2 has been incorporated in this design.

PROFESSIONAL SEAL APPLIED BY:

Practitioner's Name: Elaine Guenette

Firm: Smith + Andersen (Ottawa)

Phone #: 613-691-1853

City: Ottawa Province: Ontario

Mechanical Engineer's Seal

S1. ☐ The design parameters incorporated into the overall structural design are consistent with the information provided by the Mechanical Engineer in M2. Loads due to rain are not considered to act simultaneously with loads due to snow as per Div.B, 4.1.6.4.(3) of the Building Code.

S2. ☐ The structure has been designed incorporating the additional structural loading due to rain acting simultaneously with the snow load. The design parameters are consistent with the control flow drainage system designed by the mechanical engineer.

PROFESSIONAL SEAL APPLIED BY:

Practitioner's Name:

Firm:

Phone #:

City: Province:

Structural Engineer's Seal

APPENDIX E

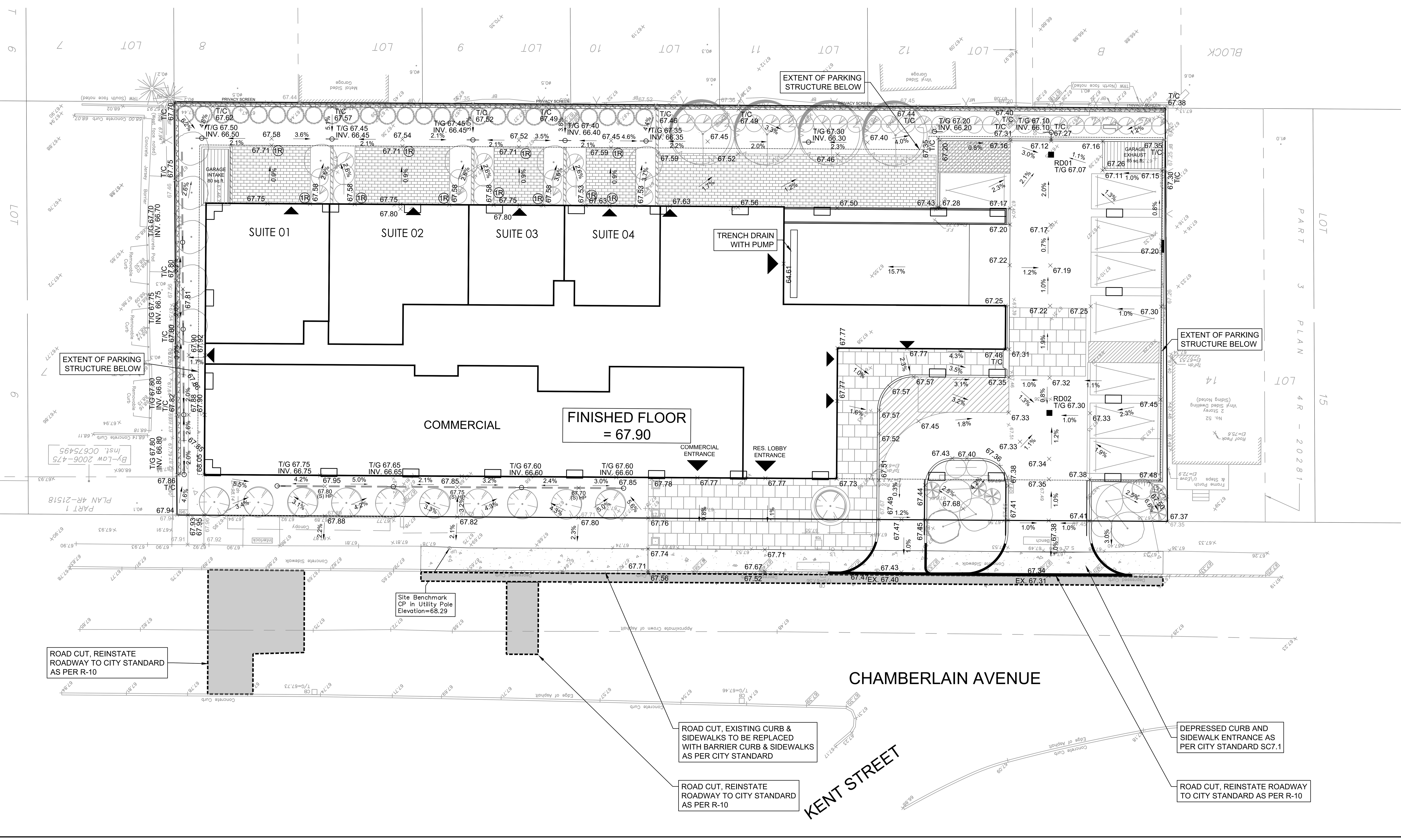
- Grading Plan 125564-C-200
- Erosion and Sediment Control Plan 125564-C-900

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 CURB 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
- WALKUP UNIT
- WALKOUT UNIT
- NON-STANDARD FOUNDATION (Frost cover not provided for standard unit)
- HIGHBACK UNIT (1.5m frost cover on footings)
- NOISE BARRIER LOCATION
- NOISE BARRIER GATE
- DOOR ENTRANCE

EXISTING LEGEND

Inv.	=	DENOTES INVERT
T/G	=	TOP OF GRATE
U/Eave	=	UNDERSIDE OF EAVE
TpFdn	=	TOP OF FOUNDATION
C/L	=	CENTRELINE
65.00	=	LOCATION OF ELEVATIONS
65.00	=	TOP OF CONCRETE CURB ELEVATION
City	=	PLAN 6943P&P02
UP	=	UTILITY POLE
AN	=	ANCHOR
LS	=	LIGHT STANDARD
CB	=	CATCH BASIN
SP	=	WATER STAND POST
GM	=	GAS METER
B	=	BOLLARD
S	=	SIGN
AC	=	AIR CONDITIONER
BF	=	BOARD FENCE
MF	=	METAL FENCE
CRW	=	CONCRETE RETAINING WALL
TRW	=	TIMBER RETAINING WALL
ST	=	UNDERGROUND STORM SEWER
S	=	UNDERGROUND SANITARY SEWER
W	=	UNDERGROUND WATER
P	=	UNDERGROUND POWER
G	=	UNDERGROUND GAS
B	=	UNDERGROUND BELL
OW	=	OVERHEAD WIRES
	=	DECIDUOUS TREE
MH-ST	=	MAINTENANCE HOLE (STORM)
MH-S	=	MAINTENANCE HOLE (SANITARY)
MH-T	=	MAINTENANCE HOLE (TRAFFIC)
MH-H	=	MAINTENANCE HOLE (HYDRO)
VC	=	VALVE CHAMBER (WATERMAIN)



CLIENT

SCARABELLI REALTIES INC.

ISSUES

No.	DESCRIPTION	DATE
01	ISSUED FOR RE-ZONING APPLICATION	20:11:13

NOT FOR CONSTRUCTION

KEY PLAN

CONSULTANTS

1:150

SEAL

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
20/11/13
PROVINCE OF ONTARIO

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tel 613 225 1311 / 613 241 3300 fax 613 225 9868
ibigroup.com

PROJECT

30-48 CHAMBERLAIN AVE.

PROJECT NO: 125564	
DRAWN BY: EH	CHECKED BY: TRB
PROJECT MGR: TRB	APPROVED BY: TRB

SHEET TITLE

GRADING PLAN

SHEET NUMBER	ISSUE
200	1

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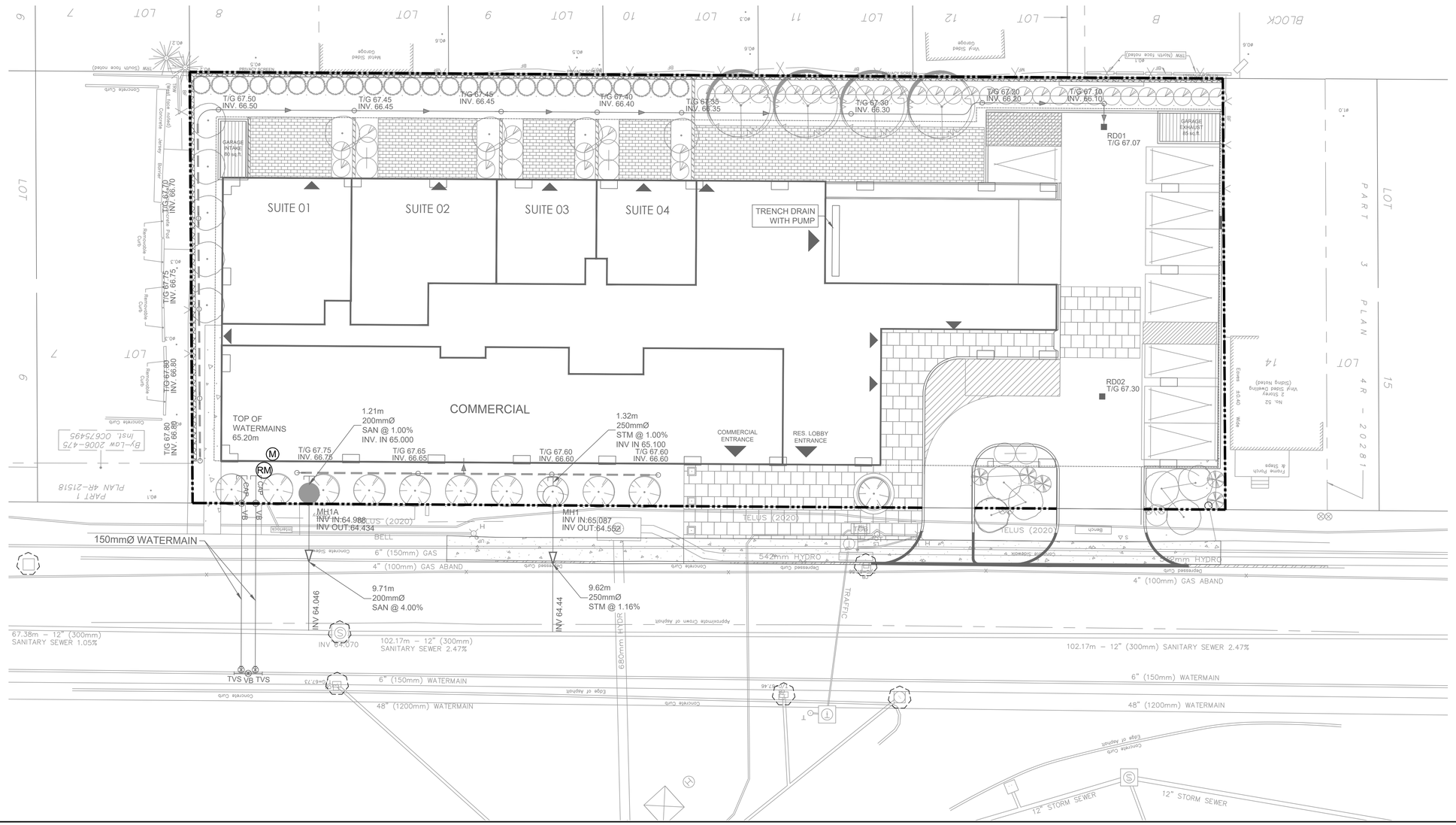
NOTES :

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,

1. 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.
2. SILT SACK TO BE PLACED AND MAINTAINED UNDER COVER OF ALL CATCHBASINS. 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.
3. CONTRACTOR TO PROTECT EXISTING CATCHBASINS WITH FILTER CLOTH UNDER THE COVERS TO TRAP SEDIMENTATION. REFER TO IDENTIFIED STRUCTURES.
4. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
5. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT

LEGEND

- HEAVY DUTY SILT FENCE
- SNOW FENCE
- STRAW BALE CHECK DAM
- STRAW BALE CHECK DAM WITH FILTER CLOTH
- ROCK CHECK DAM
- SEDIMENT SACK PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH



CLIENT

SCARABELLI REALTIES INC.

ISSUES

No.	DESCRIPTION	DATE
01	ISSUED FOR RE-ZONING APPLICATION	20.11.13

NOT FOR CONSTRUCTION

KEY PLAN

CONSULTANTS

1:150 0 1.5 4.5 7.5m

SEAL

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PROJECT

30-48 CHAMBERLAIN AVE.

PROJECT NO: 125564	
DRAWN BY: EH	CHECKED BY: TRB
PROJECT MGR: TRB	APPROVED BY: TRB

SHEET TITLE

SEDIMENT - EROSION PLAN

SHEET NUMBER	ISSUE
900	1

SCALE CHECK 1 in 10mm

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